

INSULATION GUIDE

The correct insulation and proper installation methods are critical for a successful walk-in cooler project.

This guide will cover the essentials about insulation, types of insulation, and your best choices for building an efficient cold room. We will also cover some basic installation tips to make your room as airtight as possible, as well as tips about alternatives, special scenarios, and ways to work around already insulated rooms.

IMPORTANT TIP!

The most common insulation is fiberglass batt insulation.

DO NOT USE fiberglass batt insulation to construct your cold room, as moisture will seep into it, mold will form, R-value will decrease, and you will be disappointed.



INSULATION SELECTION

R VALUE

Insulation is measured by "R-value". The higher the R-value, the greater the insulation's effectiveness. The R-value depends on the type of insulation, its thickness, and its density.

The industry standard for walk-in coolers is an R-value of 25.

Insulate your cooler walls, floor, and ceiling to R-25

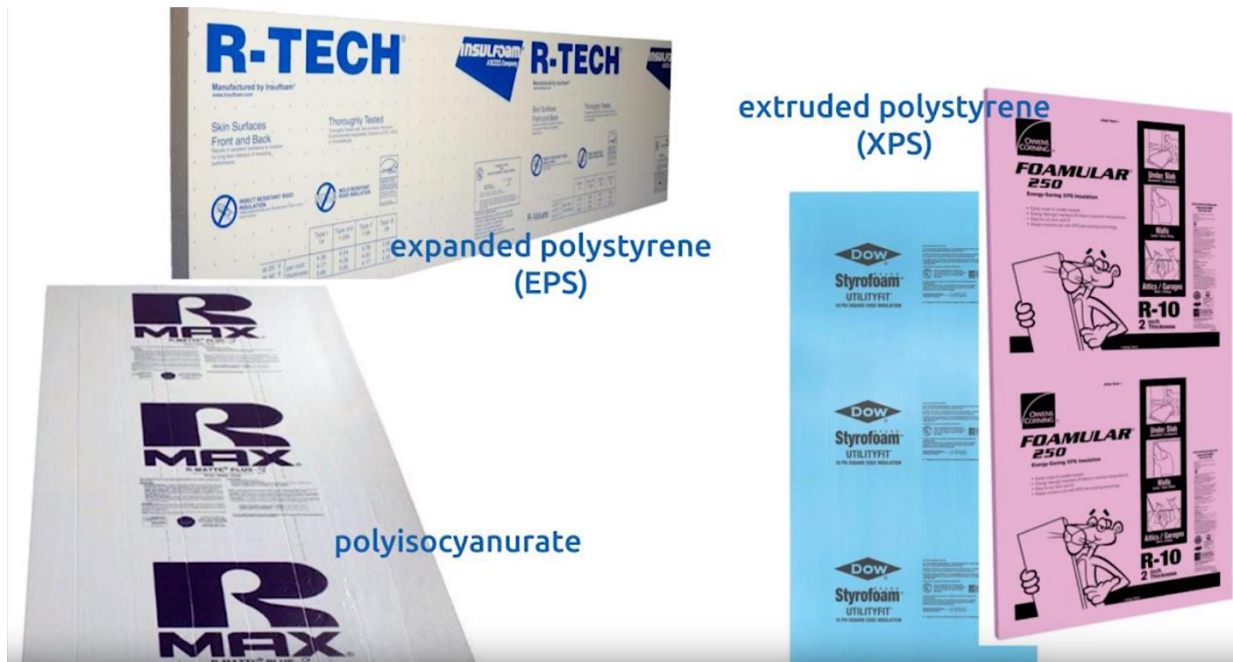


To achieve this R25 value, we recommend either rigid foam board insulation or spray foam insulation. These types of insulation offer high density plus higher water and moisture resistance because they are "closed cell" type insulations.

TYPES OF FOAM INSULATION

The types commonly available are:

1. Polyisocyanurate
2. Extruded polystyrene or XPS
3. Expanded polystyrene or EPS
4. Spray Foam Insulation



IMPORTANT TIP

If 2" thick sheets are not available use enough thinner sheets to achieve R-25.

1. **Polyisocyanurate** (foam is usually yellow or gray)

R-Max is our preferred insulation because it has the highest R-value per inch of thickness and is reasonably priced.

With an R-value of 13.1 for a 2" thick sheet only two 2" sheets are required to achieve R-25.

2. **Extruded polystyrene or XPS** (foam is usually pink or blue)

XPS has an R-value of 5 per inch of thickness requiring 5" of insulation to achieve R-25.

3. **Expanded polystyrene or EPS** (foam is usually white)

EPS has an R-value of approximately 4 per inch of thickness, requiring at least 6" of insulation to achieve R-25.



4. Spray Foam Insulation

Spray foam insulation quickly turns an existing room, shed, or trailer into a walk-in cooler. This is a great alternative that has the added benefit of sealing all cracks as it is been applied.

Spray foam should be applied to the appropriate thickness to achieve R-25 - typically 4".

Many of our customers have had great success with the DIY [closed cell polyurethane kits from Energy Efficient Solutions](#).

CoolBot customers receive a discount by using **promo code**: Coolbot_Foam



Alternative Insulation Materials

An alternative insulation material is rock wool or mineral wool.



This type of insulation will fit between the studs and joists of your cooler walls, floor, and ceiling.

