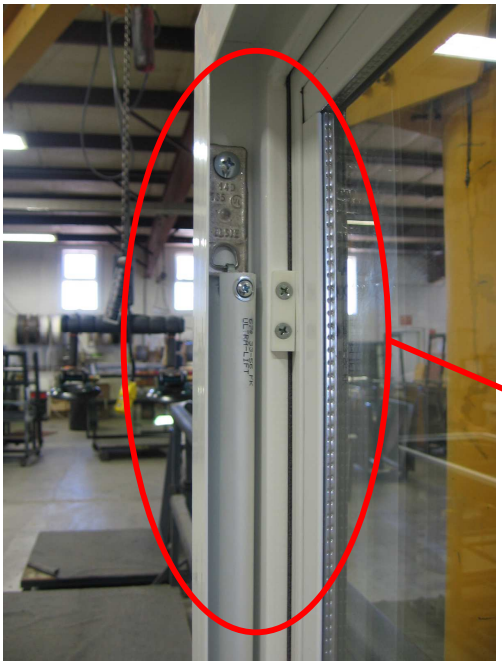
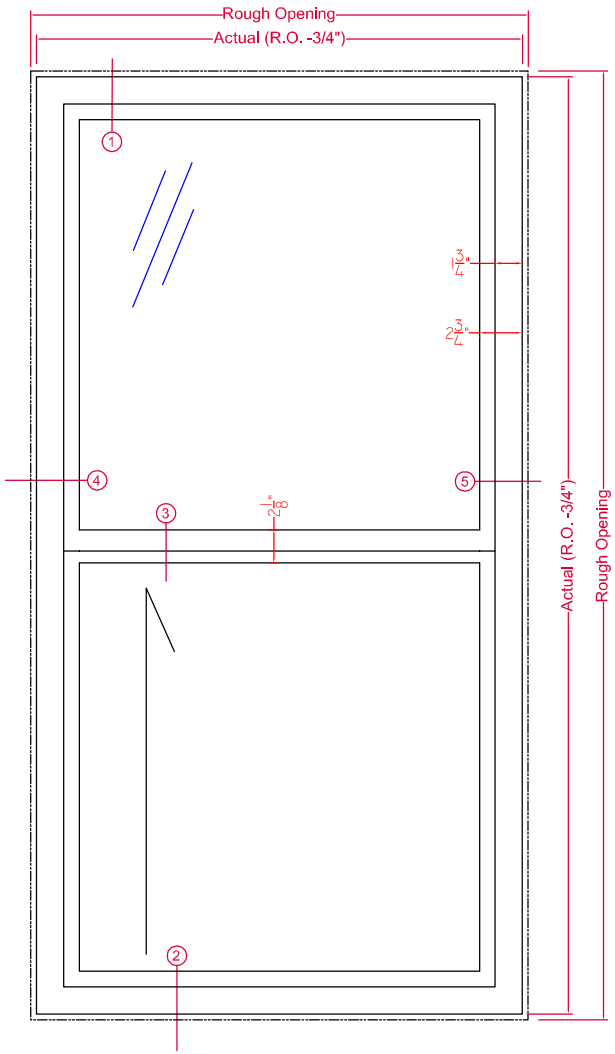
925 Single Hung



Fusible Link with
Attached Balance Spring

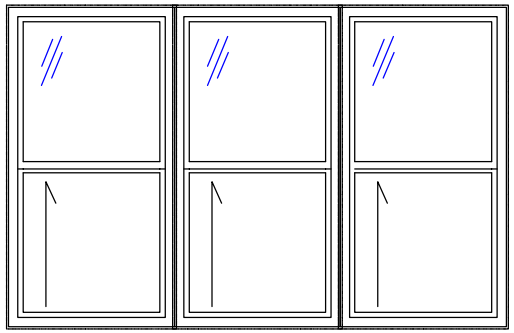
Latch and Handle



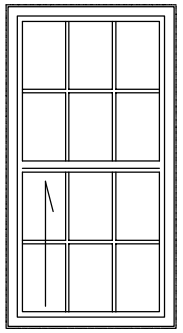
Typical Exterior Elevation

Fyre-Tec Series 925 Single Hung Window

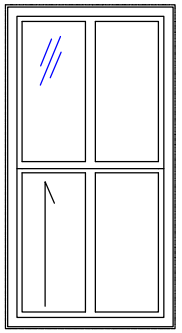
45- or 60-Minute UL Rated



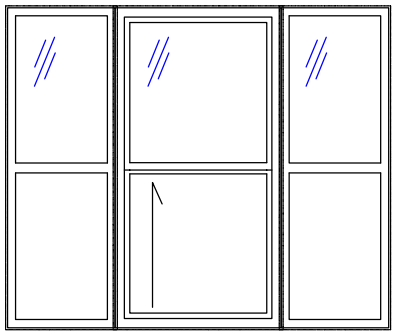
Mulled with Zero Vertical Mullions



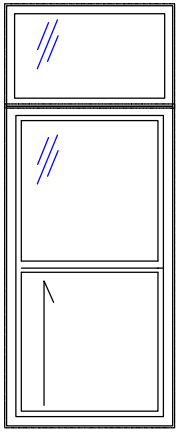
Internal 5/8" Grids In IGU



True Muntins

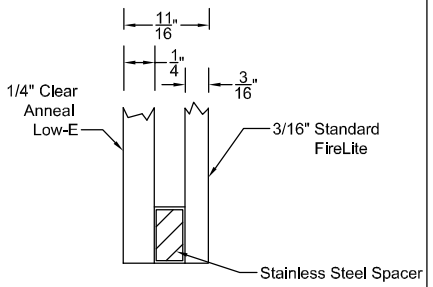


Mulled with Zero Vertical Mullions and Series 950 Fixed Lites



Mulled with Series 950 Transom

Typical IGU Makeup

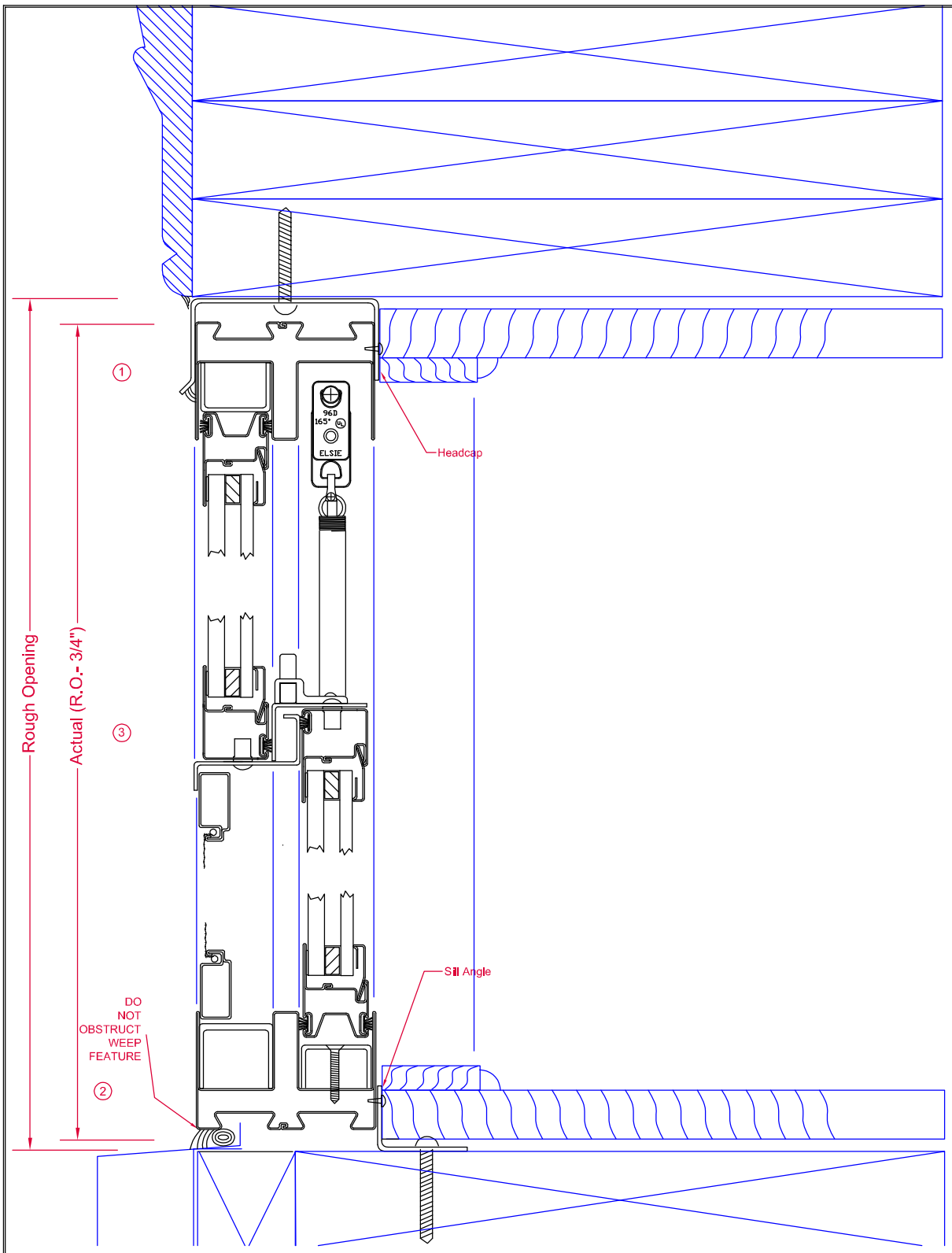


May include 1 hour UL rated ceramic with 1/4" clear anneal Low-E. Many other combinations are available depending on the reqirements for safety glazing or U-values. Wireglass IGU available.

See Fire-Rated Glazing Section for various options and configurations for U.L. labeled glazing.

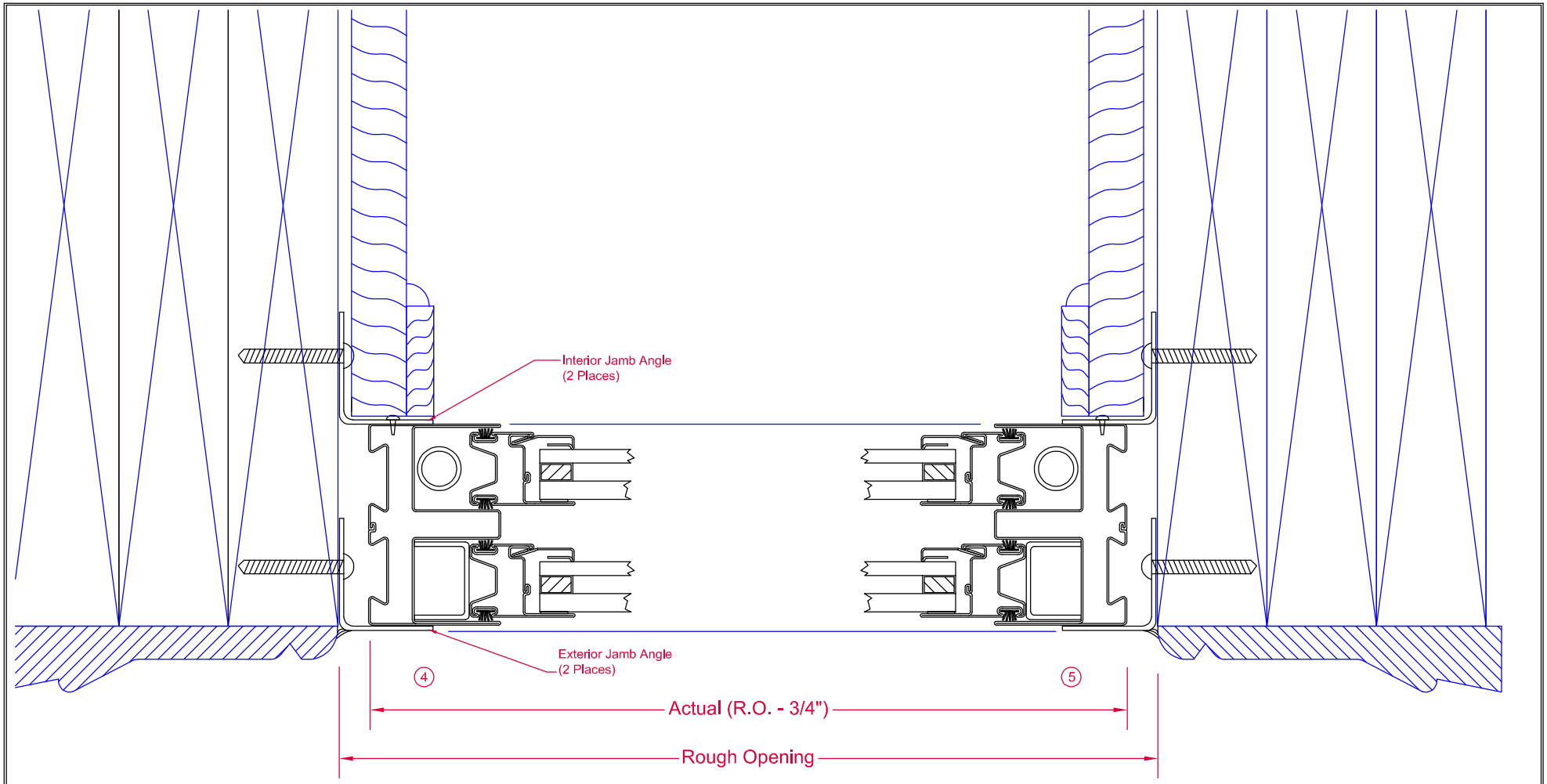
925 Single Hung - Subframe Installation

DWN BY: JDD	FYRE-TEC
CK'D BY:	P.O. Box 278, 701 Centennial Road Wayne, NE 68787
DATE: 11-30-2015	
TOLERANCE: 1. Fractions ±1/16 2. Decimals +- .0625 3. Angles +- 1/2 degree Except as Noted	
MAT'L	SCALE: 1:8
PAGE: 1/3	DWG No. Model 925



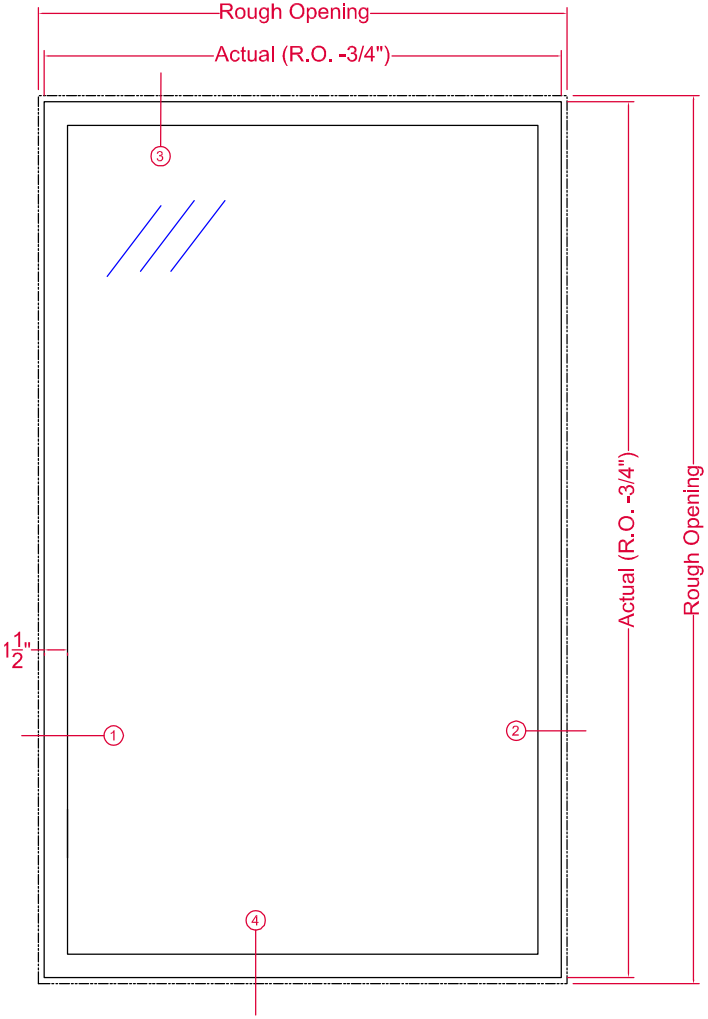
HEAD/SILL-SUBFRAME

DWN BY: JDD	FYRE-TEC
CK'D BY:	P.O. Box 278, 701 Centennial Road Wayne, NE 68787
DATE: 11-30-2015	
TOLERANCE: 1. FRACTIONS ±1/16 2. DECIMALS +- .0625 3. ANGLES +- 1/2 DEGREE EXCEPT AS NOTED	
MAT'L	SCALE: 1:1.5
PAGE: 2/3	DWG No. MODEL 925



