INSULATION

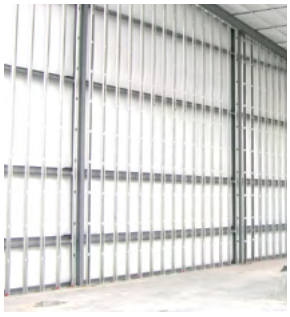
STEEL BUILDING INSULATION SYSTEMS

STEEL BUILDING INSULATION
A DIVISION OF BUILDING OUTLET CORP

MONEY SPENT UPFRONT ON INSULATION COSTS WILL BE REWARDED THROUGH REDUCED ENERGY BILLS, SMALLER MECHANICAL SYSTEMS, AND ENHANCED COMFORT LEVELS FOR THE OCCUPANTS.

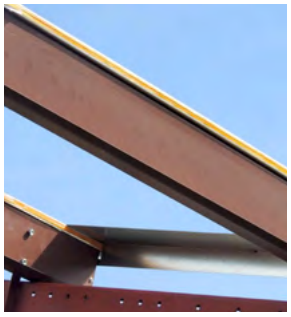
Energy is invisible. You cannot see it entering or leaving a building. Insulation is required to control the rate of energy loss and consumption; it controls condensation, controls noise, increases lighting efficiency, and benefits the owner in mechanical reduction by as much as 50%. Money spent upfront on steel building insulation costs will be rewarded through reduced energy bills, smaller mechanical systems, and enhanced comfort levels for the occupants.

