

## ***Glazing***

<u>Product</u>	<u>Description</u>	<u>Fire Rating</u>	<u>Impact Rating</u>	<u>Page</u>
<b>WireShield</b>	1/4" Filmed Wire Glass	90	CAT II	<b>G1</b>
<b>Wire Glass</b>	1/4" Wire Glass	45	CAT I	<b>G2</b>
<b>Tempered Glass</b>	1/4" Tempered Glass	--	CAT II	<b>G3</b>
<b>KeraShield FRF</b>	3/16" Filmed Ceramic Glass	3 hr	CAT II	<b>G4</b>
<b>Pyran® Platinum F by SaftiFirst</b>	3/16" Filmed Glass Ceramic with Neutral Tint	3 hr	CAT II	<b>G5</b>
<b>PyroGlassShield</b>	1/4" Tempered Glass	20	CAT II	<b>G6</b>
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<b>SwissShield 45</b>	3/4" Laminated Glass - Radiant & Conducted Heat Barrier	45	CAT II	<b>G9</b>
<b>SwissShield 60</b>	1" Laminated Glass - Radiant & Conducted Heat Barrier	60	CAT II	<b>G9</b>
<b>SwissShield 90</b>	1-1/2" Laminated Glass - Radiant & Conducted Heat Barrier	90	CAT II	<b>G9</b>
<b>ContraShield 60</b>	1" Laminated Glass - Radiant & Conducted Heat Barrier	60	CAT II	<b>G10</b>
<b>ContraShield 90</b>	1-3/8" Laminated Glass - Radiant & Conducted Heat Barrier	90	CAT II	<b>G10</b>
<b>LGShield</b>	5/16" Leadlined Glazing for X-Ray Shielding	--	CAT II	<b>G11</b>
<b>ArmShield</b>	.78-1.3" Polycarbonate for Bullet & Storm-Resistance	--	Level I-III	<b>G12</b>

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# GENERAL INFORMATION, GLAZING TAPE & GLASS CUTTING

## QUICK SHIP

16 standard sizes of 6 glass styles are now stocked at the California warehouse and 5 style in the Minnesota warehouse. Distributors looking to provide the fastest service to their customers can benefit from this new service and the increased inventory in one of these 2 warehouses. [Check the Stock list on our website at WWW.AIRLOUVERS.COM](http://WWW.AIRLOUVERS.COM) for the most current listing.

## GLASS CUTTING CAPABILITIES IN CALIFORNIA

Air Louvers has recently increased glass cutting capabilities in the Commerce California plant to include 4 types of glazing – WireShield, Standard Wire Glass, KeraShield and PYRAN Platinum Plus by SaftiFirst. With this improvement, leadtimes for glass can be reduced in many cases by more than a week.

## CUSTOM ORDERS & SPECIAL SIZES

We can help you with special requests such as oversize orders, tinting or obscure patterns. Call Customer Service for more information. ArmrShield Bullet-Resistant Glazing and LGShield Lead Glass are quoted on application.

## LISTING & MARKING

Each piece of glazing that is fire-rated or safety-rated carries a permanent marking with the manufacturer, rating and listing agency.

**UL10B installations in Air Louvers Vision Frames** do not require fire-rated glazing tape to achieve the listing, however we recommend that a polyethylene glazing tape be applied to both sides of glass to avoid glass to metal contact which may result in breakage.

Most vision frames have been tested and **Listed for UL 10C** and Criteria of UBC 7-2 Positive Pressure. Additional fire-rated intumescent glazing tape may be required to meet those requirements. Please request at the time of order & see installation instructions.

## GLAZING TAPE

**GTAPE 150:** White non-fire-rated polyethylene glazing tape with adhesive backing - 1/16" x 3/8" x 150'

**GTAPE150B:** Black non-fire-rated polyethylene glazing tape with adhesive backing - 1/16" x 3/8" x 150'

**FGS3000S45:** Fire-rated intumescent tape with adhesive backing - 3/64" x 7/16" - 45 minute wood doors 16'

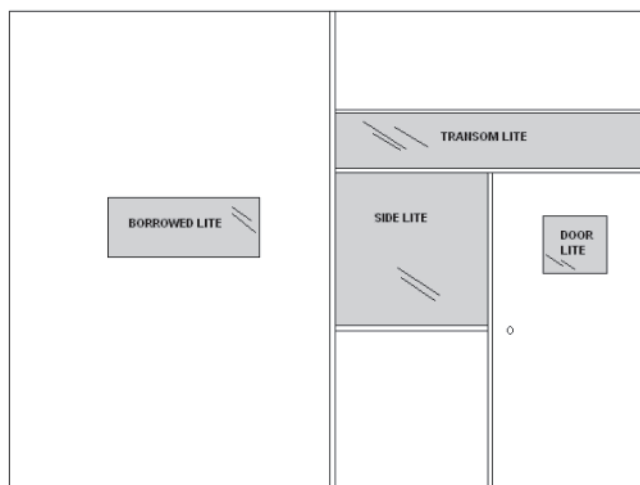
**FGS3000S90:** Fire-rated intumescent tape with adhesive backing : 5/64" x 7/16" - 60-90 minute wood doors 16'

**FGS4590-7:** Fire-rated intumescent tape with adhesive backing for Positive Pressure-Listed Doors - 20-45 minute wood doors - 7'

**FGS4590-8:** Fire-rated intumescent tape with adhesive backing for Positive Pressure-Listed Doors - 20-45 minute wood doors - 8'



Due to possible changes in the industry and manufacturing techniques, we reserve the right to modify any product without prior notification.