JAMB - SUBFRAME INSTALLATION KIT

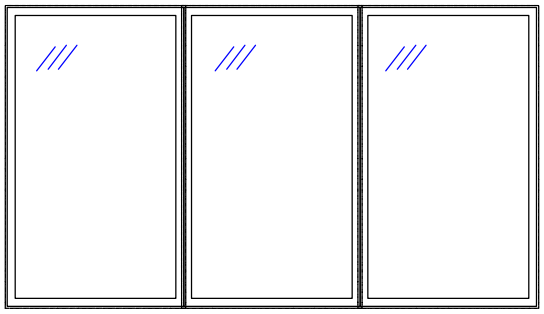
TOLERANCE: 1. FRACTIONS ±1/16 2. DECIMALS +- .0625 3. ANGLES +- 1/2 DEGREE EXCEPT AS NOTED	DWN BY: JDD	FYRE-TEC P.O. Box 278, 701 Centennial Road Wayne, NE 68787	
	CK'D BY:		
	DATE: 11-30-2015		
MATL	SCALE: 1:1.5	PAGE 3/3	DWG No. MODEL 925



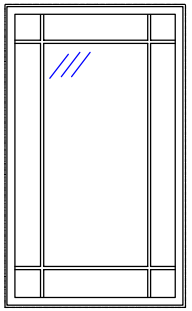
Typical Exterior Elevation

Fyre-Tec Series 950 Fixed Lite Window

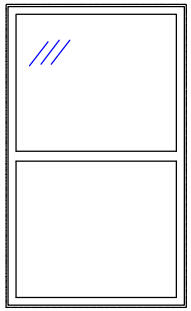
45- or 60-Minute UL Rated



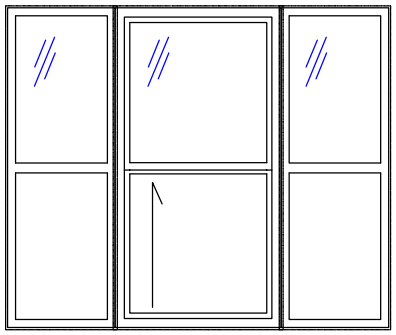
Mulled with Zero Vertical Mullions



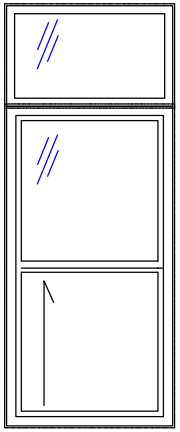
Internal 5/8" Grids In IGU



True Muntins

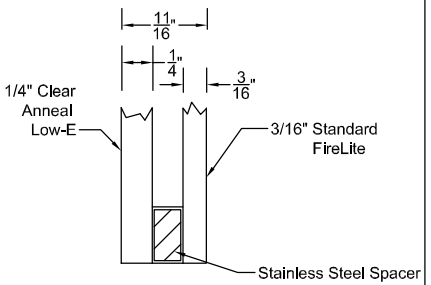


Mulled with Zero Vertical Mullions and Series 925 Single Hung



Transom Mulled Over 925 Single Hung

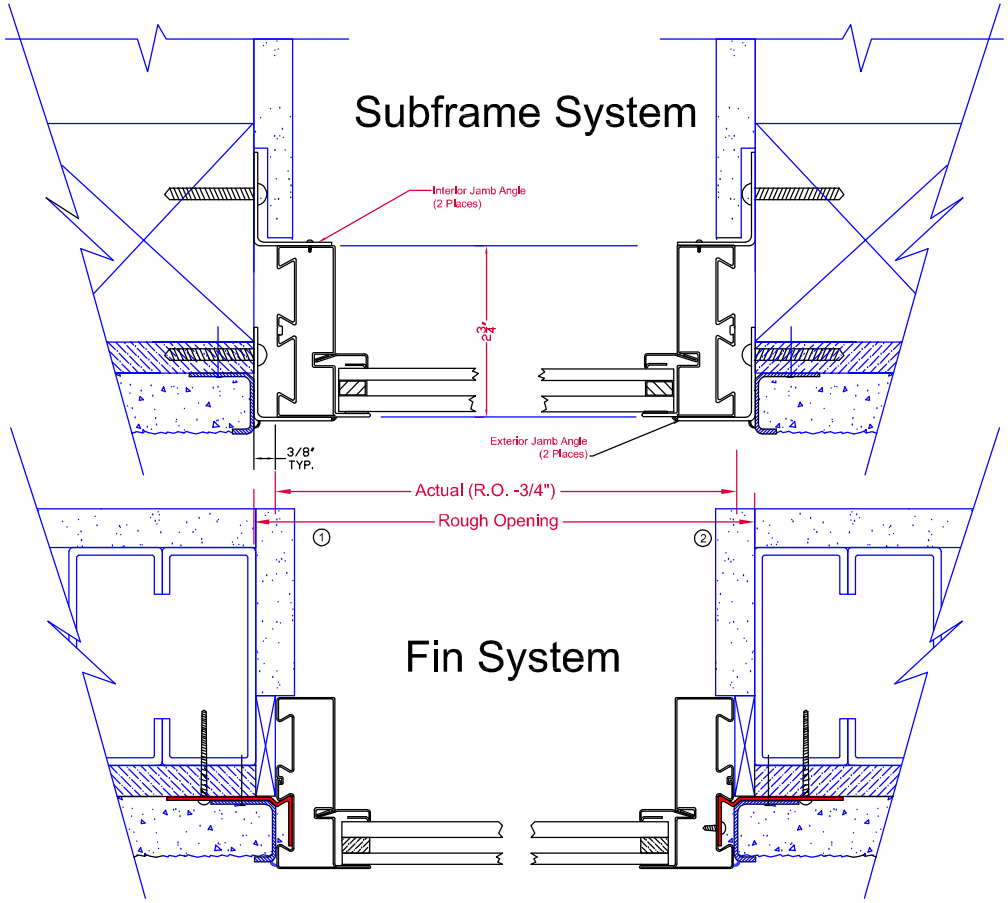
Typical IGU Makeup



May include 1 hour UL rated ceramic with 1/4" clear anneal Low-E. Many other combinations are available depending on the reqirements for safety glazing or U-values. Wireglass IGU available.

Series 950 Fixed Lite Window

DWN BY: JDD	FYRE-TEC
CK'D BY:	P.O. Box 278, 701 Centennial Road Wayne, NE 68787
DATE: 11-30-2015	
TOLERANCE: 1. FRACTIONS ±1/16 2. DECIMALS +- .0625 3. ANGLES +- 1/2 DEGREE EXCEPT AS NOTED	
MAT'L	SCALE: 1:8
PAGE: 1/3	DWG NO. MODEL 950

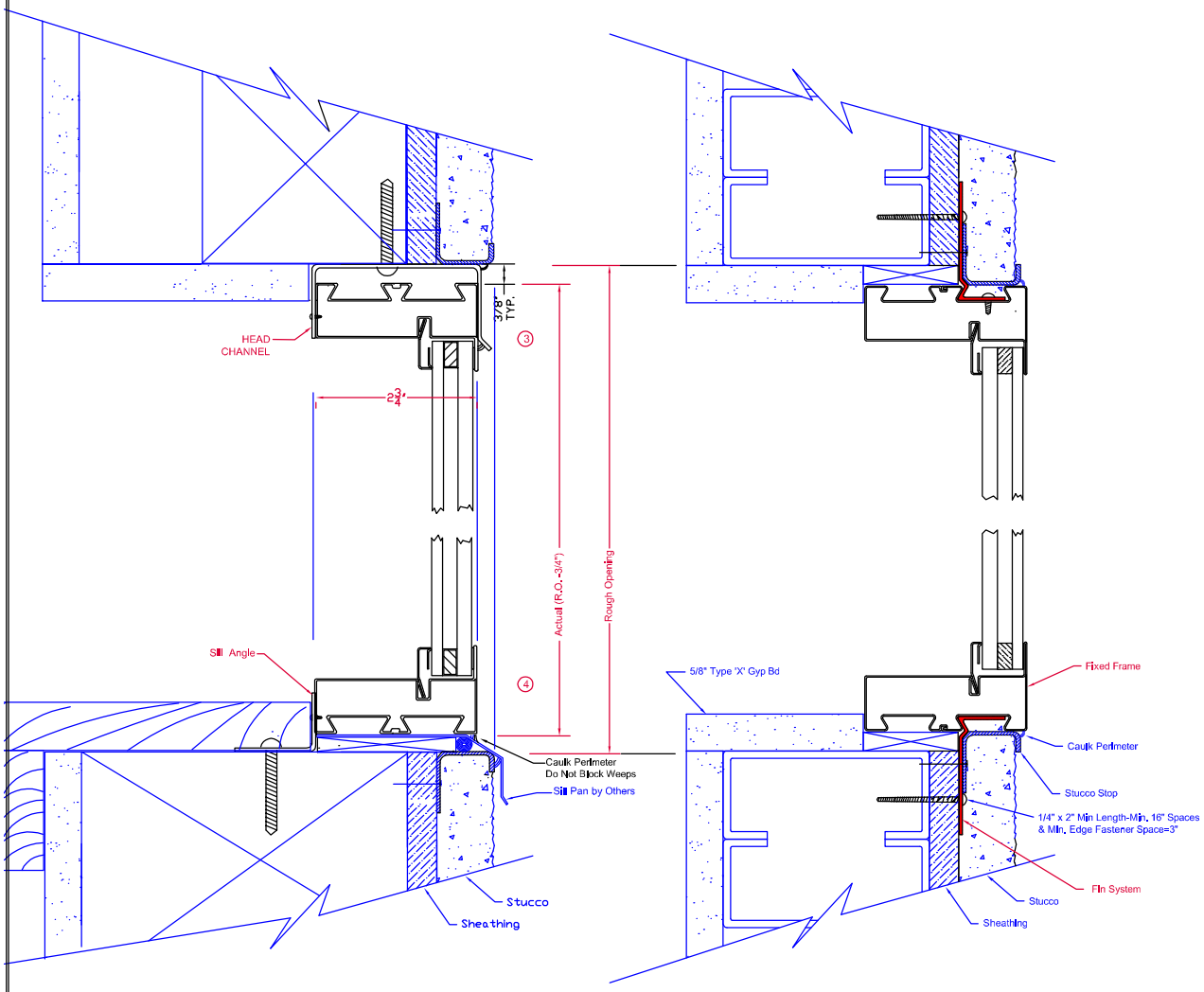


JAMB

DWN BY	JDD
CK'D BY	
DATE	11-30-2015
SCALE	1:2
PAGE	3/3
DWG No.	MODEL 950
MATL	

TOLERANCE:
1. FRACTIONS ±1/16
2. DECIMALS +- .0625
3. ANGLES +- 1/2 DEGREE
EXCEPT AS NOTED

FYRE-TEC
P.O. Box 278, 701 Centennial Road
Wayne, NE 68787



Subframe System

Fin System

HEAD/SILL

DWN BY: JDD	
CK'D BY:	
DATE: 11-30-2015	
SCALE: 1:2	PAGE: 2/3
MAT'L:	DWG No. MODEL 950

TOLERANCE:
1. FRACTIONS ±1/16
2. DECIMALS +- .0625
3. ANGLES +- 1/2 DEGREE
EXCEPT AS NOTED

FYRE-TEC
P.O. Box 278, 701 Centennial Road
Wayne, NE 68787

Fin Mounting System
Installation Procedure

The window and installation components should be inspected for any shipping damage. All local codes must be followed and supersede any of the following instructions. All finished surfaces of the window must be protected from damage to frame, paint, and glazing surfaces throughout the complete installation and wall finalization. This is to include stucco, drywall, brickwash or any other cleaning technique other than that recommended by Fyre-Tec. Failure to protect the window will VOID any applicable warranties. Protective coverings are recommended.

Opening Requirements

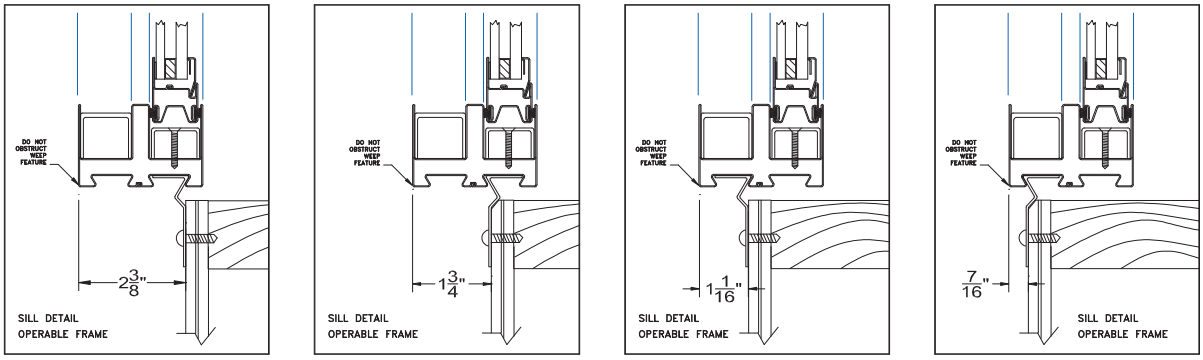
The opening should be built square and plumb and large enough to accept the window(s) provided. Windows are provided ¾" less in both width and height from the rough or nominal opening size. This allows for a 3/8" gap around the entire perimeter of the window to be properly squared and shimmed in the opening. It is recommended that the sill of the window be shimmed no less than ¼" above the construction sill to accommodate the weep feature of the window.

Opening Preparation

The window opening is to be prepared in conformance with local code and approved construction drawings. On openings other than masonry it is recommended that the perimeter be prepped with an air-barrier type window wrap and flashing system. Sill panning is recommended for optimal protection against water penetration. Panning and air barriers are not provided by Fyre-tec.

Fin Mounting to Window

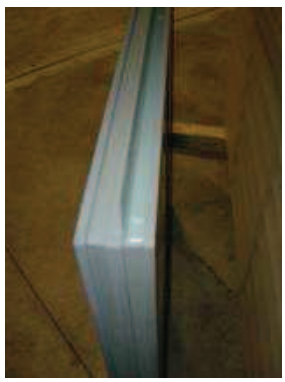
The mounting fins are supplied loose and are to be mounted to the window with the self-tapping screws supplied. Window frame depth in relationship to the finished wall may be adjusted in four increments by selecting the mounting position on the perimeter of the frame as shown in the following layout.



Attachment Procedure

1. *Pre-drill holes using a 3/16" bit in the fin to be mounted to the window (short leg). The screws are to be positioned 1" from each end of the individual fins and then placed 24" on center thereafter. The hole should be centered on the leg. *Pre-drill holes using a bit large enough to accept fasteners being used in fin for mounting to wall (Long Leg). Hole locations should be no more than 3" from each end of the individual fins and then placed 16" on center thereafter. The holes should be place in a known location as to allow fastener to penetrate a structural member of the wall.
2. Caulk bedding is to be applied around the perimeter of the frame in the frame recess that the fin is intended to be mounted. As shown (A). Any other holes or voids in the perimeter of the frame must be sealed as well to prevent water penetration into the wall cavity.
3. Screw the fin to the window as shown in (B) & (C)

(A) (B) (C)



Note: The sill of **operable windows** have additional factory applied butyl tape to further assist in preventing water leaking into wall cavity.

Window Installation in Opening

Installation will require a minimum of two people.
One individual should remain on the exterior to hold the window in place and the other on the interior to center the window in the opening using a flat pry-bar or shim. All sides on the interior should have approximately 3/8" gap from wall opening to window edge. Shim using an approved material. Check window for level in the opening and complete shim application. Once the window is shimmed properly, attach the fin on the exterior to a structural member per an approved method as laid out by an architect or authority having jurisdiction. Special attention should be made with the weep feature of the window in the exterior sill. A minimum 1/4" gap should be maintained between the sill of the window and the construction sill of the wall to allow for proper weeping and drainage from the window.