SINGLE - LAYER SYSTEMS

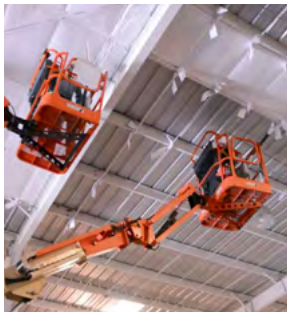


DOUBLE - LAYER SYSTEMS

ENERGY SAVER SYSTEMS



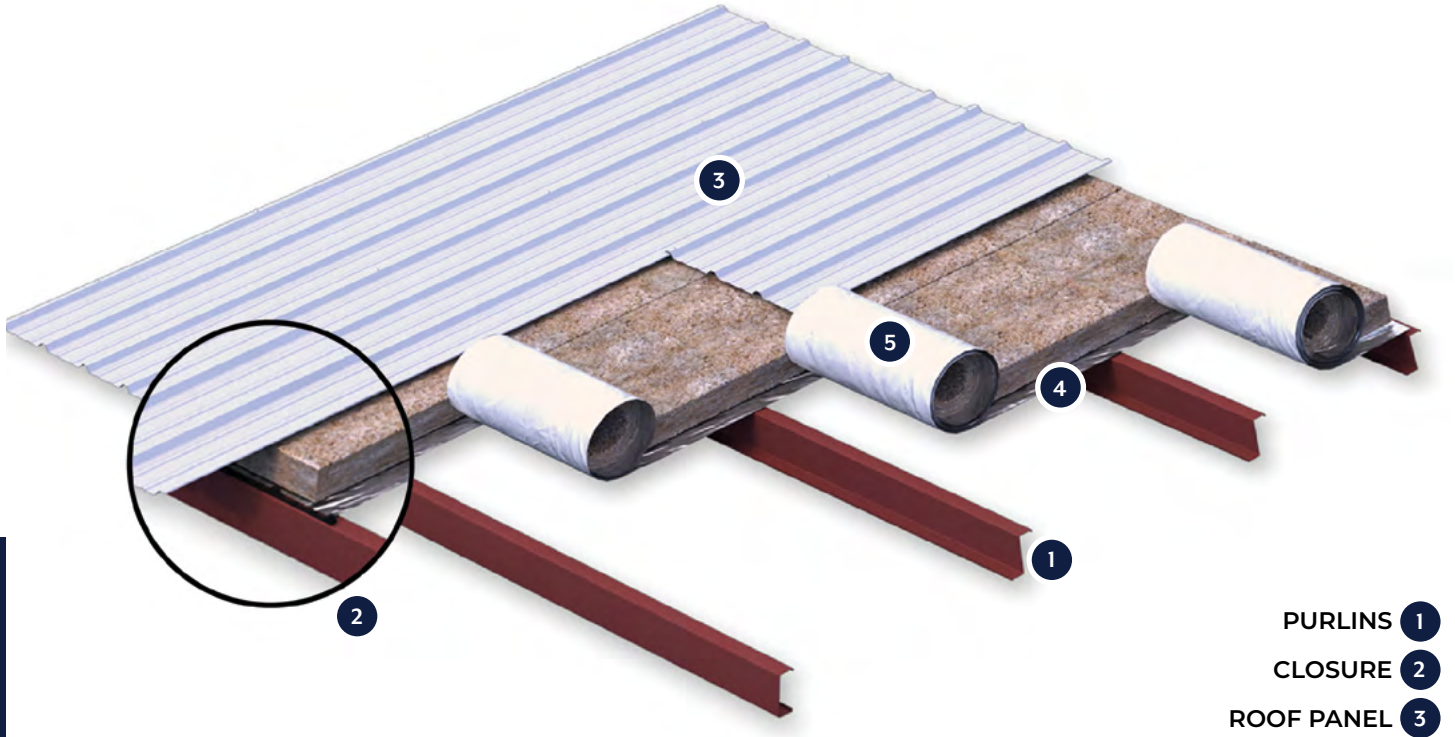
THERMAL BLOCK SYSTEM



RETRO FIT SYSTEMS

WE SUPPLY ALL TYPES OF INSULATION SYSTEMS, FROM BASIC QUALITY SINGLE-LAYER INSULATION SYSTEMS TO HIGH-PERFORMANCE THERMAL INSULATION SYSTEMS. THE STEEL BUILDING INSULATION PRODUCTS WE OFFER ARE MADE IN THE USA.

