

Saucon Valley School District

Meeting of the Ad Hoc Facilities Committee High School Audion May 12, 2021 – 5:00 pm

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Welcome to the meeting of the Saucon Valley School Board Ad Hoc Facilities Committee. Our objective is to serve the students, parents, and residents of our community. You are an important part of this meeting and we look forward to your questions and comments. We are all here for the same reason. All opinions are welcomed and equally valuable. Our only request is that we address each other with civility and respect. Our courtesy toward each other is the best way to show our students how much we respect them as well.

Committee Members: Bryan Eichfeld, Michael Karabin, Sandra Miller, Shawn Welch

- I. **Call to the Order** – *Bryan Eichfeld, Committee Chair*
- II. **Pledge of Allegiance**
- III. **Recording of Attendance** – *David Bonenberger, Committee Secretary*
- IV. **Motion to Approve Agenda** –
- V. **Approval of Minutes** – April 14, 2021
- VI. **Courtesy of the Floor to Visitors** – **Agenda Items Only** –
- VII. **Discussion: District Marquee Repair** – Attachments – John McCabe
- VIII. **Presentation: Athletic Projects** – Robert Frey
- IX. **Discussion: HS Art Room Furniture** – Tamara Gary
- X. **Update: Window Replacement Information** – Attachments – John McCabe
- XI. **Updates on Current Projects/Repairs**
- XII. **Review: Facilities Project List**
- XIII. **New Business** –
- XIV. **Old Business** –
- XV. **Courtesy of the Floor to Visitors** – *Visitors should state their name and address.*
- XVI. **Future Meetings** – June 9, 2021
- XVII. **Motion to Adjourn**

A meeting of the Ad Hoc Facilities Committee of the Board of Directors of the Saucon Valley School District was held on Wednesday, April 14, 2021 in the High School Audion. Present were Committee Members Bryan Eichfeld, Michael Karabin, Sandra Miller (online) and Shawn Welch. Also present were David Bonenberger - Committee Secretary, Dr. Craig Butler, Superintendent, John McCabe, Supervisor of Campus Operations and visitors: Susan Baxter and Cedric Dettmar

- I. **Call to the Order** – 5:05 pm - *Bryan Eichfeld, Committee Chair*
- II. **Pledge of Allegiance**
- III. **Recording of Attendance** – *David Bonenberger, Committee Secretary*
3-present, 1-absent (Miller)
- IV. **Motion to Approve Agenda** – Director Welch, seconded by Director Karabin moved to approve the Agenda. Vote: 3-yes, 0-no, 1-absent (Miller)
- V. **Approval of Minutes** – Director Karabin, seconded by Director Welch moved to approve the minutes of March 10, 2020. Vote: 3-yes, 0-no, 1-absent (Miller)
- VI. **Courtesy of the Floor to Visitors – Agenda Items Only** – None
- VII. **Discussion: HS Windows – Attachment**
It was asked if the District should add more windows for ventilation, there were also questions regarding warranties and one pane vs. two pane windows. The Contractors said they will provide specs, warranty information and pictures of windows.

Director Miller arrived 5:19 pm.

- VIII. **Update: Cooling Tower Replacement** - John McCabe reported that the Cooling Tower has been replaced and is operational. The new lower temperatures are better than the older system,
- IX. **Update: MS Roof Repairs – Attachment** – The committee approves continuing to proceed with this project.
- X. **Discussion: MS Café Cooler and Freezer Evaporator Replacement – Attachment**
John McCabe reported that this replacement will cost \$15,900.00. It was asked where the money will be coming from.

Director Welch, seconded by Director Miller moved to approve sending this item to the Finance Committee. Vote: 4-yes, 0-no
- XI. **Discussion: HS Floor Tile Replacement – Attachment**
Sargent is the low bid at \$28,400 which is in the 2021-22 budget.

Director Welch, seconded by Director Miller moved to send the tile floor abatement to the Finance Committee contingent upon furniture purchase. Vote: 4-yes, 0-no

XII. Discussion: HS Furniture Replacement

The facilities Committee would like Administration to find out if the furniture is made in America.

Director Welch, seconded by Director Karabin moved to send this item to the Finance Committee with the lowest bid and stackable chairs. Vote:4-yes, 0-no

XIII. Discussion: Pot Hole Repair – Attachment

John McCabe reported that #7 will be deleted from the quote to stay under the bid threshold. The money for this project will come out of next year's budget.

XIV. Discussion: Auditorium Wall Sconces

At some point we will not be able to replace the lights as bulbs are becoming obsolete.

XV. Discussion: PASBO Report

The District should be getting the report soon from PASBO. They came out the Thursday before Easter.

XVI. New Business – None**XVII. Old Business – Facilities Project List – Will be discussed at the next Finance meeting.****XVIII. Courtesy of the Floor to Visitors – None****XIX. Future Meetings – May 12, 2021****XX. Motion to Adjourn**

Director Karabin, seconded by Director Welch moved to adjourn.

Vote: 3-yes, 0-no, 1-absent (Miller)

6:45 PM

CAMPUS MARQUEE

5/4/21

FastSigns, Allentown PA

COSTARS

	Cost	Comments
Replace Letter Board Only	\$2,425	Water damage, letters fall out
Replace Letter Board and Cabinet - Exact Replacement	\$11,500	Cabinet door prop has failed, need 2 people to update messages
Replace Letter Board and Cabinet with Digital LED Programmable Sign	\$21,750	5 Year Parts and Labor, technology guaranteed for 10 years

**FASTSIGNS**

700 N. 13th Street
Allentown, PA 18102
ph: 610.434.7353
fax: 610.434.8014
Email: 219@fastsigns.com

Estimate**32826****Estimate Date:** 5/12/2020 1:23:58PM**Printed:** 4/14/2021 1:32:27PM**Salesperson:** evan.blose@fastsigns.com**Customer:** Saucon Valley School District**Contact:** Patricia Diehl**Description:** ReOrder :Message center options**Sales Person:** Evan Blose**Clerk:** Evan Blose**Customer:** 19533**ph:** (610) 838-7001 x 1201**email:** patricia.diehl@svpanthers.org

Dear Patricia:

Thank you for contacting Fastsigns for your sign needs. Attached is the estimate you requested, please review and let us know if you have any questions. We look forward to hearing from you.

Sincerely,

Evan Blose
sales rep

	Product	Qty	Sides	H x W	Unit Cost	Totals
1	SUB	*	1	1	1 x 1	\$2,425.00
Description: REPLACE EXISTING LETTER BOARD WITH SAME MATERIAL Manufacture and install (1) 48"h x 116"w black vinyl letter board						\$2,425.00

Notes:

Line Item Total:	\$2,425.00
Tax Exempt Amt:	\$2,425.00
Subtotal:	\$2,425.00
Taxes:	\$0.00
Total:	\$2,425.00

Deposit Required: **\$1,212.50**

Bill To: Saucon Valley School District
Patricia Diehl
2097 Polk Valley Road
hellertown, PA 18055

Payment due upon completion of order. 1.5%
Monthly Finance Charge applied to all outstanding
balances

Received/Accepted By:

/ /

FASTSIGNS

700 N. 13th Street
Allentown, PA 18102
ph: 610.434.7353
fax: 610.434.8014
Email: 219@fastsigns.com

Estimate

34700

Estimate Date: 4/22/2021 9:19:06AM

Printed: 4/22/2021 9:31:40AM

Salesperson: evan.blose@fastsigns.com

Customer: Saucon Valley School District

Contact: Patricia Diehl

Description: Message center

Sales Person: Evan Blose

Clerk: Evan Blose

Customer: 19533

ph: (610) 838-7001 x 1201

email: patricia.diehl@svpanthers.org

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Sincerely,

Evan Blose
sales rep

	Product	Qty	Sides	H x W	Unit Cost	Totals
1	SUB	*	1	1	1 x 1	\$11,500.00
Description:	Remove existing 72" high by 116" wide single sided cabinet. Manufacture and install (1) new 72" high by 116" wide single sided cabinet. Internally illuminated by high output LEDS 5000K bright white 24" high by 116" wide topper "SAUCON VALLEY SCHOOL DISTRICT" Routed and pushed through face Painted customers desired color with Matthews Polyurethane automotive grade paint 48" high by 116" wide changeable reader board with 2 full sets of letters 8 rows of 4" high letters Lockable vandal cover					

Notes:

**FASTSIGNS**

700 N. 13th Street
Allentown, PA 18102
ph: 610.434.7353
fax: 610.434.8014

Email: 219@fastsigns.com

INVOICE BASED ON COSTARS APPROVED

-A 50% deposit will be required upon acceptance of this contract with the balance due upon completion. "Completion" is defined as the day the signs are installed, delivered or the customer is notified that the product or signs are ready to be picked up. If payment is not received as stated above, interest will be charged at a rate of 1.8% per month from date of completion. Should collection proceedings become necessary, the customer is responsible for reasonable attorney fees and related costs.

-Price quoted does not include permits, permit cost or time securing. Price does not include any inspection fees required by the township or additional trip charges for meeting with the inspector during or after the sign is installed.

-Price quoted does not include any variance fees or time to attend the variance meetings.

-Any Engineer sealed drawings required by the township will be an additional minimum fee of \$350.

-All prices are subject to revision where excess rock or other unforeseeable formations or conditions are encountered while excavating, digging or augering sign foundations. Any extras will be charged time and material.

-FASTSIGNS is responsible for notifying the utility companies of the digging location. Customer is responsible for clearly marking any and all private utilities that are not marked by the Utility companies. Any damages caused by lack of or incorrect markings will be the responsibility of the customer.

-FASTSIGNS shall not be responsible for damage to the customer's pavement, curbing or other surfaces or lawn resulting from the trucks required to perform the services herein contracted.

-Prices are based on adequate access, any difficulties in drilling or in the access will be charged accordingly.

-Customer to supply correct circuitry to exact sign locations or within 6' of the sign area.

-Customer is responsible for any traffic control that is needed on the day of installation to provide room and safe conditions for the road crews.

-Customer gives FASTSIGNS permission to photograph the signs for advertising purposes.

-Production will not begin until a signed contract and signed approved drawing are on file. Production will not proceed based on a verbal approval given by the customer or the sales person.

-Price is valid for 30 days.

-Terms and conditions on this contract supersede any other verbal or previous contracts.

PRICING

Bill To: Saucon Valley School District
Patricia Diehl
2097 Polk Valley Road
hellertown, PA 18055

Estimate**34700**

Estimate Date: 4/22/2021 9:19:06AM

Printed: 4/22/2021 9:31:40AM

Salesperson: evan.blose@fastsigns.com

Line Item Total:	\$11,500.00
Tax Exempt Amt:	\$11,500.00
Subtotal:	\$11,500.00
Taxes:	\$0.00
Total:	\$11,500.00

Deposit Required: \$5,750.00

Payment due upon completion of order. 1.5%
Monthly Finance Charge applied to all outstanding
balances

Received/Accepted By:

/ /

FASTSIGNS

700 N. 13th Street
Allentown, PA 18102
ph: 610.434.7353
fax: 610.434.8014
Email: 219@fastsigns.com

Estimate

34707

Estimate Date: 4/23/2021 9:17:50AM

Printed: 4/23/2021 9:22:42AM

Salesperson: evan.blose@fastsigns.com

Customer: Saucon Valley School District

Contact: Patricia Diehl

Description: Digital Message Center

Sales Person: Evan Blose

Clerk: Evan Blose

Customer: 19533

ph: (610) 838-7001 x 1201

email: patricia.diehl@svpanthers.org

Dear Patricia:

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Sincerely,

Evan Blose
sales rep

	Product	Qty	Sides	H x W	Unit Cost	Totals
1	SUB	*	1	1	1 x 1	\$21,750.00
Description: Remove existing 72" high by 116" wide single sided cabinet. Manufacture and install (1) new 72" high by 116" wide single sided cabinet. Internally illuminated by high output LEDS 5000K bright white 24" high by 116" wide topper "SAUCON VALLEY SCHOOL DISTRICT" Routed and pushed through face Painted customers desired color with Matthews Polyurethane automotive grade paint 48" high by 116" wide 16mm high resolution full color message center OPTEC brand Cellular data transmission included for the life of the sign Icloud software, training and updates included Capable of 10 lines of text 30 characters per line Video, photo and animation 5 year parts and labor warranty included						

Notes:

FASTSIGNS

700 N. 13th Street
Allentown, PA 18102
ph: 610.434.7353
fax: 610.434.8014

Email: 219@fastsigns.com

INVOICE BASED ON COSTARS APPROVED PRICING

-A 50% deposit will be required upon acceptance of this contract with the balance due upon completion. "Completion" is defined as the day the signs are installed, delivered or the customer is notified that the product or signs are ready to be picked up. If payment is not received as stated above, interest will be charged at a rate of 1.8% per month from date of completion. Should collection proceedings become necessary, the customer is responsible for reasonable attorney fees and related costs.

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-Customer gives FASTSIGNS permission to photograph the signs for advertising purposes.

-Production will not begin until a signed contract and signed approved drawing are on file. Production will not proceed based on a verbal approval given by the customer or the sales person.

-Price is valid for 30 days.

-Terms and conditions on this contract supersede any other verbal or previous contracts.

PRICING

Estimate

34707

Estimate Date: 4/23/2021 9:17:50AM

Printed: 4/23/2021 9:22:42AM

Salesperson: evan.blose@fastsigns.com

Line Item Total:	\$21,750.00
Tax Exempt Amt:	\$21,750.00
Subtotal:	\$21,750.00
Taxes:	\$0.00
Total:	\$21,750.00

Deposit Required: \$10,875.00

Bill To: Saucon Valley School District
Patricia Diehl
2097 Polk Valley Road
hellertown, PA 18055

Payment due upon completion of order. 1.5%
Monthly Finance Charge applied to all outstanding
balances

Received/Accepted By:

/ /

Questions from Facilities Committee Meeting Wednesday April 14, 2021 regarding replacement of HS Windows.

Meeting with:

SVSD Committee members

Tim Goff and Mary Beth Brennan from Gordian

Paul McNichol from SJ Thomas the GC

-Who is the manufacturer of the windows?

- SJ Thomas quoted Winco's 1150 (AW-100) series Fixed aluminum windows, which are 2" deep heavy duty thermally broken aluminum windows, in a dark bronze anodized finish. I can send a finish sample of the dark bronze anodized. There may be an upcharge if they decide to go with a painted finish. Color chart attached, and dark bronze anodized photo attached.

-What is the energy efficiency characteristics of the windows?

- Performance is listed on the product information submitted.

-What is the Low E glass?

- The Low E coating that was quoted is Vitro's Solarban 60, see attached product data sheet. Usually, if the window color is a dark bronze, a bronze tint would work best.

-What colors are available?

- Color Chart attached, there will be an additional cost for a painted finish.

-Are windows anodized?

- Yes, Class 1 Dark Bronze Anodized sample submitted and picture attached.

-What tint options are available?

- Gray, Bronze, Green.
- It was noted during the on-site visit that the at the that the existing windows do have a tint.

Are other less dark tints available?

- The bronze tint is fairly light, it would match the tint that is in the existing windows currently.

-How does the tint effect the window?

- The tint cuts down on the suns UV rays

-What is the warranty on the proposed double pane window?

- See attached Sample Limited Warranty
 - Limited Component Warranty Standard Three (3) years
 - Insulated Glass warranted for 10 years
 - Laminated Glass warranted for 5 years
 - Aluminum Finish warranted for 5 to 10 years????

-Longevity of internal blinds was questioned.

- No answer at this time

-What is warranty on internal blinds?

- There is a 5-year warranty, see attached.

-How are internal blinds repaired or replaced if they fail?

- There is a lift out glass panel for access to the blinds.

-There was a question regarding single pane vs. double pane windows.

- It was stated that no one uses single pane windows for School applications.

-Specifications for windows were requested

- See above and attached.

-Pictures of finished windows were requested

- See attached

-What is total cost of phase 1 and phase 2.

- Still waiting for pricing.
- An on-site meeting was held Thursday April 22. Paul McNichol from SJ Thomas the GC and Ed McCourt from WinCo Windows, the installer, were present.

-It was requested to add a contingency for increase in costs of windows for 2022.

- This will be part of the revised pricing.

-It was requested to add a contingency for repairs to walls that are water damaged.

- This will be part of the revised pricing.

-Does the Gordian, KPN program comply with ESSER funding?

- Yes, see attached letter. This letter has been reviewed and approved by SVSD legal department.

WINCO Window Company, Inc.

6200 Maple Avenue St. Louis, MO 63130

Phone: (314) 725-8088 • Fax: (314) 725-1809 • email: ap@wincowindow.com

CUSTOMER: _____

WINCO JOB NO: _____

PROJECT: _____

Limited Window & Door Product and Component Warranty Standard Three (3) Years

- 1) **Window and Door Limited Warranty.** Winco hereby warrants to the first purchaser ("Purchaser") that the Winco windows and/or doors sold hereunder (the "Product(s)") will be free from original defects in workmanship and materials at the time of manufacture and will conform, in all material respects, to such Products' published specifications and, to the extent applicable, and to Winco's interpretation of any additional specifications provided by the Purchaser or any agreed to customization unique to a given project. This warranty is fully transferrable to the current and subsequent owner of the subject building where the window product is installed. Variances and tolerances within industry standards [not impairing the intended purpose and function of the Products] are understood to be allowed. The foregoing Limited Warranty shall be in effect from the date of substantial completion not to exceed 6 months past Winco's last substantial delivery date, and all claims hereunder must be within the Limited Warranty period. Winco's sole obligation for breach of this Limited Warranty will be limited to the repair, replacement, or credit, at Winco's option, of any Products or any part or component thereof, which, upon Winco's receipt and examination prove, upon WINCO's determination, to have been defective within the specified Limited Warranty period. If replacement is elected, Winco will not be responsible for installation of replacement products or component parts.
- 2) **Integrated Material Components Of Products:**
 - a) **Insulated Glass unit** - The insulated glass product, if applicable, is warranted for **ten (10) years** from the date of manufacture, under normal conditions of use, there will be no material obstruction of vision through the unit due to accumulation of dust, moisture, or film on the internal surface of the glass caused by failure of the unit's edge seal caused by defects in its material or workmanship. This warranty shall be void under any of the following circumstances: if the unit is installed in high moisture environments, (including but not limited to, swimming pool enclosures and greenhouses), application of any film to glass surface. WINCO will replace or repair, at its sole discretion, the insulated glass unit or make a pro-rated refund of the original cost of the insulated unit. This warranty does not include removal or installation cost to replace, repair or apply new glass unit. Manufacturer's warranty terms will apply if product is fabricated by others.
 - b) **Laminated Glass unit** - The laminated glass product, if applicable, is warranted for a period of **five (5) years** from the date of manufacture against defects in materials or workmanship that may result in material edge separation or material obstruction of vision through the product as a result of de-lamination in the unit. This warranty shall be void under any of the following circumstances: if the unit is installed in high moisture environments, (including but not limited to, swimming pool enclosures and greenhouses), application of any film to glass surface. WINCO will replace or repair, at its sole discretion, the laminated glass unit or make a pro-rated refund of the original cost of the laminated unit. This warranty does not include removal or installation cost to replace, repair or apply new glass unit. Manufacturer's warranty terms will apply if product is fabricated by others.
 - c) **Laminated Panel** - The laminated panel product, if applicable, is warranted according to the terms of the manufacturer.
 - d) **Aluminum Finish** - The anodize finished product, Type II, Class 1 per applicable Architectural Aluminum Manufacturer's Association ("AAMA") standard 611 in force at the time of bidding is warranted under normal conditions of use for a period of **Five (5) years** from the date of manufacture against defects in materials or workmanship that would cause it to discolor or fade. The baked-on fluoropolymer paint coatings on exposed aluminum surfaces, 70% Fluoropolymer finish for **Ten (10) years** and 50% Fluoropolymer finish for **Five (5) years** from date of manufacture, is warranted under normal conditions of use against peeling, checking, cracking, chalking, and change of color, per applicable AAMA standards 2604 or 2605 in force at the time of bidding. Mica and Metallic coatings are not warranted for color change (fade). WINCO reserves the right to inspect the painted/anodized product in question and determine the cause of the defect. WINCO will repair or replace, at its sole discretion, the painted/anodized finish only, or repair the finish, or make a pro-rated refund of the original cost of the painted/anodized surface. This warranty does not include removal or installation cost to replace, repair or apply new finish. Manufacturer's warranty terms will apply if finish is applied by others.
- 3) **Exclusions.** Winco builds its windows and doors to be durable and long lasting. There are certain conditions or applications, however, over which Winco has no control. Defects or problems as a result of such conditions or applications are not the responsibility of Winco. They include, without limitation:
 - a) Products installed in structures that do not allow for proper management/drainage of moisture. For example, exterior insulation and finish systems ("EIFS"), also know as "synthetic stucco," without an engineered drainage system.
 - b) Improper installation, field finishing or improper maintenance.
 - c) Corrosion of aluminum cladding or other components due to non-prescribed chemical solvents and cleaners or environmental conditions such as air pollutants, acid rain or other corrosive substances.
 - d) Corrosion, wear, or failure of standard hardware in seacoast applications.
 - e) Normal wear or discoloration of finishes, including the tarnishing of brass.
 - f) Any misuse, modification or alteration.