**FIND THE MOST CURRENT PRODUCT INFORMATION AT [WWW.AIRLOUVERS.COM](http://WWW.AIRLOUVERS.COM)**



This Patented Glass meets IBC 2006 CAT II Human Impact Safety Standards Plus Carries a 20-90 Minute Fire Rating

### WS SPECIFICATIONS:

<b>Description:</b>	Annealed single glazing with safety film applied to one side & embedded 3/4 x 3/4" wire mesh.
<b>Thickness:</b>	1/4" (6 mm)
<b>Weight:</b>	3.8 lbs/sq. ft.
<b>Light Transmission:</b>	86% approx.
<b>Sound Transmission:</b>	STC 28
<b>Film:</b>	7 mil Safety Film
<b>Fabricated:</b>	USA
<b>Warranty:</b>	10 year limited warranty
<b>Select Wire Pattern:</b>	_____ Diamond (diagonal) _____ Baroque (horizontal)
<b>Size:</b>	Minimum 4" x 4", max. sheet size 36" x84"

### LISTINGS & RATINGS:

Fire and Safety Rating listed and tested with ITS (Warnock Hersey), a nationally-recognized testing laboratory (NRTL) approved by OSHA, and meets the following standards:

**Tested in accordance with:** UBC 7-4; UL 9, UL 10B; NFPA 252 & NFPA 257; ASTM E2074, E152, E163, E2010-01; ULC CAN4-S104 & CAN4-S106. 20-90 minute hose stream rating.

**Impact Safety Rating:** ANSI Z97.1 & CPSC 16CFR 1201 (CAT I & II)

**Positive Pressure Rating:** UL10C/UBC 7-2

### INSTALLATION:

Use glazing compound or glazing tape on both sides of glass, install in an appropriately-listed and labeled vision frame. Certain optical and visual imperfections are inherent in the production process. These characteristics may be evaluated according to the manufacturer's quality standards but do not impair the transparency or affect the performance of the glass in case of fire, and shall not be considered cause for rejection.

**Air Louvers frames for VLF, VLFEZ, VSL(Slimline)**

### LABELING:



Each lite of WireShield will be permanently labeled, in accordance with NFPA 80, with the product and manufacturer's name, testing laboratory, fire rating and safety rating.

Assembly	Time Rating (minute)	Maximum Exposed Area	Maximum Width Exposed Area*	Maximum Height Exposed Area*
Doors - Steel	20	3,289in <sup>2</sup>	36"	84"
Doors - Wood	20	2,856 in <sup>2</sup>	36"	84"
Sidelites/Windows	20-45	4,608 in <sup>2</sup>	57"	100"
Transoms	20-45	3,456 in <sup>2</sup>	57"	36"
Doors - Steel	45	2,856 in <sup>2</sup>	34"	84"
Doors - Wood	45	1,296 in <sup>2</sup>	36"	54"
Sidelites/Windows	45	4,608 in <sup>2</sup>	57"	100"
Steel Doors - Non Temp Rise	60-90	552 in <sup>2</sup>	12"	46"
Steel Doors - Temp Rise	60-90	100 in <sup>2</sup>	10"	33"

\* Please note that combined height and width cannot exceed the maximum exposed area measurement.

**STOCK ITEM - THIS ITEM IN STOCK FOR NEXT DAY SHIPMENT IN 15 STANDARD SIZES FROM CA AND MN WAREHOUSES**

**Order Format: WS \_\_\_\_ (W) \_\_\_\_ (H) Example: WS1212 Note: Order Size is Actual Glass Size**

Interpretation of Fire and Building Codes May Vary. Consult with the Local Authority Having Jurisdiction (AHJ) to determine appropriate standards.

	<b>Distributor:</b>	<b>Width: ____ x Height: ____</b>
	<b>Architect:</b>	<b>Quantity:</b>
	<b>Contractor:</b>	<b>Fire Rating: __ 20 __ 45 __ 60 __ 90</b>
	<b>Project:</b>	<b>Date: _____ Version: ALSPDS1001</b>

HDQTRS:4450 WEST 78<sup>TH</sup> ST CIR., BLOOMINGTON, MN 55435-5416 PH: 800-554-6077 FAX: 952-835-2218 EMAIL: SALES@AIRLOUVERS.COM  
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Standard 20-45 minute Fire-Rated Clear Glass with Diamond Pattern of Wire Imbedded in the Glass.  
 Wired Glass is not Recommended for Doors or Openings that are Subject to Human Impact.

**UL SPECIFICATIONS:**

<b>Description:</b>	Polished glass with wire mesh.
<b>Thickness:</b>	1/4" (6 mm)
<b>Weight:</b>	3 lbs/sq. ft.
<b>Light Transmission:</b>	86% approx.
<b>Select Wire Pattern:</b>	_____ Diamond (diagonal ) _____ Baroque
<b>Size:</b>	Minimum 4" x 4", max. sheet size 60" x100".

**LISTINGS & RATINGS:**

Glass is permanently etched with UL listing mark.

**Tested in accordance with: UBC 7-2 , UL 10B**  
**Positive Pressure Rating: UL10C/UBC 7-2**

**LABELING:**



Each lite of Wire Glass will be permanently labeled, in accordance with NFPA 80, with the product and manufacturer's name, testing laboratory, fire rating and safety rating.

**INSTALLATION:**

Use glazing compound or glazing tape on both sides of glass, install in an appropriately-listed and labeled vision frame. Certain optical and visual imperfections are inherent in the production process. These characteristics may be evaluated according to the manufacturer's quality standards but do not impair the transparency or affect the performance of the glass in case of fire, and shall not be considered cause for rejection.

**Air Louvers frames for UL - VLF, VLFEZ, VSL(Slimline)**

Assembly	Time Rating (minute)	Maximum Exposed Area	Maximum Width Exposed Area*	Maximum Height Exposed Area*
Borrowed Lite/Transom	20-45	1296 in <sup>2</sup>	54"	54"
Door**	45	1296 in <sup>2</sup>	54"	54"
Door**	90	100 in <sup>2</sup>	12"	33"

\* Please note that combined height and width cannot exceed the maximum exposed area measurement.

\*\*Caution: Wire glass is not a safety rated product and should not be used in high traffic areas or where likelihood of accidental contact is high. Impact with wire glass can cause the glass to break and cause severe cuts to limbs.

Changes in the IBC require that glazing in fire window assemblies in "hazardous locations" must meet CPSC 16 CFR 1201, pursuant to Sec 2406.1.

The wire glass on this page does not meet those standards. Air Louvers has several other glazing selections that meet the above standards. Contact customer service for the appropriate safety rated glass for your application.

**STOCK ITEM - THIS ITEM IN STOCK FOR NEXT DAY SHIPMENT IN MANY STANDARD SIZES FROM CA, GA AND MN WAREHOUSES**

Order Format: UL \_\_\_\_ (W) \_\_\_\_ (H) Example: UL3435 Note: Order Size is Actual Glass Size

Interpretation of Fire and Building Codes May Vary. Consult with the Local Authority Having Jurisdiction (AHJ) to determine appropriate standards.