SINGLE LAYER INSULATION SYSTEM



PURLINS 1
CLOSURE 2
ROOF PANEL 3
6" OVERLAPPING TAB 4
FACED INSULATION OVER TOP OF PURLINS 5

SINGLE LAYER SYSTEM

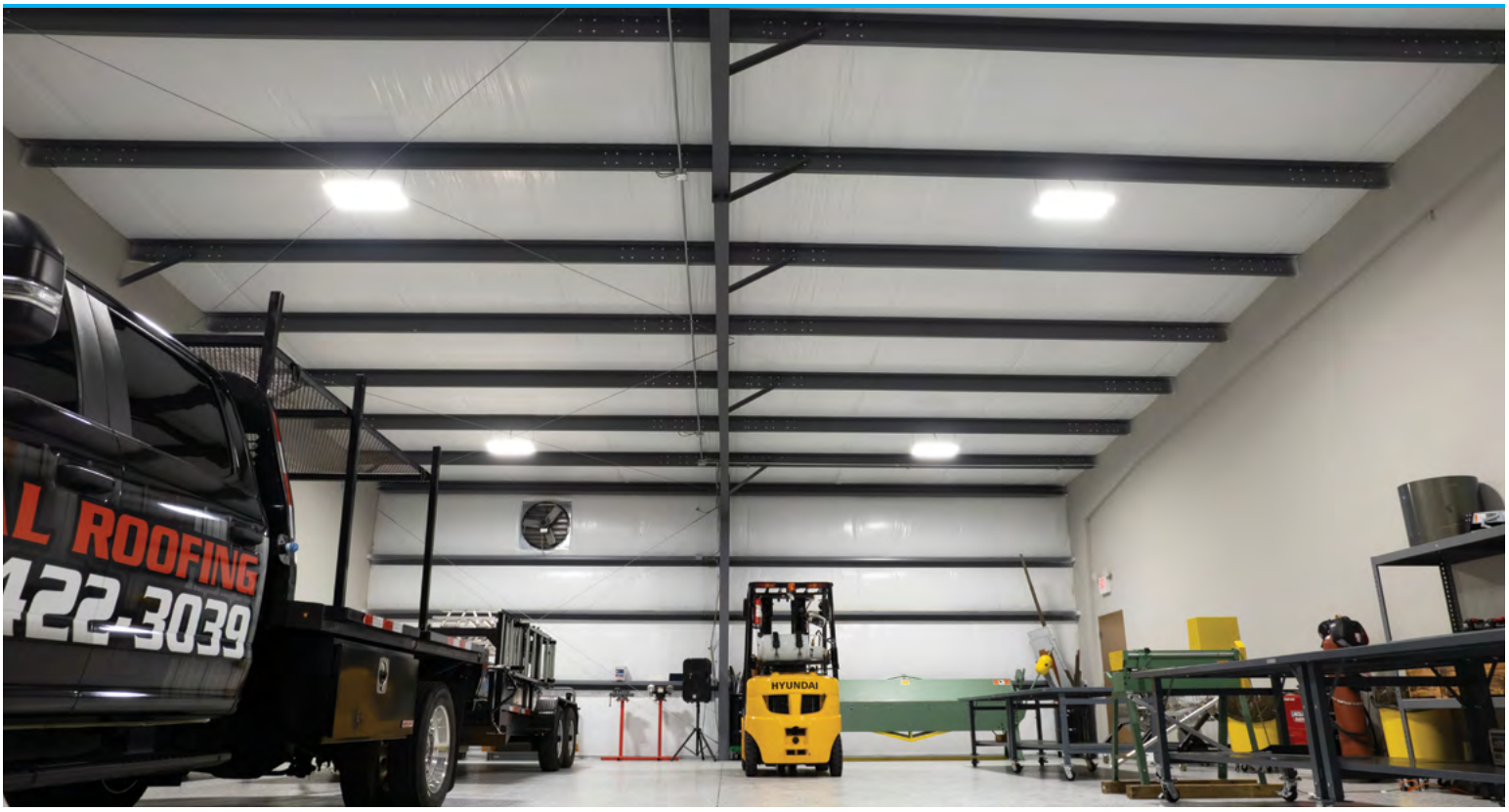
2

Metal building construction commonly involves insulating the roof and walls with a single layer of insulation placed between the roof purlins or wall girts and exterior metal panels. Pre-cut fiberglass insulation blankets are used to minimize field splicing and act as a vapor retarder against moisture. These blankets, laminated with polypropylene fabric, are installed over the purlins or girts, compressing the insulation and creating a barrier between the metal sheeting and interior framing to prevent heat and cold transfer, and condensation. Single-layer systems are typically used in garages, carports, hangars, and mini -storage buildings, while buildings with regular occupancy benefit from insulation with a higher R-Value for enhanced thermal performance.

- A common application in metal building construction is single-layer insulation for roofs and walls.
- Single-layer insulation is sandwiched between roof purlins or wall girts and exterior metal panels.
- Fiberglass insulation blankets are pre-cut to fit the building's design, minimizing field splicing.
- A polypropylene fabric is laminated to the fiberglass roll acting as a vapor retarder.
- Single-layer systems are typically used for garages, carports, hangars, and mini-storage buildings.