INTERIOR

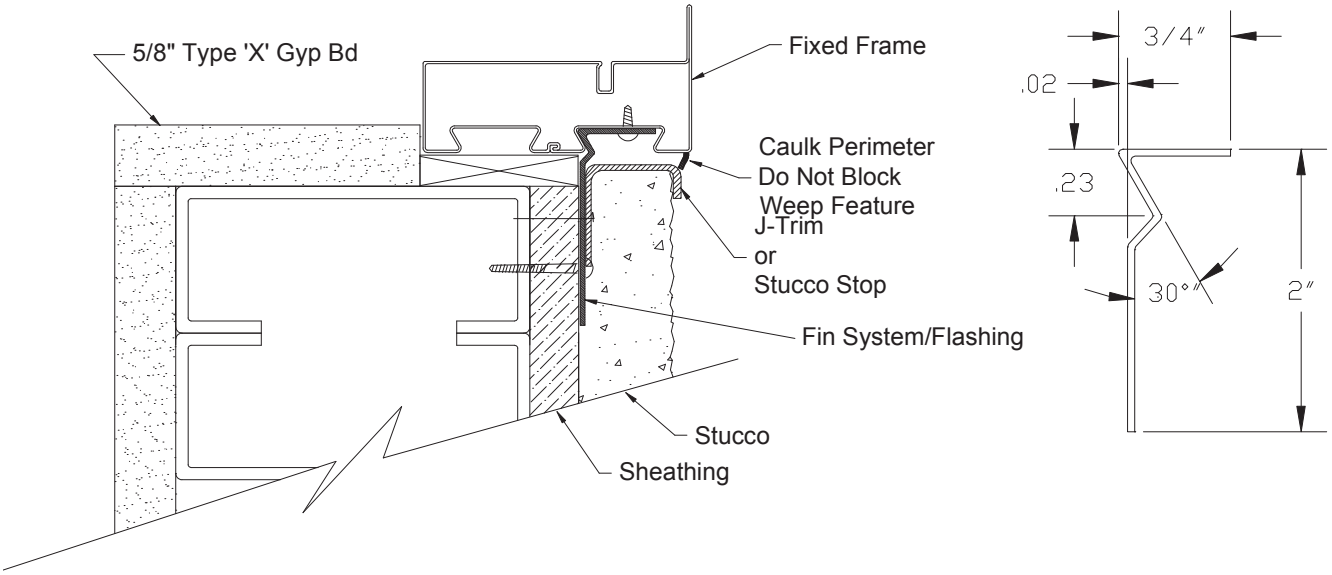
EXTERIOR

When attaching the Fin to the wall section keep the corners loose to apply the Fin corner pieces. Caulk corner of wall where Fin will be placed as seen in picture to (left). Pull fin away from wall slightly and slide fin underneath as shown in picture (lower left). Once all Fin corners are installed caulk all exposed seams using an approved sealant shown (lower right). The window is now ready to be flashed.

Flashing the Installation

Flashing the exterior gives added protection against water penetration. The recommended procedure for flashing the opening is to use a flexible adhesive backed window wrap. Each application of the window wrap should be cut extra long as to allow over lapping in each of the corners, at least the width of the wrap itself. The wrap should contact the window frame and be applied per manufacture specification.

If stucco is the desired finished wall exterior a J-channel trim must be used to keep the stucco from contacting the perimeter of the window frame. Protection against stucco from getting on the window and glazing surfaces is important.



Finalizing the Installation & Weep Feature

Once the wall construction is complete and stucco, siding, masonry or other application is complete, a perimeter beading of approved sealant is needed. Use caution when sealing around the weep feature.

The weep feature is a very important part in the longevity of the window's life span. On exterior applications special attention should be made to the exterior sill and the windows weep feature. The weep located 2" in from both corners of the sill and should be inspected or verified that the weep is open to a gap of 1/8" by approximately 7/8" long. Verification ensures that the weep has not been pinched down or crimped shut during shipping, handling, and installation. Failure to inspect the weep feature prior to finalizing the project can lead to water leakage as well as premature rusting with the window. If the slot needs additional adjustment carefully use a flat screwdriver or small pry-bar to make the gap more. Do not use excessive force, which can cause the frame to tear or crack the protective paint.

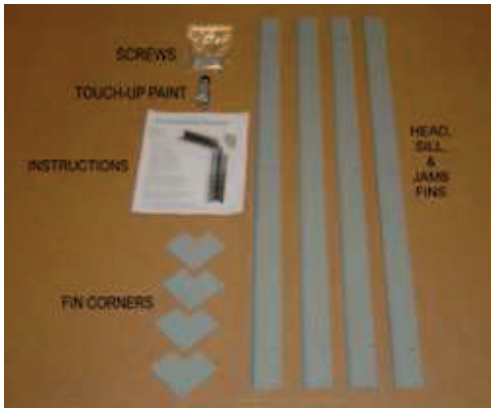
Tools Recommended:

-Safety glasses	-Pencil	-Power tool with drilling and screwing capabilities
-Measuring tape	-Hammer	-Saw or power saw with metal cutting capabilities
-Caulking Gun	-Level	-Pry-bar for shimming and squaring

Supplies Needed:

Notice All supplies must be approved and meet local code requirements. Contact your local inspector for a list of their approved products.

-Sealant -Fasteners -Shims



Parts Shipped

Contained within each individual crate supplied are:

1-Window

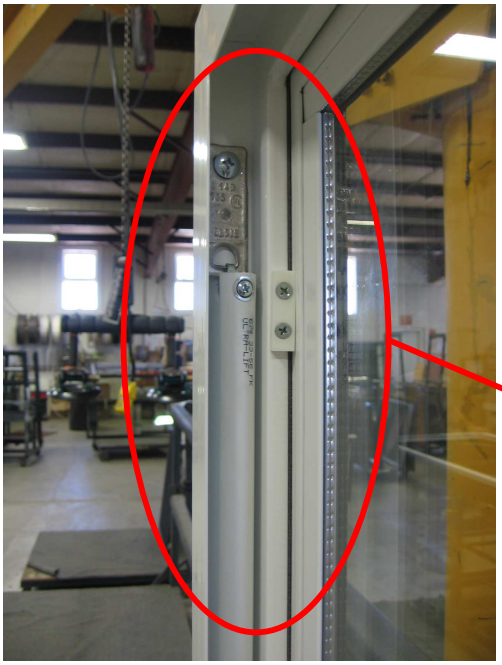
*1-Trim kit containing:

- Instructions
- 1-Head Fin
- 1-Sill Fin
- 2-Jamb Fins
- 4-Fin Corners
- **Touchup paint

**Screws for applying fin
(Not shown)
Mullions if applicable
Notes:
The window and parts should be inspected for shipping damage prior to installation
*If trim kit exceeds the length of the window it will be provided in separate box.

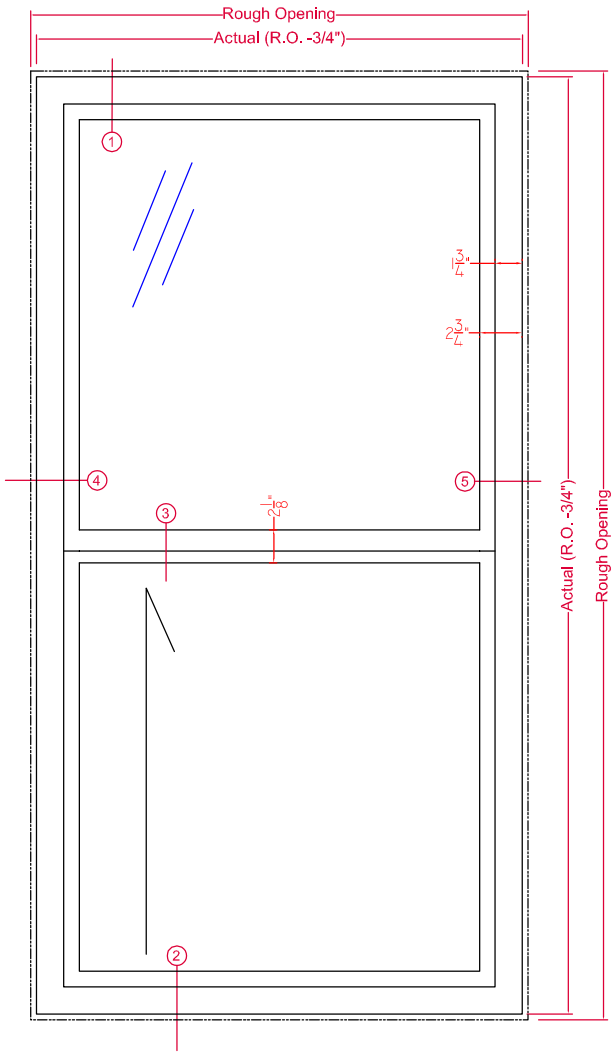
**Note: Depending upon the quantity of windows, touchup paint and screws may be provided in larger bags with enough quantity to cover the whole order. These bags will be attached to only one or several trim kits depending on order quantity. Location of these items will be identified on the shipped crate being marked as “SCREWS”

925 Single Hung



Fusible Link with
Attached Balance Spring

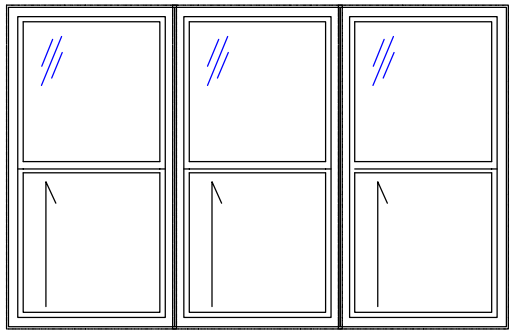
Latch and Handle



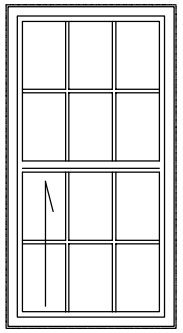
Typical Exterior Elevation

Fyre-Tec Series 925 Single Hung Window

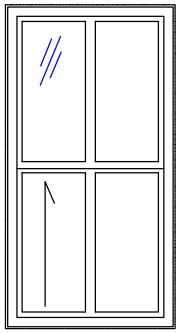
45- or 60-Minute UL Rated



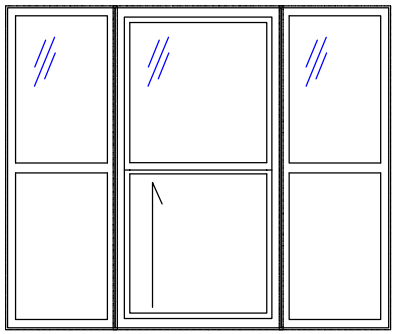
Mulled with Zero Vertical Mullions



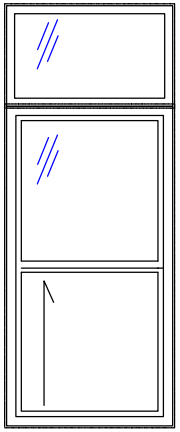
Internal 5/8" Grids In IGU



True Muntins

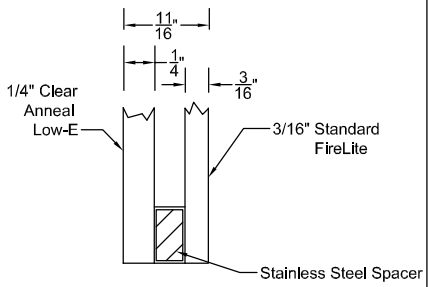


Mulled with Zero Vertical Mullions and Series 950 Fixed Lites



Mulled with Series 950 Transom

Typical IGU Makeup

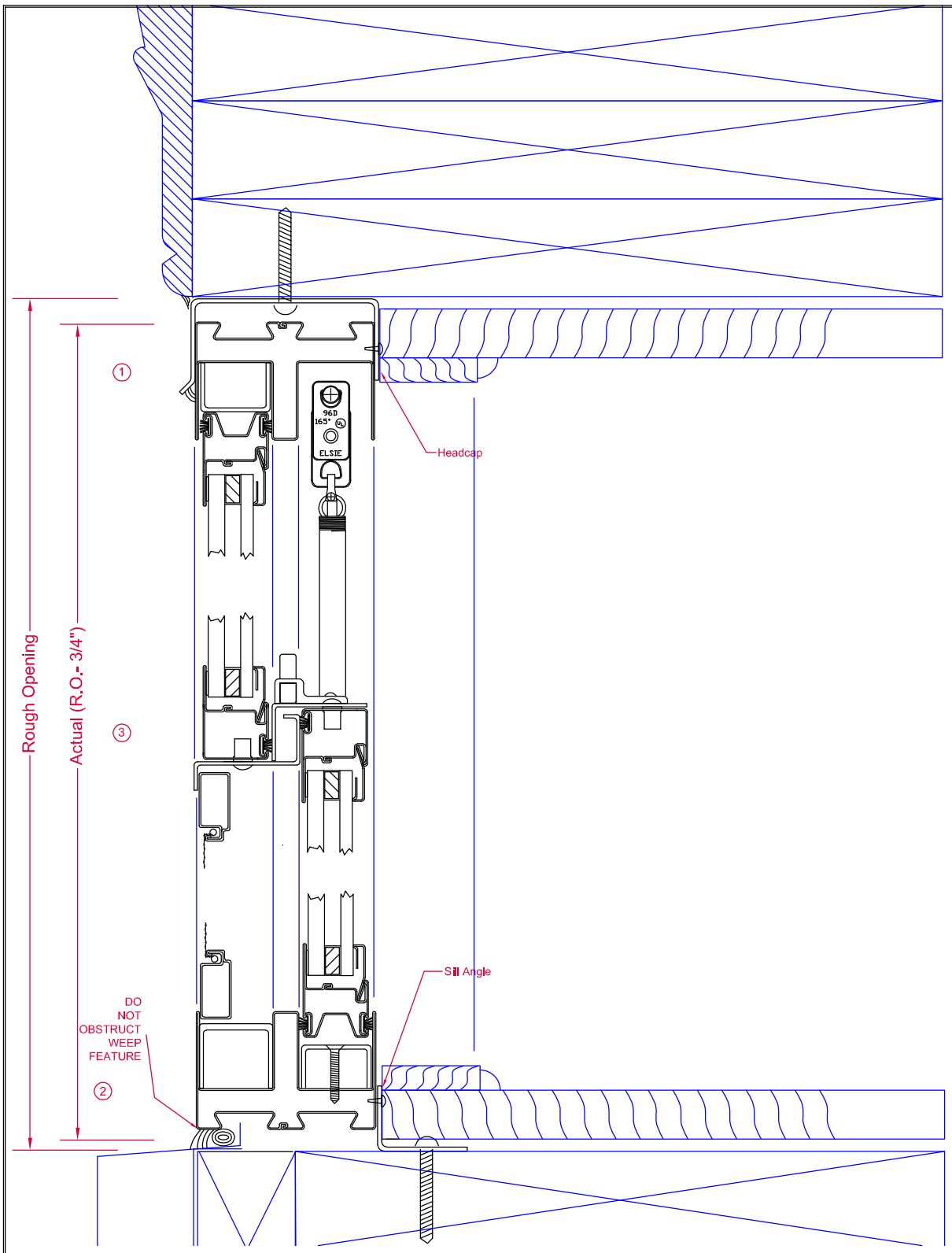


May include 1 hour UL rated ceramic with 1/4" clear anneal Low-E. Many other combinations are available depending on the reqirements for safety glazing or U-values. Wireglass IGU available.

See Fire-Rated Glazing Section for various options and configurations for U.L. labeled glazing.

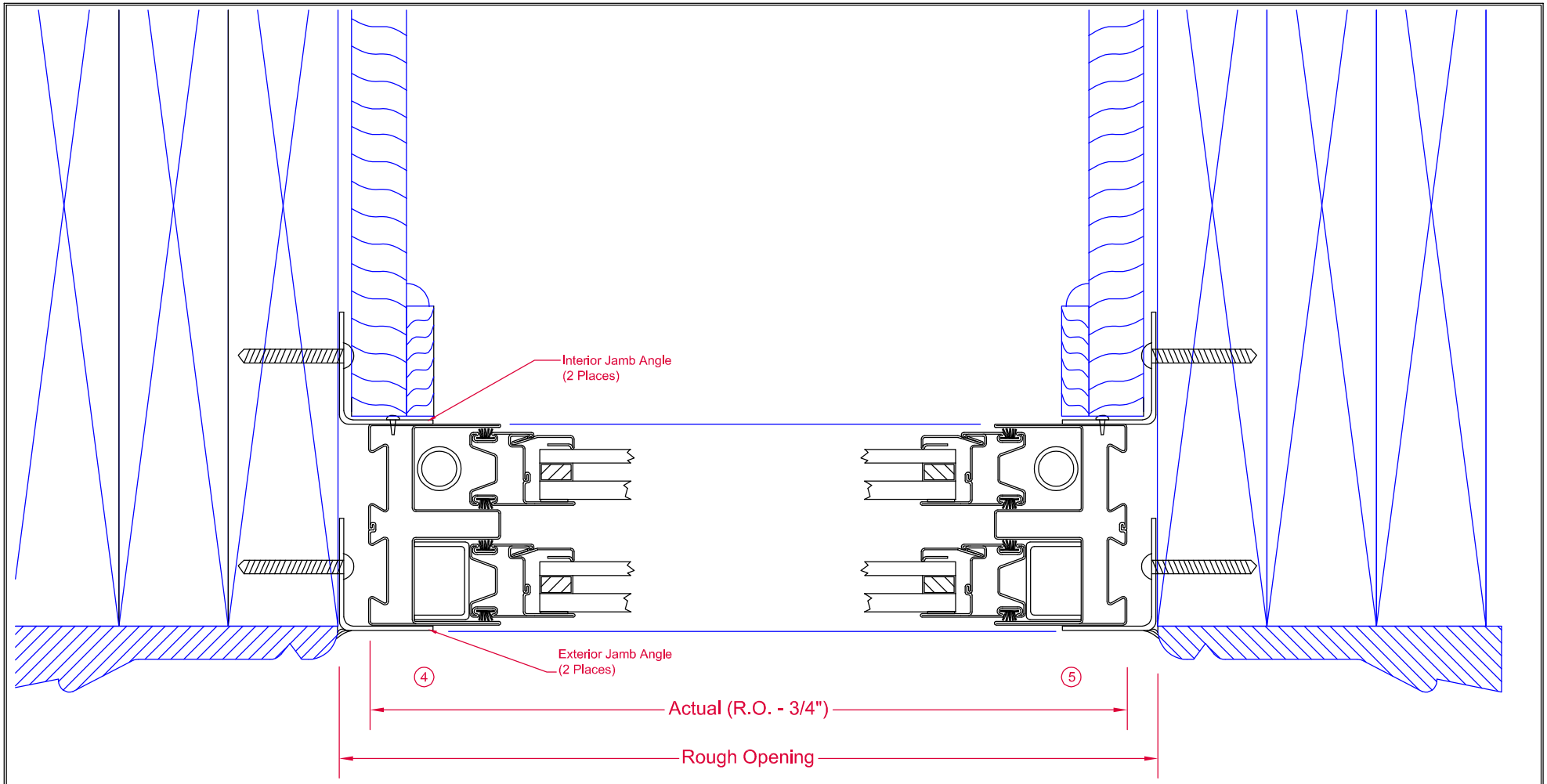
925 Single Hung - Subframe Installation

DWN BY: JDD	FYRE-TEC
CK'D BY:	P.O. Box 278, 701 Centennial Road Wayne, NE 68787
DATE: 11-30-2015	
TOLERANCE: 1. Fractions ±1/16 2. Decimals +- .0625 3. Angles +- 1/2 degree Except as Noted	
MAT'L	SCALE: 1:8
PAGE: 1/3	DWG No. Model 925