	<b>Distributor:</b>	<b>Width: _____ x Height: _____</b>
	<b>Architect:</b>	<b>Quantity:</b>
	<b>Contractor:</b>	<b>Fire Rating: ____ 20 ____ 45</b>
	<b>Project:</b>	<b>Date: _____ Version: ALSPDS1001</b>

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## Safety Glass for Non Fire-Rated Applications Requiring Safety- Rated Glazing.

### TEMP SPECIFICATIONS:

<b>Description:</b>	Heat-treated clear safety glass that breaks into small particles.
<b>Thickness:</b>	1/4" (6 mm)
<b>Weight:</b>	2.5 lbs/sq. ft.
<b>Light Transmission:</b>	86% approx.
<b>Fabricated:</b>	USA
<b>Cutting:</b>	Tempered glass cannot be cut after manufacturing. Minimum size
<b>Size:</b>	Minimum 2" x 2", max. sheet size 88" x 118"

### LABELING:

Each lite of Tempered Glass will be permanently labeled with the product and manufacturer's name, testing laboratory and safety rating.

### LISTINGS & RATINGS:

**Impact Safety Rating:** ANSI Z97.1 & CPSC 16CFR 1201 (CAT I & II)  
**Positive Pressure Rating:** UL10C/UBC 7-2

### INSTALLATION:

Use glazing compound or glazing tape on both sides of glass, install in an appropriately-listed and labeled vision frame. Certain optical and visual imperfections are inherent in the production process. These characteristics may be evaluated according to the manufacturer's quality standards but do not impair the transparency or affect the performance of the glass, and shall not be considered cause for rejection.

***Air Louvers frames for TEMP - VLF, VLFEZ, VSL (Slimline)***

**Caution: Tempered glass is not fire-rated, and should not be used where building codes require fire-rated glazing.**

**STOCK ITEM - THIS ITEM IN STOCK FOR NEXT DAY SHIPMENT IN 15 STANDARD SIZES FROM CA AND MN WAREHOUSES**

**Order Format: TEMP \_\_\_\_ (W) \_\_\_\_ (H) Example: TEMP2415 Note: Order Size is Actual Glass Size**

Interpretation of Fire and Building Codes May Vary. Consult with the Local Authority Having Jurisdiction (AHJ) to determine appropriate standards.

	<b>Distributor:</b>	<b>Width: ____ x Height: ____</b>
	<b>Architect:</b>	<b>Quantity:</b>
	<b>Contractor:</b>	
	<b>Project:</b>	<b>Date: _____ Version: ALSPDS1001</b>

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KeraShield FRF is a Wire-Free Ceramic Glass that is Impact & Safety-Rated for Use in Accidental Human Impact Safety Locations in Up to 3 Hour Fire-Rated Door Assemblies.

**KFRF SPECIFICATIONS:**

<b>Description:</b>	Ceramic glass with a surface-applied safety film.
<b>Thickness:</b>	3/16" (5mm)
<b>Weight:</b>	2.7 lbs/sq. ft.
<b>Light Transmission:</b>	85% approx.
<b>Film:</b>	3M Scotchshield® Ultra Safety Film (on one surface)
<b>Warranty:</b>	Three year limited warranty
<b>Fabricated:</b>	USA
<b>Options at Additional Cost:</b>	Can be lightly etched or sandblasted.
<b>Size:</b>	Minimum size 12" diagonal, max sheet size 46" x 78"

**LISTINGS & RATINGS:**

Fire rating listed and tested by ITS/Warnock Hersey or Underwriters Laboratories, (Listing #R14515) for fire rating scheduled at opening locations in drawings when **Tested in accordance with: (ASTM E-163, ASTM E-152), (NFPA 252 & 257)**

**Impact Safety Rating:** ANSI Z97.1 & CPSC 16CFR 1201 (CAT I & II)

**Listing:** Up to 3 hours with hose stream test.

**Positive Pressure Rating:** UL10C/UBC 7-2/UBC 7-4

**LABELING:**



Each lite of KeraShield FRF will be permanently labeled, in accordance with NFPA 80, with the product and manufacturer's name, testing laboratory, fire rating period and safety glazing standards.

**INSTALLATION:**

Use glazing compound or glazing tape on both sides of glass, install in an appropriately-listed and labeled vision frame. Certain optical and visual imperfections are inherent in the production process. These characteristics may be evaluated according to the manufacturer's quality standards but do not impair the transparency or affect the performance of the glass in case of fire, and shall not be considered cause for rejection.

**Air Louvers frames for KFRF: VLF, VLFEZ, VSL.**

Assembly	Time Rating (minutes)	Maximum Exposed Area	Maximum Width Exposed Area*	Maximum Height Exposed Area*
Door - Non Temp Rise	20-60	3627 in <sup>2</sup>	46"	78"
Window, Transom Lite, Sidelite	20-60	3627 in <sup>2</sup>	46"	78"
Door - Temp Rise	60-90	100 in <sup>2</sup>	10"	33"
Door - Non Temp Rise	90	3534 in <sup>2</sup>	46"	76"
Window, Transom Lite, Sidelite	90	2736 in <sup>2</sup>	46"	78"
Door - Non Temp Rise & Temp Rise	3 hours	100 in <sup>2</sup>	10"	33"

\* Please note that combined height and width cannot exceed the maximum exposed area measurement.

**Note:** Glass-ceramics do not act as a barrier to radiant or conducted heat transfer (ASTM E119/UL 263) and as such, use in openings with fire ratings of 60 minutes or greater may require approval from the local authority having jurisdiction (AHJ).

**STOCK ITEM - THIS ITEM IN STOCK FOR NEXT DAY SHIPMENT IN 15 STANDARD SIZES FROM CA AND MN WAREHOUSES**

**Order Format: KFRF \_\_\_\_ (W) \_\_\_\_ (H) Example: KFRF2329 Note: Order Size is Actual Glass Size**

Interpretation of Fire and Building Codes May Vary. Consult with the Local Authority Having Jurisdiction (AHJ) to determine appropriate standards.