SEE REVERSE PAGE

- g) Environmental conditions or use exceeding design standards.
- h) Minor glass imperfections that do not affect normal vision or product performance, including curvature of glass due to atmospheric conditions. Glass breakage or other damage other than workmanship.
- i) Condensation or frost on exposed surfaces of your Products. Condensation or frost is not a defect in the Product, but a result of excessive humidity.
- j) WINCO shall not be liable for material damaged in handling or installation; or not installed in accordance with the WINCO Installation Manual guidelines.
- k) The WINCO limited warranty extends to WINCO manufactured product only, as outlined in AAMA 502-90. Perimeter conditions, attached trim or sub-sill (if manufactured by others), caulking, sealants, etc. are explicitly excluded from the WINCO limited warranty. The WINCO limited warranty is based upon the Product itself; it does not warrant the installation of the Product.
- l) Without limiting the generality of the foregoing, Winco shall not be responsible for, and does not warrant the Products will prevent the introduction of mold, excess moisture, unfavorable environmental conditions or other contaminants into the structure in which the Products are used. Winco shall not be responsible for any loss, damage or injury to persons or property caused by the introduction of mold, excess moisture, unfavorable environmental conditions or other contaminants into the structure in which the Products are used.

4) Limitations.

- a) All sales and other agreements between Purchaser and its customers, end users or other third parties are the exclusive responsibility of Purchaser and any commitments made by Purchaser to such customers, end users and other third parties with respect to the delivery, performance, suitability or other matters relating to the Products are Purchaser's sole responsibility except as may be expressly set forth in this Limited Warranty.
- b) TO THE MAXIMUM EXTENT ALLOWED BY APPLICABLE LAWS, ALL OTHER WARRANTIES BY WINCO, WHETHER IMPLIED OR STATUTORY, AND ALL OBLIGATIONS AND REPRESENTATIONS AS TO PERFORMANCE, QUALITY OR ABSENCE OF HIDDEN DEFECTS, INCLUDING ALL WARRANTIES WHICH MIGHT ARISE FROM CUSTOM OR USAGE OF TRADE ARE HEREBY EXPRESSLY EXCLUDED AND DISCLAIMED BY WINCO.
- c) Laws from time to time in force in the relevant market may imply warranties which cannot be excluded or which can only be excluded to a limited extent, in which case, Winco limits its liability to the extent permitted by law. If Winco cannot exclude any warranty implied by law, this Limited Warranty shall be read and construed subject to such statutory provisions. Any product replacement will not extend the period within which such Limited Warranty can be asserted. The warranty in this Limited Warranty may be asserted only by the Purchaser and any subject transfers if allowed above in paragraph 1.
- d) **PURCHASER ACKNOWLEDGES AND AGREES THAT THE PROVISIONS OF THIS LIMITED WARRANTY CONSTITUTE THE SOLE AND EXCLUSIVE REMEDY AVAILABLE TO IT WITH REGARD TO DEFECTIVE PRODUCTS.**
- e) This Limited Warranty shall be void to the extent the Products are disassembled, modified or repaired in part or in whole by anyone not authorized by Winco in writing.

- 5) Procedure.** Products claimed defective or non-conforming within the Limited Warranty period will be returned to Winco at Purchaser's expense with a statement identifying the reason for the return. Products returned to Winco and found in good working order or damaged by Purchaser or requiring adjustment due to user misadjustment will be subject to a service charge. Purchaser will not return Products to Winco for warranty adjustment without first obtaining a Return Authorization ("R.A") number from Winco, using contact information provided above. The R.A. number must be referenced on the packing list and other documentation. Winco will notify Purchaser if such Products are not subject to warranty adjustment and, unless disposition instructions as to such Products are received from Purchaser within five days of such notification, such Products will be returned to Purchaser, freight, packing, insurance and other charges at Purchaser's expense.

- 6) General.** This Limited Warranty gives Purchaser specific legal rights, but Purchaser may also have other rights that vary from state to state. The provisions of this Limited Warranty may be amended or modified only in writing signed by an authorized officer of WINCO. If any provision of this Limited Warranty is held invalid by any law or regulation of any government or by any court, such invalidity shall not affect the enforceability of other provisions in this Limited Warranty. The provisions of this Limited Warranty will be binding upon Purchaser's successors and assigns. No agent, employee or representative of WINCO has any authority to make any representation or warranty for WINCO with respect to the Products that is not contained in this Limited Warranty. This Limited Warranty is a part of, and hereby incorporates by reference all of the terms of, WINCO's standard Terms and Conditions of Sale, and together with such Terms and Conditions of Sale, contains the entire agreement of the parties with respect to its subject matter and supersedes all prior or contemporaneous agreements, understandings, promises and representations or warranties.

IMPORTANT: THIS WARRANTY SHALL BE NULL AND VOID IF WINCO DOES NOT RECEIVE PAYMENT IN FULL FOR MATERIAL SUPPLIED FOR THIS PROJECT. WINCO WILL NOT BE RESPONSIBLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

Warranty No:



WINDOW ACCESSORY CO., INC. (WACI) 5 YEAR LIMITED WARRANTY

FROM W.A.C.I. TO YOU: This warranty is extended by WACI to the original purchaser _____ for a period of 5 years from the date of purchase. This warranty applies only to custom horizontal aluminum blinds installed in Between Glass commercial applications.

WHAT WILL WE DO: We will repair or replace any part of our blind(s) found to be defective in workmanship or materials without charge to you.

WHAT YOU MUST DO: The blind(s) must be properly measured and installed according to the Window Manufacturers instructions. You must use the blind only as a window blind and only in the window for which it was originally purchased.

HOW TO OBTAIN SERVICE: Send your name, address, telephone number and the name and address of the dealer from whom you purchased the Windows, and/or blind(s), together with a statement describing the nature of the problem and your sales slip or other proof of purchase to: Window Accessory Co., Inc., 4705 Bayberry St., Schofield, WI 54476. We will then contact you and take appropriate action. If the blind requires repair that is covered by warranty, you must ship it back to us, and when repaired, we will return it to you at our cost.

NOTE: All blinds returned to WACI for warranty repair must be packaged carefully to prevent damage during shipment. Blinds damaged during shipment may need repairs not covered by WACI warranty.

WHAT IS NOT COVERED:

- A. This warranty does not cover damage caused by accidents, alterations, misuse, normal wear and tear, nor direct exposure to salty air, corrosive materials, or high temperature conditions. The normal color change that takes place with the passage of time is also not covered.
- B. **In no event will WACI be liable for incidental or consequential damages.**
- C. WACI will not cover labor costs to remove blind from the window in the field, or labor costs to re-install the blind after it is repaired. This warranty is extended in lieu of all other express warranties, whether oral or written.
- D. Any Size discrepancies for blinds MUST be brought to the attention of W.A.C.I. within 90 days of shipment of the finished product to you. Size discrepancies discovered after that time limit will not be covered by Warranty.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

If you have any questions, please feel free to call, fax, or e-mail me at miket@windowaccess.com



Series 1150

2" Architectural Grade Thermal Window System
Fixed - Projected - Casement



Product Overview

The 1150 Series window is a versatile platform used with great success in schools, hospitals, offices, and residences for both public and private projects. This window can perform blast, ballistic, impact, and hurricane requirements and can be configured as fixed or in-swing, out-swing projected, and casement. The 1150 Series accommodates challenging openings and configurations.

GREEN COMMITMENT

HISTORIC REPLICATION

ENERGY SAVINGS

NOISE CONTROL

BLAST SHIELD

WIND PROTECTION

Features & Custom Options

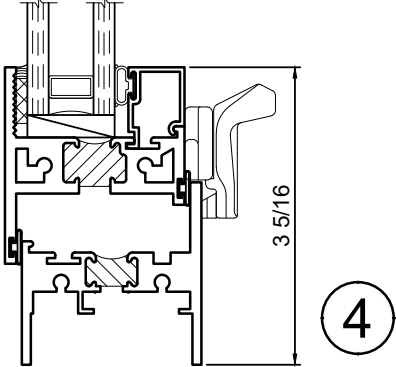
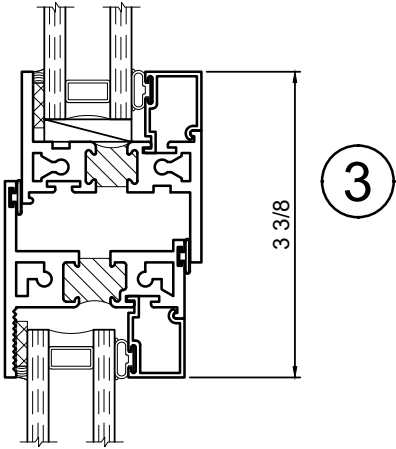
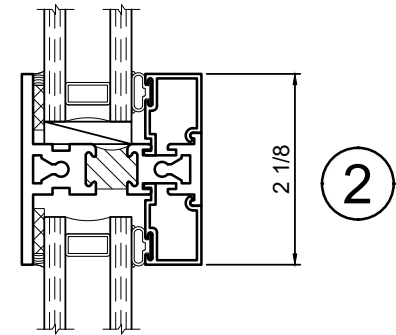
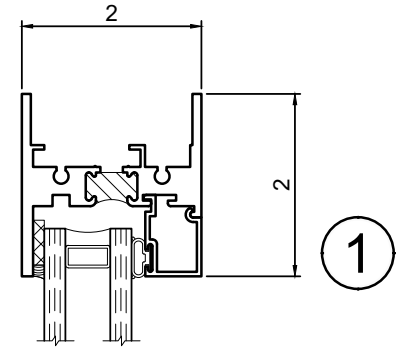
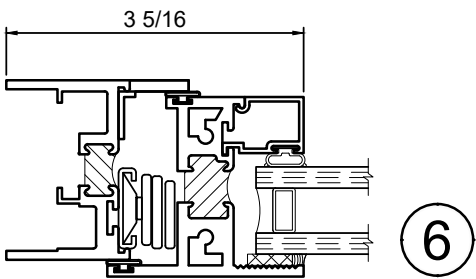
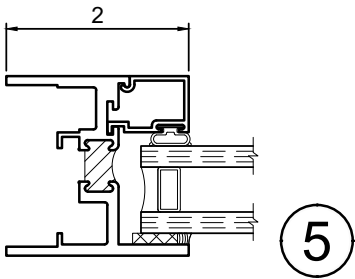
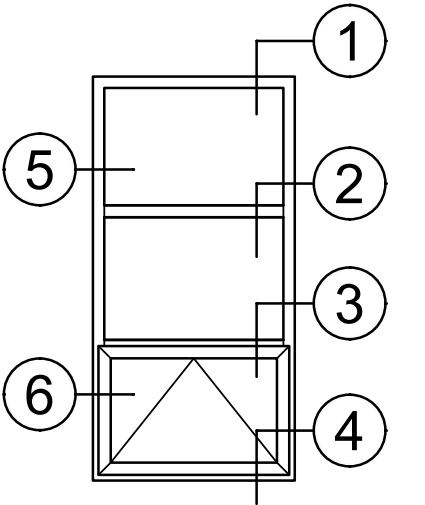
- Azon "Azo-Braided" thermally broken frame and sash, backed by a 10 year warranty against thermal break shrinkage
- Vertical and horizontal stacking members
- Fully mitered overlap sash configuration with fully sealed corners and dual weather-stripping
- Various glazing thicknesses available
- Optional aluminum extruded screens
- Dual and triple glazing with optional integral blinds providing dynamic light control
- Wide variety of locking and operating hardware available
- Ability to make inside and outside glazed panels within the same mainframe
- Accessory line of receptors, mullions, panning and trim for a customized look
- Blast, ballistic and impact glazing available

Performance Data*

Type	Air (CFM/FT ² @ 6.24 PSF)	Water (PSF)	Structural (PSF)	CRF	U-Value (Btu/Hr-Ft ² -°F)	STC
Projected AW Grade AP-AW100	Less than 0.10	12 (higher levels may be available upon request)	+/- 150	59*	0.39*	Contact your local Rep
Casement AW Grade C-AW80	Less than 0.10	12 (higher levels may be available upon request)	+/- 120	59*	0.39*	

*U-Value, CRF, Water and AW ratings are based on a particular type of glazing and window configuration being used. They are provided for comparison purposes only. They are based on products of standard configuration, tested in accordance with NFRC/FGIA/AAMA specifications, in a laboratory environment under optimum conditions. Performance values will vary according to project specifications, installation, size, configuration, hardware, glass, etc. Any required field testing should be done in accordance with the project specifications and FGIA/AAMA field testing protocol, not this data.

Series 1150 Detail Drawings



Winco Window Company
6200 Maple Avenue
St Louis, MO 63130

TESTING: Our products are tested to the standards of and certified by the American Architectural Manufacturers Association and the National Fenestration Rating Council

VER:260321

Product Data Sheet



Aesthetic Description

Solarban® 60 solar control, low-e glass by Vitro Architectural Glass (formerly PPG Glass) was engineered to control solar heat gain, which is essential to minimizing cooling costs. In a standard one-inch insulating glass unit (IGU), *Solarban® 60* glass offers an exterior appearance similar to clear, uncoated glass.

With a very good Solar Heat Gain Coefficient (SHGC) of 0.39, *Solarban® 60* glass blocks 66 percent of the total solar energy while allowing 70 percent of the visible light to pass through. This combination produces an excellent Light to Solar Gain (LSG) ratio of 1.79, along with exceptional insulating performance, as evidenced by its 0.29 winter nighttime U-value.

Aesthetic Options

Solarban® 60 glass can be coated on *Starphire®* glass and paired with *Starphire®* glass to produce an IGU with exceptional clarity and solar control characteristics. For even more color and performance options, it can be coated on the second (#2) surface of nearly all Vitro's wide range of tinted glasses. It can also be combined in an IGU with any Vitro tinted glass, *Solarcool®* reflective glass or *Vistacool®* subtly reflective, color-enhanced glass (see performance data on back page).

Solarban® 60 Glass and Sustainable Design

An energy modeling study conducted by an independent energy design and consulting firm showed that architects and building owners can potentially save millions of dollars during a building's lifetime by specifying *Solarban® 60* glass instead of less advanced architectural glazings.

For instance, the study showed that, by substituting *Solarban® 60* glass in place of dual-pane tinted glass, the owners of a typical glass-walled, eight-story office building in Boston could lower their initial HVAC equipment costs by nearly \$350,000 while realizing annual energy savings of more than \$80,000. Corresponding carbon emissions from the same building were also reduced by more than 300 tons per year, eclipsing the total carbon emissions generated by 31,000 gallons of gasoline.

In addition to making products that support sustainable design, Vitro has pioneered innovative technologies that reduce energy consumption during the glass-making process. Vitro promotes environmentally responsible manufacturing by recovering and reusing virtually all of its glass manufacturing by-products and by shipping its materials on reusable steel racks. Vitro also facilitates regional sourcing through its nationwide network of certified glass fabricators and laminators



Prudential Center

Location: Newark, NJ | Product: *Solarban® 60* Glass | Architect: Morris Adjmi Architects | Glass Contractor: Josloff Glass | Glass Fabricator: J.E. Berkowitz, LP



Streeter Place

Location: Chicago, IL | Product: *Solarban® 60* Glass | Architect: Solomon Cordwell Buenz and Associates | Owner/Developer: Golub and Company | Glass Fabricator: Northwestern Industries, Inc. | Glazing Contractor: Custom Windows and J&D Erectors



Solarban® 60 Glass**Fabrication and Availability**

Solarban® 60 glass is available exclusively through the *Vetro Certified™* Network. *Vetro Certified™* Fabricators can meet tight construction deadlines and accelerate the delivery of replacement glass before, during and after construction. *Solarban® 60* glass is manufactured using the sputter-coating process and is available for annealed, heat-strengthened and tempered applications.

Additional Resources

Solarban® 60 glass is *Cradle to Cradle Certified™*. For more information or to obtain samples of any Vitro Glass product, call **1-855-VTRO-GLS (887-6457)** or visit **vitroglazings.com**.

Vetro Architectural Glass is the first U.S. float glass manufacturer to have its products recognized by the *Cradle to Cradle Certified™* program, and offers more C2C-certified architectural glasses than any other float glass manufacturer.

Insulating Glass Unit Performance Comparisons | 1-inch (25mm) units with 1/2-inch (13mm) airspace and two 1/4-inch (6mm) lites

Glass Type Outdoor Lite: Coating if Any (Surface) Glass + Indoor Lite: Coating if Any (Surface) Glass		Visible Light Transmittance (VLT)	Visible Light Reflectance		(BTU/hr·ft ² ·°F) NFRC U-Value		Solar Heat Gain Coefficient (SHGC)	Light to Solar Gain (LSG)
			Exterior %	Interior %	Winter Nighttime	Winter Argon		
Solarban® 60 Solar Control Low-E Glass								
	Solarban® 60 (2) Clear + Clear	70	11	12	0.29	0.24	0.39	1.79
	Solarban® 60 (2) Starphire® + Starphire®	74	11	12	0.29	0.24	0.41	1.80
	Solarban® 60 (2) Solexia® + Clear	61	9	12	0.29	0.24	0.32	1.91
	Solarban® 60 (2) Atlantica® + Clear	53	8	11	0.29	0.24	0.27	1.96
	Solarban® 60 (2) Azuria® + Clear	54	8	11	0.29	0.24	0.28	1.93
	Solarban® 60 (2) Solarblue® + Clear	45	7	11	0.29	0.24	0.28	1.61
	Solarban® 60 (2) Pacifica® + Clear	34	6	10	0.29	0.24	0.22	1.55
	Solarban® 60 (2) Solarbronze® + Clear	42	7	11	0.29	0.24	0.28	1.50
	Solarban® 60 (2) Optigray® + Clear	50	8	11	0.29	0.24	0.30	1.67
	Solarban® 60 (2) Solargray® + Clear	35	6	10	0.29	0.24	0.25	1.40
	Solexia® + Solarban® 60 (3) Clear	61	10	10	0.29	0.24	0.37	1.65
	Atlantica® + Solarban® 60 (3) Clear	53	9	10	0.29	0.24	0.31	1.71
	Azurria® + Solarban® 60 (3) Clear	54	9	10	0.29	0.24	0.31	1.74
	Solarblue® + Solarban® 60 (3) Clear	45	7	9	0.29	0.24	0.33	1.36
	Pacifica® + Solarban® 60 (3) Clear	34	6	9	0.29	0.24	0.25	1.36
	Solarbronze® + Solarban® 60 (3) Clear	42	7	9	0.29	0.24	0.32	1.31
	Optigray® + Solarban® 60 (3) Clear	50	8	9	0.29	0.24	0.35	1.43
	Solargray® + Solarban® 60 (3) Clear	35	7	9	0.29	0.24	0.29	1.21
	GraylitE II + Solarban® 60 (3) Clear	7	4	8	0.29	0.24	0.13	0.54

* Data based on using *Starphire®* glass for both interior and exterior lites.