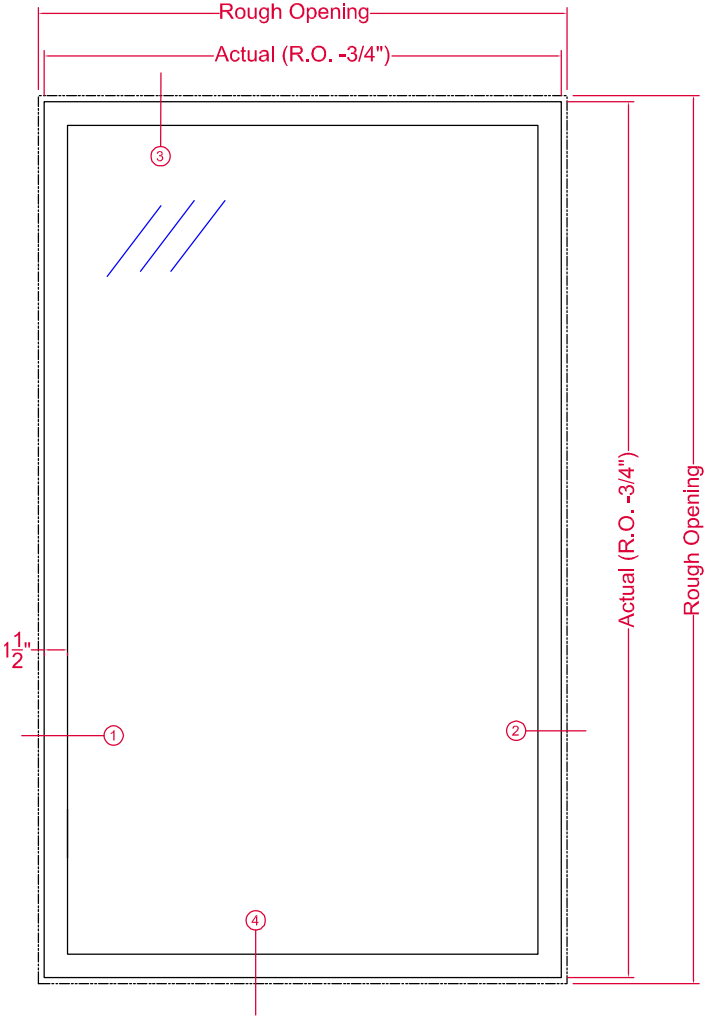
HEAD/SILL-SUBFRAME

DWN BY: JDD	FYRE-TEC
CK'D BY:	P.O. Box 278, 701 Centennial Road Wayne, NE 68787
DATE: 11-30-2015	
TOLERANCE: 1. FRACTIONS ±1/16 2. DECIMALS +- .0625 3. ANGLES +- 1/2 DEGREE EXCEPT AS NOTED	
MAT'L	SCALE: 1:1.5
PAGE: 2/3	DWG No. MODEL 925



JAMB - SUBFRAME INSTALLATION KIT

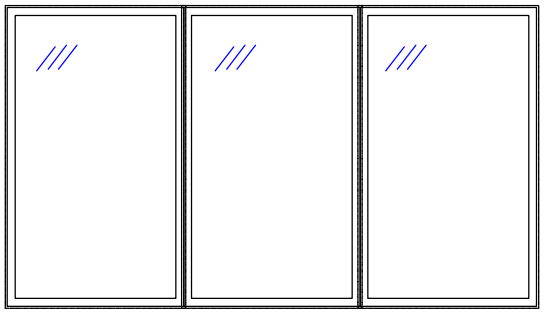
TOLERANCE: 1. FRACTIONS ±1/16 2. DECIMALS +- .0625 3. ANGLES +- 1/2 DEGREE EXCEPT AS NOTED	DWN BY: JDD	FYRE-TEC P.O. Box 278, 701 Centennial Road Wayne, NE 68787	
	CK'D BY:		
	DATE: 11-30-2015		
MATL	SCALE: 1:1.5	PAGE 3/3	DWG No. MODEL 925



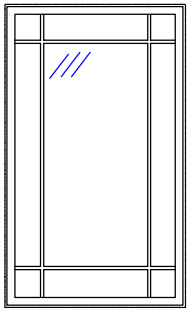
Typical Exterior Elevation

Fyre-Tec Series 950 Fixed Lite Window

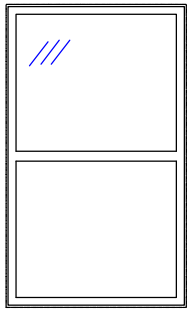
45- or 60-Minute UL Rated



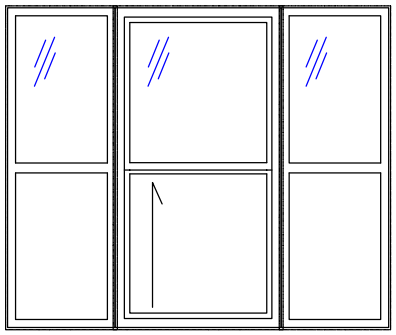
Mulled with Zero Vertical Mullions



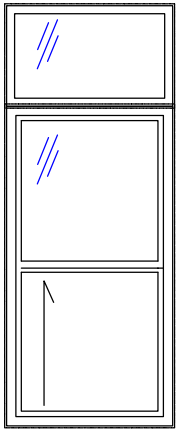
Internal 5/8" Grids In IGU



True Muntins

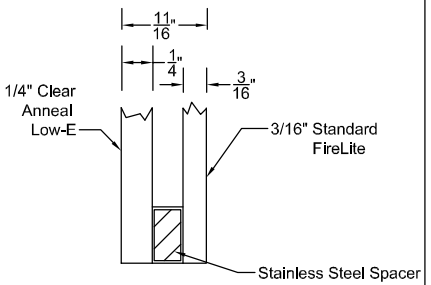


Mulled with Zero Vertical Mullions and Series 925 Single Hung



Transom Mulled Over 925 Single Hung

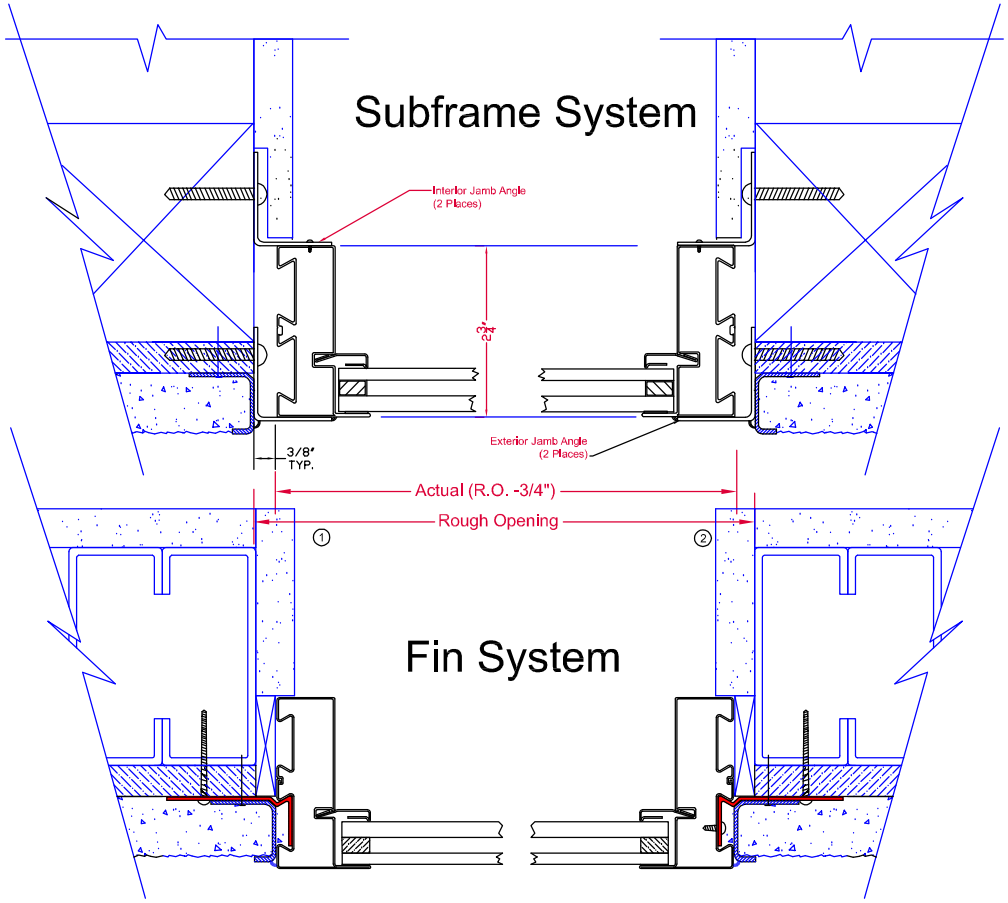
Typical IGU Makeup



May include 1 hour UL rated ceramic with 1/4" clear anneal Low-E. Many other combinations are available depending on the reqirements for safety glazing or U-values. Wireglass IGU available.

Series 950 Fixed Lite Window

DWN BY: JDD	FYRE-TEC
CK'D BY:	P.O. Box 278, 701 Centennial Road Wayne, NE 68787
DATE: 11-30-2015	
TOLERANCE: 1. FRACTIONS ±1/16 2. DECIMALS +- .0625 3. ANGLES +- 1/2 DEGREE EXCEPT AS NOTED	
MAT'L	SCALE: 1:8
PAGE: 1/3	DWG NO. MODEL 950

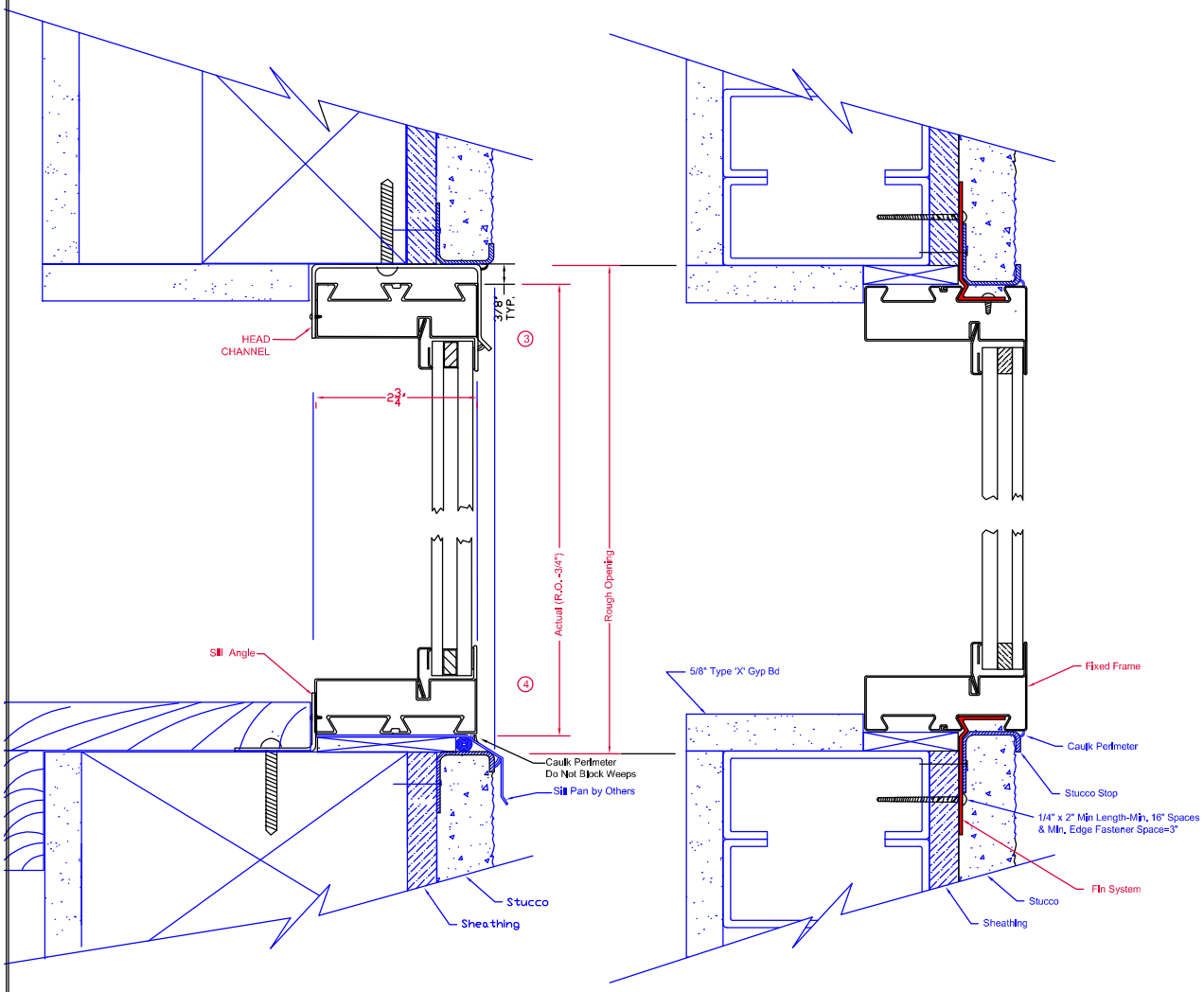


JAMB

DWN BY	JDD
CK'D BY	
DATE	11-30-2015
SCALE	1:2
PAGE	3/3
DWG No.	MODEL 950
MATL	

TOLERANCE:
1. FRACTIONS ±1/16
2. DECIMALS +- .0625
3. ANGLES +- 1/2 DEGREE
EXCEPT AS NOTED

FYRE-TEC
P.O. Box 278, 701 Centennial Road
Wayne, NE 68787



Subframe System

Fin System

HEAD/SILL

DWN BY: JDD	
CK'D BY:	
DATE: 11-30-2015	
SCALE: 1:2	PAGE: 2/3
MAT'L:	DWG No. MODEL 950

TOLERANCE:
1. FRACTIONS ±1/16
2. DECIMALS +- .0625
3. ANGLES +- 1/2 DEGREE
EXCEPT AS NOTED

FYRE-TEC
P.O. Box 278, 701 Centennial Road
Wayne, NE 68787

Fin Mounting System
Installation Procedure

The window and installation components should be inspected for any shipping damage. All local codes must be followed and supersede any of the following instructions. All finished surfaces of the window must be protected from damage to frame, paint, and glazing surfaces throughout the complete installation and wall finalization. This is to include stucco, drywall, brickwash or any other cleaning technique other than that recommended by Fyre-Tec. Failure to protect the window will VOID any applicable warranties. Protective coverings are recommended.

Opening Requirements

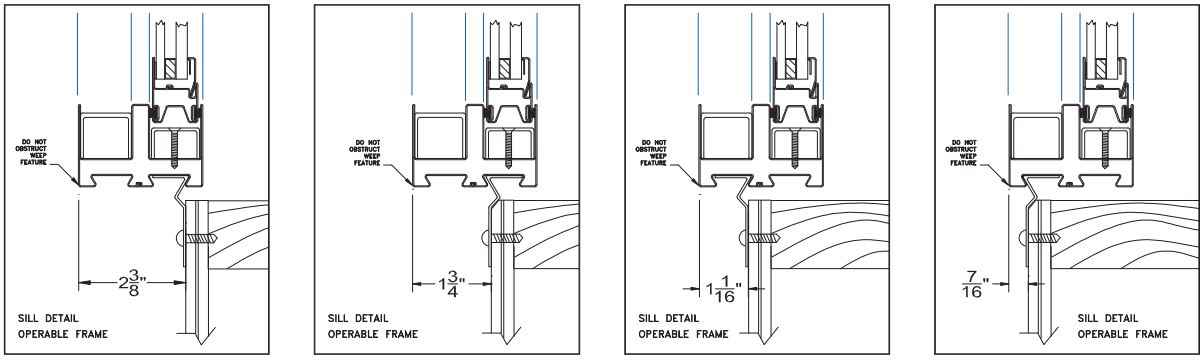
The opening should be built square and plumb and large enough to accept the window(s) provided. Windows are provided ¾" less in both width and height from the rough or nominal opening size. This allows for a 3/8" gap around the entire perimeter of the window to be properly squared and shimmed in the opening. It is recommended that the sill of the window be shimmed no less than ¼" above the construction sill to accommodate the weep feature of the window.