	<b>Distributor:</b>	<b>Width: ____ x Height: ____</b>
	<b>Architect:</b>	<b>Quantity:</b>
	<b>Contractor:</b>	<b>Fire Rating: 20 60 90 3HR</b>
	<b>Project:</b>	<b>Date: _____ Version: ALSPDS1001</b>

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**PYRAN® Platinum F by SaftiFirst is a Glass Ceramic that Meets CPSC CAT I and CAT II Impact Resistance Ratings and is Fire-Rated from 20-180 Minutes. Neutral Coloration Designed to More Closely Match Float Glass. LEED “ID” Credit, Cradle-to-Cradle Certified by MBDC<sup>2</sup>, Environmentally Preferable Purchasing Product (EPP) The Worlds Only Fire-Rated Glass Ceramic Made without Hazardous Chemical Process**

### PPF SPECIFICATIONS:

<b>Description:</b>	Glass Ceramic with Surface-applied film.
<b>Thickness:</b>	3/16" (5mm)
<b>Weight:</b>	2.5 lbs. per sq. ft
<b>Film:</b>	Heavy-duty Safety Film
<b>Fabricated:</b>	USA
<b>Warranty:</b>	10 year warranty
<b>Options at Additional Cost:</b>	Available in Tinted Glass or Obscure Patterns.
<b>Green Manufacturing Process:</b>	Environmentally-friendly manufacturing process without toxins, heavy metals and the need for surface polishing.
<b>Size:</b>	Minimum size 4" x 6", max sheet size 43" x 77".

### LABELING:

Each lite of PYRAN® Platinum F by SAFTIFIRST is permanently labeled, in accordance with NFPA 80, with the product and manufacturer's name, testing laboratory, fire rating period and safety glazing standards.



### LISTINGS & RATINGS:

PYRAN® Platinum F by SaftiFirst is listed and labeled by Intertek/Warnock Hersey, Inc., a nationally-recognized testing laboratory (NRTL) approved by OSHA, and meets the following standards: **(ASTM E2074, ASTM E-2010-01) , (UL9, UL10B & UL 10c), (NFPA 80, 252 & 257), (ULC CAN4-S104 & CAN4-S106).**

**Impact safety rating:** ANSI Z97 AND CPSC 16CFR 1201 CAT. I AND CAT. II

**Listing:** Up to 3 hours with hose stream test.

**Positive Pressure Rating:** UBC 7-2, 7-4

### INSTALLATION:

Use glazing compound or glazing tape on both sides of glass, install in an appropriately-listed and labeled vision frame. PYRAN Platinum® F glass by SaftiFirst is a specialty fire resistant glazing material. Certain optical and visual imperfections are inherent in the production process. These characteristics may be evaluated according to the manufacturer's quality standards but do not impair the transparency or affect the performance of the glass in case of fire, and shall not be considered cause for rejection.

**Air Louvers frames for PPF: VLF, VLF-EZ, VSL.**

Assembly	Time Rating (minute)	Maximum Exposed Area*	Maximum Width Exposed Area*	Maximum Height Exposed Area*
Door - Non Temp Rise	20-90	2,799 in <sup>2</sup>	36"	77"
Sidelites, Window, Transoms	20-90	3,323 in <sup>2</sup>	77-3/4"	77"
Door - Temp Rise	3 hours	100 in <sup>2</sup>	10"	33"

\* Please note that combined height and width cannot exceed the maximum exposed area measurement.

**Note:** Glass-ceramics do not act as a barrier to radiant or conducted heat transfer (ASTM E119/UL 263) and as such, use in openings with fire ratings of 60 minutes or greater may require approval from the local authority having jurisdiction (AHJ).

<sup>2</sup> C2C products are certified by McDounough Braungart Design Chemistry (MBDC) a global sustainability consulting & product certification firm.

**Order Format: PPF \_\_\_\_ (W) \_\_\_\_ (H)**

**Example: PPF2434 Note: Order Size is Actual Glass Size**

**STOCK ITEM - THIS ITEM IN STOCK FOR NEXT DAY SHIPMENT IN SEVERAL STANDARD SIZES FROM CA WAREHOUSE**

Interpretation of Fire and Building Codes May Vary. Consult with the Local Authority Having Jurisdiction (AHJ) to determine appropriate standards.

	<b>Distributor:</b>	<b>Width: ____ x Height: ____</b>
	<b>Architect:</b>	<b>Quantity:</b>
	<b>Contractor:</b>	<b>Fire Rating: ____ 90 minute ____ 3Hr</b>
	<b>Project:</b>	<b>Date: _____ Version: ALSPDS1001</b>

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**PyroGlasShield is a High-Impact, Tempered Glass that is CAT II-rated and Fire-Rated for Use in 20 Minute Fire-Rated Door Assemblies and Borrowed Lites.**

**PYRO SPECIFICATIONS:**

<b>Description:</b>	Tempered alkaline safety glass of fire-resistant material
<b>Thickness:</b>	1/4" (6mm)
<b>Weight:</b>	3.2 lbs. per sq. ft
<b>Light Transmission:</b>	89% approximate
<b>Material:</b>	Alkaline silicate float glass
<b>Fabricated:</b>	USA
<b>Options at Additional Cost:</b>	Can be etched, beveled or sandblasted. Available in Tinted Glass or Obscure Patterns.
<b>Size:</b>	Minimum 12" diagonal. Maximum sheet size 47-1/2" x 95-1/2".

**LISTINGS & RATINGS:**

Fire rating listed and tested by ITS/Warnock Hersey or Underwriters Laboratories, (Listing #R14515) for fire rating scheduled at opening locations in drawings when **Tested in accordance with: (ASTM E-163), (ASTM E-152), (NFPA 252 & 257)**

**Impact safety rating:** ANSI Z97 AND CPSC 16CFR 1201 CAT. I AND CAT. II

**Listing:** 20 minutes without hose stream test.

**Positive Pressure Rating:** UL 9 & UIL10C/UBC 7-2/UBC 7-4

**INSTALLATION:**

Use glazing compound or glazing tape on both sides of glass, install in an appropriately-listed and labeled vision frame. PyroShield is an engineered specialty fire resistant glazing Material. Certain optical and visual imperfections are inherent in the production process. These characteristics may be evaluated according to the manufacturer's quality standards but do not impair the transparency or affect the performance of the glass in case of fire, and shall not be considered cause for rejection.

