This manual describes the best practices to follow when installing ThermalSert or ThermalSert KD panels. ThermalSert and ThermalSert KD panels increase the R-value of an ICF installation, while maintaining accessibility of the attachments on the exterior of the wall.

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Product Design

1-inch ThermalSert BTS-100
(Used with BuildBlock Forms)

1-inch ThermalSert KD BLTS-100
(Used with BuildLock KnockDown Forms)

2-inch ThermalSert BTS-100
(Used with BuildBlock Forms)

2-inch ThermalSert KD BLTS-200
(Used with BuildLock KnockDown Forms)

4-inch ThermalSert BTS-400
(Used with BuildBlock Forms)

4-inch ThermalSert KD BLTS-400
(Used with BuildLock KnockDown Forms)
Product Specifications

ThermalSert panels are wire cut to the dimensions on the left. They can be custom ordered in 1” and 4” panel thickness, but the standard 2” panel is recommended. By placing the panels within the ICF wall, no changes are made to the plastic web tie location.

It is necessary to order a form 2” or 4” wider than the desired concrete wall thickness, depending on the thickness of the ThermalSert used. (If you are using the 1” ThermalSert, it is still recommended to size up the forms by 2”, otherwise you will lose 1” of core thickness in your walls, and will have to revise the engineering accordingly.)

| THERMALSERT & THERMALSERT KD PRODUCT SPECIFICATIONS |
|-------------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| HEIGHT | LENGTH | WIDTH | WEIGHT | R-VALUE | BUNDLE QUANTITY | BUNDLE WEIGHT |
| BTS-100 | 16” | 48” | 1” | .47 lbs. | 2.2 | 144 | 68 lbs. |
| BTS-200 | 16” | 48” | 2” | .95 lbs. | 4.4 | 72 | 68 lbs. |
| BTS-400 | 16” | 48” | 4” | 1.9 lbs. | 8.8 | 36 | 68 lbs. |
| BLTS-100 | 16” | 48” | 1” | .51 lbs. | 2.2 | 144 | 73 lbs. |
| BLTS-200 | 16” | 48” | 2” | 1.01 lbs. | 4.4 | 72 | 73 lbs. |
| BLTS-400 | 16” | 48” | 4” | 2.03 lbs. | 8.8 | 36 | 73 lbs. |

| THERMALSERT APPLICATION CHART |
|----------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| FORM SIZE | 1” | 2” | 4” | CONCRETE CORE | R-VALUE | CONCRETE CORE | R-VALUE | CONCRETE CORE | R-VALUE |
| 4-inch | NR | NR | NR | NR | NR | NR | NR | NR | NR |
| 6-inch | 5” | R-25 | 4” | R-29 | NR | NR | NR | NR | NR |
| 8-inch | 7” | R-25 | 6” | R-29 | 4” | R-37 | 4” | R-37 | 4” | R-37 |
| 10-inch | 9” | R-25 | 8” | R-29 | 6” | R-37 | 6” | R-37 | 6” | R-37 |
| 12-inch | 11” | R-25 | 10” | R-29 | 8” | R-37 | 8” | R-37 | 8” | R-37 |

R-value rounded to nearest whole number. Actual figures may vary by location, installation and other factors. Effective R-value may be significantly higher.
*NR - Not Recommended
Product Dimensions

1/16" emboss line showing centerline of panel

THERMALSERT PRODUCT DIMENSIONS

1/16" emboss line showing centerline of panel

THERMALSERT KD PRODUCT DIMENSIONS
# ThermalSert Shipping Bundles

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>QUANTITY HEIGHT</th>
<th>QUANTITY WIDTH</th>
<th>QUANTITY LENGTH</th>
<th>BUNDLE DIMENSION H X W X L</th>
<th>TOTAL PANELS</th>
<th>BUNDLE WEIGHT</th>
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</thead>
<tbody>
<tr>
<td>BTS-100</td>
<td>50</td>
<td>3</td>
<td>1</td>
<td>50.5” x 48.5” x 48.5”</td>
<td>150</td>
<td>68 lbs.</td>
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<tr>
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<tr>
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<td>1</td>
<td>48.5” x 48.5” x 48.5”</td>
<td>36</td>
<td>68 lbs.</td>
</tr>
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BuildBlock ThermalSert Panels

OVERVIEW

BuildBlock ThermalSert are insulation inserts for BuildBlock and BuildLock Knockdown ICF forms. ThermalSert inserts are placed inside the BuildBlock or BuildLock Knockdown ICF forms between each course against the inner edge of the block outside wall side. Each 1-inch of foam insert adds 4.4 R-value increasing the overall R-value of the wall. The insert is placed toward the outside of the block to insulate against the greatest difference in temperature.

ThermalSert are available in two styles one for BuildBlock ICF forms and another style for BuildLock Knockdown ICF forms. The BuildLock Knockdown web is slightly larger and the ThermalSert KD is designed to accommodate the larger web size.