Opening Preparation

The window opening is to be prepared in conformance with local code and approved construction drawings. On openings other than masonry it is recommended that the perimeter be prepped with an air-barrier type window wrap and flashing system. Sill panning is recommended for optimal protection against water penetration. Panning and air barriers are not provided by Fyre-tec.

Fin Mounting to Window

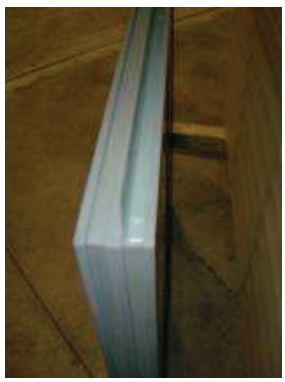
The mounting fins are supplied loose and are to be mounted to the window with the self-tapping screws supplied. Window frame depth in relationship to the finished wall may be adjusted in four increments by selecting the mounting position on the perimeter of the frame as shown in the following layout.



Attachment Procedure

1. *Pre-drill holes using a 3/16" bit in the fin to be mounted to the window (short leg). The screws are to be positioned 1" from each end of the individual fins and then placed 24" on center thereafter. The hole should be centered on the leg. *Pre-drill holes using a bit large enough to accept fasteners being used in fin for mounting to wall (Long Leg). Hole locations should be no more than 3" from each end of the individual fins and then placed 16" on center thereafter. The holes should be place in a known location as to allow fastener to penetrate a structural member of the wall.
2. Caulk bedding is to be applied around the perimeter of the frame in the frame recess that the fin is intended to be mounted. As shown (A). Any other holes or voids in the perimeter of the frame must be sealed as well to prevent water penetration into the wall cavity.
3. Screw the fin to the window as shown in (B) & (C)

(A) (B) (C)



Note: The sill of **operable windows** have additional factory applied butyl tape to further assist in preventing water leaking into wall cavity.

Window Installation in Opening

Installation will require a minimum of two people.
One individual should remain on the exterior to hold the window in place and the other on the interior to center the window in the opening using a flat pry-bar or shim. All sides on the interior should have approximately 3/8" gap from wall opening to window edge. Shim using an approved material. Check window for level in the opening and complete shim application. Once the window is shimmed properly, attach the fin on the exterior to a structural member per an approved method as laid out by an architect or authority having jurisdiction. Special attention should be made with the weep feature of the window in the exterior sill. A minimum 1/4" gap should be maintained between the sill of the window and the construction sill of the wall to allow for proper weeping and drainage from the window.

INTERIOR

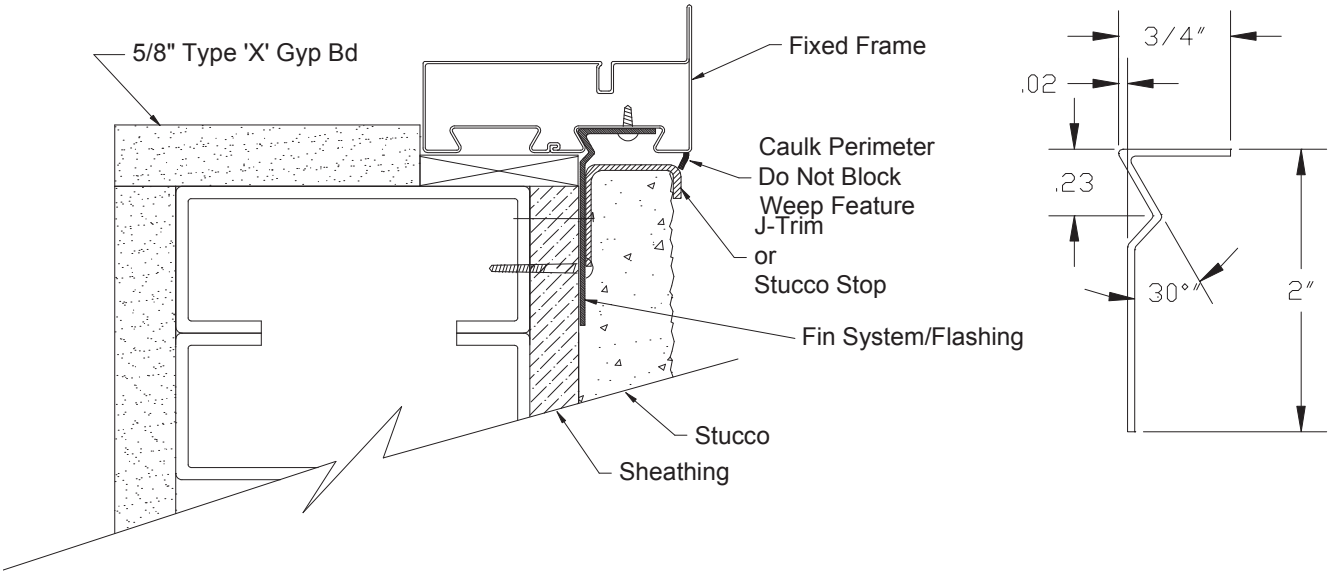
EXTERIOR

When attaching the Fin to the wall section keep the corners loose to apply the Fin corner pieces. Caulk corner of wall where Fin will be placed as seen in picture to (left). Pull fin away from wall slightly and slide fin underneath as shown in picture (lower left). Once all Fin corners are installed caulk all exposed seams using an approved sealant shown (lower right). The window is now ready to be flashed.

Flashing the Installation

Flashing the exterior gives added protection against water penetration. The recommended procedure for flashing the opening is to use a flexible adhesive backed window wrap. Each application of the window wrap should be cut extra long as to allow over lapping in each of the corners, at least the width of the wrap itself. The wrap should contact the window frame and be applied per manufacture specification.

If stucco is the desired finished wall exterior a J-channel trim must be used to keep the stucco from contacting the perimeter of the window frame. Protection against stucco from getting on the window and glazing surfaces is important.



Finalizing the Installation & Weep Feature

Once the wall construction is complete and stucco, siding, masonry or other application is complete, a perimeter beading of approved sealant is needed. Use caution when sealing around the weep feature.

The weep feature is a very important part in the longevity of the window's life span. On exterior applications special attention should be made to the exterior sill and the windows weep feature. The weep located 2" in from both corners of the sill and should be inspected or verified that the weep is open to a gap of 1/8" by approximately 7/8" long. Verification ensures that the weep has not been pinched down or crimped shut during shipping, handling, and installation. Failure to inspect the weep feature prior to finalizing the project can lead to water leakage as well as premature rusting with the window. If the slot needs additional adjustment carefully use a flat screwdriver or small pry-bar to make the gap more. Do not use excessive force, which can cause the frame to tear or crack the protective paint.

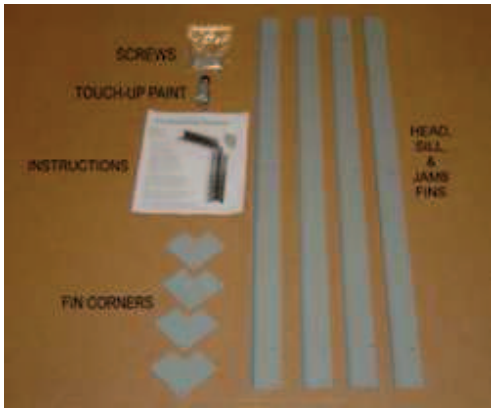
Tools Recommended:

-Safety glasses	-Pencil	-Power tool with drilling and screwing capabilities
-Measuring tape	-Hammer	-Saw or power saw with metal cutting capabilities
-Caulking Gun	-Level	-Pry-bar for shimming and squaring

Supplies Needed:

Notice All supplies must be approved and meet local code requirements. Contact your local inspector for a list of their approved products.

-Sealant -Fasteners -Shims



Parts Shipped

Contained within each individual crate supplied are:

1-Window

*1-Trim kit containing:

- Instructions
- 1-Head Fin
- 1-Sill Fin
- 2-Jamb Fins
- 4-Fin Corners
- **Touchup paint

**Screws for applying fin
(Not shown)
Mullions if applicable
Notes:
The window and parts should be inspected for shipping damage prior to installation
*If trim kit exceeds the length of the window it will be provided in separate box.

**Note: Depending upon the quantity of windows, touchup paint and screws may be provided in larger bags with enough quantity to cover the whole order. These bags will be attached to only one or several trim kits depending on order quantity. Location of these items will be identified on the shipped crate being marked as “SCREWS”

Fire-Rated Glass Ceramic
Fire-Rating: 20-90 Minutes

FireLite is a 3/16" (5 mm) thick fire-rated glazing material. It is listed for use in non-impact safety-rated locations such as transoms and borrowed lites.

BIM 3D Model Available

ultraHD® TECHNOLOGY

UL Classified & Labeled

Fire-Rated

Hose Stream Tested

Positive Pressure Tested

FEATURES

- ultraHD® Technology for improved surface quality, clarity and color
- Fire-rated for up to 90 minutes with required hose stream test
- Clear and wireless glass ceramic
- Available in two surface grades: Premium and Standard
- Fits in Fireframes® Designer Series frames from TGP, or standard fire-rated frames
- Withstands thermal shock
- Large sizes available
- May be lightly sandblasted or etched on one side without affecting fire rating
- May be insulated (see FireLite IGU fact sheet)

Notes:

1. This product is not a barrier to radiant heat, as it does not meet test standards ASTM E119 or UL 263. If your jurisdiction requires a "barrier to heat" product, please contact TGP regarding Pilkington Pyrostop®.

2. FireLite is not an impact safety-rated product and should not be specified as such. However, TGP does offer FireLite Plus® and FireLite® NT which carry both fire and impact safety ratings. Please contact TGP for more details.

SURFACE GRADES

Standard Grade - Polished for a surface quality that is comparable to alternative fire-rated ceramics marketed as having a premium finish.

Premium Grade - Finish ground and polished on both surfaces to provide superior surface quality, improving overall clarity and providing a surface that is unmatched by alternative products.

LISTINGS/STANDARDS

Classified and labeled by Underwriters Laboratories, Inc.® and Underwriters Laboratories of Canada. File number for labeled fire-rated assemblies is R13377. Tests performed in accordance with:

UL 9	NFPA 80	CAN4 S-104	MEA 290-90-M-6
UL 10B	NFPA 257	CAN4 S-106	LARR 25798
UL 10C			

MAXIMUM EXPOSED AREA

RATING	ASSEMBLY	MAX. EXPOSED AREA	MAX. WIDTH OF EXPOSED GLAZING	OR	MAX. HEIGHT OF EXPOSED GLAZING
20 to 60 min.	OTHER THAN DOORS	3,325 in^2 / 23.09 ft^2 (2.15 m^2)	95" (2,413 mm)		95" (2,413 mm)
90 min.	OTHER THAN DOORS	2,627 in^2 / 18.24 ft^2 (1.69 m^2)	56–1/2" (1,435 mm)		56–1/2" (1,435 mm)

Check with frame manufacturer for maximum tested glass sizes and required stop height.
Note: Individual lite sizes cannot exceed "Max. Exposed Area" shown above.

MAXIMUM SHEET SIZE

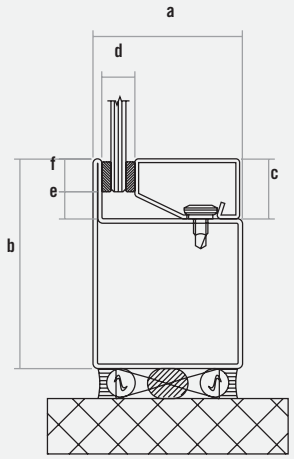
SURFACE FINISH	Premium	Standard	Obscure
	48" x 96" (1.21 m x 2.43 m)	48" x 96" (1.21 m x 2.43 m)	36" x 96" (.91 m x 2.43m)

GENERAL CHARACTERISTICS

THICKNESS:	3/16" (5 mm) overall
WEIGHT:	2.56 lb / ft^2 (12.5 kg / m^2)
APPROX. VISIBLE TRANSMISSION:	88%
APPROX. VISIBLE REFLECTION:	9%
HARDNESS (VICKER'S SCALE):	700
FIRE RATING:	20 to 90 minutes
IMPACT SAFETY RATING:	None
STC RATING:	35

Detail based on use of Fireframes Designer Series narrow profile framing

Glazing Thickness:	3/16" – 1" (5 mm - 25.4 mm)
a. Frame width:	2" (51 mm)
b. Frame height:	2-3/4" (70 mm)
c. Stop height:	3/4" (19 mm)
d. Pocket width:	1/2" – 1-1/4" (12.7 mm x 31.8 mm)
e. Edge clearance:	1/4" (6.4 mm)
f. Bite:	1/2" (12.7 mm)



LABELING

Each piece of FireLite shall be permanently labeled with the FireLite logo, UL logo and fire rating.

INSTALLATION

FireLite shall be glazed into the appropriate fire-rated framing with an approved glazing compound (pure silicone, closed cell PVC tape or DAP 33 putty) as supplied by the installer. For 90 minute ratings that exceed 1,393 in^2 (.8987 m^2) FireLite shall be glazed with fire-rated glazing tape as supplied by TGP.

Inspect each piece of FireLite immediately before installation and eliminate any with observable edge damage or face imperfections. As with any glass produced by the "roll out" method, individual pieces of FireLite may contain minimal variations in thickness. Occasionally, process marks and small occlusions or seeds (bubbles, knots or crystals) may be apparent. However, since they do not generally impair the transparency or affect the technical performance of the glass, they do not represent cause for rejection.

STORAGE & HANDLING

FireLite must be handled with care during transportation, storage, inspection and installation. Store in a dry place.

FAMILY OF PRODUCTS

TGP offers a complete family of products for all your fire-rated glazing needs, ranging from 20 minute to 3 hour applications. More information is available online at fireglass.com.

Fire-Rated, Impact Safety-Rated Glass Ceramic With Surface-Applied Film Fire-Rating: 20-180 Minutes

FireLite NT is a 3/16" (5 mm) thick fire-rated and impact safety-rated glazing material, composed of FireLite and fire-rated surface-applied film. It is listed for use in doors, sidelites, transoms and borrowed lites.

BIM 3D Model Available

ultraHD® TECHNOLOGY

UL Classified & Labeled

Fire-Rated

Hose Stream Tested

Impact-Rated

Positive Pressure Tested

FEATURES

- ultraHD® Technology for improved surface quality, clarity and color
- Fire-rated for up to 180 minutes with required hose stream test
- Available in two surface grades: Premium and Standard
- Wireless glass ceramic with high performance surface-applied approved fire-rated film
- Impact safety-rated–meets ANSI Z97.1 and CPSC 16 CFR1201 (Cat. I and II)
- Fits in Fireframes® Designer Series from TGP, or standard fire-rated frames
- Withstands thermal shock
- Large sizes available
- May be lightly sandblasted or etched on the unfilmed side without affecting fire rating
- Protects from fire and impact on both sides of the glass
- May be insulated (see FireLite IGU fact sheet)
- 3-year limited warranty

Note: This product is not a barrier to radiant heat, as it does not meet test standards ASTM E119 or UL 263. If your jurisdiction requires a "barrier to heat" product, please contact TGP regarding Pilkington Pyrostop®.

SURFACE GRADES

Standard Grade - Polished for a surface quality that is comparable to alternative fire-rated ceramics marketed as having a premium finish.

Premium Grade - Finish ground and polished on both surfaces to provide superior surface quality, improving overall clarity and providing a surface that is unmatched by alternative products.