**Air Louvers frames for PYRO: VLF, VLF-EZ, VSL.**

**LABELING:**



Each lite of PyroGlasShield will be permanently labeled, in accordance with NFPA 80, with the product and manufacturer's name, testing laboratory, fire rating period and safety glazing standards.

Assembly	Time Rating (minute)	Maximum Exposed Area*	Maximum Width Exposed Area*	Maximum Height Exposed Area*
Borrowed Lite	20	4626 in <sup>2</sup>	95-1/2"	95-1/2"
Steel Door	20	3419 in <sup>2</sup>	47-1/2"	95-1/2"
Wood Door	20	3419 in <sup>2</sup>	47-1/2"	95-1/2"

\* Please note that combined height and width cannot exceed the maximum exposed area measurement.

**STOCK ITEM - THIS ITEM IN STOCK FOR NEXT DAY SHIPMENT IN 6 STANDARD SIZES FROM CA AND MN WAREHOUSES**

**Order Format: PYRO \_\_\_\_ (W) \_\_\_\_ (H) Example: PYRO2434 Note: Order Size is Actual Glass Size**

Interpretation of Fire and Building Codes May Vary. Consult with the Local Authority Having Jurisdiction (AHJ) to determine appropriate standards.

	<b>Distributor:</b>	<b>Width: ____ x Height: ____</b>
	<b>Architect:</b>	<b>Quantity:</b>
	<b>Contractor:</b>	<b>Fire Rating: ____ 20</b>
	<b>Project:</b>	<b>Date: _____ Version: ALSPDS1001</b>

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This Clear Laminate of Glass-Ceramic & Impact Safety-Rated Material is Recommended for Fire-Rated Applications that Require CAT II Safety Rating & Up to 3 Hour Fire-Rating in Doors.

### KFRL SPECIFICATIONS:

<b>Description:</b>	Two lites of clear ceramic fire-resistant safety glass laminated together.
<b>Thickness:</b>	5/16" (8mm)
<b>Weight:</b>	4.5 lbs. per sq. ft.
<b>Light Transmission:</b>	80% approximate.
<b>Warranty:</b>	Five year limited warranty
<b>Fabricated:</b>	USA
<b>Options at Additional Cost:</b>	Can be lightly etched or sandblasted.
<b>Size:</b>	Minimum 12" diagonal. Maximum sheet size 40" x 70".

### LABELING:



Each lite of KeraShield FRL will be permanently labeled, in accordance with NFPA 80, with the product and manufacturer's name, testing laboratory, fire rating period and safety glazing standards.

### LISTINGS & RATINGS:

Fire rating listed and tested by ITS/Warnock Hersey for fire rating scheduled at opening locations in drawings when **Tested in accordance with: (ASTM E-163) (ASTM E-152), (NFPA 252 & 257). With Hose Stream.**

**Impact Safety Rating:** ANSI Z97.1 & CPSC 16CFR 1201 (CAT I & II)

**Positive Pressure Rating:** UL10C/UBC 7-2/UBC 7-4

### INSTALLATION:

Use glazing compound or glazing tape on both sides of glass, install in an appropriately-listed and labeled vision frame. Certain optical and visual imperfections are inherent in the production process. These characteristics may be evaluated according to the manufacturer's quality standards but do not impair the transparency or affect the performance of the glass in case of fire, and shall not be considered cause for rejection.

**Air Louvers frames for KFRL: VLFIG, VLFEZIG, VSIG, VLFS10**

Assembly	Time Rating (minute)	Maximum Exposed Area	Maximum Width Exposed Area*	Maximum Height Exposed Area*
Door - Non Temp Rise Transom, Window, Sidelite	20-60	3627 in <sup>2</sup>	40"	70"
Door - Temp Rise	60-90	100 in <sup>2</sup>	10"	33"
Door - Non Temp Rise	90	3534 in <sup>2</sup>	40"	70"
Transom, Window, Sidelite	90	2736 in <sup>2</sup>	60-1/4"	70"
Door - Non Temp Rise & Temp Rise	3 hours	100 in <sup>2</sup>	10"	33"

\* Please note that combined height and width cannot exceed the maximum exposed area measurement.

**Note:** Glass-ceramics do not act as a barrier to radiant or conducted heat transfer (ASTM E119/UL 263) and as such, use in openings with fire ratings of 60 minutes or greater may require approval from the local authority having jurisdiction (AHJ).

**Order Format: KFRL \_\_\_\_ (W) \_\_\_\_ (H) Example: KFRL1212**

Interpretation of Fire and Building Codes May Vary. Consult with the Local Authority Having Jurisdiction (AHJ) to determine appropriate standards.

	<b>Distributor:</b>	<b>Width: ____ x Height: ____</b>
	<b>Architect:</b>	<b>Quantity:</b>
	<b>Contractor:</b>	<b>Fire Rating: - 20 60 90 3HR</b>
	<b>Project:</b>	<b>Date: _____ Version: ALSPDS1001</b>
<p>HDQTRS:4450 WEST 78<sup>TH</sup> ST CIR., BLOOMINGTON, MN 55435-5416 PH: 800-554-6077 FAX: 952-835-2218 EMAIL: SALES@AIRLOUVERS.COM                  VISIT <b>WWW.ACTIVARCPG.COM</b> FOR THE MOST UPDATED PRODUCT INFORMATION • AN ACTIVAR CONSTRUCTION PRODUCTS COMPANY                  ACPG WEST COAST (AIR LOUVERS MANUFACTURING): COMMERCE CA • WAREHOUSES: LANCASTER PA, ATLANTA GA, CHICAGO IL, Bloomington MN</p>		



**Fire & CAT II Impact-Rated Clear Laminated Glass that Reduces Radiant Heat Transfer and has Excellent Sound-Reduction Properties. Provides up to a 3 Hour fire Rating for Doors.**

