WEILAND

R-VALUE

FOR COOLER/FREEZER DOORS

R-value Reality check

It is a common misconception that if you double your insulation material and double your R-value that you will make your building twice as energy efficient.

It is true that if you double your insulation, you will double your R-value. Unfortunately, there are diminishing returns on this effort.

Many customers ask for 6" doors, as opposed to 4" doors, for exterior applications.

6" doors weigh approximately 40% more than 4" doors, cost 20% more, and yet only provide a 1% increase in thermal performance. That is a 100+ year ROI. Additionally, the added weight of the door will shorten the lifespan of hinges and latches.

If preventative maintenance isn't done on these doors, and the door loses its seal, that is far more detrimental to thermal performance than any gain received from the added thickness.

↳ For this reason, we advise opting for a 4" door, when not required by code!

For most applications, there will be no perceptible difference in the initial quality or performance of 4" and 6" doors.

Over the long run, 4" doors will require less maintenance. And most users will prefer the lighter weight opening force of a 4" door. The only exception where we may recommend 6" thick door panels is exit-only doors from blast freezers to the exterior – where the door panels are rarely used.

COMPARISON

Door Example	Insulation R-Value	Amount of heat flow reduced by this insulation
Weiland FRP Personnel	R-12	93%
Typical 4" Cooler Door	R-30	97%
Typical 6" Freezer Door	R-45	98%

- *Nearly $700 more for a 6" door*
- *35 lbs Difference*
- *100+ year payback*

↳ This is why 6" doors are NOT something we typically recommend

QUICK TIPS

- The mistake people make with considering R-value is that they think they are getting 50% more protection against heat flow by adding 50% thickness to the insulation.
- R-value is a measure of how well the insulating material prevents the flow of heat from the warm side to the cool side.
- R-value, as a number, is not directly proportionate to how much it prevents heat flow prevention.
- As the R-value goes up, the amount of heat transfer prevention has shockingly bad returns.
- The insulation we use in the core of our infitting swing doors is the best rated insulator out there used in this application: *2 lb pcf closed cell polyurethane.*