All performance data calculated using LBNL Window 6.3 software, except European U-value, which is calculated using WinDat version 3.0.1 software. For detailed information on the methodologies used to calculate the aesthetic and performance values in this table, please visit www.ppgideascape.com or request our Architectural Glass Catalog.

For more information about *Solarban®* low-e glass and other *Cradle to Cradle Certified™* architectural glasses by Vitro Glass, visit **vitroglazings.com**, or call **1-855-VTRO-GLS (887-6457)**.





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March 15, 2021

Mark C. Carollo
Associate Director of Cooperative Purchasing
Keystone Purchasing Network
90 Lawton Lane
Milton, PA 17847

Re: The Keystone Purchasing Network's ("KPN") Cooperative Purchasing Agreements and Compliance with the Uniform Guidance

Dear Mr. Carollo,

This letter is intended to address your request for written confirmation that KPN's various cooperative purchasing agreements comply with the Uniform Grant Guidance, 2 CFR § 200, *et seq.* (the "UG"). As will be discussed below, KPN has taken affirmative steps to ensure that its cooperative purchasing agreements either require compliance with the UG or, at an absolute minimum, provides public procurement entities the ability to comply with the UG.

A. KPN Satisfies the UG's Competitive Procurement Requirement in Each of its Cooperative Purchasing Agreements.

A non-federal entity seeking to make a purchase using federal funds or grant money must make such a purchase using one of the procurement methods set forth in 2 CFR § 200.320. These procurement methods include, *inter alia*, obtaining competitive quotes from responsible vendors or engaging in a sealed competitive bidding process. For ***all*** of its cooperative purchasing agreements,¹ KPN publicly solicits sealed bids through formal advertising, and undertakes an

¹ While KPN also utilizes certain cooperative purchasing contracts administered by the Association of Educational Purchasing Agencies ("AEPA"), those AEPA contracts' compliance with the UG is addressed in a separate letter of the same date.

March 15, 2021

Page 2

analysis to award the contract to the lowest responsive and responsible bidder. Accordingly, this method of procurement satisfies Section 200.320(c) of the UG, and it also obviates the need for any public procurement unit utilizing one of KPN's cooperative purchasing agreements to perform any such method on its own. Specifically, public procurement units utilizing KPN's contracts need not (1) publicly solicit its own bids, (2) obtain additional quotes/proposals, or (3) perform an analysis regarding whether the vendor is "responsible."

B. KPN's Cooperative Purchasing Agreements Generally Require Awarded Vendors To Comply With Additional UG Requirements.

In addition to the competitive procurement method set forth above, the UG also requires non-federal entities to include specific provisions in their bidding documents. *See, e.g.*, 2 CFR §§ 200.213; 200.231; 200.326. Here, in order to ensure compliance with the UG's various requirements, KPN has included a provision in the terms and conditions of its various bid documents for each of its awarded contracts. For example, the terms and conditions of KPN's commodity contracts explicitly state:

When [a public procurement unit] seeks to procure goods and services through an Agency Contract using funds under a federal grant or contract, specific federal laws, regulations, and requirements may apply in addition to those under state law. This includes, but is not limited to, the procurement standards of the Uniform Administrative Requirements, Cost Principles and Audit Requirements for Federal Awards, 2 CFR 200 (sometimes referred to as the "Uniform Grant Guidance," "UGG" or new "EDGAR")²

Stated differently, if a public procurement unit makes a purchase from one of KPN's contracts using federal funds, the awarded vendor *must* comply with the UG and those sections mandating such compliance. As further detailed by KPN's bid documents, this includes, *inter alia*, a commitment by the vendor to comply with the Davis-Bacon Act, the Contract Work Hours and Safety Standards Act, and Byrd Anti-Lobbying Amendment, as well as provisions authorizing the

² Similarly, the KPN Terms and Conditions provided in connection with KPN's ezIQC program contracts state:

Should a contract with a member involve the procurement of goods and/or services using funds under a federal grant or contract, then specific federal laws, regulations, and requirements may apply in addition to those under state law. This includes, but is not limited to, the procurement standards of the Uniform Administrative Requirements, Cost Principles and Audit Requirements for Federal Awards, 2 CFR 200 (sometimes referred to as the "Uniform Grant Guidance," "UGG" or new "EDGAR"). Contractor agrees to comply with all regulations which may be applicable to specific purchases using funds under a federal grant or contract



March 15, 2021

Page 3

termination of a purchase order for cause or convenience and a clause disqualifying any vendor that has been debarred or suspended. Moreover, by responding to the bid, the vendor also agrees to “make a good faith effort to work with the [public procurement unit] to provide such information and to satisfy such requirements as may apply to the [public procurement unit’s] purchase or purchases including, but not limited to, applicable recordkeeping and record retention requirements and contract cost and price analyses required under the Uniform Grant Guidance.”

Thus, any public procurement unit using such contracts may be assured that, the awarded vendors holding KPN contracts are required to comply with each of the provisions of the UG.

C. Conclusion

Based upon all of the foregoing, each of KPN’s cooperative purchasing agreements (1) comply with the UG’s competitive procurement requirements, and (2) provide the framework for public procurement units to comply with the UG’s other required terms and conditions. However, please note that this letter does not offer a legal opinion on the availability of KPN contracts to any specific entity or such entity’s respective compliance with the UG. Each such entity must determine for itself whether or not it may avail itself of KPN’s cooperative purchasing agreements in compliance with all applicable laws and should consult with its solicitor for guidance on specific purchases.

Very truly yours,

A handwritten signature in black ink that reads 'Ellen M. Enters'.

Ellen M. Enters

1150 Series 2" Thermal Fixed, Casement & Projected Windows

Product Information



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PERFORMANCE

The Series 1150 window is a thermally broken mainframe and sash that exceeds the performance specification criteria as required by ANSI/AAMA for AW (Architectural Grade) windows.

Fixed			Project Out - Awning		
AAMA Rating	AW-100		AAMA Rating	AW-100	
Air Infiltration	0.0 CFM/ft ²		Air Infiltration	0.02 CFM/ft ²	
Water	Over 12 psf		Water	Over 12 psf	
Structural	150 psf		Structural	150 psf	
CRF (AAMA 1503)	65		CRF (AAMA 1503)	59	
Center of Glass U-Value	Window U-Factor ³		Center of Glass U-Value	Window U-Factor ³	
BTU/Ft ² x F° x Hr	47" x 59" ²	60" x 99" ¹	BTU/Ft ² x F° x Hr	59" x 24" ²	60" x 36" ¹
0.20	0.31	0.27	0.20	0.45	0.39
0.24	0.34	0.31	0.24	0.47	0.42
0.29	0.38	0.35	0.29	0.5	0.45
0.34	0.42	0.39	0.34	0.53	0.49
0.47	0.52	0.5	0.47	0.6	0.57

Project In - Hopper			Casement		
AAMA Rating	AW-100		AAMA Rating	AW-80	
Air Infiltration	0.01 CFM/ft ²		Air Infiltration	0.07 CFM/ft ²	
Water	Over 12 psf		Water	Over 12 psf	
Structural	150 psf		Structural	120 psf	
CRF (AAMA 1503)	59		CRF (AAMA 1503)	59	
Center of Glass U-Value	Window U-Factor ³		Center of Glass U-Value	Window U-Factor ³	
BTU/Ft ² x F° x Hr	59" x 24" ²	60" x 36" ¹	BTU/Ft ² x F° x Hr	24" x 59" ²	36" x 60" ¹
0.20	0.45	0.39	0.20	0.45	0.39
0.24	0.47	0.42	0.24	0.47	0.42
0.29	0.5	0.45	0.29	0.5	0.45
0.34	0.53	0.49	0.34	0.53	0.49
0.47	0.6	0.57	0.47	0.6	0.57

This Information is based on current product design, sealed dual glazing, warm edge spacers and testing standards.

Please contact WINCO for project specific information

¹ AAMA 101 Test Size

² NFRC Gateway Test Size

³ Based on NFRC 100

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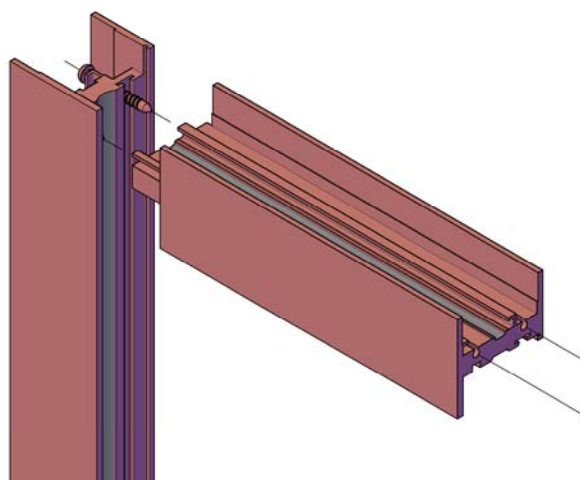
CONSTRUCTION

MATERIAL - The Series 1150 window is a 2" deep frame depth with a nominal wall thickness of .125 inch. All material is extruded from 6063-T6 alloy.

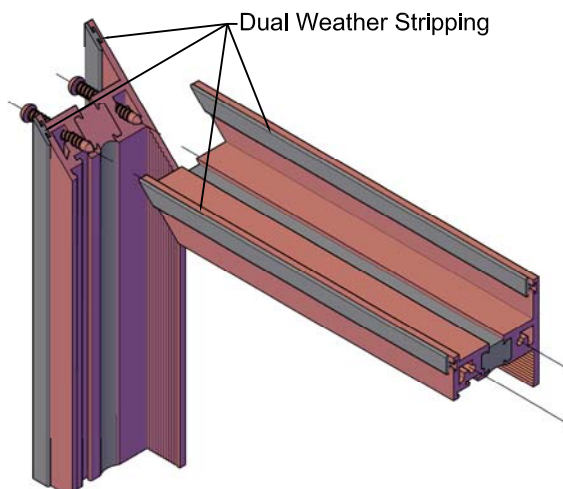
THERMAL BREAK - All framing members of the window system are thermally broken. Winco uses the Azon Azo Brader® process to mechanically condition the surface of the thermal cavity. The process runs the entire length of the extrusion and creates serrations that insure proper adhesion of the structural polymer. The structural urethane is a high density 2 part formula providing optimum thermal performance for the most demanding conditions. The combination of the conditioning of the aluminum surface along with the two part urethane allows Winco to provide a full 10 year warranty against thermal break creep and shrinkage in accordance with AAMA 505-98.

WEATHER-STRIP - All operating ventilators have a double Santoprene®, non-shrinking dual durometer, thermoplastic rubber weather-stripping around the perimeter. One interior and one exterior.

FABRICATION - The main frame corners are coped and mechanically joined using two stainless steel spline screws per corner (fig 1). The vent is a hollow tube shaped extrusion for superior strength and rigidity. Vent corners are fully mitered and mechanically joined using two stainless steel spline screws per corner, aligning the members to form a hairline joint (fig 2). All frame joints are back sealed with small joint seam sealer providing a water tight joinery.



(fig 1) Main Frame Construction



(fig 2) Vent Construction

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THIS BOOK WHEN DEEMED NECESSARY FOR PRODUCT IMPROVEMENT

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1150 Series 2" Thermal Fixed, Casement & Projected Windows

Product Information



GLAZING

The windows can be interior or exterior glazed with .050 thick extruded aluminum glazing beads accommodating thicknesses from 1/4" up to 1 1/2". Dual or triple glazing is an option utilizing an interior panel sash that can either be hinged with 4-bar stainless steel hinges or a more economical take out sash. Venetian blinds are available with the dual or triple glazed window options. See the quick reference chart below for all glazing options. For actual details refer to the glazing section in the back of the 1150 section for optional glazing and blind details.

Glazing Thickness	1/8"	3/16"	1/4"	5/16"	3/8"	1/2"	9/16"	5/8"	3/4"	7/8"	1"	1-1/4"	1-3/8"	1-1/2"
Monolithic	X	X	X	X	X	X	X	-	-	-	-	-	-	-
Insulated	-	-	-	-	-	-	-	X	-	X	X	X	X	X
Dual Glazed	Exterior	-	X	X	-	-	-	X	-	-	-	-	-	-
	Interior	X	X	X	-	X	X	X	-	-	-	-	-	-
Triple Glazed	Exterior	-	-	-	-	-	-	X	-	-	X	-	-	-
	Interior	X	X	X	-	X	X	X	-	-	-	-	-	-

Winco has different gaskets and glazing methods that can accommodate odd thicknesses of glass. If you do not see what you are looking for within this chart please contact your local representative for information regarding your specific project needs.

HARDWARE

All exposed locking hardware, strikes and keepers are solid white bronze alloy with US25D brushed finish. All four bar arms, casement arms, friction arms and key release limit arms are stainless steel conforming to AAMA 904.1. Five knuckle butt hinges are fabricated of 6063-T6 aluminum with nylon bushings and a stainless steel hinge pin.

	Butt Hinge	4-Bar Arms	Casement Arms	Friction Adjustable	Roto Operator	Cam Lock	Pole Ring Cam Lock	Access Control Lock	Lift Lock	Pole Ring Lift Lock	Pull Handle	Key Release Limit Arm	Fixed Limit Stop	Under Screen Push Bar
Window Type														
PO - Awning	-	X	-	-	O ²	X	O ³	O	O ²	O ²	X	O	O	O ⁵
PI - Hopper	-	X	-	-	-	X	O	O	O	O	-	O	O	-
Casement - Outswing w/ Butt Hinges	X	-	O	X	O ²	O	O ³	O	X	O	X	O	O	O ⁵
Casement - Inswing w/ Butt Hinges	X	-	O	X	-	O	O	O	X	O	-	O	O	-
Casement - Outswing w/ concealed Hinges	-	-	X	-	O ^{2,4}	O	O ³	O	O	O	X	O	O	O ^{2,5}
Casement - Inswing w/ concealed Hinges	-	-	X	-	-	O	O	O	X	O	-	O	O	-

X = Standard Hardware

O = Optional Hardware

Note:

¹ Not all hardware is compatible with each other, contact your local Winco representative for information

² Size limitations exist on some hardware, contact your local Winco representative for information

³ A pole ring pull will be provided on a project out vent is optional pole ring cam locks are required and no screen is furnished

⁴ Minimum width requirement for optional roto operators on casement windows with concealed casement arm hinging

⁵ Under screen push bars are not recommended by Winco if optimum water performance is a requirement

SCREENS

FRAME - frames are fabricated from 6063-T6 extruded aluminum alloy and temper. All screen frames are miter cut and corner keyed. The corners are mechanically crimped together for durability. The screen frame is finished to match the window frame.

MESH - Standard .011 aluminum screen wire mesh is produced from 5154 alloy with 18x16 pattern in Charcoal or Aluminum color. All mesh is applied to the screen frame with a roller spline making for easy and quick replacements. Optional fiberglass or .009 stainless steel mesh is available as an option.

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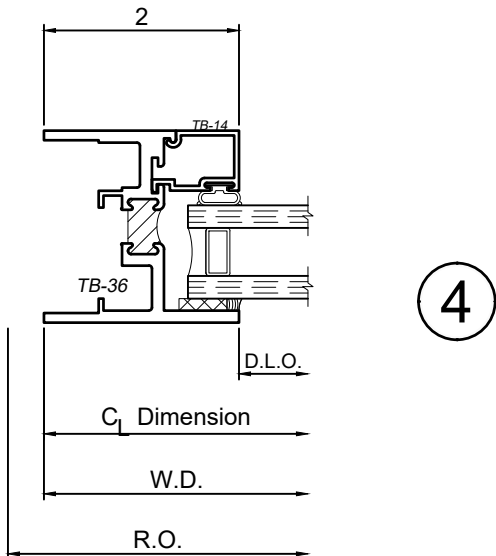
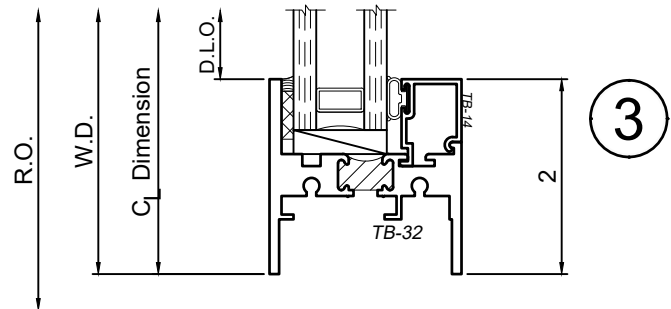
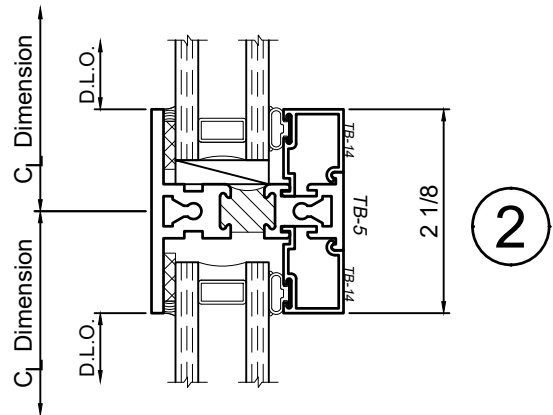
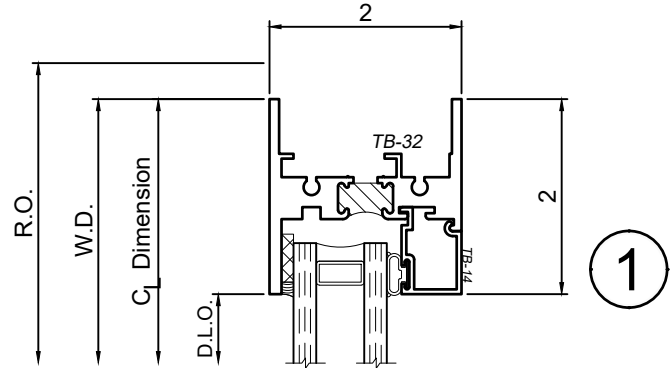
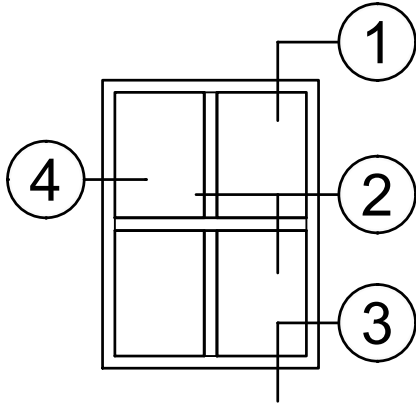
1150 Series 2" Thermal Fixed, Casement & Projected Windows

Product Details - Fixed - Picture Window



Note: Multiple configurations of this window system are available. Refer to the WINCO website for additional options or contact your local WINCO Sales Representative for information.