**KFRFU SPECIFICATIONS:**

<b>Description:</b>	Two lites of clear ceramic fire-resistant safety glass laminated together.
<b>Thickness:</b>	3/4" (18mm)
<b>Weight:</b>	6.0 lbs. per sq. ft
<b>Light Transmission:</b>	83% approximately
<b>Warranty:</b>	Five year limited warranty
<b>Fabricated:</b>	USA
<b>Options at Additional Cost:</b>	Can be lightly etched or sandblasted
<b>Size:</b>	Minimum size 12" diagonal. Maximum sheet size 46-1/2" x 76"

**LISTINGS & RATINGS:**

Fire rating listed and tested by ITS/Warnock Hersey or Underwriters Laboratories, for fire rating scheduled at opening locations in drawings when **Tested in accordance with: (ASTM E-163) (ASTM E-152), (NFPA 252 & 257). With Hose Stream.**

**Impact Safety Rating:** ANSI Z97.1 & CPSC 16CFR 1201 (CAT I & II)

**Positive Pressure Rating:** UL10C/UBC 7-2/UBC 7-4

**INSTALLATION:**

Use glazing compound or glazing tape on both sides of glass, install in an appropriately-listed and labeled vision frame. Certain optical and visual imperfections are inherent in the production process. These characteristics may be evaluated according to the manufacturer's quality standards but do not impair the transparency or affect the performance of the glass in case of fire, and shall not be considered cause for rejection.

***Air Louvers frames for KFRU: VLFIG, VLFEZIG, VSIG, VLFS10***

**LABELING:**



Each lite of KeraShield FRU will be permanently labeled, in accordance with NFPA 80, with the product and manufacturer's name, testing laboratory, fire rating period and safety glazing standards.

Assembly	Time Rating (minute)	Maximum Exposed Area	Maximum Width Exposed Area*	Maximum Height Exposed Area*
Door - Non Temp Rise	20-90	2,736in <sup>2</sup>	46"	76"
Transom, Window, Sidelite	20-45	2,736 in <sup>2</sup>	60-1/4"	76"
Door - Temp Rise	60-90	100 in <sup>2</sup>	10"	33"
Door - Non Temp Rise & Temp Rise	3 hr	100 in <sup>2</sup>	10"	33"
Transom, Window, Sidelite	60-90	2736 in <sup>2</sup>	46-1/2"	76"

\* Please note that combined height and width cannot exceed the maximum exposed area measurement.

**Order Format: KFRU \_\_\_\_ (W) \_\_\_\_ (H) Example: KFRU1212**

Interpretation of Fire and Building Codes May Vary. Consult with the Local Authority Having Jurisdiction (AHJ) to determine appropriate standards.

	<b>Distributor:</b>	<b>Width: ____ x Height: ____</b>
	<b>Architect:</b>	<b>Quantity:</b>
	<b>Contractor:</b>	<b>Fire Rating: <u>  20  </u> <u>  60  </u> <u>  90  </u> <u>  3HR  </u></b>
	<b>Project:</b>	<b>Date: _____ Version: ALSPDS1001</b>

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# SWISSHIELD 45, 60 & 90 GLAZING



G9

Protect Against Fire, Smoke, Radiant & Conducted Heat. These Fire Rated Glazings are a Multi-Laminated Glass with 2 or More Panes of Tempered Safety Glass Separated by an Intumescent Interlayer. .

## SWISS SPECIFICATIONS:

Thickness SWISS45:	3/4" (18mm)
Thickness SWISS60:	1" (25mm)
Thickness SWISS90:	1-1/2" (38mm)
Weight SWISS45:	8.0 lbs. per sq. ft.
Weight SWISS60:	14.0 lbs. per sq. ft.
Weight SWISS90:	18 lbs. per sq ft
Light Transmission:	75-80% ( varies with thickness)
STC Rating:	Up to 44
Warranty:	Five year limited warranty
Fabricated:	USA
Options at Additional Cost:	Can be etched or sandblasted.
Radiant Heat Barrier (Clear, Colorless, Intumescent Layer):	Interlayers absorb the energy from the fire, limiting the temperature rise to the non-fire side.
Size:	Minimum Size 12" Diagonal

## LABELING:



Each lite of SwissShield will be permanently labeled, in accordance with NFPA 80, with the product and manufacturer's name, testing laboratory, fire rating period and safety glazing standards.

## LISTINGS & RATINGS:

Fire rating listed and tested by ITS/Warnock Hersey or Underwriters Laboratories (File # RSS066/R14515), (New York MEA file # 96-03-M/95-03-M/97-03-M) for fire rating scheduled at opening locations in drawings when Tested in accordance with: (ASTM E2010, ASTM E2074 & ASTM E119), (NFPA 252, NFPA 257, NFPA 251, UL 263). With Hose Stream.

Impact Safety Rating: ANSI Z97.1 & CPSC 16CFR 1201 (CAT I & II)

Positive Pressure Rating: UL10C/UBC 7-2/UBC 7-4

## INSTALLATION:

Use glazing compound or glazing tape on both sides of glass, install in appropriately-listed and labeled vision frame assemblies using suitable setting blocks and closed cell PVC tape, pure silicone, or ceramic glazing tape. Allow for minimum edge coverage of 3/8" and a minimum edge clearance of 1/4". SwissShield is an engineered specialty fire resistant glazing material. Certain optical and visual imperfections are inherent in the production process. These characteristics may be evaluated according to the manufacturer's quality standards but do not impair the transparency or affect the performance of the glass in case of fire, and shall not be considered cause for rejection.

**Air Louvers frames for SWISS45 & SWISS60 :VLFIG, VLFEZIG, VSIG, VLFS10. Frames for SWISS90: VLFIG, VLFS10**

Assembly	Time Rating (minute)	Maximum Exposed Area	Maximum Width Exposed Area*	Maximum Height Exposed Area*
Wood/Steel Door	45	3419 in <sup>2</sup>	36"	84"
Borrowed Lite	45	3775 in <sup>2</sup>	44-1/2"	84"
Wood/Steel Door	60	3325 in <sup>2</sup>	35"	95"
Borrowed Lite	60	3325 in <sup>2</sup>	35"	95"
Wood/Steel Door	90	3204 in <sup>2</sup>	36"	89"
Borrowed Lite	90	3204 in <sup>2</sup>	36"	89"

\* Please note that combined height and width cannot exceed the maximum exposed area measurement.