LISTINGS/STANDARDS

Classified and labeled by Underwriters Laboratories, Inc.® and Underwriters Laboratories of Canada. File number for labeled fire-rated assemblies is R13377. Tests performed in accordance with:

UL 9	NFPA 80	CAN4 S-104	MEA 290-90-M-6
UL 10B	NFPA 252	CAN4 S-106	LARR 25798
UL 10C	NFPA 257		

MAXIMUM EXPOSED AREA

RATING	ASSEMBLY	MAX. EXPOSED AREA	MAX. WIDTH OF EXPOSED GLAZING OR	MAX. HEIGHT OF EXPOSED GLAZING
20 to 60 min.	DOORS (non-temp rise)	3,204 in^2 / 22.25 ft^2 (2.07 m^2)	36” (914 mm)	89” (2,260 mm)
	DOORS (temp rise)	100 in^2 / 0.69 ft^2 (.06 m^2)	12” (304 mm)	33” (838 mm)
	OTHER THAN DOORS	3,325 in^2 / 23.09 ft^2 (2.15 m^2)	95” (2,413 mm)	95” (2,413 mm)
90 min.	DOORS (non-temp rise)	2,034 in^2 / 14.13 ft^2 (1.31 m^2)	36” (914 mm)	56-1/2” (1,435 mm)
	DOORS (temp rise)	100 in^2 / 0.69 ft^2 (.06 m^2)	12” (304 mm)	33” (838 mm)
	OTHER THAN DOORS	2,627 in^2 / 18.24 ft^2 (1.69 m^2)	56-1/2” (1,435 mm)	56-1/2” (1,435 mm)
180 min.	DOORS	100 in^2 / 0.69 ft^2 (.06 m^2)	12” (304 mm)	33” (838 mm)

Check with frame manufacturer for maximum tested glass sizes and required stop height.
Note: Individual lite sizes cannot exceed “Max. Exposed Area” shown above.

MAXIMUM SHEET SIZE

SURFACE FINISH	Premium	Standard	Obscure
	48" x 96" (1.21 m x 2.43 m)	48" x 96" (1.21 m x 2.43 m)	36" x 96" (.91 m x 2.43m)

GENERAL CHARACTERISTICS

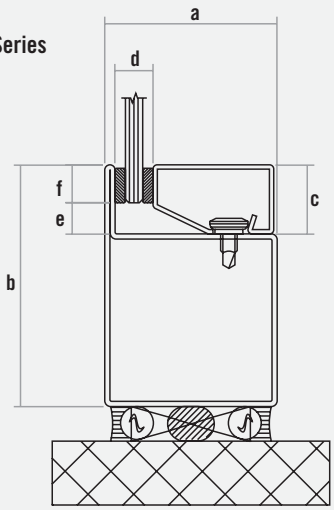
THICKNESS:	3/16” (5 mm) overall
WEIGHT:	2.56 lb / ft^2 (12.5 kg / m^2)
APPROX. VISIBLE TRANSMISSION:	88%
APPROX. VISIBLE REFLECTION:	9%
HARDNESS (VICKER’S SCALE):	700
FIRE RATING:	20 minutes to 3 hours
IMPACT SAFETY RATING:	Meets ANSI Z97.1 and CPSC 16FR1201 (Cat. I and II)
STC RATING:	35

LABELING

Each piece of FireLite NT shall be permanently labeled with the FireLite NT logo, UL logo and fire rating.

Detail based on use of Fireframes Designer Series narrow profile framing

Glazing Thickness:	3/16" – 1" (5 mm - 25.4 mm)
a. Frame width:	2" (51 mm)
b. Frame height:	2-3/4" (70 mm)
c. Stop height:	3/4" (19 mm)
d. Pocket width:	1/2" – 1-1/4" (12.7 mm x 31.8 mm)
e. Edge clearance:	1/4" (6.4 mm)
f. Bite:	1/2" (12.7 mm)



INSTALLATION

FireLite NT shall be glazed into the appropriate fire-rated framing with an approved glazing compound (closed cell PVC tape or DAP 33 putty) as supplied by the installer. For 90 minute ratings that exceed 1,393 in^2 (.8987 m^2), FireLite NT shall be glazed with fire-rated glazing tape as supplied by TGP.

Inspect each piece of FireLite NT immediately before installation and eliminate any with observable edge damage or face imperfections. As with any glass produced by the "roll out" method, individual pieces of FireLite NT may contain minimal variations in thickness. Occasionally, process marks and small occlusions or seeds (bubbles, knots or crystals) may be apparent. However, since they do not generally impair the transparency or affect the technical performance of the glass, they do not represent cause for rejection.

STORAGE & HANDLING

FireLiteNT must be handled with care during transportation, storage, inspection and installation. Store in a dry place.

FAMILY OF PRODUCTS

TGP offers a complete family of products for all your fire-rated glazing needs, ranging from 20 minute to 3 hour applications. More information is available online at fireglass.com, or by calling 800.426.0279.

Fireglass®20
Fire-rated, impact safety-rated glass

FireLite®
Fire-rated glass ceramic

FireLite® NT
Fire-rated, impact safety-rated glass ceramic with surface-applied film

FireLite Plus®
Fire-rated, impact safety-rated glass ceramic

FireLite® IGU
Fire-rated or fire/impact safety-rated insulated glass units

Pilkington Pyrostop®
Fire-rated, impact safety-rated transparent wall panels

WireLite®
Fire-rated, wired glass

WireLite® NT
Fire-rated, impact safety-rated wired glass with surface-applied film

Fireframes®
Fire-rated framing & doors for use with all TGP glass products

SECTION 08510
STEEL WINDOWS
UL Labeled Fire-Rated Single Hung (925)

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Fire Rated Steel Windows (Single Hung) – 60-Minute UL Labeled

1.2 RELATED SECTIONS

A. Section 08800 – Glass, Glazing, and Glazing Materials

1.3 REFERENCES

A. ASTM A 569-(1991a; R 1993) Steel, Carbon (0.15 Maximum, Percent), Hot-Rolled Sheet and Strip Commercial Quality

B. ASTM A 653-(1994) Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process

C. ASTM B 633-(1985; R 1994) Electrodeposited Coatings of Zinc on Iron and Steel

D. ASTM B 766-(1986; R 1993) Electrodeposited Coatings of Cadmium

E. ASTM E 283-(1991) Determining the Rate of Air Leakage through Exterior Windows, Curtain Walls, and Doors Under Specific Pressure Differences Across the Specimen

F. ASTM E 330-(1990) Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference

G. ASTM E 547-(1993) Water Penetration of Exterior Windows, Curtain Walls, and Doors by Cyclic Static Air Pressure Differential

H. ASME B18.6.3- (1972; R 1991) Machine Screws and Machine Screw Nuts

I. ASME B18.6.4- (1981; R 1991) Thread Forming and Thread Cutting Tapping Screws and Metallic Drive Screws (Inch Series)

J. NFPA 80-(2007) Fire Doors and Windows

K. NFPA 101-(2006) Safety to Life from Fire in Buildings and Structures

L. UL9-Fire Tests of Window Assemblies

M. File No. R13157-D.V. Fyre-Tec Classification

1.4 PERFORMANCE REQUIREMENTS (Based on a single window in a testing lab environment)

A. Single Hung steel windows shall conform to the H-C30 voluntary specifications in AAMA/NWWDA 101/I.S.2-97 and be designed to meet the following performance requirements. Fire-rated windows shall bear the Underwriters Laboratories, Inc. label including the manufacturer's file number for the indicated rating.

1. Structural Performance: Structural test pressures on window units shall be for positive load (inward) and negative load (outward) in accordance with ASTM E 330 at a static pressure of 45 PSF. After testing, there shall be no glass breakage, permanent damage to fasteners, hardware parts, support arms or actuating mechanisms or any other damage which could cause window to be inoperable. There shall be no permanent deformation of any main frame, sash or ventilator member in excess of the requirements established by AAMA/NWWDA 101/I.S.2-97 for the window types specified in this section.

2. Air Infiltration: Air infiltration shall not exceed .3 SCFM per square foot of window area at a static air pressure difference of 1.57 PSF as established by AAMA/NWWDA 101/I.S.2-97 when tested in accordance with ASTM E 283.

3. Water Resistance: When tested in accordance with ASTM E 547, there shall be no water leakage at a static air pressure difference of 4.50 PSF.

B. Fire Protective: Fire protective rating shall meet requirements as tested and classified by Underwriters Laboratories Inc, in accordance with UL-9. Products shall meet the requirements of Underwriters Laboratories Inc. The Listing Mark of UL on the product will be accepted as evidence of compliance.

C. Life Safety Criteria: Windows shall conform to NFPA 101 Life Safety Code when rescue and/or second means of escape are indicated.

1.5 SUBMITALS

A. Manufacturer's descriptive data and catalog cut sheets.

B. Drawings indicating elevations of windows, rough-opening dimensions for each type and size of windows, section details, fastenings, generic method of installation and anchorage, glazing details, method of glazing, muntin divider details, mullion details, weather-stripping details, types and locations of operating hardware, window type and indicating compliance with fire safety code, where required. Refer to Authority Having Jurisdiction for specific installation, wall detail, and anchorage requirements.

C. Manufacturer's preprinted installation instructions and cleaning instructions.

D. Manufacturer's standard color samples of painted finishes.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: Experienced in performing work of this section who has specialized in installation of work similar to that required for this project.

B. Manufacturer's Qualifications: A firm with not less than 10-years' experience in manufacture of similar type steel windows.

1.7 DELIVERY, STORAGE AND HANDLING

A. Delivery:

1. Manufacturer's original, unopened, undamaged containers, identification labels intact. Inspect for damage upon delivery.

2. Handle and store products according to manufacturer's recommendations.

B. Storage and Protection:

1. Store materials protected from exposure to harmful weather conditions and at temperature and humidity conditions recommended be manufacturer

2. Store windows to prevent damage or marring of finish. Store in shipping containers under cover on building site.

1.8 PROJECT CONDITIONS

A. Verify actual openings by field measurements before fabrication, show recorded measurements on shop drawings.

B. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.

1.9 WARRANTY

A. Manufacturer's standard warranty to be 3 years from the date of shipping.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Series 925 Single Hung Windows as manufactured by D.V. Fyre-Tec, Inc.; 701 Centennial Road; Wayne, NE 68787; Tel: 1-800-377-3261; Fax; 1-402-375-4261; Web: www.fyre-tec.com; Email; info@fyre-tec.com.

B. Architect approved equal.

2.2 STEEL WINDOW TYPES

A. Single hung steel windows shall be designed for inside field glazing, and for glass types scheduled on drawings or otherwise specified. Units shall be complete with glass and glazing provisions to meet requirements of paragraph WINDOW PERFORMANCE. Glazing material shall be compatible with steel, and shall not require painting.

B. Fire-rated windows shall conform to UL-9 and shall be labeled with a 1- hour fire-test rating as specified in the window schedule. Units shall be designed and fabricated to meet glass sizes, window sizes, and opening dimensions established by NFPA 80. Hardware shall conform to NFPA 80 requirements. All operable fire-rated windows are to be self-closing and latching by means of a heat activated fusible link operator.

2.3 MATERIALS

A. Steel Frames and Inserts

1. Steel frames and inserts shall be fabricated from roll-formed galvanized lock-forming quality steel per ASTM A 653.

2. Frame and insert corners shall mitered and welded. Integral muntins where required shall be galvanized roll-formed material fitted and welded.

3. Operable insert/sash shall be supported on two adjustable heavy-duty spiral wound balances.

B. Installation Kits

1. Provide attachable fin installation kits for all windows.

2. Provide subframe installation kits for all windows.

C. Weather Stripping

1. Weather-stripping for the inserts shall be designed to meet water penetration and air infiltration requirements specified under paragraph WINDOW PERFORMANCE, and shall be manufactured of material compatible with steel and resistant to weather. Weather-strips shall be factory applied and easily replaced in the field.

D. Screens

1. Insect screens shall be steel window manufacturer's standard design, and shall be provided where scheduled on drawings. Insect screens shall be fabricated of roll formed galvanized steel frames and (18x16) plastic coated glass conforming fiber mesh screening conforming to ASTM D 3656.

E. Formed Component Parts

1. Formed component parts shall be hot-rolled sheet steel conforming to ASTM A 569, commercial quality with a minimum of 0.15 percent carbon.

2. Sheet steel shall be zinc coated (galvanized) by the hot-dip process in accordance with ASTM A 653 or ASTM A 924.

F. Screws and Bolts

1. Screws and bolts shall conform to ASTM B 766, ASME B18.6.3 and ASME B18.6.4.

G. Fasteners

1. Fastening devices shall be window manufacturer's design made from cadmium-plated steel, zinc-plated steel, nickel/chrome-plated steel or magnetic stainless steel.

H. Window Anchors

1. Anchors for installing windows shall be stainless steel or hot-dip zinc coated steel conforming to ASTM A 123.

I. Glass and Glazing

1. Standard clear ceramic glass (1 hour rated)

2. Insulated glass units.

2.4 FABRICATION

A. Fabricate windows in accordance with approved shop drawings.

B. Frame sections shall be one-piece sections with corners mitered, welded and dressed smooth.

C. Required muntins shall be securely welded to the frame members and at all intersections.

D. All windows shall be designed for inside glazing.

E. All windows shall be factory glazed with UL labeled glass meeting or exceeding the hourly rating required for the frame label. Individual lites shall display a UL label permanently affixed and in accordance with the requirements of the International Building Code and NFPA 80.

2.5 FINISHES – All products will be provided with a paint coating.

A. Finish Coat – Manufacturer's Standard Color (Iceberg White – Iceberg White/Black)

1. Steel windows, fins, mullions, cover plates and associated parts shall be cleaned, pre-treated with iron phosphate and factory powder coated and cured with a manufacturer's standard color in a dry film thickness of not less than 0.050 mm (2.0 mil).

PART 3 EXECUTION

3.1 EXAMINATION

A. Window openings shall conform to details and dimensions shown on the approved shop drawings.

B. Notify the Architect immediately of conditions that may adversely affect the window installation. Correct conditions prior to installing windows.

3.2 INSTALLATION

A. Steel windows shall be installed in accordance with approved shop drawings and manufacturer's approved recommendations.

B. Fire-rated windows shall be installed in compliance with NFPA 80 and NFPA 101.

C. Steel surfaces in close proximity with masonry, concrete, wood, and dissimilar metals other than stainless steel, zinc, cadmium, or small areas of white bronze shall be protected from direct contact.

D. Verify that weep features at the bottom of the sills are opened at least 1/8" x 1". Failure to do so may lead to premature finish failures and void warranty.

E. The completed window installation shall be watertight.

3.3 ADJUSTING AND CLEANING

A. Steel window finish and glass shall be cleaned on interior and exterior sides in accordance with window manufacturer's recommendation. Alkaline, abrasive or brick wash agents shall not be used.

B. Operable sash shall be adjusted per manufacturer's instruction to provide minimal operating force.

3.4 PROTECTION

A. Protect installed products and finished surfaces from damage during construction.

B. Touch-up any abraded surface of the window finish with air dry paint furnished by the window manufacturer.

-- END OF SECTION –

SECTION 08510
STEEL WINDOWS
UL Labeled Fire-Rated Fixed Lite (950)

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Fire Rated Steel Windows (Fixed Lite) – 60-Minute UL Labeled

1.2 RELATED SECTIONS

A. Section 08800 – Glass, Glazing, and Glazing Materials

1.3 REFERENCES

A. ASTM A 569-(1991a; R 1993) Steel, Carbon (0.15 Maximum, Percent), Hot-Rolled Sheet and Strip Commercial Quality

B. ASTM A 653-(1994) Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process

C. ASTM B 633-(1985; R 1994) Electrodeposited Coatings of Zinc on Iron and Steel

D. ASTM B 766-(1986; R 1993) Electrodeposited Coatings of Cadmium

E. ASTM E 283-(1991) Determining the Rate of Air Leakage through Exterior Windows, Curtain Walls, and Doors Under Specific Pressure Differences Across the Specimen

F. ASTM E 330-(1990) Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference

G. ASTM E 547-(1993) Water Penetration of Exterior Windows, Curtain Walls, and Doors by Cyclic Static Air Pressure Differential

H. ASME B18.6.3- (1972; R 1991) Machine Screws and Machine Screw Nuts

I. ASME B18.6.4- (1981; R 1991) Thread Forming and Thread Cutting Tapping Screws and Metallic Drive Screws (Inch Series)

J. NFPA 80-(2007) Fire Doors and Windows

K. NFPA 101-(2006) Safety to Life from Fire in Buildings and Structures

L. UL9-Fire Tests of Window Assemblies

M. File No. R13157-D.V. Fyre-Tec Classification

1.4 PERFORMANCE REQUIREMENTS (Based on a single window in a testing lab environment)

A. Fixed lite steel windows shall be designed to meet F-C30 voluntary specifications in AAMA/NWWDA 101/I.S.2-97 and be designed to meet the following performance requirements. Fire-rated windows shall bear the Underwriters Laboratories, Inc. label including the manufacturer's file number for the indicated rating.

1. Air Infiltration: Air infiltration shall not exceed .3 SCFM per square foot of window area at a static air pressure difference of 1.57 PSF as established by AAMA/NWWDA 101/I.S.2-97 when tested in accordance with ASTM E 283.

2. Water Resistance: When tested in accordance with ASTM E 547, there shall be no water leakage at a static air pressure difference of 4.50 PSF.

B. Fire Protective: Fire protective rating shall meet requirements as tested and classified by Underwriters Laboratories Inc, in accordance with UL-9. Products shall meet the requirements of Underwriters Laboratories Inc. The Listing Mark of UL on the product will be accepted as evidence of compliance.

C. Life Safety Criteria: Windows shall conform to NFPA 101 Life Safety Code when rescue and/or second means of escape are indicated.