Insulation Thickness	R-Value
2.5"	R-8
3"	R-10
3.5"	R-11
4"	R-13
6"	R-19

PLEASE NOTE THAT FOR 6" R-19 INSULATION, LONGER SCREWS ARE REQUIRED TO PREVENT BOWING OF THE PANELS.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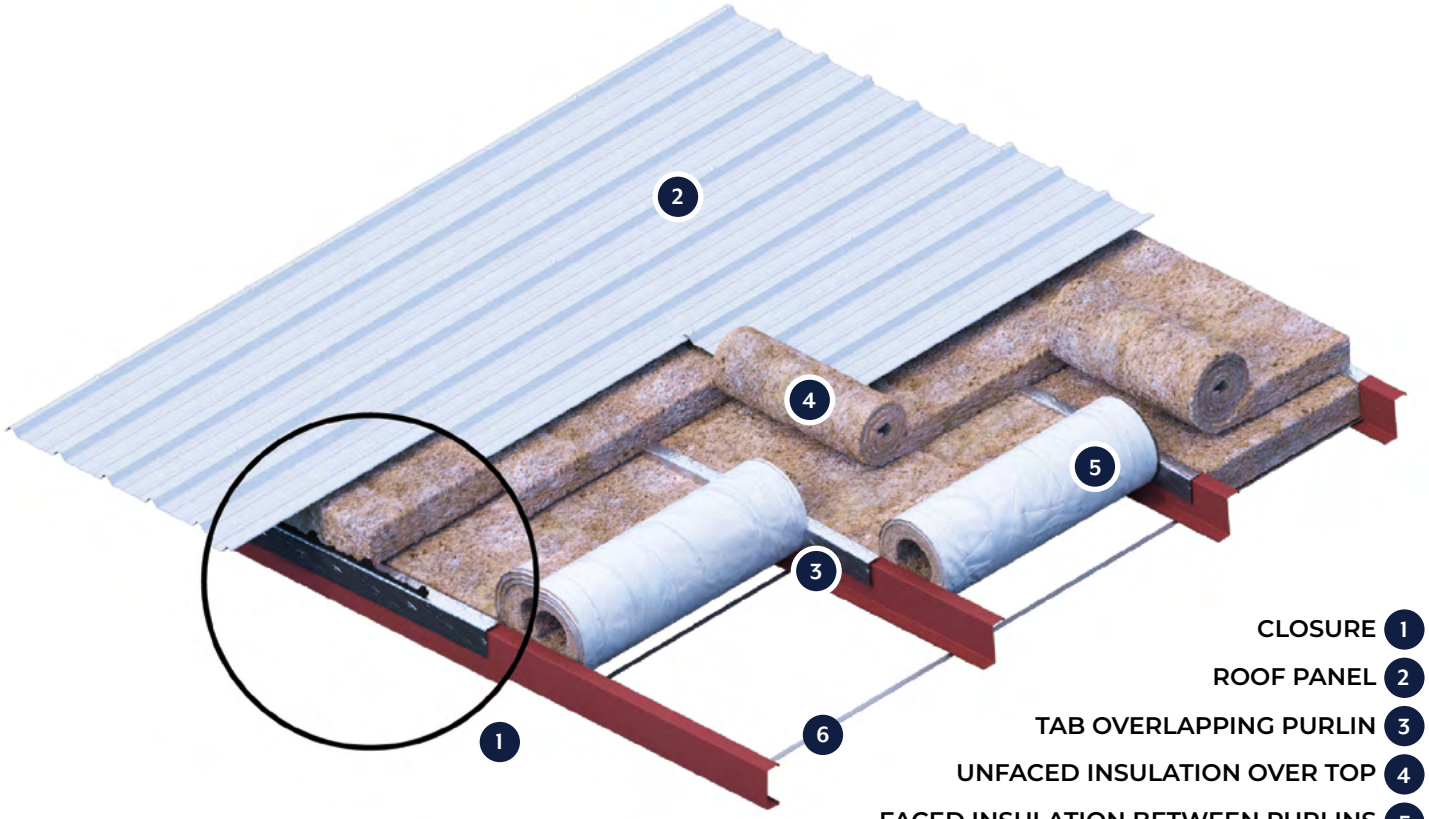
DOUBLE LAYER INSULATION SYSTEM



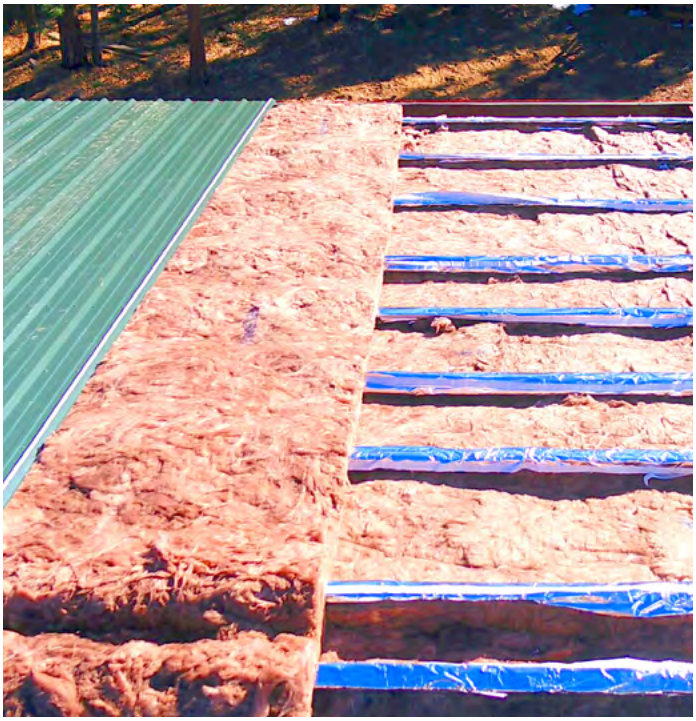
CLOSURE 1
ROOF PANEL 2
TAB OVERLAPPING PURLIN 3
UNFACED INSULATION OVER TOP 4
FACED INSULATION BETWEEN PURLINS 5
BANDING SCREWED TO UNDERSIDE OR PURLIN 6

Installing a double-layer insulation system is a common approach to achieve a higher R-Value envelope, which significantly enhances performance values. The insulation blankets are pre-cut to fit the roof and wall cavities and are held up with metal bands. The first layer, faced with polypropylene fabric, is installed between the roof purlins, serving as a vapor retarder and providing a reflective interior finish. A second layer of unfaced fiberglass is placed over the top, acting as a thermal spacer between the exterior panels and steel roof purlins.