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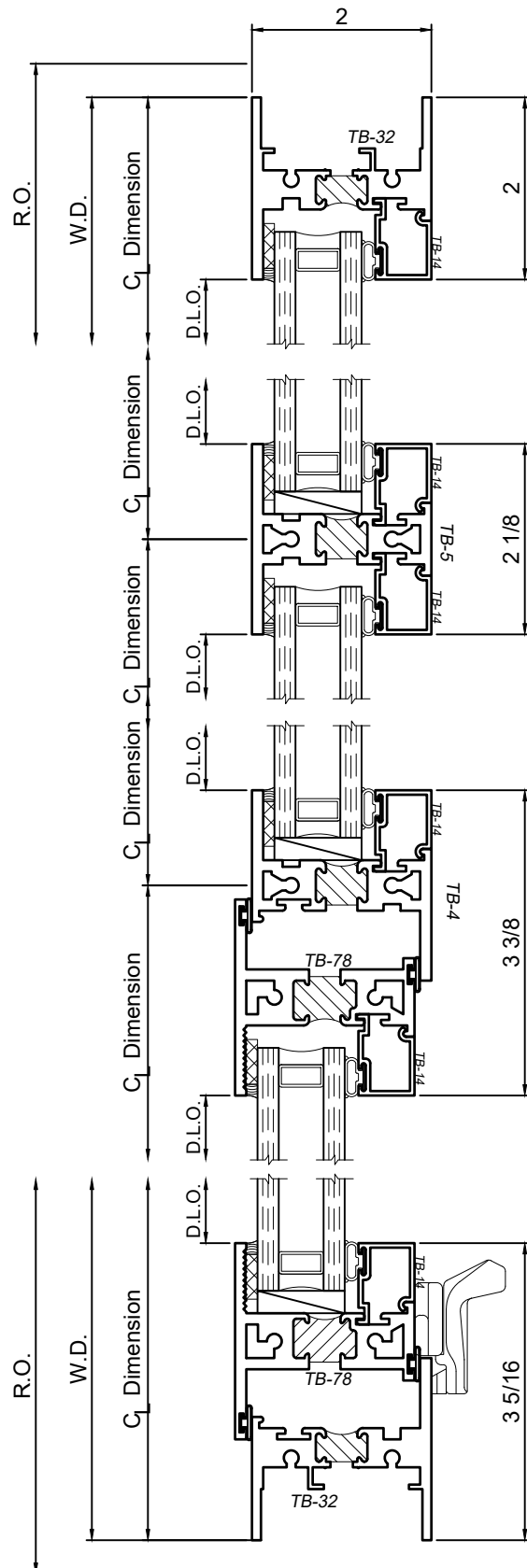
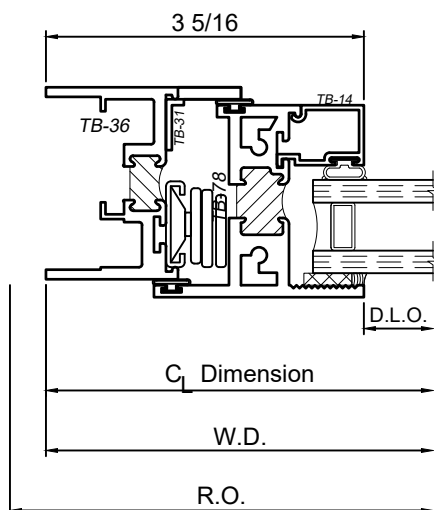
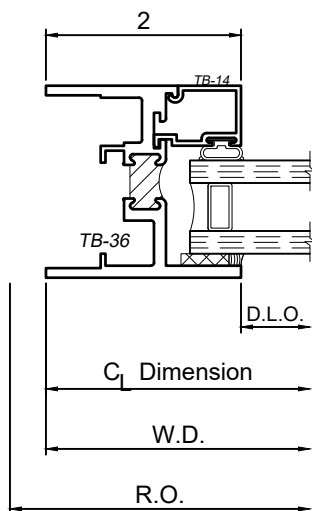
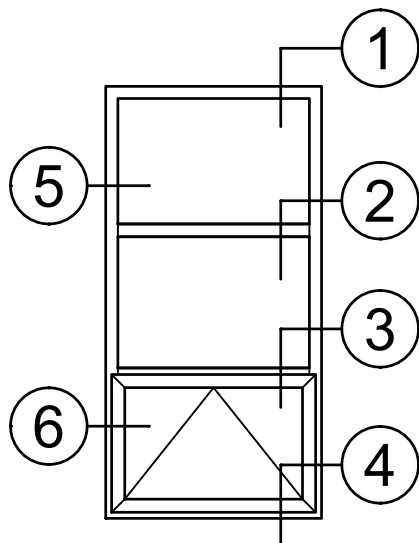
SCALE 6"=1'-0"

1150 Series 2" Thermal Fixed, Casement & Projected Windows

Product Details - Project Out - Awning



Note: Multiple configurations of this window system are available. Refer to the WINCO website for additional options or contact your local WINCO Sales Representative for information.



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SCALE 6"=1'-0"

1150 Series 2" Thermal Fixed, Casement & Projected Windows

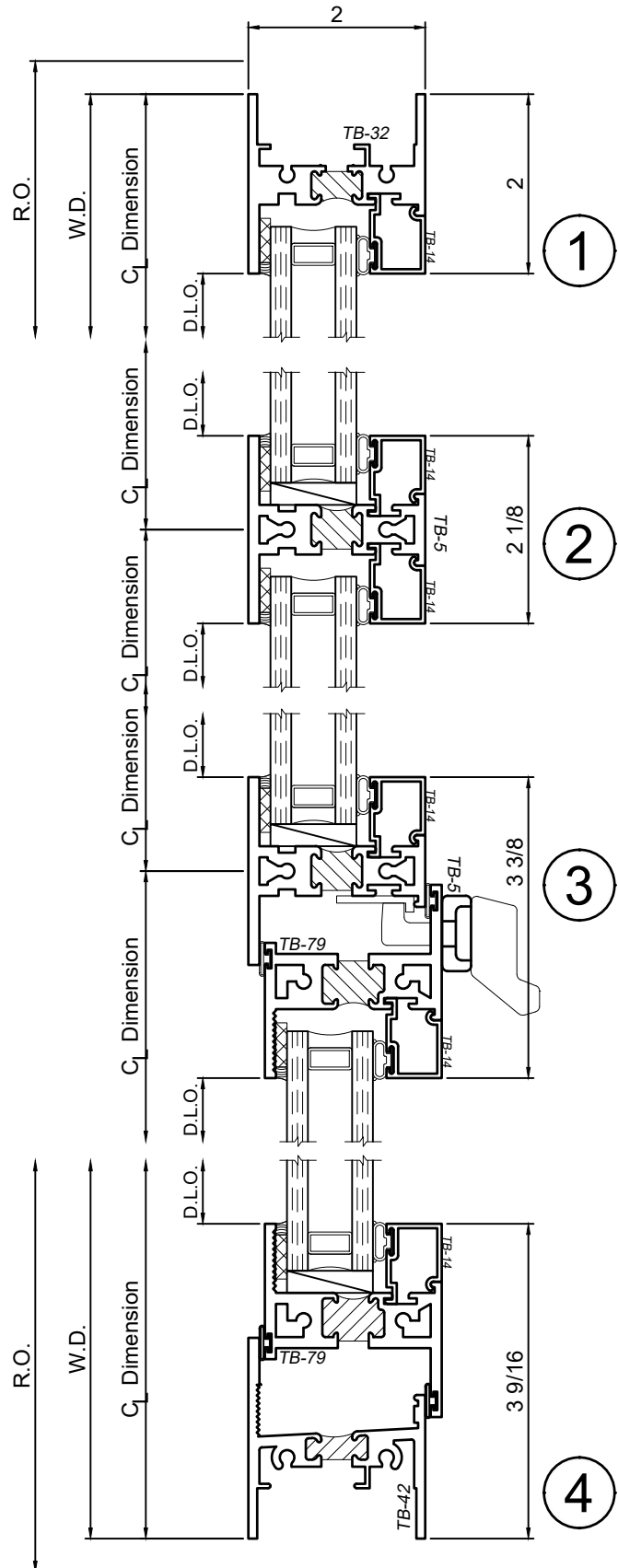
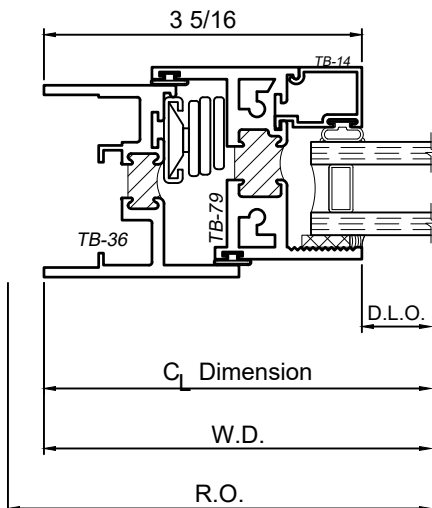
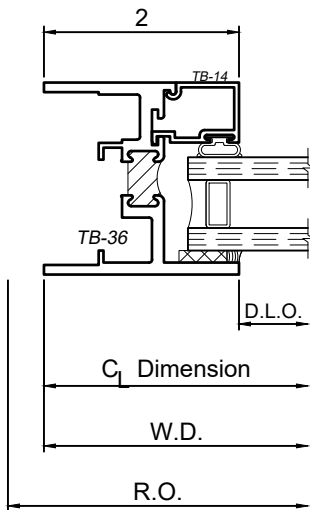
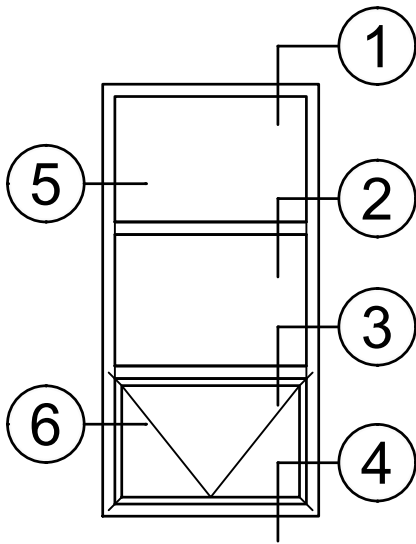
Product Details - Project In - Hopper



Note: Multiple configurations of this window system are available. Refer to the WINCO website for additional options or contact your local WINCO Sales Representative for information.

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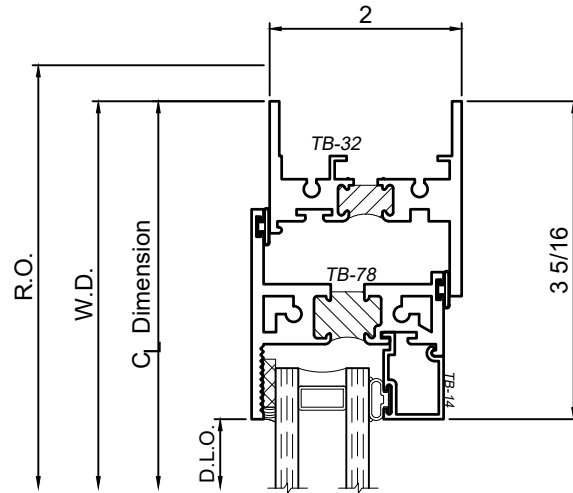
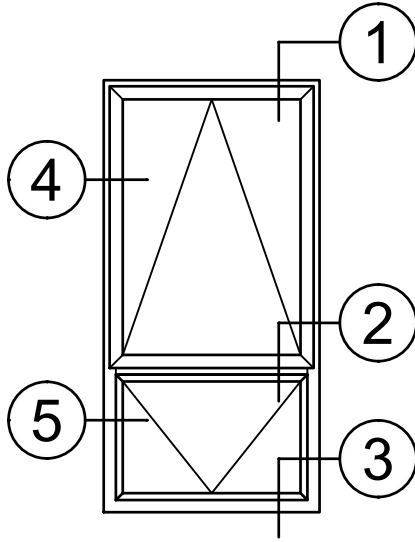
SCALE 6"=1'-0"

1150 Series 2" Thermal Fixed, Casement & Projected Windows

Product Details - PO|PI - Awning|Hopper

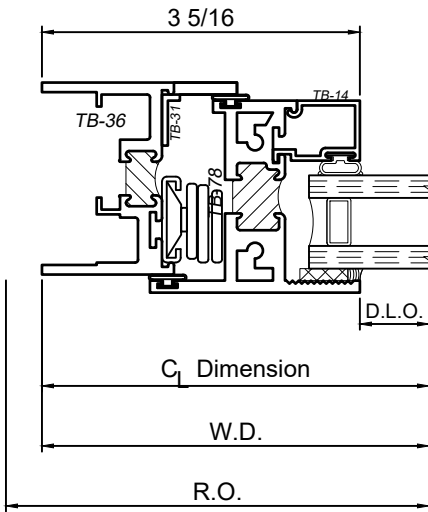


Note: Multiple configurations of this window system are available. Refer to the WINCO website for additional options or contact your local WINCO Sales Representative for information.

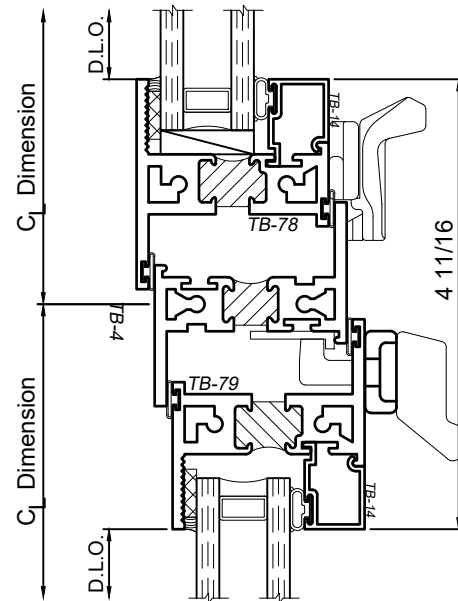


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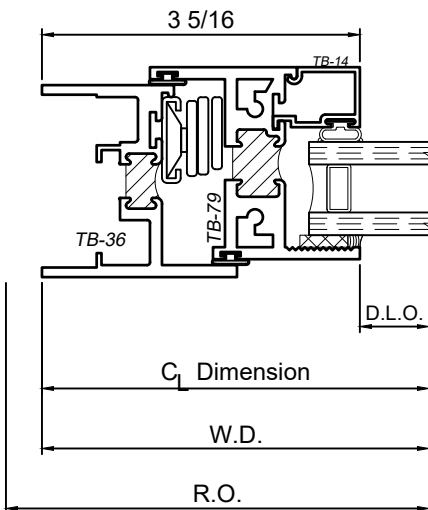
WINCO RESERVES THE RIGHT TO MODIFY OR CHANGE INFORMATION WITHIN THIS BOOK WHEN DEEMED NECESSARY FOR PRODUCT IMPROVEMENT



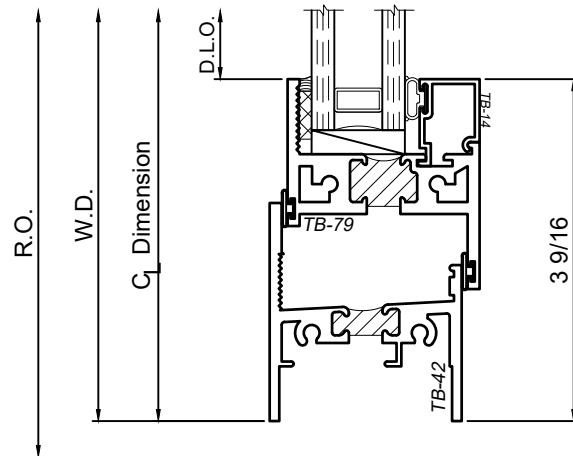
4



2



5



3

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SCALE 6"=1'-0"

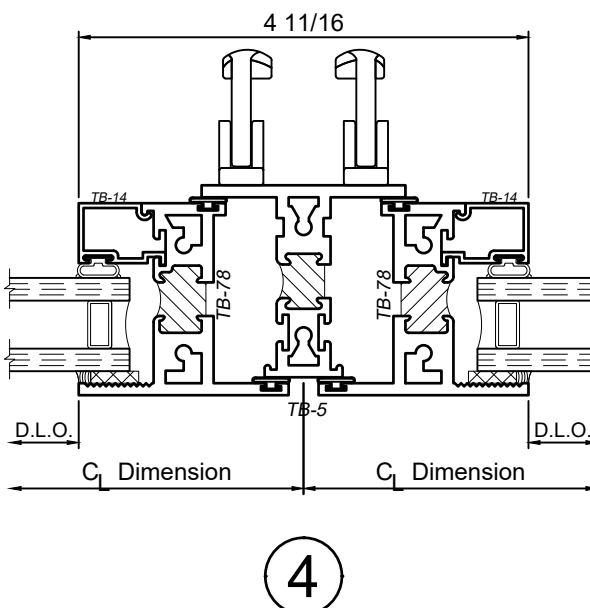
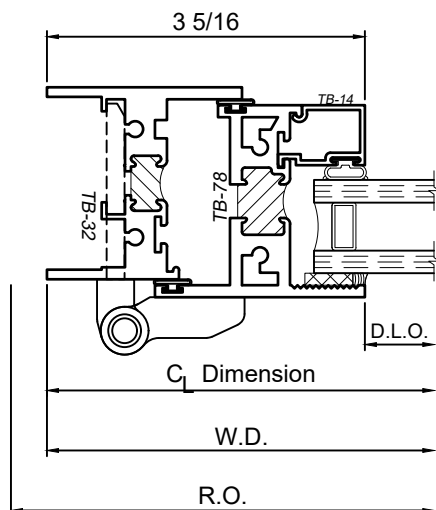
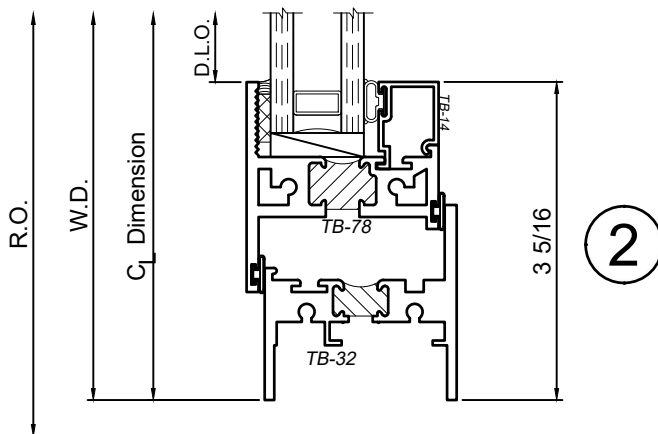
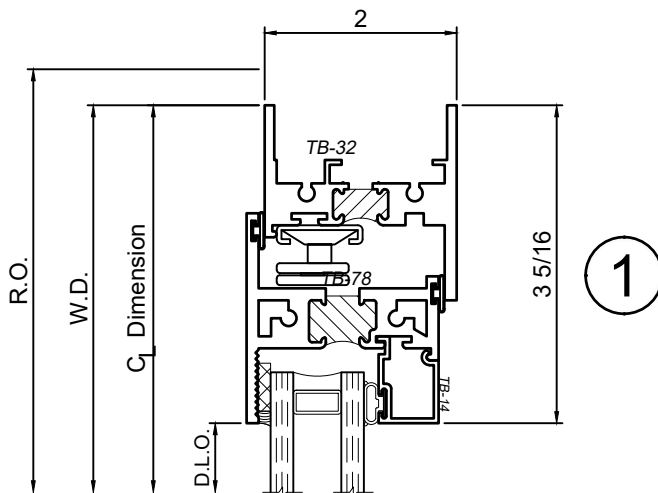
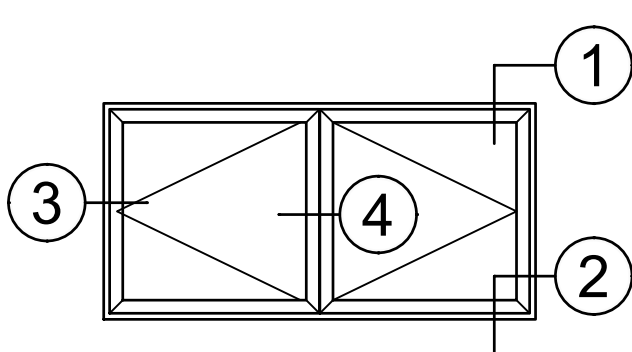
1150 Series 2" Thermal Fixed, Casement & Projected Windows

Product Details - Butterfly Casement - Outswing



Note: Multiple configurations of this window system are available. Refer to the WINCO website for additional options or contact your local WINCO Sales Representative for information.