1.5 SUBMITALS

A. Manufacturer's descriptive data and catalog cut sheets.

B. Drawings indicating elevations of windows, rough-opening dimensions for each type and size of windows, section details, fastenings, generic method of installation and anchorage, glazing details, method of glazing, muntin divider details, mullion details, weather-stripping details, types and locations of operating hardware, window type and indicating compliance with fire safety code, where required. Refer to Authority Having Jurisdiction for specific installation, wall detail, and anchorage requirements.

C. Manufacturer's preprinted installation instructions and cleaning instructions.

D. Manufacturer's standard color samples of painted finishes.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: Experienced in performing work of this section who has specialized in installation of work similar to that required for this project.

B. Manufacturer's Qualifications: A firm with not less than 10-years' experience in manufacture of similar type steel windows.

1.7 DELIVERY, STORAGE AND HANDLING

A. Delivery:

1. Manufacturer's original, unopened, undamaged containers, identification labels intact. Inspect for damage upon delivery.

2. Handle and store products according to manufacturer's recommendations.

B. Storage and Protection:

1. Store materials protected from exposure to harmful weather conditions and at temperature and humidity conditions recommended be manufacturer

2. Store windows to prevent damage or marring of finish. Store in shipping containers under cover on building site.

1.8 PROJECT CONDITIONS

A. Verify actual openings by field measurements before fabrication, show recorded measurements on shop drawings.

B. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.

1.9 WARRANTY

A. Manufacturer's standard warranty to be 3 years from the date of shipping.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Series 950 Fixed Lite Windows as manufactured by D.V. Fyre-Tec, Inc.; 701 Centennial Road; Wayne, NE 68787; Tel: 1-800-377-3261; Fax; 1-402-375-4261; Web: www.fyre-tec.com; Email; info@fyre-tec.com.

B. Architect approved equal.

2.2 STEEL WINDOW TYPES

A. Fixed Lite steel windows shall be designed for inside field glazing, and for glass types scheduled on drawings or otherwise specified. Units shall be complete with glass and glazing provisions to meet requirements of paragraph WINDOW PERFORMANCE. Glazing material shall be compatible with steel, and shall not require painting.

B. Fire-rated windows shall conform to UL-9 and shall be labeled with a 1- hour fire-test rating as specified in the window schedule. Units shall be designed and fabricated to meet glass sizes, window sizes, and opening dimensions established by NFPA 80. Hardware shall conform to NFPA 80 requirements. All operable fire-rated windows are to be self-closing and latching by means of a heat activated fusible link operator.

2.3 MATERIALS

A. Steel Frames and Inserts

1. Steel frames shall be fabricated from roll-formed galvanized lock-forming quality steel per ASTM A 653.

2. Frame corners shall mitered and welded. Integral muntins where required shall be galvanized roll-formed material fitted and welded.

B. Installation Kits

1. Provide attachable fin installation kits for all windows.

C. Formed Component Parts

1. Formed component parts shall be hot-rolled sheet steel conforming to ASTM A 569, commercial quality with a minimum of 0.15 percent carbon.

2. Sheet steel shall be zinc coated (galvanized) by the hot-dip process in accordance with ASTM A 653 or ASTM A 924.

D. Screws and Bolts

1. Screws and bolts shall conform to ASTM B 766, ASME B18.6.3 and ASME B18.6.4.

E. Fasteners

1. Fastening devices shall be window manufacturer's design made from, cadmium-plated steel, zinc-plated steel, nickel/chrome-plated steel or magnetic stainless steel.

F. Window Anchors

1. Anchors for installing windows shall be stainless steel or hot-dip zinc coated steel conforming to ASTM A 123.

G. Glass and Glazing

1. Standard clear ceramic glass (1 hour rated).

2. Safety filmed clear ceramic glass CPSC16CFR1201 Cat I & II (1- hour rated).

3. Insulated glass units.

2.4 FABRICATION

A. Fabricate windows in accordance with approved shop drawings.

B. Frame sections shall be one-piece sections with corners mitered, welded and dressed smooth.

C. Required muntins shall be securely welded to the frame members and at all intersections.

D. All windows shall be designed for inside glazing.

E. All windows shall be factory glazed with UL labeled glass meeting or exceeding the hourly rating required for the frame label. Individual lites shall display a UL label permanently affixed and in accordance with the requirements of the International Building Code and NFPA 80.

2.5 FINISHES – All products will be provided with a paint coating.

A. Finish Coat – Manufacturer's Standard Color (Iceberg White – Iceberg White/Black)

1. Steel windows, fins, mullions, cover plates and associated parts shall be cleaned, pre-treated with iron phosphate and factory powder coated and cured with a manufacturer's standard color in a dry film thickness of not less than 0.050 mm (2.0 mil).

PART 3 EXECUTION

3.1 EXAMINATION

A. Window openings shall conform to details and dimensions shown on the approved shop drawings.

B. Notify the Architect immediately of conditions that may adversely affect the window installation. Correct conditions prior to installing windows.

3.2 INSTALLATION

A. Steel windows shall be installed in accordance with approved shop drawings and manufacturer's approved recommendations.

B. Fire-rated windows shall be installed in compliance with NFPA 80 and NFPA 101.

C. Steel surfaces in close proximity with masonry, concrete, wood, and dissimilar metals other than stainless steel, zinc, cadmium, or small areas of white bronze shall be protected from direct contact.

D. Verify that weep features at the bottom of the sills are opened at least 1/8" x 1". Failure to do so may lead to premature finish failures and void warranty.

E. The completed window installation shall be watertight.

3.3 ADJUSTING AND CLEANING

A. Steel window finish and glass shall be cleaned on interior and exterior sides in accordance with window manufacturer's recommendation. Alkaline, abrasive or brick wash agents shall not be used.

B. Operable sash shall be adjusted per manufacturer's instruction to provide minimal operating force.

3.4 PROTECTION

A. Protect installed products and finished surfaces from damage during construction.

B. Touch-up any abraded surface of the window finish with air dry paint furnished by the window manufacturer.

-- END OF SECTION –

SPEC_950 1-2020

Fire-Rated Glass Ceramic
Fire-Rating: 20-90 Minutes

FireLite is a 3/16" (5 mm) thick fire-rated glazing material. It is listed for use in non-impact safety-rated locations such as transoms and borrowed lites.

BIM 3D Model Available

ultraHD® TECHNOLOGY

UL Classified & Labeled

Fire-Rated

Hose Stream Tested

Positive Pressure Tested

FEATURES

- ultraHD® Technology for improved surface quality, clarity and color
- Fire-rated for up to 90 minutes with required hose stream test
- Clear and wireless glass ceramic
- Available in two surface grades: Premium and Standard
- Fits in Fireframes® Designer Series frames from TGP, or standard fire-rated frames
- Withstands thermal shock
- Large sizes available
- May be lightly sandblasted or etched on one side without affecting fire rating
- May be insulated (see FireLite IGU fact sheet)

Notes:

1. This product is not a barrier to radiant heat, as it does not meet test standards ASTM E119 or UL 263. If your jurisdiction requires a "barrier to heat" product, please contact TGP regarding Pilkington Pyrostop®.

2. FireLite is not an impact safety-rated product and should not be specified as such. However, TGP does offer FireLite Plus® and FireLite® NT which carry both fire and impact safety ratings. Please contact TGP for more details.

SURFACE GRADES

Standard Grade - Polished for a surface quality that is comparable to alternative fire-rated ceramics marketed as having a premium finish.

Premium Grade - Finish ground and polished on both surfaces to provide superior surface quality, improving overall clarity and providing a surface that is unmatched by alternative products.

LISTINGS/STANDARDS

Classified and labeled by Underwriters Laboratories, Inc.® and Underwriters Laboratories of Canada. File number for labeled fire-rated assemblies is R13377. Tests performed in accordance with:

UL 9	NFPA 80	CAN4 S-104	MEA 290-90-M-6
UL 10B	NFPA 257	CAN4 S-106	LARR 25798
UL 10C			

MAXIMUM EXPOSED AREA

RATING	ASSEMBLY	MAX. EXPOSED AREA	MAX. WIDTH OF EXPOSED GLAZING	OR	MAX. HEIGHT OF EXPOSED GLAZING
20 to 60 min.	OTHER THAN DOORS	3,325 in^2 / 23.09 ft^2 (2.15 m^2)	95" (2,413 mm)		95" (2,413 mm)
90 min.	OTHER THAN DOORS	2,627 in^2 / 18.24 ft^2 (1.69 m^2)	56–1/2" (1,435 mm)		56–1/2" (1,435 mm)

Check with frame manufacturer for maximum tested glass sizes and required stop height.
Note: Individual lite sizes cannot exceed "Max. Exposed Area" shown above.

MAXIMUM SHEET SIZE

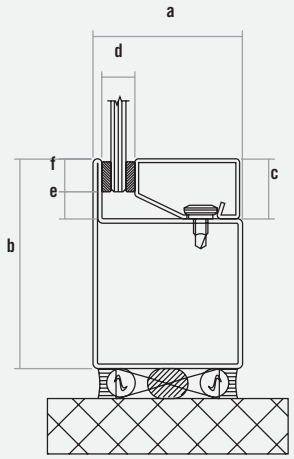
SURFACE FINISH	Premium	Standard	Obscure
	48" x 96" (1.21 m x 2.43 m)	48" x 96" (1.21 m x 2.43 m)	36" x 96" (.91 m x 2.43m)

GENERAL CHARACTERISTICS

THICKNESS:	3/16" (5 mm) overall
WEIGHT:	2.56 lb / ft^2 (12.5 kg / m^2)
APPROX. VISIBLE TRANSMISSION:	88%
APPROX. VISIBLE REFLECTION:	9%
HARDNESS (VICKER'S SCALE):	700
FIRE RATING:	20 to 90 minutes
IMPACT SAFETY RATING:	None
STC RATING:	35

Detail based on use of Fireframes Designer Series narrow profile framing

Glazing Thickness:	3/16" – 1" (5 mm - 25.4 mm)
a. Frame width:	2" (51 mm)
b. Frame height:	2-3/4" (70 mm)
c. Stop height:	3/4" (19 mm)
d. Pocket width:	1/2" – 1-1/4" (12.7 mm x 31.8 mm)
e. Edge clearance:	1/4" (6.4 mm)
f. Bite:	1/2" (12.7 mm)



LABELING

Each piece of FireLite shall be permanently labeled with the FireLite logo, UL logo and fire rating.

INSTALLATION

FireLite shall be glazed into the appropriate fire-rated framing with an approved glazing compound (pure silicone, closed cell PVC tape or DAP 33 putty) as supplied by the installer. For 90 minute ratings that exceed 1,393 in^2 (.8987 m^2) FireLite shall be glazed with fire-rated glazing tape as supplied by TGP.

Inspect each piece of FireLite immediately before installation and eliminate any with observable edge damage or face imperfections. As with any glass produced by the "roll out" method, individual pieces of FireLite may contain minimal variations in thickness. Occasionally, process marks and small occlusions or seeds (bubbles, knots or crystals) may be apparent. However, since they do not generally impair the transparency or affect the technical performance of the glass, they do not represent cause for rejection.

STORAGE & HANDLING

FireLite must be handled with care during transportation, storage, inspection and installation. Store in a dry place.

FAMILY OF PRODUCTS

TGP offers a complete family of products for all your fire-rated glazing needs, ranging from 20 minute to 3 hour applications. More information is available online at fireglass.com.

Fire-Rated, Impact Safety-Rated Glass Ceramic With Surface-Applied Film Fire-Rating: 20-180 Minutes

FireLite NT is a 3/16" (5 mm) thick fire-rated and impact safety-rated glazing material, composed of FireLite and fire-rated surface-applied film. It is listed for use in doors, sidelites, transoms and borrowed lites.

BIM 3D Model Available

ultraHD® TECHNOLOGY

UL Classified & Labeled

Fire-Rated

Hose Stream Tested

Impact-Rated

Positive Pressure Tested

FEATURES

- ultraHD® Technology for improved surface quality, clarity and color
- Fire-rated for up to 180 minutes with required hose stream test
- Available in two surface grades: Premium and Standard
- Wireless glass ceramic with high performance surface-applied approved fire-rated film
- Impact safety-rated–meets ANSI Z97.1 and CPSC 16 CFR1201 (Cat. I and II)
- Fits in Fireframes® Designer Series from TGP, or standard fire-rated frames
- Withstands thermal shock
- Large sizes available
- May be lightly sandblasted or etched on the unfilmed side without affecting fire rating
- Protects from fire and impact on both sides of the glass
- May be insulated (see FireLite IGU fact sheet)
- 3-year limited warranty

Note: This product is not a barrier to radiant heat, as it does not meet test standards ASTM E119 or UL 263. If your jurisdiction requires a "barrier to heat" product, please contact TGP regarding Pilkington Pyrostop®.

SURFACE GRADES

Standard Grade - Polished for a surface quality that is comparable to alternative fire-rated ceramics marketed as having a premium finish.

Premium Grade - Finish ground and polished on both surfaces to provide superior surface quality, improving overall clarity and providing a surface that is unmatched by alternative products.

LISTINGS/STANDARDS

Classified and labeled by Underwriters Laboratories, Inc.® and Underwriters Laboratories of Canada. File number for labeled fire-rated assemblies is R13377. Tests performed in accordance with:

UL 9	NFPA 80	CAN4 S-104	MEA 290-90-M-6
UL 10B	NFPA 252	CAN4 S-106	LARR 25798
UL 10C	NFPA 257		

MAXIMUM EXPOSED AREA

RATING	ASSEMBLY	MAX. EXPOSED AREA	MAX. WIDTH OF EXPOSED GLAZING OR	MAX. HEIGHT OF EXPOSED GLAZING
20 to 60 min.	DOORS (non-temp rise)	3,204 in^2 / 22.25 ft^2 (2.07 m^2)	36” (914 mm)	89” (2,260 mm)
	DOORS (temp rise)	100 in^2 / 0.69 ft^2 (.06 m^2)	12” (304 mm)	33” (838 mm)
	OTHER THAN DOORS	3,325 in^2 / 23.09 ft^2 (2.15 m^2)	95” (2,413 mm)	95” (2,413 mm)
90 min.	DOORS (non-temp rise)	2,034 in^2 / 14.13 ft^2 (1.31 m^2)	36” (914 mm)	56-1/2” (1,435 mm)
	DOORS (temp rise)	100 in^2 / 0.69 ft^2 (.06 m^2)	12” (304 mm)	33” (838 mm)
	OTHER THAN DOORS	2,627 in^2 / 18.24 ft^2 (1.69 m^2)	56-1/2” (1,435 mm)	56-1/2” (1,435 mm)
180 min.	DOORS	100 in^2 / 0.69 ft^2 (.06 m^2)	12” (304 mm)	33” (838 mm)

Check with frame manufacturer for maximum tested glass sizes and required stop height.
Note: Individual lite sizes cannot exceed “Max. Exposed Area” shown above.

MAXIMUM SHEET SIZE

SURFACE FINISH	Premium	Standard	Obscure
	48" x 96" (1.21 m x 2.43 m)	48" x 96" (1.21 m x 2.43 m)	36" x 96" (.91 m x 2.43m)

GENERAL CHARACTERISTICS

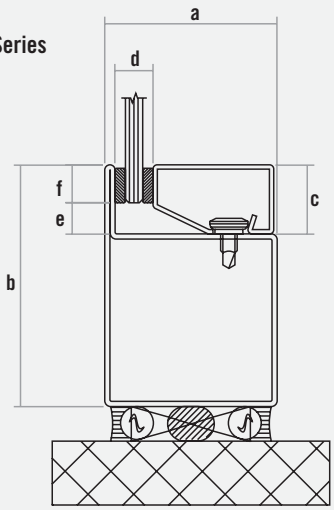
THICKNESS:	3/16” (5 mm) overall
WEIGHT:	2.56 lb / ft^2 (12.5 kg / m^2)
APPROX. VISIBLE TRANSMISSION:	88%
APPROX. VISIBLE REFLECTION:	9%
HARDNESS (VICKER’S SCALE):	700
FIRE RATING:	20 minutes to 3 hours
IMPACT SAFETY RATING:	Meets ANSI Z97.1 and CPSC 16FR1201 (Cat. I and II)
STC RATING:	35

LABELING

Each piece of FireLite NT shall be permanently labeled with the FireLite NT logo, UL logo and fire rating.

Detail based on use of Fireframes Designer Series narrow profile framing

Glazing Thickness:	3/16" – 1" (5 mm - 25.4 mm)
a. Frame width:	2" (51 mm)
b. Frame height:	2-3/4" (70 mm)
c. Stop height:	3/4" (19 mm)
d. Pocket width:	1/2" – 1-1/4" (12.7 mm x 31.8 mm)
e. Edge clearance:	1/4" (6.4 mm)
f. Bite:	1/2" (12.7 mm)



INSTALLATION

FireLite NT shall be glazed into the appropriate fire-rated framing with an approved glazing compound (closed cell PVC tape or DAP 33 putty) as supplied by the installer. For 90 minute ratings that exceed 1,393 in^2 (.8987 m^2), FireLite NT shall be glazed with fire-rated glazing tape as supplied by TGP.