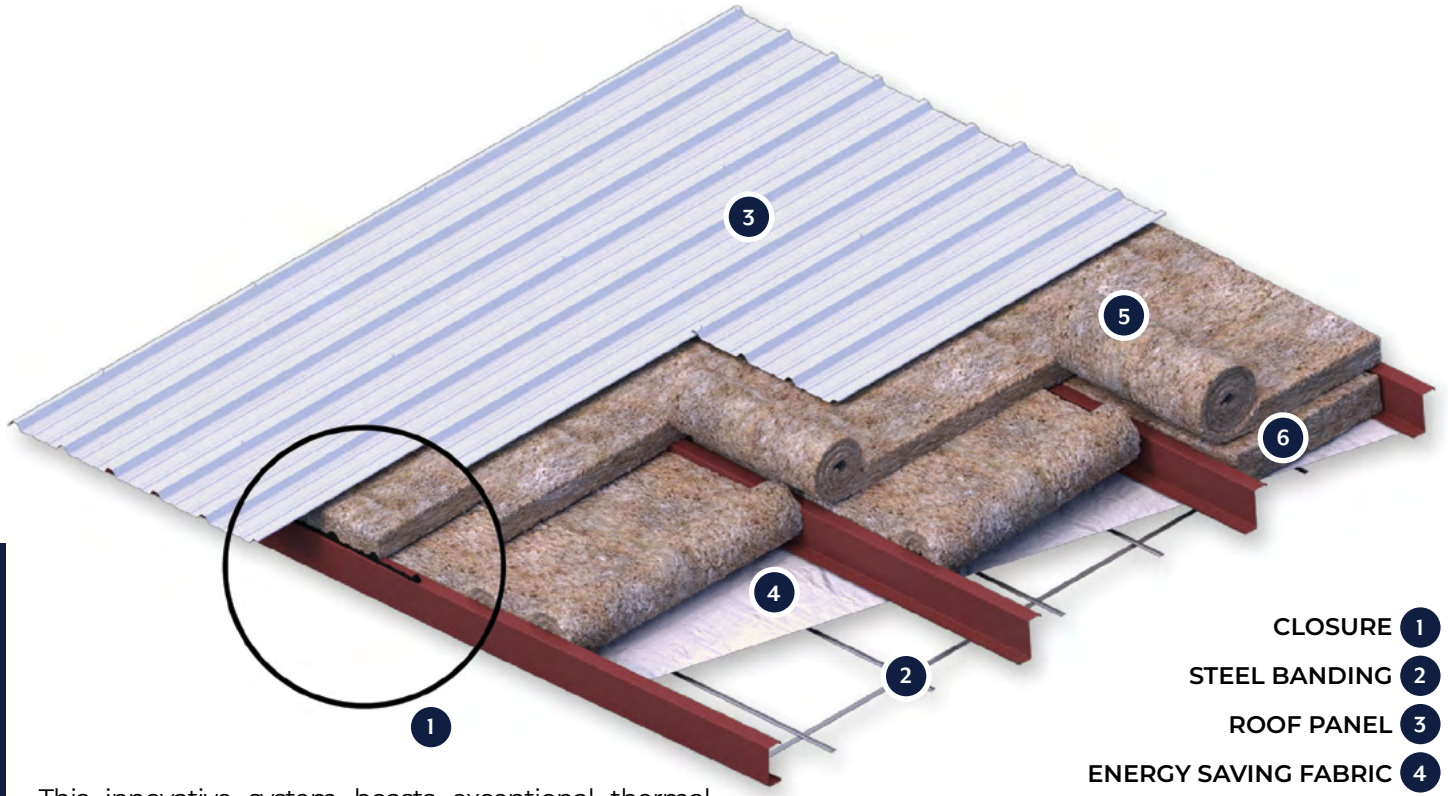
Double-layer systems are recommended for buildings with occupants or when energy savings are a priority. Investing in a high R-Value system upfront leads to long-term cost savings over the building's lifespan. The insulation thickness is determined by the purlin depth, ensuring the cavity is filled while a thinner layer creates a thermal barrier on top.