Order Format: SWISS45 \_\_\_\_ (W) \_\_\_\_ (H) Example: SWISS451212

Interpretation of Fire and Building Codes May Vary. Consult with the Local Authority Having Jurisdiction (AHJ) to determine appropriate standards.

	Distributor:	Width: ____ x Height: ____
	Architect:	Quantity:
	Contractor:	Fire Rating: ____ 45 ____ 60 ____ 90
	Project:	Date: _____ Version: ALSPDS1001

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Protect Against Fire, Smoke & Radiant & Conducted Heat. These Fire-Rated Glazings are A Multi-Laminated And Fully Insulated Glass with 2 Panes of Tempered Safety Glass Separated by an Intumescent Interlayer.

### CONTRA SPECIFICATIONS:

Thickness CONTRA60:	1" (25mm)
Thickness CONTRA90:	1-3/8" (34mm)
Weight CONTRA60:	11.0 lbs. per sq. ft
Weight CONTRA90:	18 lbs. per sq ft
Light Transmission:	75-80% (varies with thickness)
STC Rating:	Up to 44
Warranty:	Five year limited warranty
Fabricated:	USA
Options at Additional Cost:	Can be etched or sandblasted.
Radiant Heat Barrier (Clear, Colorless, Intumescent Layer):	Interlayers absorb the energy from the fire, limiting the temperature rise to the non-fire side.
Size:	Minimum Size 12" Diagonal

### LABELING:

Each lite of ContraShield will be permanently labeled, in accordance with NFPA 80, with the product and manufacturer's name, testing laboratory, fire rating period and safety glazing standards.



### LISTINGS & RATINGS:

Fire rating listed and tested by ITS/Warnock Hersey or Underwriters Laboratories (File # R22066) for fire rating scheduled at opening locations in drawings when Tested in accordance with: (ASTM E2010, ASTM E2074 & ASTM E119), (NFPA 252, NFPA 257, NFPA 251, UL 263). With Hose Stream.

Impact Safety Rating: ANSI Z97.1 & CPSC 16CFR 1201 (CAT I & II)

Positive Pressure Rating: UL10C/UBC 7-2/UBC 7-4

### INSTALLATION:

Use glazing compound or glazing tape on both sides of glass, install in appropriately-listed and labeled vision frame assemblies using suitable setting blocks and closed cell PVC tape, pure silicone, or ceramic glazing tape. Allow for minimum edge coverage of 3/8" and a minimum edge clearance of 1/4". ContraShield is an engineered specialty fire resistant glazing material. Certain optical and visual imperfections are inherent in the production process. These characteristics may be evaluated according to the manufacturer's quality standards but do not impair the transparency or affect the performance of the glass in case of fire, and shall not be considered cause for rejection.

**Air Louvers frames for CONTRA60: VLFIG, VLFEZIG, VSIG, VLFS10. Frames for CONTRA 90: VLFIG, VLFS10**

Assembly	Time Rating (minute)	Maximum Exposed Area	Maximum Width Exposed Area*	Maximum Height Exposed Area*
Wood/Steel Door	60	3325 in <sup>2</sup>	35"	95"
Borrowed Lite	60	3325 in <sup>2</sup>	35"	95"
Steel Door	90	3204 in <sup>2</sup>	36"	89"
Borrowed Lite	90	3204 in <sup>2</sup>	36"	89"

\* Please note that combined height and width cannot exceed the maximum exposed area measurement.

Order Format: CONTRA90 \_\_\_\_ (W) \_\_\_\_ (H) Example: CONTRA901212

Interpretation of Fire and Building Codes May Vary. Consult with the Local Authority Having Jurisdiction (AHJ) to determine appropriate standards.

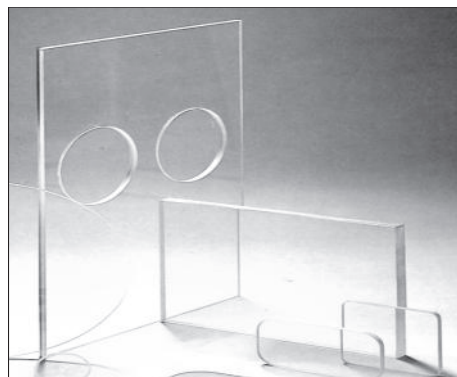
	Distributor:	Width: ____ x Height: ____
	Architect:	Quantity:
	Contractor:	Fire Rating: _ ____ 60 ____ 90
	Project:	Date: _____ Version: ALSPDS1001
HDQTRS: 4450 WEST 78 <sup>TH</sup> ST CIR., BLOOMINGTON, MN 55435-5416 PH: 800-554-6077 FAX: 952-835-2218 EMAIL: SALES@AIRLOUVERS.COM VISIT <b>WWW.ACTIVARCPG.COM</b> FOR THE MOST UPDATED PRODUCT INFORMATION • AN ACTIVAR CONSTRUCTION PRODUCTS COMPANY ACPG WEST COAST (AIR LOUVERS MANUFACTURING): COMMERCE CA • WAREHOUSES: LANCASTER PA, ATLANTA GA, CHICAGO IL, Bloomington MN		



Single Pane, Leadlined Glazing for X-Ray Safety Glass. Rated for CAT II use in Openings and Meets or Exceeds Over 16 Various National and International Radiation Glazing Safety Codes and Standards of U.S.A., Canada, Britain, France, Japan, Germany, Austria and Russia

## LG SPECIFICATIONS:

<b>Thickness:</b>	5/16" (8mm)
<b>Weight:</b>	6.1 lbs. per sq. ft.
<b>Size:</b>	Maximum size available in single pane is 48" x 96"
<b>Light Transmission:</b>	85% approximate.
<b>Lead Equivalent:</b>	nominal 2.1mm, .078" +, ft(2): 6.1
<b>Warranty:</b>	Five year limited warranty
<b>Fabricated:</b>	USA
<b>Use:</b>	LGShield is utilized for medical X-Ray, Gamma, Alpha and Beta photon shielding only. LGShield has successfully passed extensive radiation testing establishing consistent radiation attenuation properties from a variety of isotopic and cathode tube x-ray or gamma sources ranging in output energy emission exposures of 80kvp, 110, 150, 200, 250, 300, 350 & 400.
<b>Options at Additional Cost:</b>	<input type="checkbox"/> Tinted or Obscure Patterns. . <input type="checkbox"/> Other lead equivalencies of 2.4mm, 3.2mm and 3.7mm. <input type="checkbox"/> Optically Clear Glass
<b>To Order:</b>	Contact customer service with your specifications.



