

## STEEL DOOR CORES

Steel doors are a great option for many facilities in order to ensure safety and security. However, you may be asking yourself: what types of steel doors exist and how do I choose? LaForce is happy to assist you in fitting your application needs.

### TYPES OF STEEL DOORS

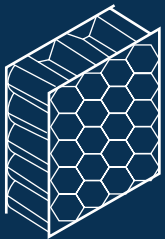
**Honeycomb Core:** This core has phenolic resin kraft honeycomb laminated to face sheets. This core is impact resistant, assure flatness of door faces, and also provide sound-deadening.

**Polystyrene Core:** This core is a preformed styrofoam core that is laminated to face sheets. This core provides insulation value and impact resistance.

**Polyurethane Core:** This core is made of expanded, rigid foam that is either formed in place or preformed and then laminated to the face sheets. It also provides superior insulation as well and is impact resistant.

**Vertically Stiffened Core:** In this core, the metal steel stiffeners are welded to face skins in order to support the face sheets. Further, a sound deadening fiberglass insulation is placed between stiffeners. This is designed to hold up under extreme abuse.

**Mineral Fiberboard Core:** This is a cast mineral fiberboard slab that is, again, laminated to the face sheets. This core is non-combustible and is a heat barrier. This core is typically used in vertical or horizontal enclosure, most commonly in stairwells.



Honeycomb Core



Polystyrene Core



Polyurethane Core



Vertically Stiffened Core



Mineral Core

### CHARACTERISTICS OF DOOR CONSTRUCTION

Standard door construction does vary based on the door manufacturer and door type. Typical 1 3/4" door thickness; beveled lock edge, square or beveled hinge edge, inverted top and bottom channels which can have addition caps added to flush off ends of the door. Door edges come standard with a visible edge seam or center seam. These seams can be filled to make seamless by either using an epoxy filler or continuously welding and dressing with epoxy filler.



Inverted Top Channel



Inverted Bottom Channel



Flush Top & Bottom Channels



Inverted with Top Cap



Visible Edge Seam



Seamless Edge

There are also different types of doors, including:

1. *Full flush* doors which have no visible seams on the faces and a seam on the vertical edges.
2. *Seamless* doors that have no visible seams on the faces or on the vertical edges.

## CORE TYPE RATINGS

The R factor is a measure of thermal resistance. The higher the R factor the better the insulation the steel door provides. The U Factor is a measure of the heat transmission. The lower the U factor number, the better the insulation.

The STC, or Sound Transmission Class, is a measure that indicates the reduction in noise levels that the door provides. So, the higher the STC rating, the better noise reduction performance.

Finally, there is also Fire Rating and/or the Temperature Rise Rating. This is the measure of heat transfer from one face of the door to the other face. You can have a fire rating without a temperature rise rating. However, in order to get a temperature rise rating it does require a mineral core.

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## THE RATINGS OF EACH TYPE OF DOOR ARE AS FOLLOWS:

### Honeycomb Core

- R Factor: approx. 2.4
- U Factor: approx. .41
- STC Rating: approx. 32 (with seals)
- Fire Rating: <650 degrees in 30 mins

### Polystyrene Core

- R Factor: approx. 3.8 to 6.4
- U Factor: approx. .26 to .16
- STC Rating: approx. 27 (with seals)
- Fire Rating: <650 degrees in 30 mins

### Polyurethane Core

- R Factor: approx. 10+
- U Factor: approx. .1 to .09
- STC Rating: approx. 22 (with seals)
- Fire Rating: <650 degrees in 30 mins

### Vertically Stiffened Core

- R Factor: approx. 1.6
- U Factor: approx. .63
- STC Rating: approx. 38 to 41 (with seals)
- Fire Rating: <650 degrees in 30 mins

### Mineral Fiberboard Core

- R Factor/U Factor: This type of core is not thermal tested as it is not used on exterior.
- STC Rating: approx. 33 (with seals)
- Fire Rating: 250 degrees or 450 degrees in 30 mins

Contact a LaForce representative today to find  
your next new steel door.



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