Inspect each piece of FireLite NT immediately before installation and eliminate any with observable edge damage or face imperfections. As with any glass produced by the "roll out" method, individual pieces of FireLite NT may contain minimal variations in thickness. Occasionally, process marks and small occlusions or seeds (bubbles, knots or crystals) may be apparent. However, since they do not generally impair the transparency or affect the technical performance of the glass, they do not represent cause for rejection.

STORAGE & HANDLING

FireLiteNT must be handled with care during transportation, storage, inspection and installation. Store in a dry place.

FAMILY OF PRODUCTS

TGP offers a complete family of products for all your fire-rated glazing needs, ranging from 20 minute to 3 hour applications. More information is available online at fireglass.com, or by calling 800.426.0279.

Fireglass®20
Fire-rated, impact safety-rated glass

FireLite®
Fire-rated glass ceramic

FireLite® NT
Fire-rated, impact safety-rated glass ceramic with surface-applied film

FireLite Plus®
Fire-rated, impact safety-rated glass ceramic

FireLite® IGU
Fire-rated or fire/impact safety-rated insulated glass units

Pilkington Pyrostop®
Fire-rated, impact safety-rated transparent wall panels

WireLite®
Fire-rated, wired glass

WireLite® NT
Fire-rated, impact safety-rated wired glass with surface-applied film

Fireframes®
Fire-rated framing & doors for use with all TGP glass products

SECTION 08510
STEEL WINDOWS
UL Labeled Fire-Rated Single Hung (925)

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Fire Rated Steel Windows (Single Hung) – 60-Minute UL Labeled

1.2 RELATED SECTIONS

A. Section 08800 – Glass, Glazing, and Glazing Materials

1.3 REFERENCES

A. ASTM A 569-(1991a; R 1993) Steel, Carbon (0.15 Maximum, Percent), Hot-Rolled Sheet and Strip Commercial Quality

B. ASTM A 653-(1994) Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process

C. ASTM B 633-(1985; R 1994) Electrodeposited Coatings of Zinc on Iron and Steel

D. ASTM B 766-(1986; R 1993) Electrodeposited Coatings of Cadmium

E. ASTM E 283-(1991) Determining the Rate of Air Leakage through Exterior Windows, Curtain Walls, and Doors Under Specific Pressure Differences Across the Specimen

F. ASTM E 330-(1990) Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference

G. ASTM E 547-(1993) Water Penetration of Exterior Windows, Curtain Walls, and Doors by Cyclic Static Air Pressure Differential

H. ASME B18.6.3- (1972; R 1991) Machine Screws and Machine Screw Nuts

I. ASME B18.6.4- (1981; R 1991) Thread Forming and Thread Cutting Tapping Screws and Metallic Drive Screws (Inch Series)

J. NFPA 80-(2007) Fire Doors and Windows

K. NFPA 101-(2006) Safety to Life from Fire in Buildings and Structures

L. UL9-Fire Tests of Window Assemblies

M. File No. R13157-D.V. Fyre-Tec Classification

1.4 PERFORMANCE REQUIREMENTS (Based on a single window in a testing lab environment)

A. Single Hung steel windows shall conform to the H-C30 voluntary specifications in AAMA/NWWDA 101/I.S.2-97 and be designed to meet the following performance requirements. Fire-rated windows shall bear the Underwriters Laboratories, Inc. label including the manufacturer's file number for the indicated rating.

1. Structural Performance: Structural test pressures on window units shall be for positive load (inward) and negative load (outward) in accordance with ASTM E 330 at a static pressure of 45 PSF. After testing, there shall be no glass breakage, permanent damage to fasteners, hardware parts, support arms or actuating mechanisms or any other damage which could cause window to be inoperable. There shall be no permanent deformation of any main frame, sash or ventilator member in excess of the requirements established by AAMA/NWWDA 101/I.S.2-97 for the window types specified in this section.

2. Air Infiltration: Air infiltration shall not exceed .3 SCFM per square foot of window area at a static air pressure difference of 1.57 PSF as established by AAMA/NWWDA 101/I.S.2-97 when tested in accordance with ASTM E 283.

3. Water Resistance: When tested in accordance with ASTM E 547, there shall be no water leakage at a static air pressure difference of 4.50 PSF.

B. Fire Protective: Fire protective rating shall meet requirements as tested and classified by Underwriters Laboratories Inc, in accordance with UL-9. Products shall meet the requirements of Underwriters Laboratories Inc. The Listing Mark of UL on the product will be accepted as evidence of compliance.

C. Life Safety Criteria: Windows shall conform to NFPA 101 Life Safety Code when rescue and/or second means of escape are indicated.

1.5 SUBMITALS

A. Manufacturer's descriptive data and catalog cut sheets.

B. Drawings indicating elevations of windows, rough-opening dimensions for each type and size of windows, section details, fastenings, generic method of installation and anchorage, glazing details, method of glazing, muntin divider details, mullion details, weather-stripping details, types and locations of operating hardware, window type and indicating compliance with fire safety code, where required. Refer to Authority Having Jurisdiction for specific installation, wall detail, and anchorage requirements.

C. Manufacturer's preprinted installation instructions and cleaning instructions.

D. Manufacturer's standard color samples of painted finishes.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: Experienced in performing work of this section who has specialized in installation of work similar to that required for this project.

B. Manufacturer's Qualifications: A firm with not less than 10-years' experience in manufacture of similar type steel windows.

1.7 DELIVERY, STORAGE AND HANDLING

A. Delivery:

1. Manufacturer's original, unopened, undamaged containers, identification labels intact. Inspect for damage upon delivery.

2. Handle and store products according to manufacturer's recommendations.

B. Storage and Protection:

1. Store materials protected from exposure to harmful weather conditions and at temperature and humidity conditions recommended be manufacturer

2. Store windows to prevent damage or marring of finish. Store in shipping containers under cover on building site.

1.8 PROJECT CONDITIONS

A. Verify actual openings by field measurements before fabrication, show recorded measurements on shop drawings.

B. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.

1.9 WARRANTY

A. Manufacturer's standard warranty to be 3 years from the date of shipping.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Series 925 Single Hung Windows as manufactured by D.V. Fyre-Tec, Inc.; 701 Centennial Road; Wayne, NE 68787; Tel: 1-800-377-3261; Fax; 1-402-375-4261; Web: www.fyre-tec.com; Email; info@fyre-tec.com.

B. Architect approved equal.

2.2 STEEL WINDOW TYPES

A. Single hung steel windows shall be designed for inside field glazing, and for glass types scheduled on drawings or otherwise specified. Units shall be complete with glass and glazing provisions to meet requirements of paragraph WINDOW PERFORMANCE. Glazing material shall be compatible with steel, and shall not require painting.

B. Fire-rated windows shall conform to UL-9 and shall be labeled with a 1- hour fire-test rating as specified in the window schedule. Units shall be designed and fabricated to meet glass sizes, window sizes, and opening dimensions established by NFPA 80. Hardware shall conform to NFPA 80 requirements. All operable fire-rated windows are to be self-closing and latching by means of a heat activated fusible link operator.

2.3 MATERIALS

A. Steel Frames and Inserts

1. Steel frames and inserts shall be fabricated from roll-formed galvanized lock-forming quality steel per ASTM A 653.

2. Frame and insert corners shall mitered and welded. Integral muntins where required shall be galvanized roll-formed material fitted and welded.

3. Operable insert/sash shall be supported on two adjustable heavy-duty spiral wound balances.

B. Installation Kits

1. Provide attachable fin installation kits for all windows.

2. Provide subframe installation kits for all windows.

C. Weather Stripping

1. Weather-stripping for the inserts shall be designed to meet water penetration and air infiltration requirements specified under paragraph WINDOW PERFORMANCE, and shall be manufactured of material compatible with steel and resistant to weather. Weather-strips shall be factory applied and easily replaced in the field.

D. Screens

1. Insect screens shall be steel window manufacturer's standard design, and shall be provided where scheduled on drawings. Insect screens shall be fabricated of roll formed galvanized steel frames and (18x16) plastic coated glass conforming fiber mesh screening conforming to ASTM D 3656.

E. Formed Component Parts

1. Formed component parts shall be hot-rolled sheet steel conforming to ASTM A 569, commercial quality with a minimum of 0.15 percent carbon.

2. Sheet steel shall be zinc coated (galvanized) by the hot-dip process in accordance with ASTM A 653 or ASTM A 924.

F. Screws and Bolts

1. Screws and bolts shall conform to ASTM B 766, ASME B18.6.3 and ASME B18.6.4.

G. Fasteners

1. Fastening devices shall be window manufacturer's design made from cadmium-plated steel, zinc-plated steel, nickel/chrome-plated steel or magnetic stainless steel.

H. Window Anchors

1. Anchors for installing windows shall be stainless steel or hot-dip zinc coated steel conforming to ASTM A 123.

I. Glass and Glazing

1. Standard clear ceramic glass (1 hour rated)

2. Insulated glass units.

2.4 FABRICATION

A. Fabricate windows in accordance with approved shop drawings.

B. Frame sections shall be one-piece sections with corners mitered, welded and dressed smooth.

C. Required muntins shall be securely welded to the frame members and at all intersections.

D. All windows shall be designed for inside glazing.

E. All windows shall be factory glazed with UL labeled glass meeting or exceeding the hourly rating required for the frame label. Individual lites shall display a UL label permanently affixed and in accordance with the requirements of the International Building Code and NFPA 80.

2.5 FINISHES – All products will be provided with a paint coating.

A. Finish Coat – Manufacturer's Standard Color (Iceberg White – Iceberg White/Black)

1. Steel windows, fins, mullions, cover plates and associated parts shall be cleaned, pre-treated with iron phosphate and factory powder coated and cured with a manufacturer's standard color in a dry film thickness of not less than 0.050 mm (2.0 mil).

PART 3 EXECUTION

3.1 EXAMINATION

A. Window openings shall conform to details and dimensions shown on the approved shop drawings.

B. Notify the Architect immediately of conditions that may adversely affect the window installation. Correct conditions prior to installing windows.

3.2 INSTALLATION

A. Steel windows shall be installed in accordance with approved shop drawings and manufacturer's approved recommendations.

B. Fire-rated windows shall be installed in compliance with NFPA 80 and NFPA 101.

C. Steel surfaces in close proximity with masonry, concrete, wood, and dissimilar metals other than stainless steel, zinc, cadmium, or small areas of white bronze shall be protected from direct contact.

D. Verify that weep features at the bottom of the sills are opened at least 1/8" x 1". Failure to do so may lead to premature finish failures and void warranty.

E. The completed window installation shall be watertight.

3.3 ADJUSTING AND CLEANING

A. Steel window finish and glass shall be cleaned on interior and exterior sides in accordance with window manufacturer's recommendation. Alkaline, abrasive or brick wash agents shall not be used.

B. Operable sash shall be adjusted per manufacturer's instruction to provide minimal operating force.

3.4 PROTECTION

A. Protect installed products and finished surfaces from damage during construction.

B. Touch-up any abraded surface of the window finish with air dry paint furnished by the window manufacturer.

-- END OF SECTION –

SECTION 08510
STEEL WINDOWS
UL Labeled Fire-Rated Fixed Lite (950)

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Fire Rated Steel Windows (Fixed Lite) – 60-Minute UL Labeled

1.2 RELATED SECTIONS

A. Section 08800 – Glass, Glazing, and Glazing Materials

1.3 REFERENCES

A. ASTM A 569-(1991a; R 1993) Steel, Carbon (0.15 Maximum, Percent), Hot-Rolled Sheet and Strip Commercial Quality

B. ASTM A 653-(1994) Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process

C. ASTM B 633-(1985; R 1994) Electrodeposited Coatings of Zinc on Iron and Steel

D. ASTM B 766-(1986; R 1993) Electrodeposited Coatings of Cadmium

E. ASTM E 283-(1991) Determining the Rate of Air Leakage through Exterior Windows, Curtain Walls, and Doors Under Specific Pressure Differences Across the Specimen

F. ASTM E 330-(1990) Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference

G. ASTM E 547-(1993) Water Penetration of Exterior Windows, Curtain Walls, and Doors by Cyclic Static Air Pressure Differential

H. ASME B18.6.3- (1972; R 1991) Machine Screws and Machine Screw Nuts

I. ASME B18.6.4- (1981; R 1991) Thread Forming and Thread Cutting Tapping Screws and Metallic Drive Screws (Inch Series)

J. NFPA 80-(2007) Fire Doors and Windows

K. NFPA 101-(2006) Safety to Life from Fire in Buildings and Structures

L. UL9-Fire Tests of Window Assemblies

M. File No. R13157-D.V. Fyre-Tec Classification

1.4 PERFORMANCE REQUIREMENTS (Based on a single window in a testing lab environment)

A. Fixed lite steel windows shall be designed to meet F-C30 voluntary specifications in AAMA/NWWDA 101/I.S.2-97 and be designed to meet the following performance requirements. Fire-rated windows shall bear the Underwriters Laboratories, Inc. label including the manufacturer's file number for the indicated rating.

1. Air Infiltration: Air infiltration shall not exceed .3 SCFM per square foot of window area at a static air pressure difference of 1.57 PSF as established by AAMA/NWWDA 101/I.S.2-97 when tested in accordance with ASTM E 283.

2. Water Resistance: When tested in accordance with ASTM E 547, there shall be no water leakage at a static air pressure difference of 4.50 PSF.

B. Fire Protective: Fire protective rating shall meet requirements as tested and classified by Underwriters Laboratories Inc, in accordance with UL-9. Products shall meet the requirements of Underwriters Laboratories Inc. The Listing Mark of UL on the product will be accepted as evidence of compliance.

C. Life Safety Criteria: Windows shall conform to NFPA 101 Life Safety Code when rescue and/or second means of escape are indicated.

1.5 SUBMITALS

A. Manufacturer's descriptive data and catalog cut sheets.

B. Drawings indicating elevations of windows, rough-opening dimensions for each type and size of windows, section details, fastenings, generic method of installation and anchorage, glazing details, method of glazing, muntin divider details, mullion details, weather-stripping details, types and locations of operating hardware, window type and indicating compliance with fire safety code, where required. Refer to Authority Having Jurisdiction for specific installation, wall detail, and anchorage requirements.

C. Manufacturer's preprinted installation instructions and cleaning instructions.

D. Manufacturer's standard color samples of painted finishes.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: Experienced in performing work of this section who has specialized in installation of work similar to that required for this project.

B. Manufacturer's Qualifications: A firm with not less than 10-years' experience in manufacture of similar type steel windows.

1.7 DELIVERY, STORAGE AND HANDLING

A. Delivery:

1. Manufacturer's original, unopened, undamaged containers, identification labels intact. Inspect for damage upon delivery.

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B. Storage and Protection:

1. Store materials protected from exposure to harmful weather conditions and at temperature and humidity conditions recommended be manufacturer

2. Store windows to prevent damage or marring of finish. Store in shipping containers under cover on building site.

1.8 PROJECT CONDITIONS

A. Verify actual openings by field measurements before fabrication, show recorded measurements on shop drawings.

B. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.

1.9 WARRANTY

A. Manufacturer's standard warranty to be 3 years from the date of shipping.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Series 950 Fixed Lite Windows as manufactured by D.V. Fyre-Tec, Inc.; 701 Centennial Road; Wayne, NE 68787; Tel: 1-800-377-3261; Fax; 1-402-375-4261; Web: www.fyre-tec.com; Email; info@fyre-tec.com.

B. Architect approved equal.

2.2 STEEL WINDOW TYPES

A. Fixed Lite steel windows shall be designed for inside field glazing, and for glass types scheduled on drawings or otherwise specified. Units shall be complete with glass and glazing provisions to meet requirements of paragraph WINDOW PERFORMANCE. Glazing material shall be compatible with steel, and shall not require painting.

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C. Formed Component Parts

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D. Screws and Bolts

1. Screws and bolts shall conform to ASTM B 766, ASME B18.6.3 and ASME B18.6.4.

E. Fasteners

1. Fastening devices shall be window manufacturer's design made from, cadmium-plated steel, zinc-plated steel, nickel/chrome-plated steel or magnetic stainless steel.

F. Window Anchors

1. Anchors for installing windows shall be stainless steel or hot-dip zinc coated steel conforming to ASTM A 123.

G. Glass and Glazing

1. Standard clear ceramic glass (1 hour rated).

2. Safety filmed clear ceramic glass CPSC16CFR1201 Cat I & II (1- hour rated).

3. Insulated glass units.

2.4 FABRICATION

A. Fabricate windows in accordance with approved shop drawings.

B. Frame sections shall be one-piece sections with corners mitered, welded and dressed smooth.

C. Required muntins shall be securely welded to the frame members and at all intersections.

D. All windows shall be designed for inside glazing.

E. All windows shall be factory glazed with UL labeled glass meeting or exceeding the hourly rating required for the frame label. Individual lites shall display a UL label permanently affixed and in accordance with the requirements of the International Building Code and NFPA 80.

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-- END OF SECTION –

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