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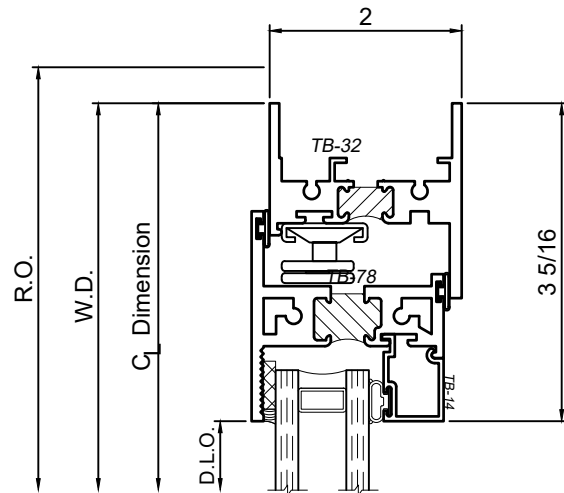
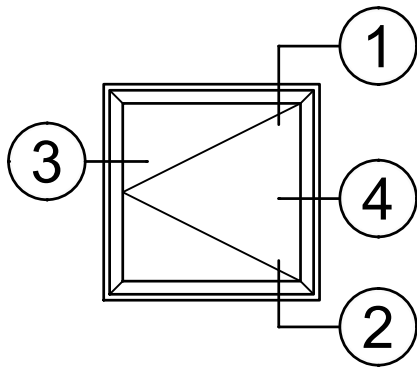
SCALE 6"=1'-0"

1150 Series 2" Thermal Fixed, Casement & Projected Windows

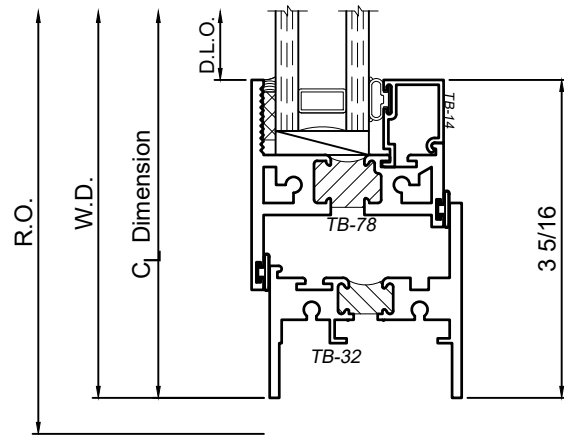
Product Details - Outswing Casement



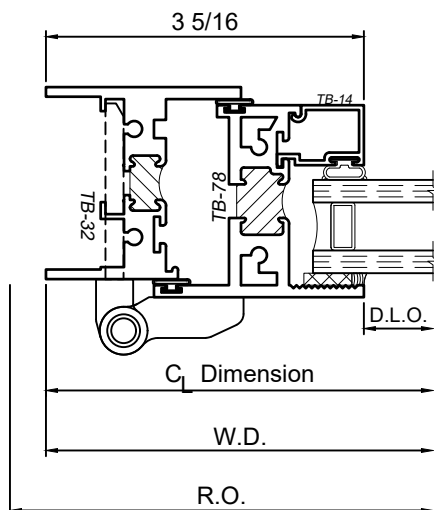
Note: Multiple configurations of this window system are available. Refer to the WINCO website for additional options or contact your local WINCO Sales Representative for information.



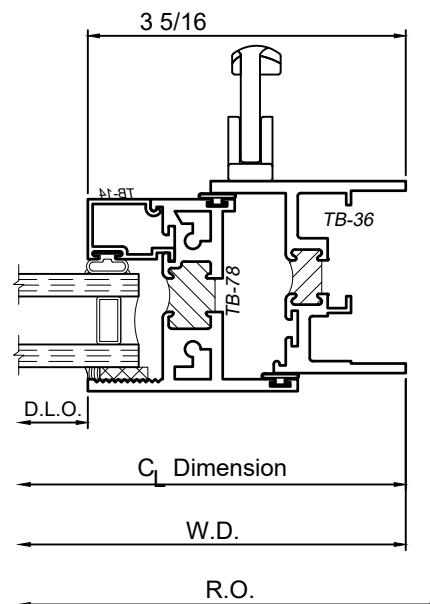
1



2



3



4

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SCALE 6"=1'-0"

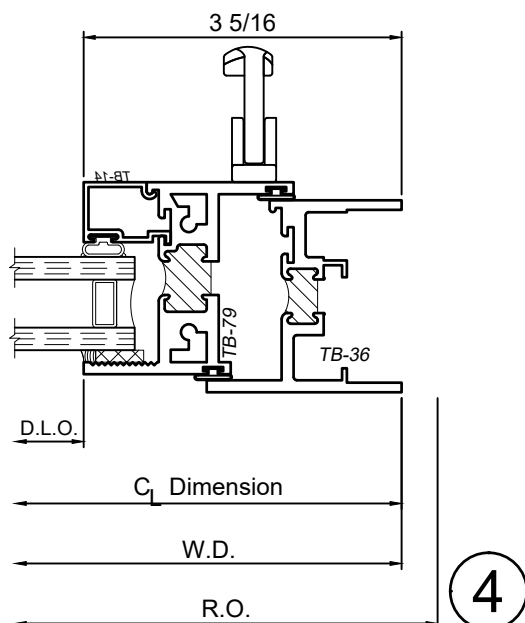
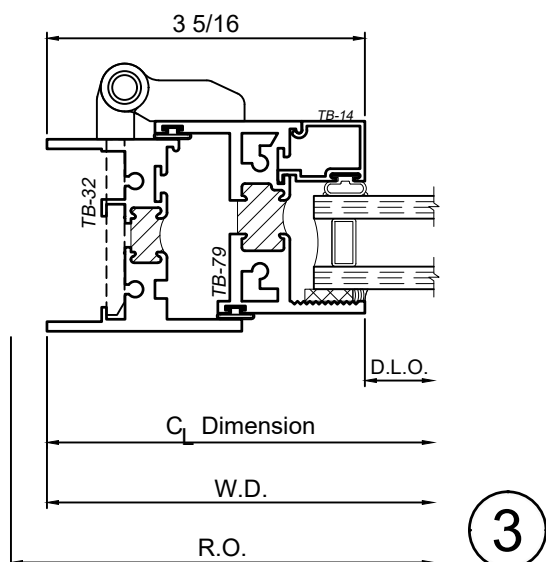
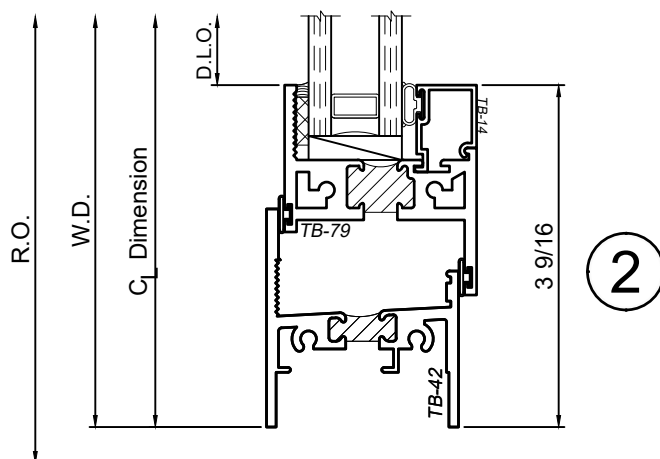
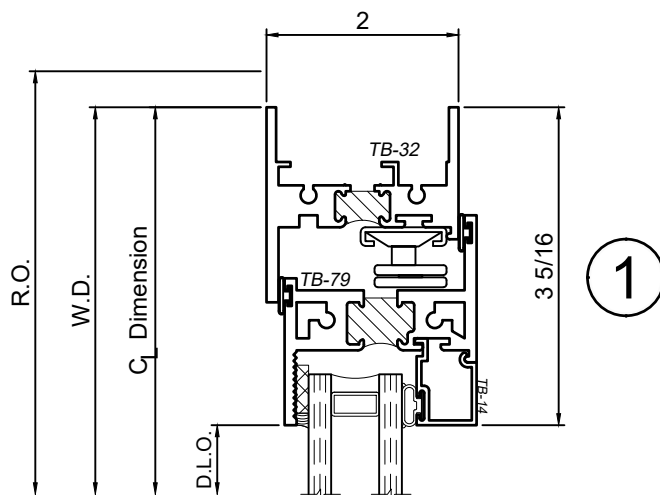
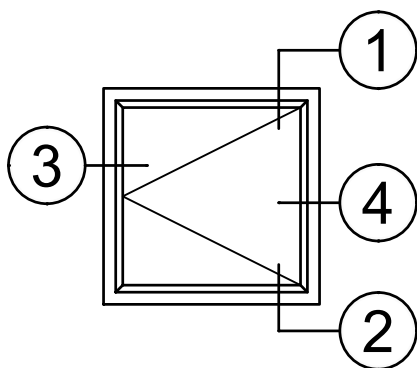
1150 Series 2" Thermal Fixed, Casement & Projected Windows

Product Details - Inswing Casement



Note: Multiple configurations of this window system are available. Refer to the WINCO website for additional options or contact your local WINCO Sales Representative for information.

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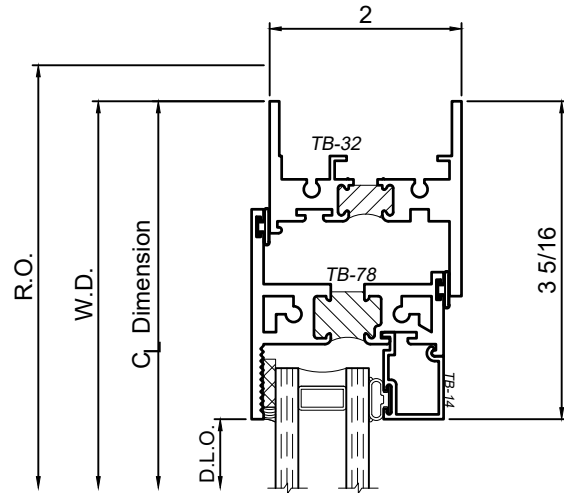
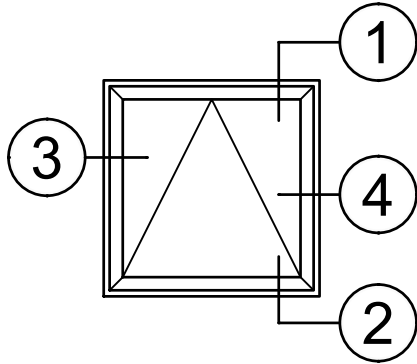
SCALE 6"=1'-0"

1150 Series 2" Thermal Fixed, Casement & Projected Windows

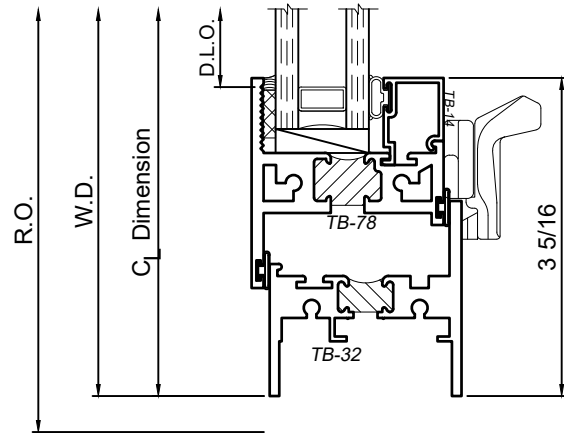
Product Details - Project Out - Awning



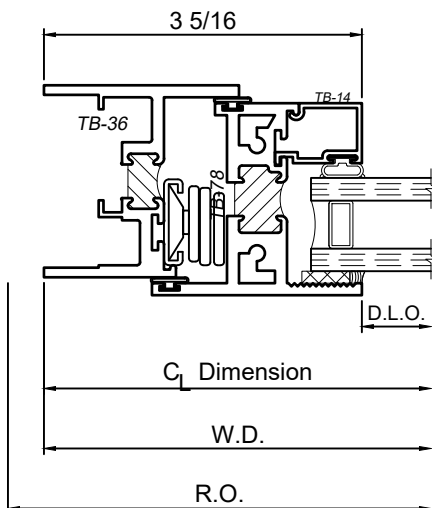
Note: Multiple configurations of this window system are available. Refer to the WINCO website for additional options or contact your local WINCO Sales Representative for information.



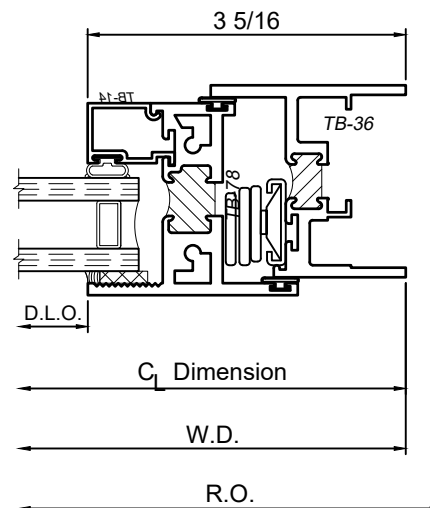
1



2



3



4

SCALE 6"=1'-0"

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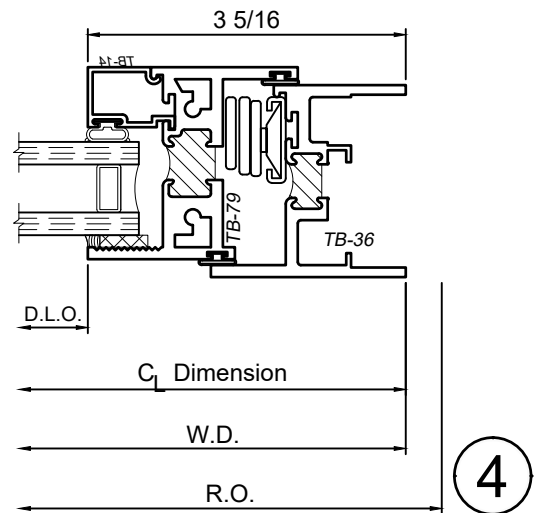
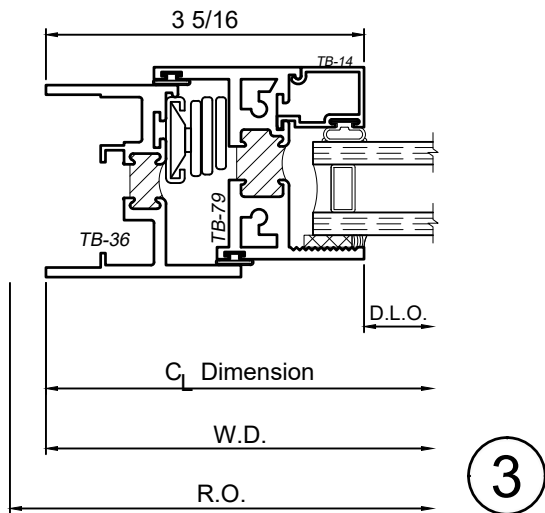
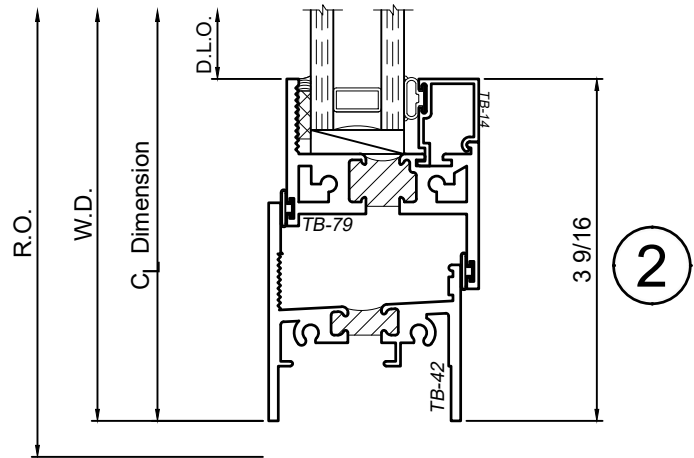
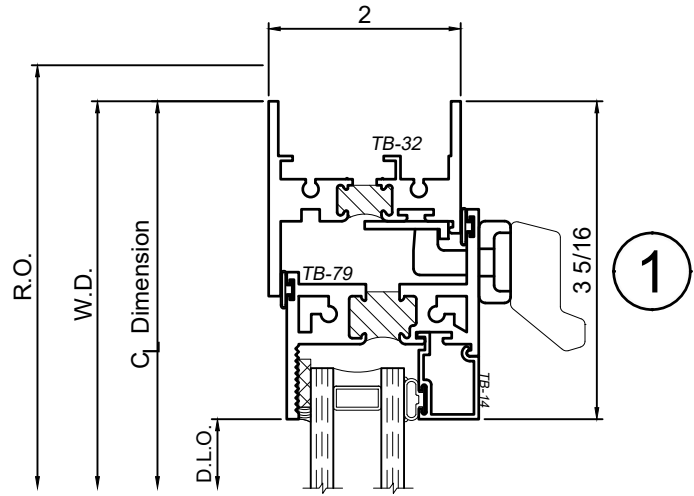
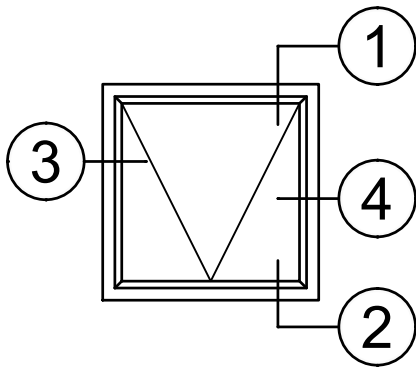
1150 Series 2" Thermal Fixed, Casement & Projected Windows

Product Details - Project In - Hopper



Note: Multiple configurations of this window system are available. Refer to the WINCO website for additional options or contact your local WINCO Sales Representative for information.

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SCALE 6"=1'-0"

1150 Series 2" Thermal Fixed, Casement & Projected Windows

Product Details -



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THIS BOOK WHEN DEEMED NECESSARY FOR PRODUCT IMPROVEMENT

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SCALE 6"=1'-0"

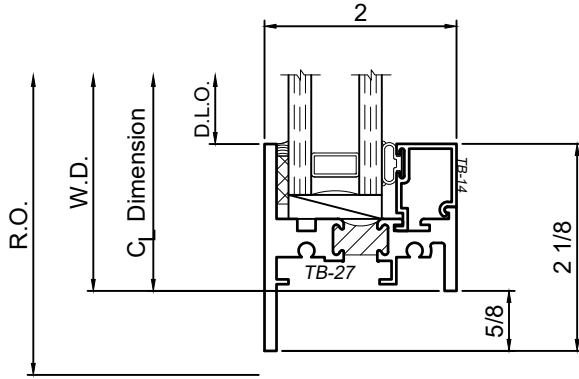
1150 Series 2" Thermal Fixed, Casement & Projected Windows

Product Details - Frame Options

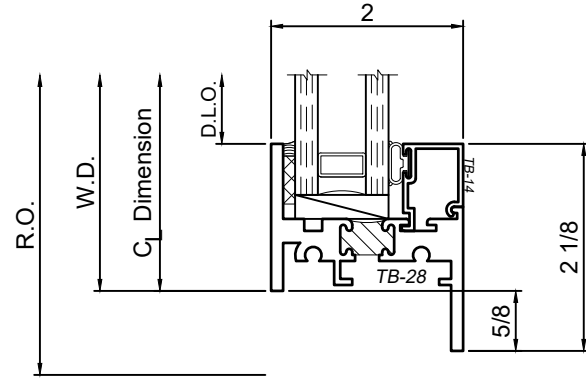


Note: Multiple configurations of this window system are available. Refer to the WINCO website for additional options or contact your local WINCO Sales Representative for information.