Custom Shapes and Sizes Available

## LISTINGS & RATINGS:

Tested in accordance with:

**UL: Impact safety rating:** ANSI Z97.1 and 16CFR 1201 CAT II

**Positive Pressure Rating:** UL 9 & UIL10C/UBC 7-2/UBC 7-4

**Federal Spec.** DD-G-451  
**NCRP:** Report #49, #147

**Note:** This is not a fire-rated product and should not be used in fire-rated door applications.

**Air Louvers Vision Frames for This Glazing:** VLFIG, VLFEZIG, VLFS10 - Specify Leadlined Option at the Time of Order.

**ALL CALCULATIONS FOR LEAD REQUIREMENTS SHOULD BE DETERMINED BY A HEALTH PHYSICIST CURRENTLY RECOGNIZED IN THE STATE IN WHICH THE PROJECT OCCURS.**

**LGShield is permanently labeled and provides required impact resistance for door vision-lites or in walls within 24" of a door opening, or in high risk traffic areas or for additional seismic safety, and also provides a clear view while additionally shielding X-Ray/Gamma radiation, and 95% of UV protection.**

Interpretation of Fire and Building Codes May Vary. Consult with the Local Authority Having Jurisdiction (AHJ) to determine appropriate standards.

	<b>Distributor:</b>	<b>Width:</b> _____ <b>x</b> <b>Height:</b> _____
	<b>Architect:</b>	<b>Quantity:</b>
	<b>Contractor:</b>	
	<b>Project:</b>	<b>Date:</b> _____ <b>Version:</b> ALSPDS1001
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ArmShield Polycarbonate is Designed for the High Demands of Ballistic and Forced Entry Glazing Applications. 3 Levels of Ballistic Protection, Plus Miami-Dade County FL Approval.

### “AS1-3” SPECIFICATIONS:

<b>Material:</b>	<b>Bullet-Proof/Resistant Polycarbonates</b> are transparent 3-4 ply laminates of Makrolon AR® polycarbonate sheets, acrylic sheets and polyurethane bonding interlayers.
<b>Durability:</b>	This glazing features a coating that provides resistance to abrasion, UV, chemical attack and graffiti.
<b>Performance:</b>	These products are designed for no spall & no white out.
<b>Thickness, Weight and Light Transmission:</b>	Vary by Product
<b>Warranty:</b>	Seven year limited warranty against coating failure, yellowing and hazing.
<b>Fabricated:</b>	USA
<b>To Order:</b>	Contact customer service with your specifications.

### LISTINGS & RATINGS:

#### Ballistic:

Laminated security glazing can successfully resist both penetration of bullets and impact-induced spall (fragmentation from the protected side of the glazing) as a result of ballistic attacks. Traditionally, the ability of security glazing to resist ballistic attack has been measured using the **UL 752 test requirements. UL File # BP6864.**

**Level 1:** Protection against handguns of medium power (9mm full metal copper jacket with lead)

**Level 2:** Protection against handguns of high power (.357 magnum jacketed lead soft point)

**Level 3:** Protection against handguns of super power (.44 magnum lead semi-wadcutter gas checked)  
NIJ Level II, Level IIIA



#### Miami-Dade County, FL NOA:

File # 08-0926.15

**Note: This is not a fire-rated product and should not be used in fire-rated door applications.**

	UL 752 Ballistic Rating	Description	Thickness	Weight lbs/ft <sup>2</sup>	Light Transmission	Vision Frame/ Door Thickness*	Additional Ratings to UL 752
AS1	Level 1	3 Ply Laminate of polycarbonate and acrylic sheets with polyurethane bonding interlayers	.780"	5.1	88%	VLFIG - up to 1-1/2" Door VLFEZIG up to 1-3/4" VSLIG & VLFS10 1-3" Door	None
AS2	Level 2	4 Ply Laminate of polycarbonate sheets with polyurethane bonding interlayers	1.05"	6.5	72%	VLFIG - up to 1-1/2" Door VLFS10 - 1-3" Door	Forced Entry & Containment: ASTM F1233 Class V & III HPW TP 0500.03 Level IV
AS3	Level 3	4 Ply Laminate of polycarbonate sheets with polyurethane bonding interlayers	1.30"	8.1	72%	VLFIG - up to 1-1/2" Door VLFS10 - 1-3" Door	Forced Entry & Containment: ASTM F1233 Class IV, ASTM F1915 Grade 1, HPW TP 0500.03 Level IV

\* Note: Air Louvers Vision Frames have not Been Tested UL752 Test Standards

**DISCLAIMER:** The manner in which you use and the purpose to which you put and utilize our products, technical assistance and information (whether verbal, written or by way of production evaluations), including any suggested formulations and recommendations are beyond our control. Therefore, it is imperative that you test our products, technical assistance and information to determine to your own satisfaction whether our products, technical assistance and information are suitable for your intended uses and applications. This application-specific analysis must at least include testing to determine suitability from a technical as well as health, safety, and environmental standpoint. Such testing has not necessarily been done by us. Unless we otherwise agree in writing, all products are sold strictly pursuant to the terms of our standard conditions of sale which are available upon request. All information and technical assistance is given without warranty or guarantee and is subject to change without notice. It is expressly understood and agreed that you assume and hereby expressly release us from all liability, in tort, contract or otherwise, incurred in connection with the use of our products, technical assistance, and information. Any statement or recommendation not contained herein is unauthorized and shall not bind us. Nothing herein shall be construed as a recommendation to use any product in conflict with any claim of any patent relative to any material or its use. No license is implied or in fact granted under the claims of any patent.

	<b>Distributor:</b>	<b>Width:</b> _____ <b>x Height:</b> _____
	<b>Architect:</b>	<b>Quantity:</b>
	<b>Contractor:</b>	<b>Level:</b>
	<b>Project:</b>	<b>Date:</b> _____ <b>Version:</b> ALSPDS1001

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