- Double-layer systems enhance performance values by achieving a higher R-Value envelope.
- Metal bands support pre-cut insulation blankets in roof and wall cavities.
- The first layer of insulation, with polypropylene facing, offers a vapor retarder and reflective finish between purlins.
- A second layer of unfaced fiberglass acts as a thermal spacer between exterior panels and steel roof purlins or wall girts.
- Double-layer systems are beneficial for occupied buildings delivering long-term cost savings.

Double Layer	High R-Value
3" + 6"	R-29
3.5" + 6"	R-30
4" + 6"	R-32
2.5" + 8"	R-33
3" + 8"	R-35
6" + 6"	R-38
3" + 9.25"	R-40
4" + 9.25"	R-43



ENERGY SAVING INSULATION SYSTEM



CLOSURE 1
STEEL BANDING 2
ROOF PANEL 3
ENERGY SAVING FABRIC 4
UNFACED INSULATION BLANKETS OVERTOP 5
UNFACED INSULATION BETWEEN PURLINS 6

This innovative system boasts exceptional thermal performance, thanks to a combination of steel bands, unfaced insulation layers, and an energy-efficient fabric. The tear-resistant fabric not only ensures durability but also provides a sleek finish, discreetly concealing secondary structural steel elements. After undergoing rigorous online testing to ensure OSHA compliance, it proves ideal for roofing and wall applications. For roofs, steel bands combined with the fabric are expertly installed beneath purlins, while InsulHold Coils secure a single insulation layer between wall girts for walls. To guarantee superior thermal isolation and a pristine, bright white appearance, thermal break tape and an energy-efficient vapor retarder are seamlessly integrated.

- High thermal isolation & vapor retarder rating.
- OSHA compliant system.
- Industry-leading thermal performance.
- Network of steel bands, two layers of unfaced insulation, and seamless energy saver fabric included.
- Tear-resistant fabric conceals secondary structural steel, offering durability and brightness.

ENERGY-SAVING SYSTEMS CAN BE INSTALLED AS EITHER SINGLE OR DOUBLE LAYER IN WALLS, WHILE ONLY DOUBLE LAYER IS INSTALLED IN ROOF APPLICATIONS.

Single Layer	R Value
2.5”	R-8
3”	R-10
3.5”	R-11
4”	R-13
6”	R-19
8”	R-25
9.25”	R-30

Double Layer	High R-Value
3” + 6”	R-29
3.5” + 6”	R-30
4” + 6”	R-32
2.5” + 8”	R-33
3” + 8”	R-35
6” + 6”	R-38
3” + 9.25”	R-40
4” + 9.25”	R-43

THERMAL BLOCK SYSTEM

Use of the Sealed N Safe Thermal Block can easily save a metal building owner thousands if not tens of thousands of dollars in energy and building maintenance & costs.

A Thermal Spacer Block is placed between the metal roof sheet and the roof purlin (or between the wall girt and wall sheeting) and isolates the outer shell from the inner steel frame of the metal building.

The thermal block called “The Performer” has an R-6 minimum rating and is proven to increase insulation performance as much as 2 times in certain buildings.

The system is proven to be structurally sound and water-tight. The easy and fast installation makes for a great option in an energy-efficient building.

Image showing building heat loss without Thermal Spacing Blocks installed.

Image showing building without heat loss with Thermal Spacing Blocks installed.

RETRO FIT INSULATION SYSTEM

Steel buildings that are not properly insulated or buildings that have old or torn insulation can contribute to condensation problems and thermal energy loss. Retrofitting insulation between purlins or wall girts not only saves on energy bills, but also addresses any existing condensation issues.

Over 50% of all steel building insulation projects are retrofit applications. Retrofitting insulation in existing metal buildings with new insulation will help to seal air leaks and improve energy efficiency. Adding new insulation will add additional R-Value which saves energy and money in the long run.

We supply pre-cut insulation rolls to fit within the purlin and girt spaces of your existing steel building. After the insulation is cut to your specific measurements, facing materials are applied to insulation blankets to serve as a vapor retarder. Facing material offers a clean finished look in any metal building environment. There are several facing options to choose from.

ATTACHMENT OPTIONS

STEEL BANDING

Steel bands are installed on the underside and perpendicular to the roof purlins, holding up insulation that is placed between purlins in the roof.

INSULHOLD COILS

InsulHold bands are threaded between sheeting and wall girts, screwed to the top of the girts, and perforated arrows are pulled out to secure the fiberglass tightly against the wall panel, filling the cavity.