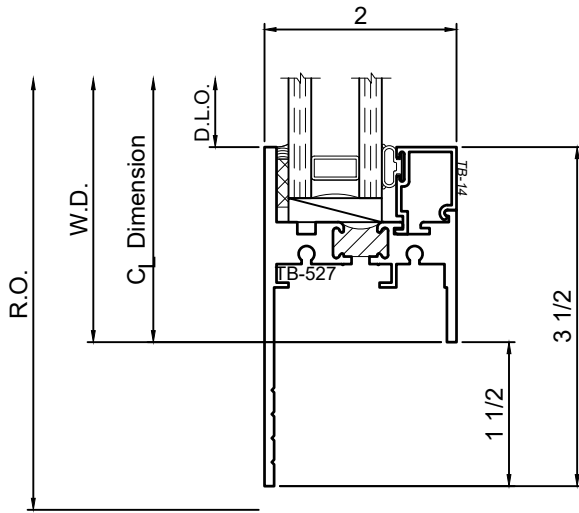
WINCO RESERVES THE RIGHT TO MODIFY OR CHANGE INFORMATION WITHIN THIS BOOK WHEN DEEMED NECESSARY FOR PRODUCT IMPROVEMENT



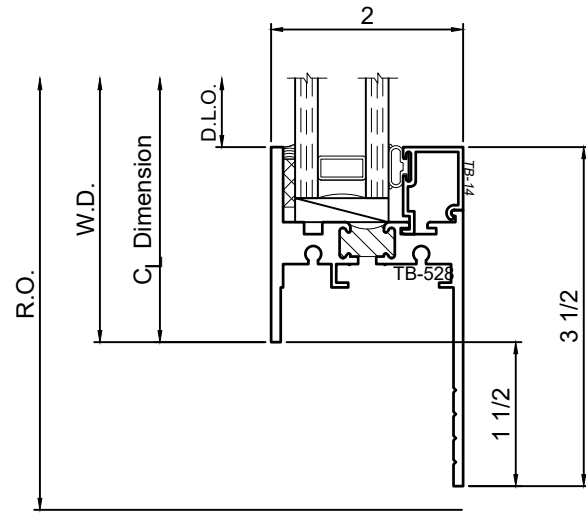
Available at head, jamb and sill



Available at head, jamb and sill



Available at head, jamb and sill



Available at head, jamb and sill

Note:
The Nominal Frame and
Centerline Dimensions are
taken to the Short Frame leg.

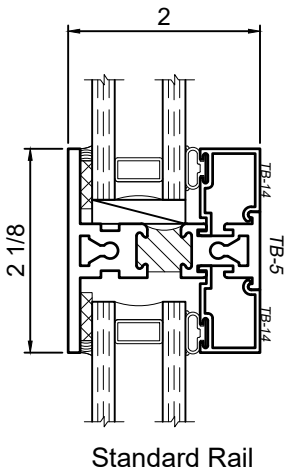
SCALE 6"=1'-0"

1150 Series 2" Thermal Fixed, Casement & Projected Windows

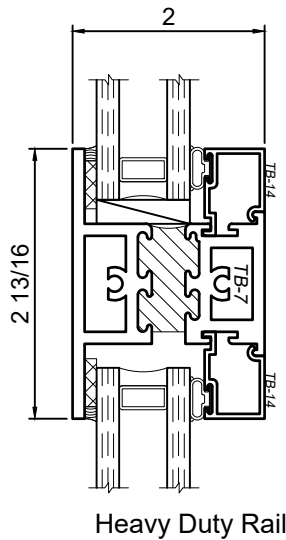
Product Details - Rail Options



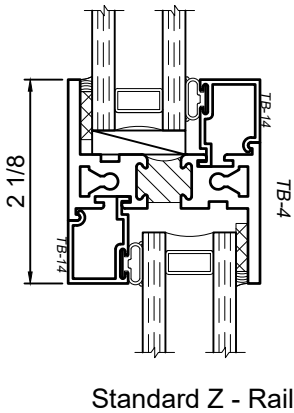
Note: Multiple configurations of this window system are available. Refer to the WINCO website for additional options or contact your local WINCO Sales Representative for information.



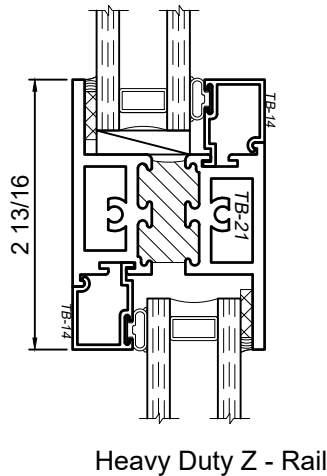
Standard Rail



Heavy Duty Rail



Standard Z - Rail



Heavy Duty Z - Rail

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SCALE 6"=1'-0"

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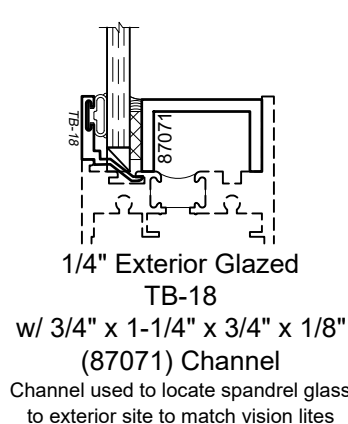
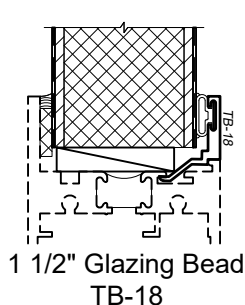
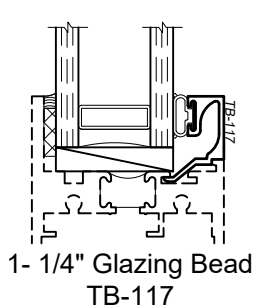
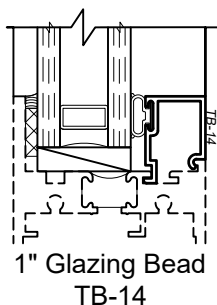
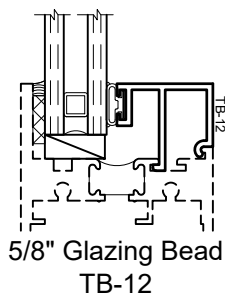
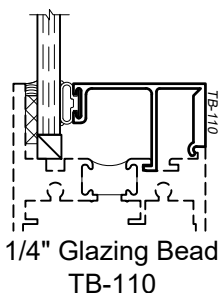
1150 Series 2" Thermal Fixed, Casement & Projected Windows

Product Details - Glazing Options

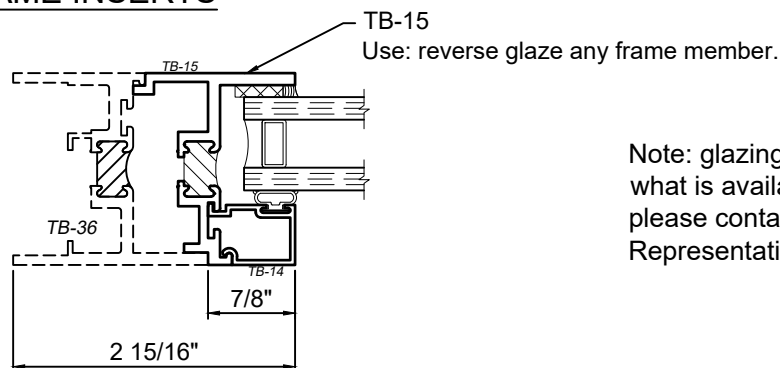


Note: Multiple configurations of this window system are available. Refer to the WINCO website for additional options or contact your local WINCO Sales Representative for information.

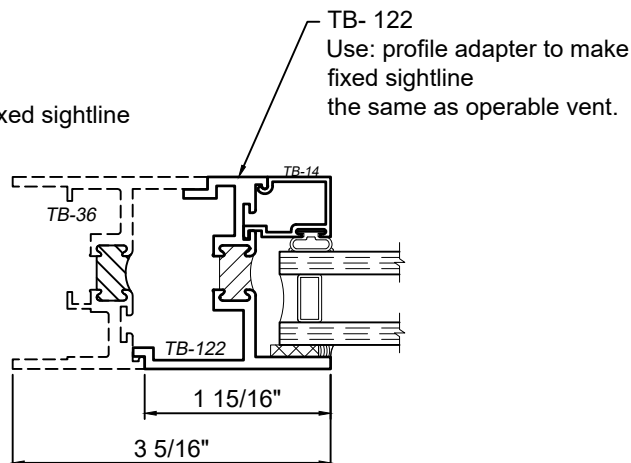
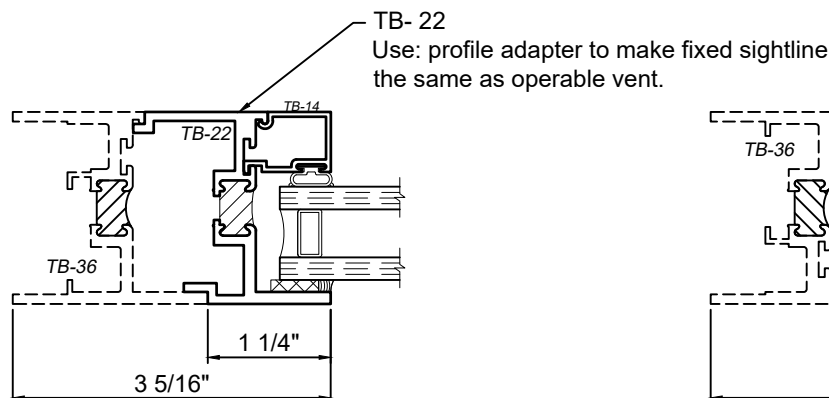
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FRAME INSERTS



Note: glazing options shown are a sample of what is available. If desired glazing is not shown please contact your local Winco Sales Representative for additional information.



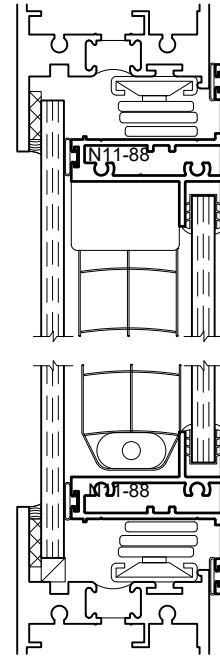
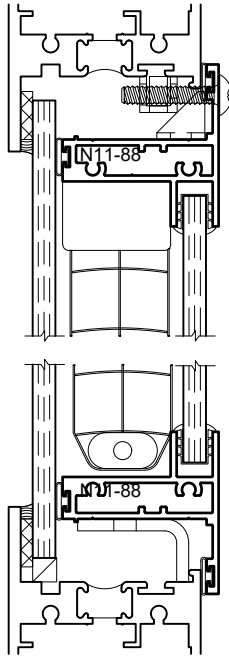
SCALE 6"=1'-0"

1150 Series 2" Thermal Fixed, Casement & Projected Windows

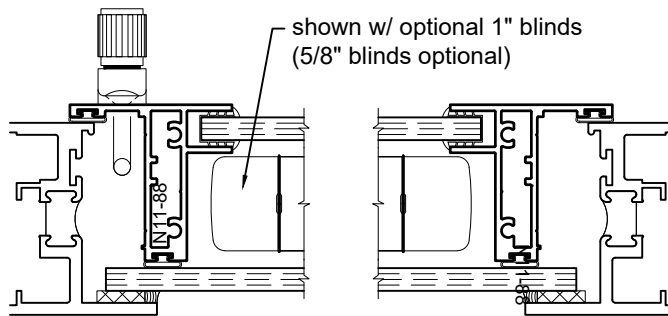
Product Details - Dual Glazed w/ Interior Sash



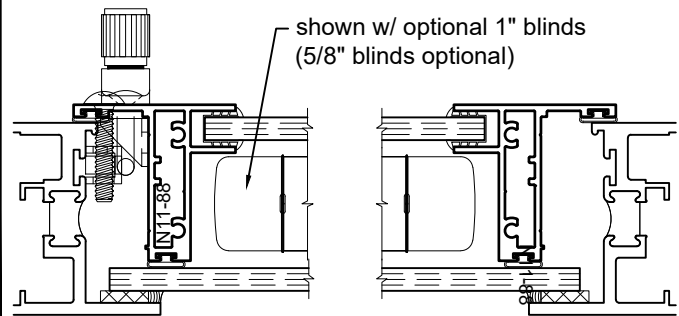
Note: Multiple configurations of this window system are available. Refer to the WINCO website for additional options or contact your local WINCO Sales Representative for information.



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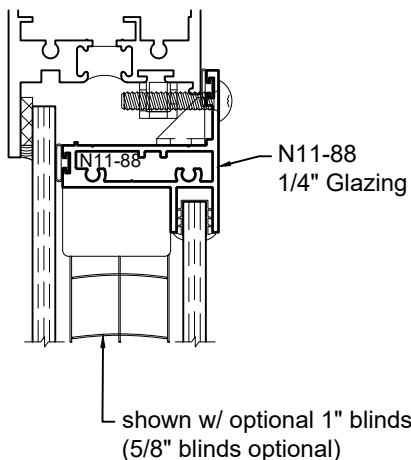


Dual Glazed w/ Take Out Sash - 65 Option



Dual Glazed w/ Hinged Sash - 75 Option

Dual Glazed Sash Options



SCALE 6"=1'-0"

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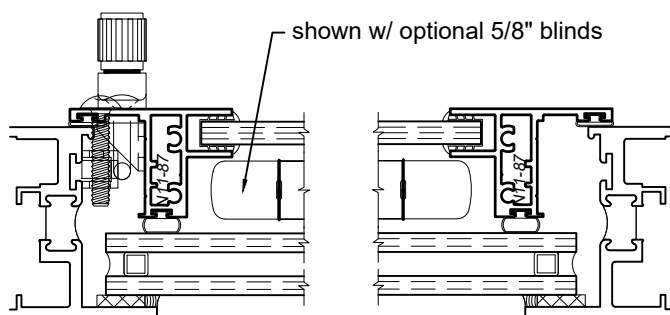
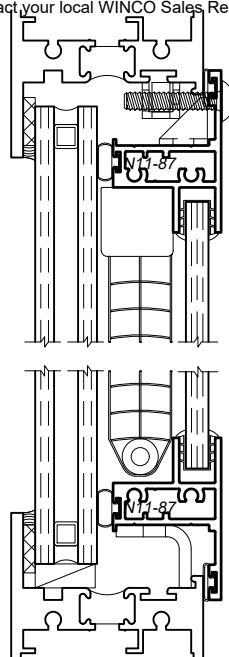
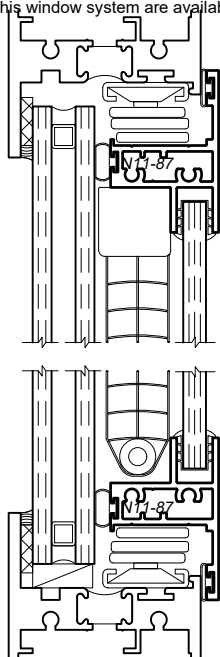
1150 Series 2" Thermal Fixed, Casement & Projected Windows

Product Details - Tripple Glazed w/ Interior Sash

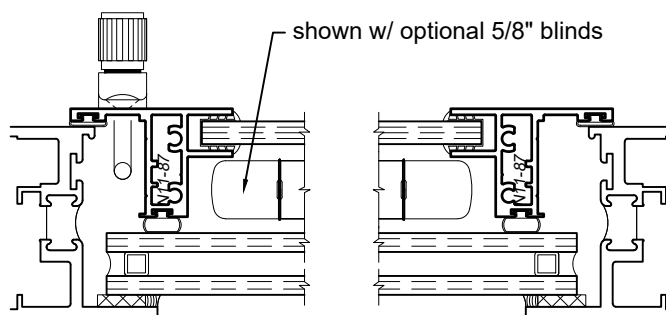


Note: Multiple configurations of this window system are available. Refer to the WINCO website for additional options or contact your local WINCO Sales Representative for information.

WINCO RESERVES THE RIGHT TO MODIFY OR CHANGE INFORMATION WITHIN THIS BOOK WHEN DEEMED NECESSARY FOR PRODUCT IMPROVEMENT

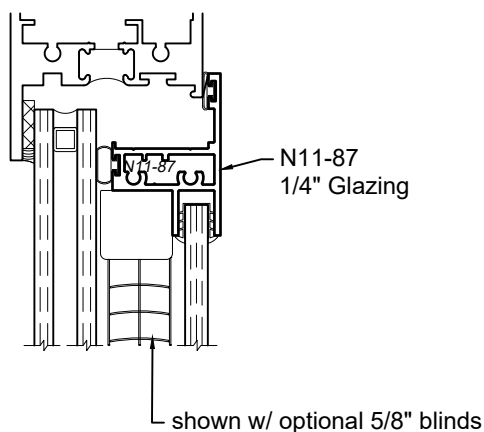


Triple Glazed w/ Hinged Sash - 85 Option



Triple Glazed w/ Take Out Sash - 95 Option

Triple Glazed Sash Options



SCALE 6"=1'-0"

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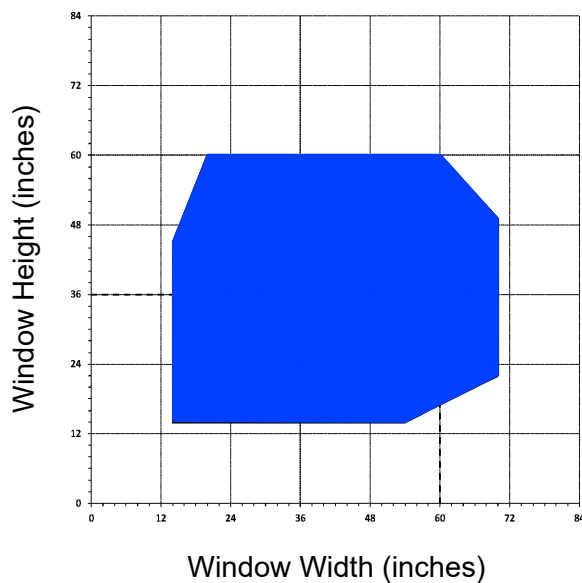
1150 Series 2" Thermal Fixed, Casement & Projected Windows

Projected Vent Size Capabilities Charts

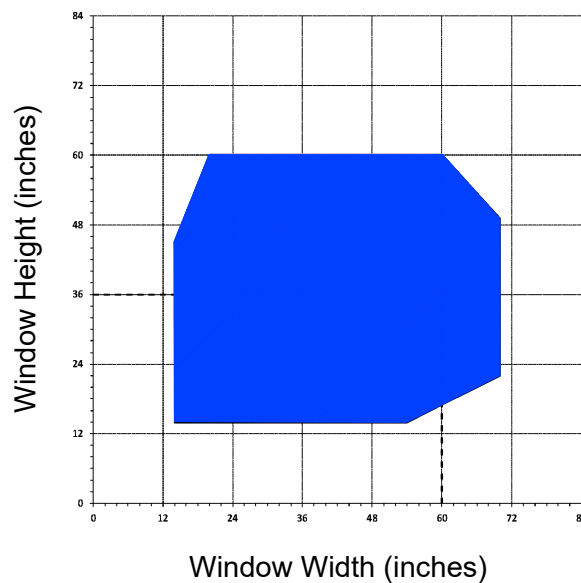


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Projected In / Out with Four Bar Arms



Projected In / Out with Pivot Shoe Roto-Operator



--- AAMA Gateway Size

- Dashed line represents the gateway size window as tested by AAMA.
- All vent sizes are based upon 1" Insulated glass consisting of $\frac{1}{4}$ " glass - $\frac{1}{2}$ " air - $\frac{1}{4}$ " glass.
- Any vent size outside of the AAMA Gateway tested size may have reduced performance.
- Chart assumes the window has been installed in a properly prepared opening by a qualified installer.
- Individual job criteria such as: other glazing materials, specified wind load, and specific operating hardware; may enhance or restrict the chart.
- Minimum vent size is 14" x 14" with standard cam locks and 4-bar hinges.
- The chart is a general guideline for projected vent sizing, anything on the edge or outside of the range will need to be reviewed by Winco Engineering.