If you are using rock wool in between the studs, we recommend rigid foam insulation on the inside of the cooler (**over the studs**) to minimize thermal bridging.

IMPORTANT TIP!

Depending on your climate, a vapor barrier may be necessary.

The vapor barrier should ALWAYS go on the outside (warm side) of your cooler.



RIGID FOAM PANEL INSTALLATION

IMPORTANT TIP

Insulation should go over the studs and not in between the studs. This is important to ensure maximum R-value and to avoid thermal bridging.

We recommend following this order for insulating your cooler:

First the floor, then the walls, and finally the ceiling.



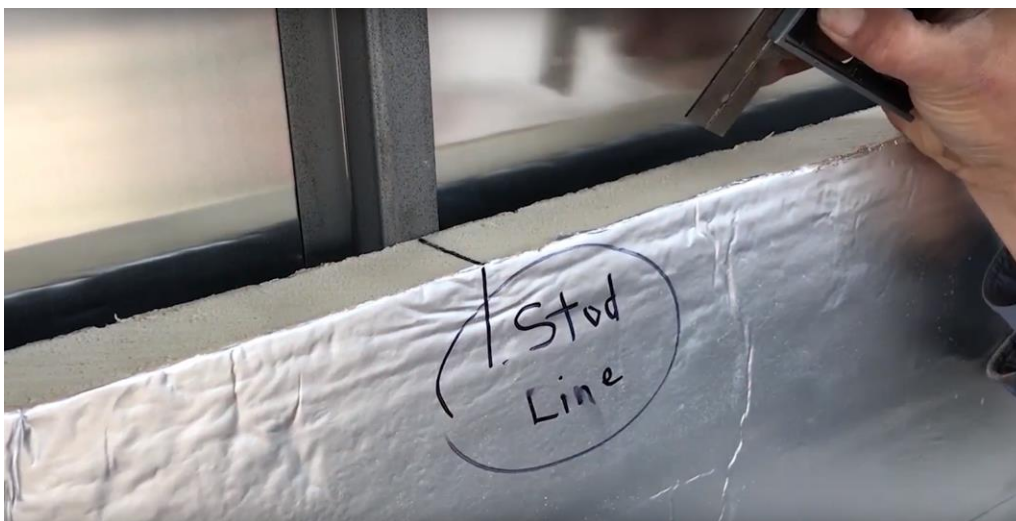
Measure and cut the insulation to size, tapering and notching as appropriate to ensure a tight fit.



Insulation panels can be cut with a utility knife with a snap-off blade of at least 2-1/2" in length.



Mark the wall, floor, and ceiling stud lines on the precut pieces of insulation.



Apply heavy duty construction adhesive to the studs.



Using self-drilling screws or nails with large plastic washers, fasten the insulation to the studs and joists.



Screws or nails should be spaced 10 - 14" apart.

Use spray foam (like “Great Stuff”) to fill any gaps in the insulation.



To improve the efficiency of your room and to reduce any air leakage, tape all joints with 2-1/2" wide foil HVAC tape. Tape corners as well.

The butt joints between sheets are the easiest to tape.

Cut the tape to match the length of the joint being taped and apply from top to bottom by slowly pulling off the backing paper and firmly pressing the tape in place. Take care to center the tape on the joint.



Taping the corners is a bit trickier, yet with proper technique is easily achieved. Cut the tape to match the length of the joint and remove the first 12" of backing paper. Cup the tape inward toward the wall and apply the tape to only one wall.



Remove another 24" of backing paper and pull tight - again, apply to only one wall. Repeat until the entire strip is attached to one wall.

Go back to the top, and with your fingers on the side of the tape that is taped to the wall, slide your finger towards but not all of the way to the corner.

If the tape contacts the opposite wall gently unstick it from the opposite wall and roll it away from the opposite wall.



Go back to the top and firmly slide a board from the taped side to the un-taped side allowing the tape to now contact the second side.



Firmly press the tape in place with the board and your fingers from top to bottom.

We have finished the first layer of insulation on the entire inside of the cooler.

Apply heavy duty construction adhesive to the first layer of insulation.



Place the second layer of insulation over the first and press firmly to ensure a strong bond.



If needed, brace the insulation in place until the adhesive dries to ensure a proper bond.



When all of the insulation is in place and the adhesive is cured fill any gaps with spray foam and tape any remaining joints, just like you did for the first layer.

Repeat this process for as many layers as necessary until you reach the recommended Insulation value (R25).



INSULATION TIPS

Based upon availability of materials, budget, and other factors some of our customers have successfully deviated from our recommendations as follows:

- Constructed cooler to R-20 and upsized the air conditioner
- Lowest required temperature was 40°F, so insulated to only R-20
- Lowest required temperature was 50°F, so insulated to only R-15
- Insulated the walls and ceiling to R-25 but only insulated the floor to R-10
- ****Only in cold climates**** The lowest required temperature was 40°F and cooler was built in a corner of the basement. Did not insulate concrete floor - insulated concrete walls with 2" of rigid foam and insulated ceiling and new walls with rigid foam to R-25.
- The cooler was built in a corner of a room that had fiberglass insulated walls with drywall. Insulated existing walls and ceiling with 2" of rigid foam glued over the drywall and insulated all new walls with rigid foam to R-25.