INSULATION STICK PINS

Retrofit insulation is secured to walls by affixing insulation stick pins, spaced 16" apart, which are glued to wall panels.

ARCH BUILDING PINS

Custom-made, plastic arch-building pins are designed to be screwed onto the bolts of the arches helping to secure the insulation in place. Pins can accommodate 4” or 6” thick fiberglass rolls.

POLE BUILDING WASHERS

Pole-building washers are used to hold and give a quilted look to insulation in pole-building walls. The fiberglass blankets are nailed in place and a 2" washer is added to give the walls a clean quilted look.

- Adding insulation to an existing building will help to seal air leaks.
- Increases the R-Value/thickness of insulation.
- Increases the energy efficiency of your building and reduces energy costs.
- Improves condensation control.
- Tax-saving benefits when you add insulation to your building.
- Increases the lighting efficiency by providing a bright reflective surface on the walls and/or roof.
- Improves interior appearance of walls and/or roof.

INSULATION

ENERGY CODE COMPLIANCE

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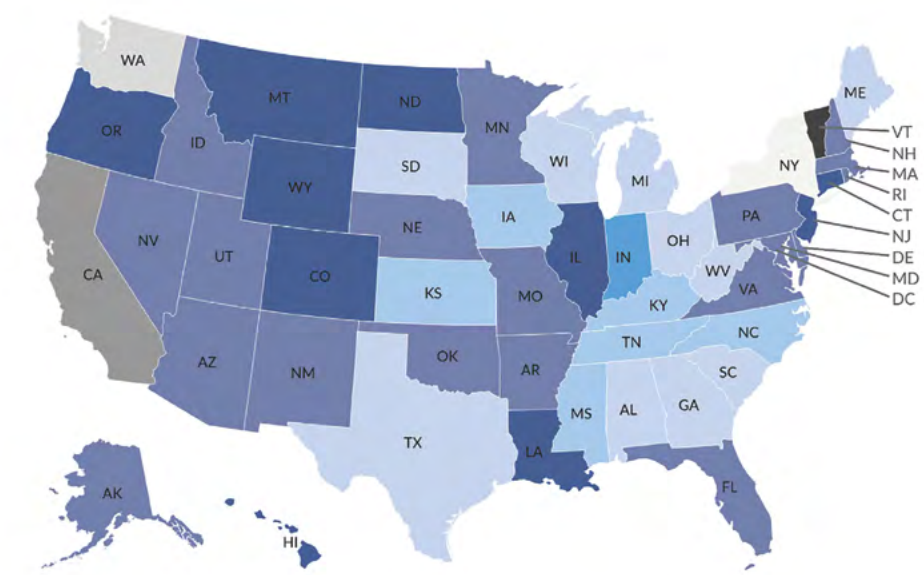

- Ashrae 90.1 2019 IECC 2019
- Ashrae 90.1 2016 IECC 2016
- Ashrae 90.1 2013 IECC 2015
- Ashrae 90.1 2010 IECC 2012
- Ashrae 90.1 2007 IECC 2009
- NYC Energy Conservation Code
- 2019 Building Energy Efficiency Standards
- 2018 Washington State Energy Code
- 2020 Vermont Commercial Building Energy Standards

**U.S. ENERGY CODES 2023 (COVE.TOOL)*

**IT IS IMPORTANT THAT YOU VERIFY ENERGY CODES WITH YOUR LOCAL BUILDING DEPARTMENT.
IT IS NOT THE RESPONSIBILITY OF THE METAL BUILDING SUPPLIER TO VERIFY THE REQUIRED CODES.**

UPFRONT INVESTMENT IN STEEL BUILDING INSULATION LEADS TO LOWER BILLS, EFFICIENT SYSTEMS, AND ENHANCED COMFORT.

SOMETIMES TAKING THE LESS EXPENSIVE OPTION UP FRONT, DOESN'T ALWAYS EQUATE TO SAVING MONEY LONG TERM.

The U.S. Department of Energy developed COMcheck as an energy code compliance tool to determine if a building meets the requirements of the International Energy Conservation Code (IECC), ASHRAE, and state-specific codes. It provides performance requirements for commercial building envelopes and assemblies.

Our building consultants can assist in creating a customized insulation system for your project, based on your energy requests. COMcheck is a valuable tool to assist in determining the right package for your project.