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1150 Series 2" Thermal Fixed, Casement & Projected Windows

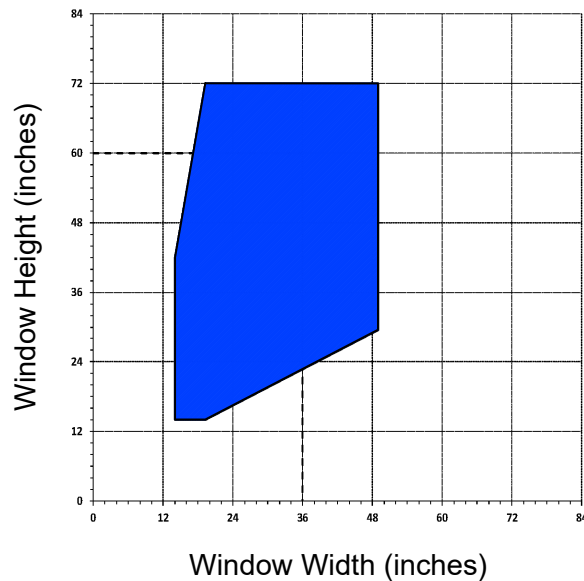
Casement Vent Size Capabilities Charts



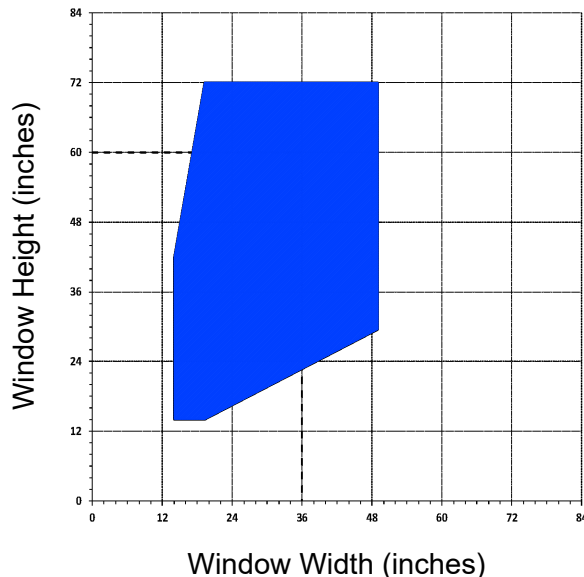
Casement with Roto-Operator
w/ 5 Knuckle Butt Hinge &
Multi Point Locks



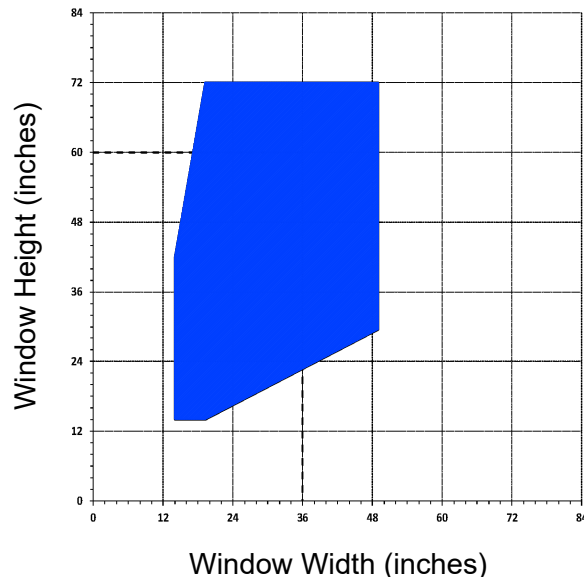
Casement with 5 Knuckle Butt
Hinge & Cam Locks



Casement with Concealed
Four Bar Casement Arm &
Multi Point Locks



Casement with Concealed
Four Bar Casement Arm &
Cam Locks



- Dashed line represents the gateway size window as tested by AAMA.
- All vent sizes are based upon 1" Insulated glass consisting of $\frac{1}{4}$ " glass - $\frac{1}{2}$ " air - $\frac{1}{4}$ " glass.
- Any vent size outside of the AAMA Gateway tested size may have reduced performance.
- Chart assumes the window has been installed in a properly prepared opening by a qualified installer.
- Individual job criteria such as: other glazing materials, specified wind load, and specific operating hardware; may enhance or restrict the chart.
- Minimum vent size is 14" x 14" with standard cam locks and 4-bar hinges.
- The chart is a general guideline for projected vent sizing, anything on the edge or outside of the range will need to be reviewed by Winco Engineering.

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1150 Series 2" Thermal Fixed, Casement & Projected Windows

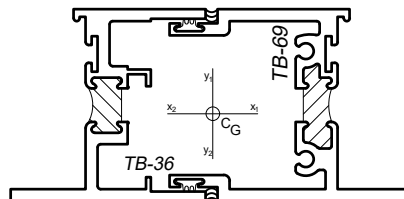
Product Details - Vertical Stack - TB-36 / TB-69



Note: Multiple configurations of this window system are available. Refer to the WINCO website for additional options or contact your local WINCO Sales Representative for information.

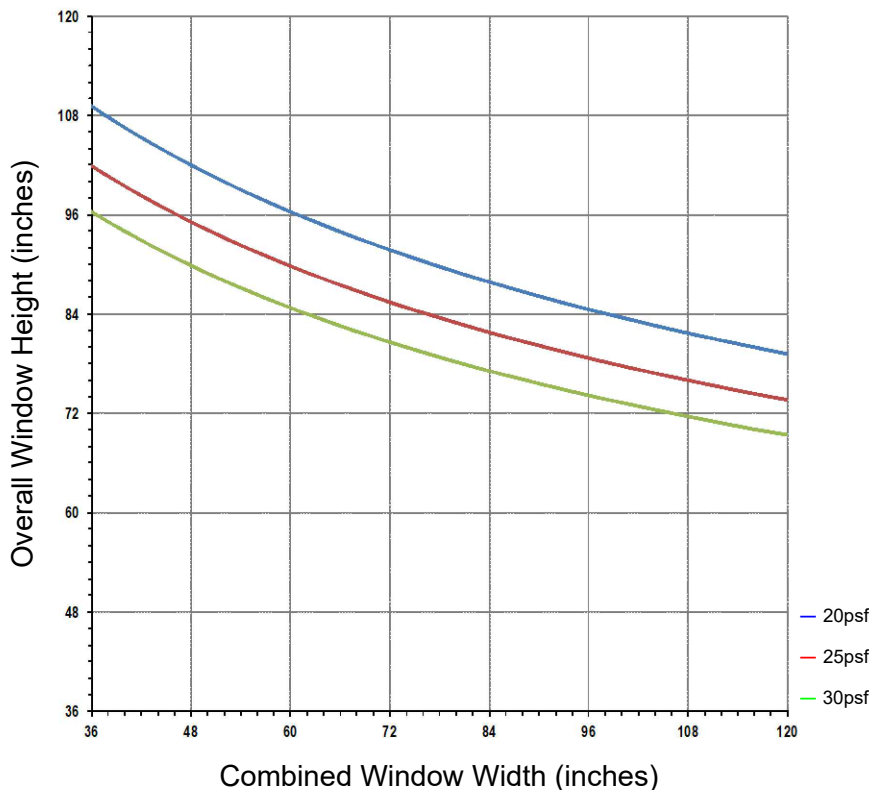
Combined Properties

	X-X	Y-Y
I	0.8955in ⁴	1.4876in ⁴
S	0.8605in ³	0.7449in ³



Maximum area = 40 ft²
Maximum Total Unit Weight
must not exceed 500 lbs.

Wind Load Chart



This chart can be used as a guideline for the preliminary structural evaluation of the mullion/stack shown. The chart is based on conservative engineering practices and the minimum result from either L/175 Deflection, $\frac{3}{4}$ " deflection, or 15 ksi outer fiber stress. The chart reflects the structural strength of 2 continuous window jambs running the full height of the opening. WINCO highly recommends consulting an engineer for any of the following circumstances:

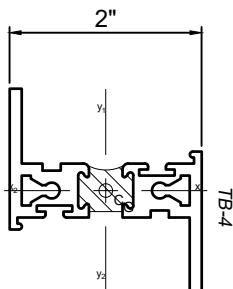
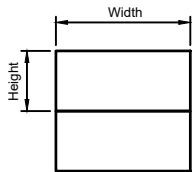
- The window under consideration falls close too or on the design pressure line.
- Any rail exceeds 48" with a large (>16ft²) light of glass above.
- Any vent width exceeds 60".
- Window exceeds the maximum size shown.
- Window has multiple rails (>3).

1150 Series 2" Thermal Fixed, Casement & Projected Windows

Product Details - TB-4 Rail

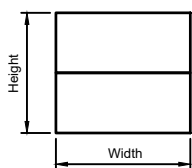


Note: Multiple configurations of this window system are available. Refer to the WINCO website for additional options or contact your local WINCO Sales Representative for information.

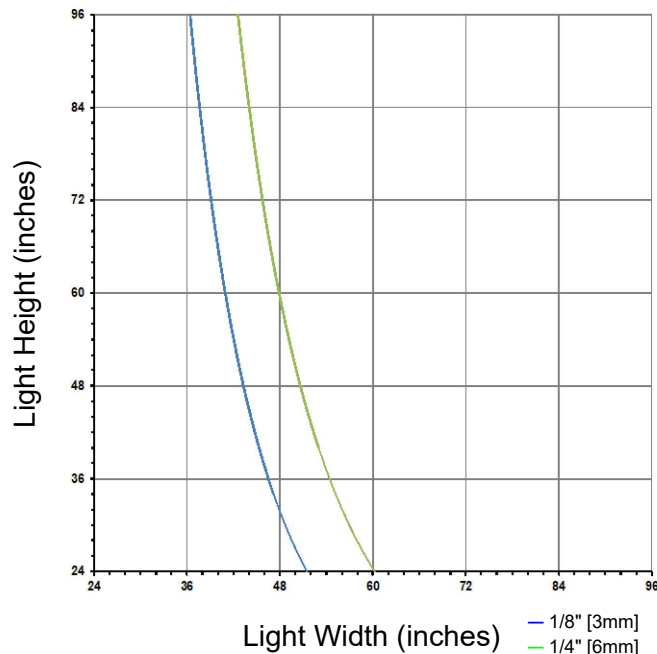


Section Properties

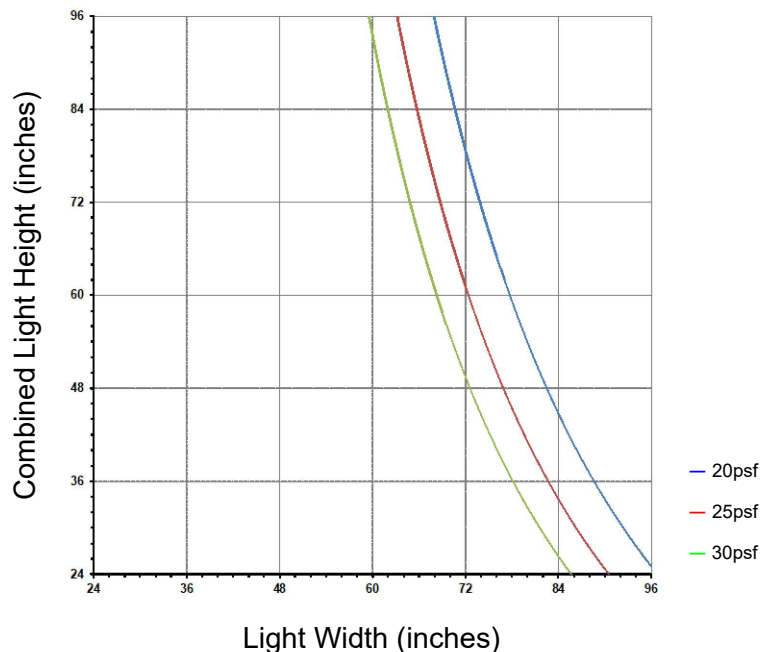
	X-X	Y-Y
I	0.4543 in ⁴	0.1191 in ⁴
S	0.4543 in ³	0.1121 in ³



Glass Dead Load Chart



Wind Load Chart



This chart can be used as a guideline for the preliminary structural evaluation of the Rail shown. The Dead Load chart is based on $\frac{1}{4}$ " - $\frac{1}{2}$ " - $\frac{1}{4}$ " I.G. and 0.090" deflection at $\frac{1}{4}$ and $\frac{1}{8}$ point blocking. The Wind Load Chart is based upon the minimum result from either L/175 deflection, $\frac{3}{4}$ " deflection, or 15 ksi outer fiber stress. The charts reflect the structural strength of only the Rail. WINCO highly recommends consulting an engineer for any of the following circumstances:

- The window under consideration falls close too or on the design pressure line.
- Any rail exceeds 48" with a large (>16ft²) light of glass above.
- I.G. make-up varies from the default.
- I.G. has additional blocking.

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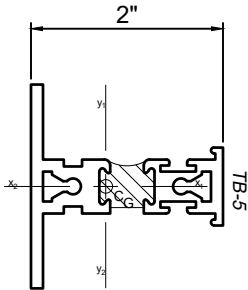
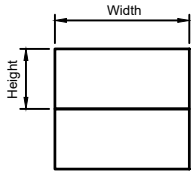
1150 Series 2" Thermal Fixed, Casement & Projected Windows

Product Details - TB-5 Rail



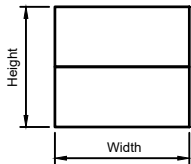
Note: Multiple configurations of this window system are available. Refer to the WINCO website for additional options or contact your local WINCO Sales Representative for information.

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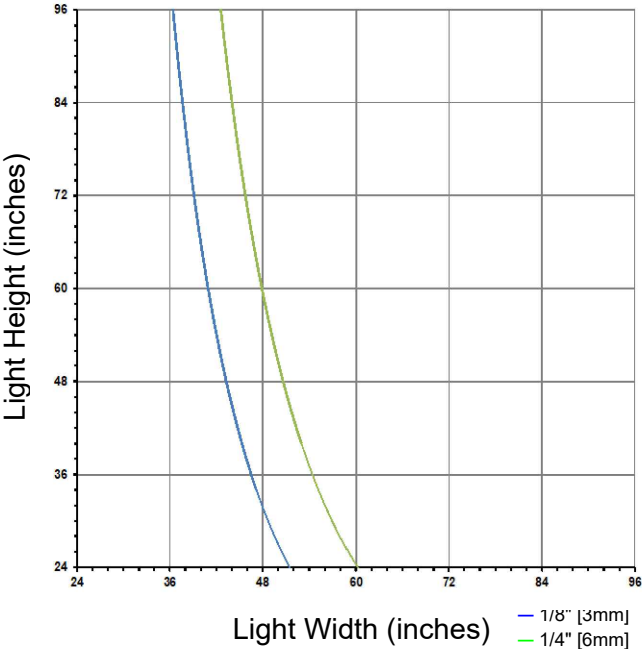


Section Properties

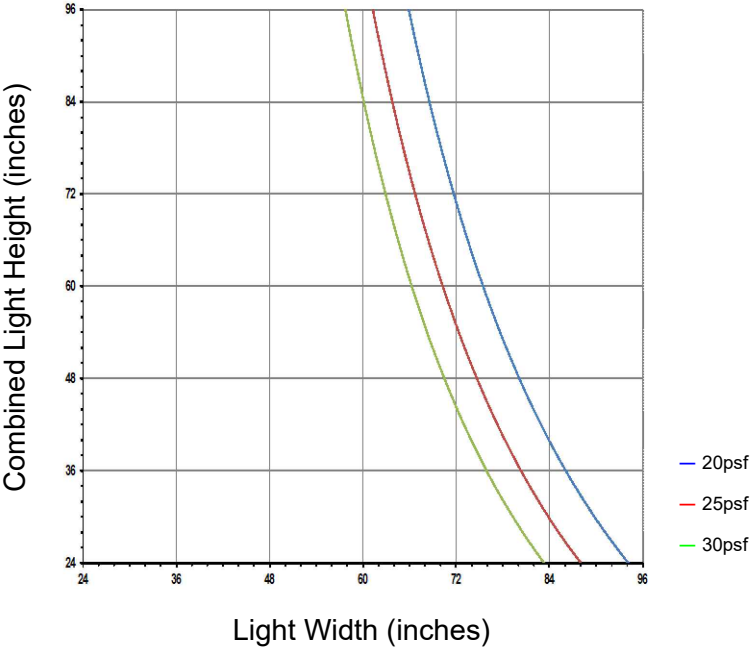
	X-X	Y-Y
I	0.4142 in ⁴	0.1191 in ⁴
S	0.3394 in ³	0.1121 in ³



Glass Dead Load Chart



Wind Load Chart



This chart can be used as a guideline for the preliminary structural evaluation of the Rail shown. The Dead Load chart is based on 1/4" - 1/2" - 1/4" I.G. and 0.090" deflection at 1/4 and 1/8 point blocking. The Wind Load Chart is based upon the minimum result from either L/175 deflection, 3/4" deflection, or 15 ksi outer fiber stress. The charts reflect the structural strength of only the Rail. WINCO highly recommends consulting an engineer for any of the following circumstances:

- The window under consideration falls close too or on the design pressure line.
- Any rail exceeds 48" with a large (>16ft²) light of glass above.
- I.G. make-up varies from the default.
- I.G. has additional blocking.

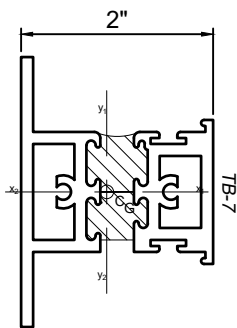
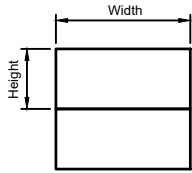
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1150 Series 2" Thermal Fixed, Casement & Projected Windows

Product Details - TB-7 Rail

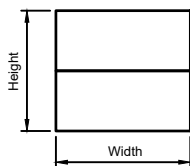


Note: Multiple configurations of this window system are available. Refer to the WINCO website for additional options or contact your local WINCO Sales Representative for information.