These inserts may be used with any core size form, though reducing the concrete core width too much may create a wall outside the prescriptive code and BuildBlock product engineering. Project specific engineering may be required if you exceed these design specifications.

When specifying your ICF block size, keep in mind that adding the additional insulation will decrease the concrete score size by the same amount of your insulation insert. You can increase the block core size to compensate. For example if your project requires an 8-inch finished wall, and you are using a 2-inch ThermalSert insert you would need to utilize a 10-inch BuildLock Knockdown ICF to maintain an 8-inch concrete core.

Using the insert inside the wall is much easier than adding additional insulation on the outside of the wall and maintains full access to the attachment points and block markings.

ThermalSert and ThermalSert KD are available at multiple locations across North America.
ThermalSert Panel Installation

INSTALLATION OVERVIEW

ThermalSert Panels should be placed to the outside of the ICF wall. There will be much greater temperature fluctuations here, and the interior will remain more constant. This will reduce the effects on the concrete core, and help maintain a constant temperature.

When installing ThermalSert Panels, begin the first course with cutting a panel in half along the center line. Place this in the first form, in the bottom of the form and set it in place. Spot glue the ThermalSert Panel to the ICF form as needed to prevent it being pushed out into the cavity during the pour. Stack your horizontal rebar as you go, taking care to maintain 3/4" concrete cover between it and the ThermalSert panel or block sidewall.

The rest of the courses to the top course will be full panels, and should be installed by placing them over the forms as they are set. The top course will also require a half panel. (Use up any leftover pieces from the starter course) The top course should be glued at the bottom edge as well as against the ICF to prevent float. It is imperative to keep the foam from moving into the core during the pour, as it will drastically reduce the structural strength of the wall. It is also recommended to spot glue the top BuildBlock course, to eliminate any floating. In order to keep the panels from moving out into the cavity during the pour, it is recommended to either “stake” them in place with 16d nails pressed through the foam on an angle or using Foam2Foam adhesive, pressed to the ICF, then separated (to limit expansion) and pressed together again. This allows the foam to act as an adhesive only with minimal expansion.

Pour the walls normally, watching for any movement of the ThermalSert panels into the concrete core.
ThermalSert Panel Placement
The day for building your walls will come, the day for extending your boundaries.

Psalm 96:1

NORTH AMERICAN MANUFACTURING FACILITIES

BuildBlock Building Systems has fourteen manufacturing facilities across North America and plans to add locations for the next several years. This means we have the manufacturing capacity to meet your ICF needs now and in the future. Shorter shipping distances mean lower freight costs for you and your customers.

BuildBlock continually develops new products and technologies solving problems and meeting needs in residential, commercial, industrial, and institutional construction. We innovate with the goal of creating cost-effective techniques and products for our customers.

BuildBlock partners have facilities around the world to meet your needs including the Philippines, Cyprus, and Egypt and continue to expand. Choosing BuildBlock isn’t just about choosing the best ICF block on the market, it’s about finding a partner with a strong commitment to our customers, our business partners, and our industry.

MISSION

We envision a world where BuildBlock ICF technology delivers energy-efficient, safe, healthy, comfortable and sustainable ICF homes and buildings to millions of people worldwide through the uncompromising integrity of BuildBlock’s team of distributors, dealers and customers.

VISION

To harmoniously use the extraordinary gifts and talents of our distributors and dealers to fulfill the goals and dreams of millions of people who want to build better structures as reflected by our motto: “Build it once. Build it for life.”

To manufacture one of the most affordable and highest quality Insulating Concrete Forms available in the world today.

To build greatness by providing the resources and services needed for building successful ICF businesses and sustainable ICF structures.

To build an enduring, profitable company while conducting business with Godly character, fairness and integrity.

VALUES

INTEGRITY – We strive to balance the best interests of our distributors, dealers, customers, employees, and investors in an environment of Godly character and honesty.

EDUCATION – We seek to educate the public on the valuable benefits of ICF structures while recognizing that in order to expand the industry, we must educate installers, architects, and engineers in ICF best practices.

CUSTOMER SATISFACTION – We commit to building a team of employees that is inspired, empowered, and driven to meet the ever-changing needs of our distributors, dealers, and customers while we seek to distinguish ourselves in the marketplace by delivering exceptional customer satisfaction.

INNOVATION – We value and invest heavily in innovation while continually expanding our product line through the development of technologically advanced products.

QUALITY – We commit to producing the finest quality products. We stand by the belief that our brand embodies quality, consistency, user satisfaction, and service.

PROFITABILITY – We commit to the strong work ethic and financial prudence necessary to deliver financial results for our business partners and investors and to ensure a long-term profitable relationship.

EMPOWERMENT – We dedicate ourselves to empowering people to improve and enrich their lives and the world around them.