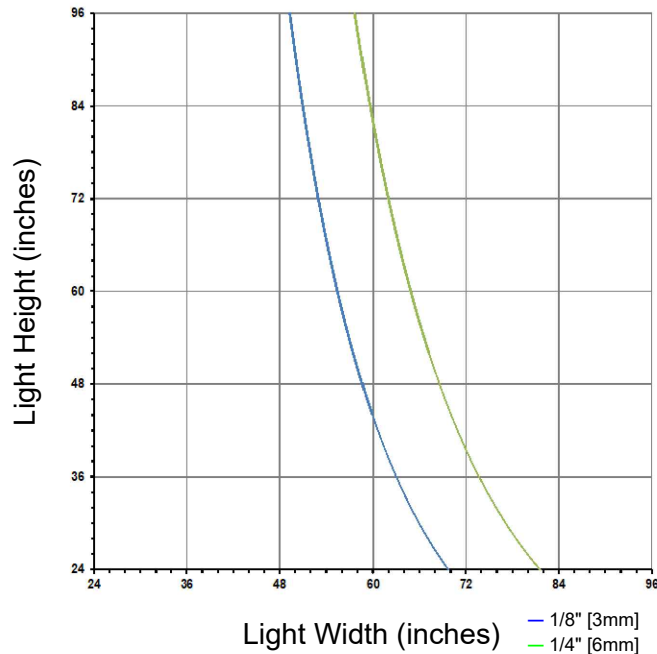


Section Properties

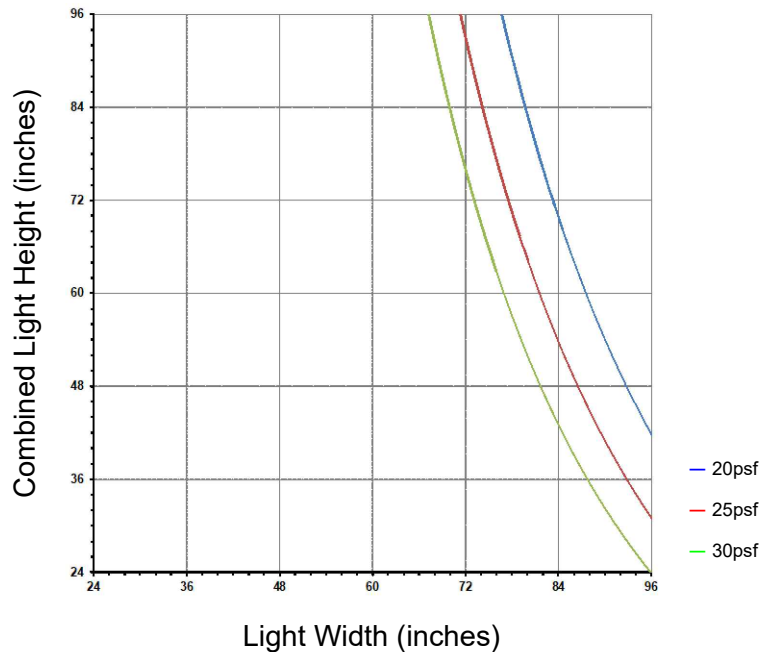
	X-X	Y-Y
I	0.6605 in ⁴	0.4007 in ⁴
S	0.6053 in ³	0.2831 in ³



Glass Dead Load Chart



Wind Load Chart



This chart can be used as a guideline for the preliminary structural evaluation of the Rail shown. The Dead Load chart is based on 1/4" - 1/2" - 1/4" I.G. and 0.090" deflection at 1/4 and 1/8 point blocking. The Wind Load Chart is based upon the minimum result from either L/175 deflection, 3/4" deflection, or 15 ksi outer fiber stress. The charts reflect the structural strength of only the Rail. WINCO highly recommends consulting an engineer for any of the following circumstances:

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- I.G. make-up varies from the default.
- I.G. has additional blocking.

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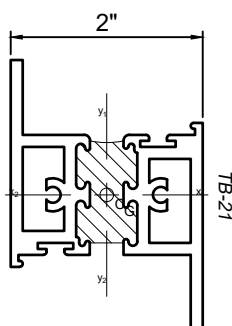
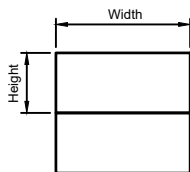
1150 Series 2" Thermal Fixed, Casement & Projected Windows

Product Details - TB-21 Rail



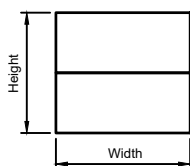
Note: Multiple configurations of this window system are available. Refer to the WINCO website for additional options or contact your local WINCO Sales Representative for information.

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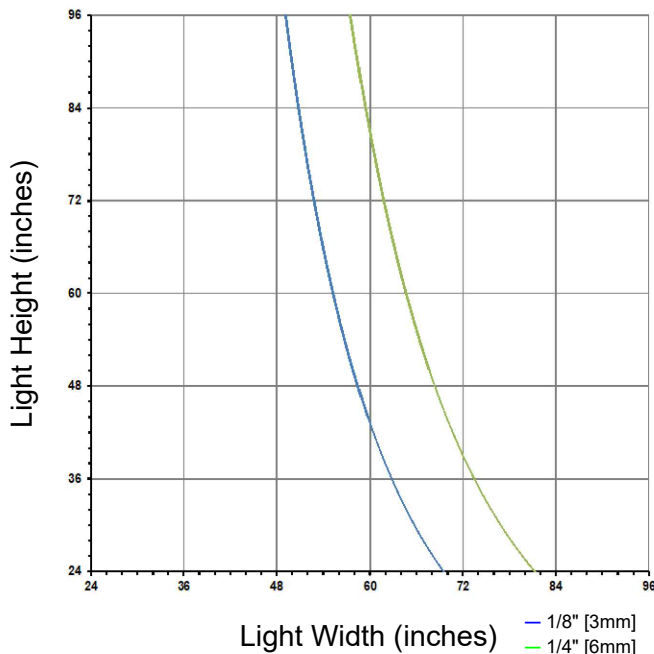


Section Properties

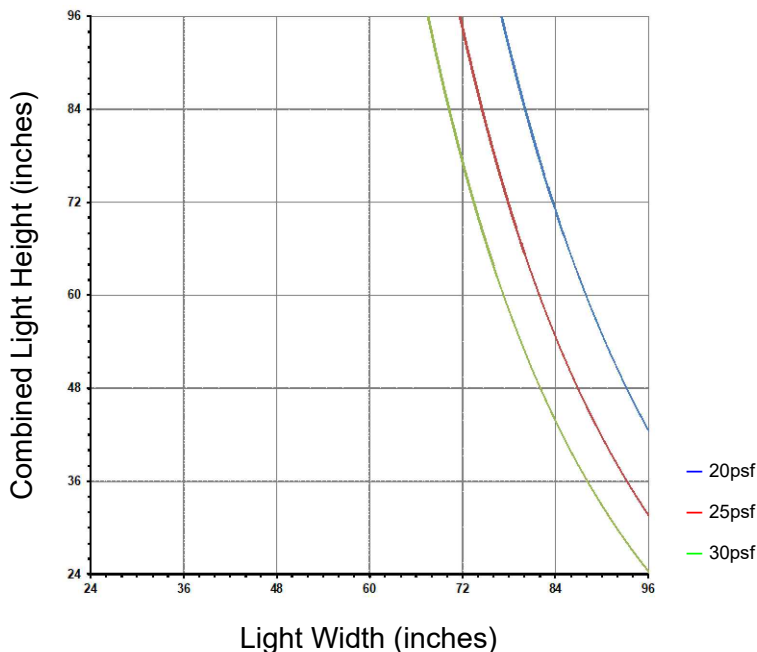
	X-X	Y-Y
I	0.6700in ⁴	0.3956in ⁴
S	0.6700in ³	0.2812in ³



Glass Dead Load Chart



Wind Load Chart



This chart can be used as a guideline for the preliminary structural evaluation of the Rail shown. The Dead Load chart is based on 1/4" - 1/2" - 1/4" I.G. and 0.090" deflection at 1/4 and 1/8 point blocking. The Wind Load Chart is based upon the minimum result from either L/175 deflection, 3/4" deflection, or 15 ksi outer fiber stress. The charts reflect the structural strength of only the Rail. WINCO highly recommends consulting an engineer for any of the following circumstances:

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- Any rail exceeds 48" with a large (>16ft²) light of glass above.
- I.G. make-up varies from the default.
- I.G. has additional blocking.

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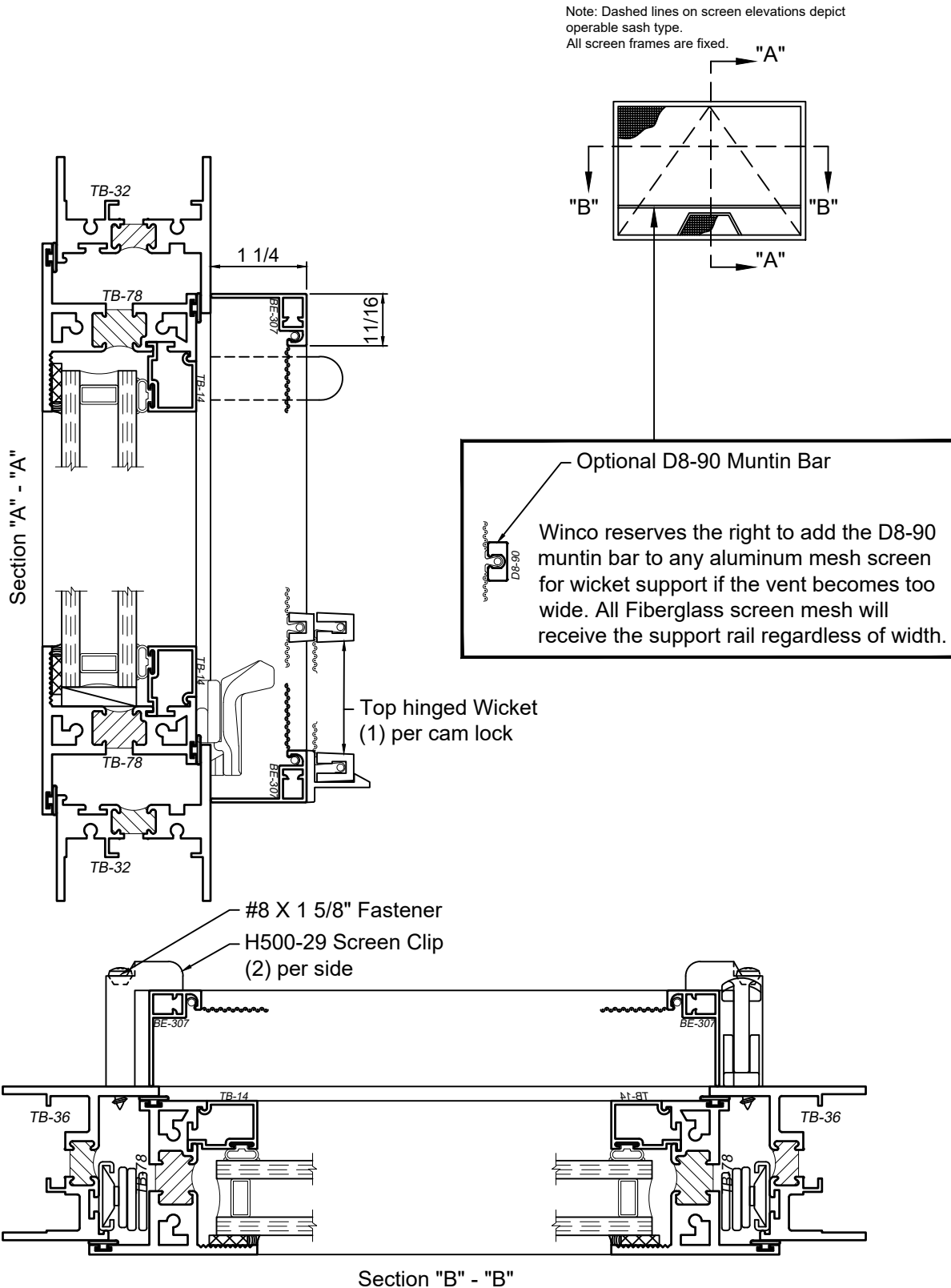
1150 Series 2" Thermal Fixed, Casement & Projected Windows

Product Details - Screen Options - PO - Awning



Note: Typical vent screen details shown. Winco reserves the right to alter the screen attachment detail due to job specific sizing and hardware. If you have specific screen applications you would like to see please contact your local Winco Sales Representative for more information.

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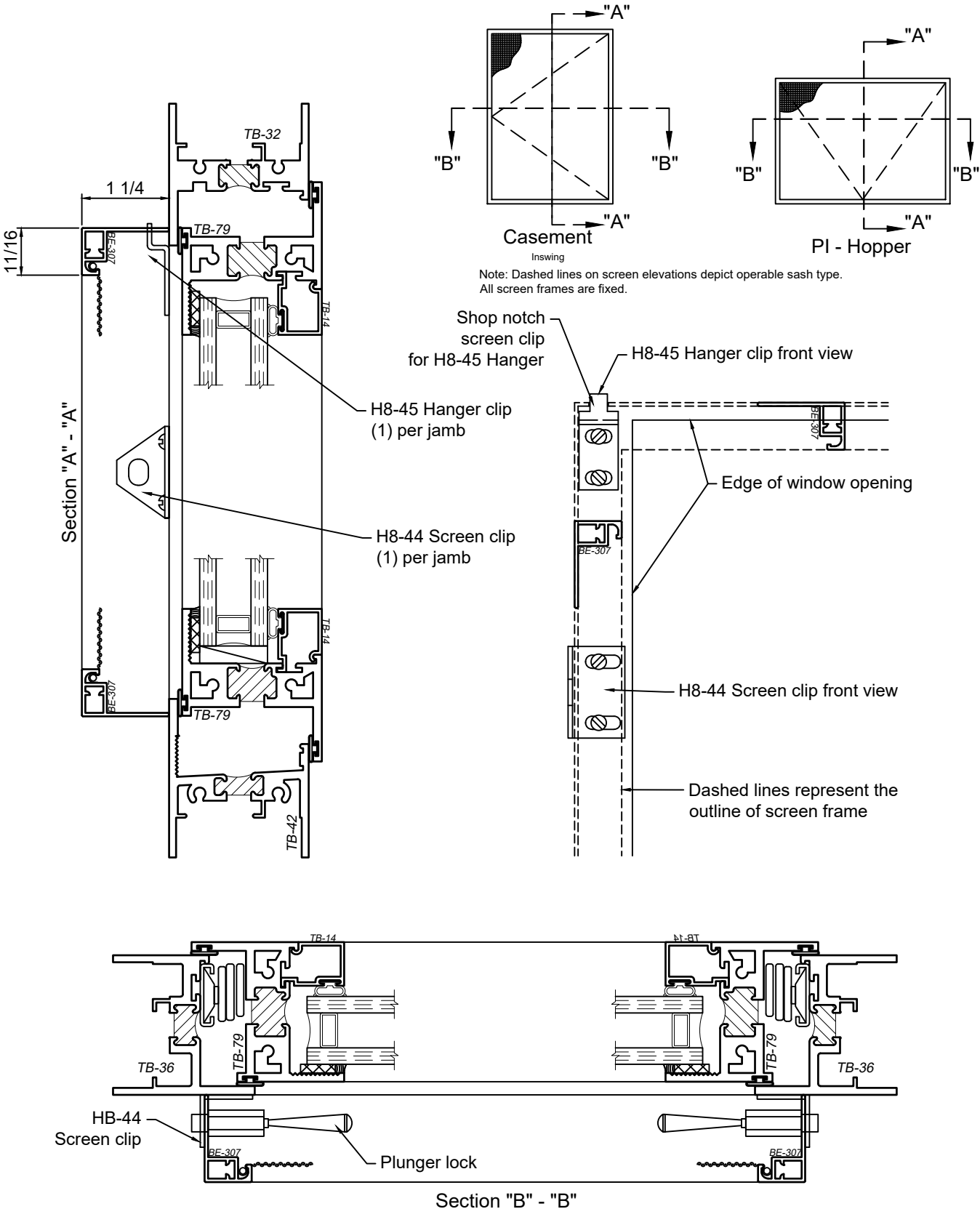
SCALE 6"=1'-0"

1150 Series 2" Thermal Fixed, Casement & Projected Windows

Product Details - Screen Options - PI Hopper



Note: Typical vent screen details shown. Winco reserves the right to alter the screen attachment detail due to job specific sizing and hardware. If you have specific screen applications you would like to see please contact your local Winco Sales Representative for more information.



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SCALE 6"=1'-0"

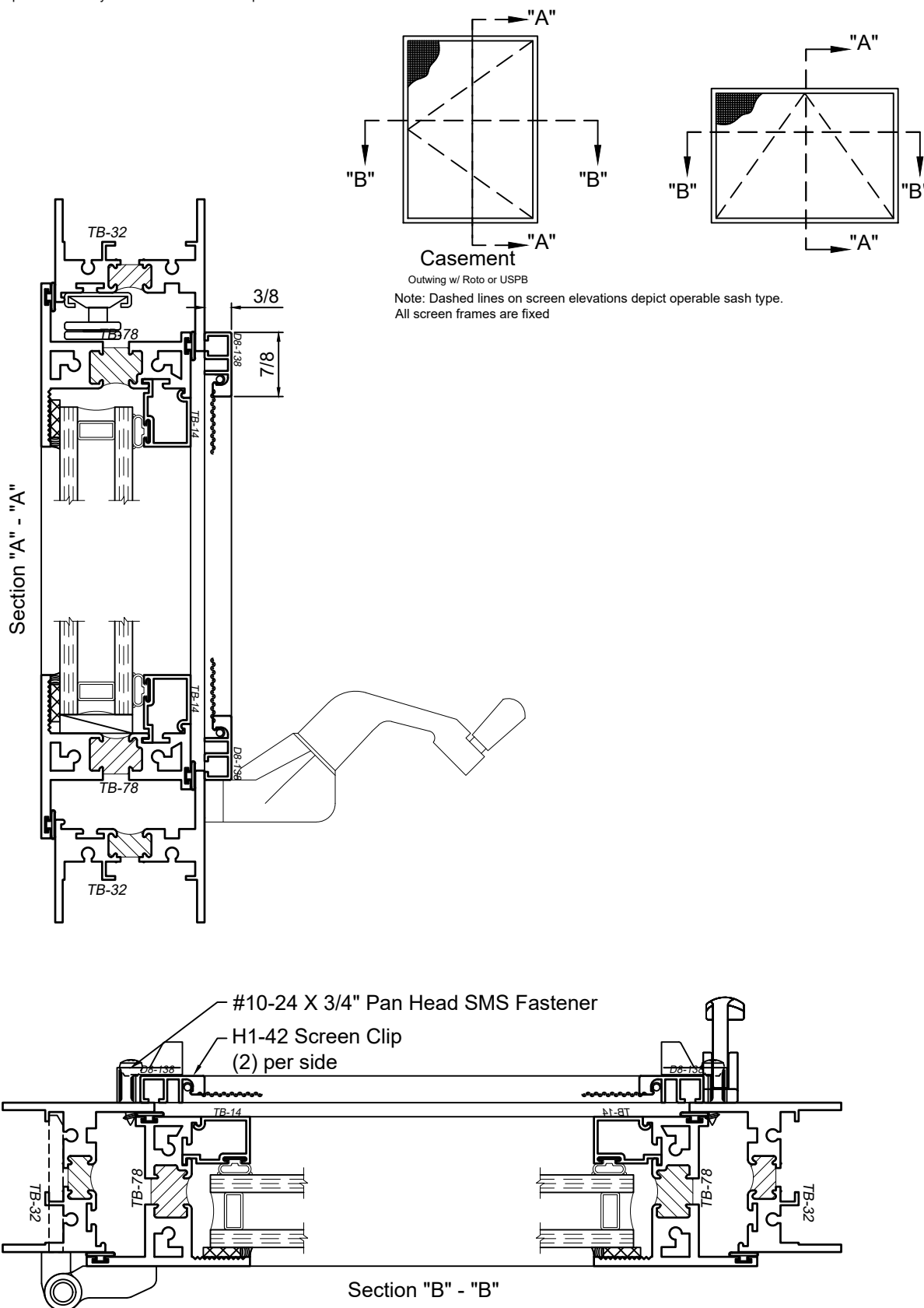
1150 Series 2" Thermal Fixed, Casement & Projected Windows

Product Details - Screen Options - PO - Awning w/ Roto Operator



Note: Typical vent screen details shown. Winco reserves the right to alter the screen attachment detail due to job specific sizing and hardware. If you have specific screen applications you would like to see please contact your local Winco Sales Representative for more information.

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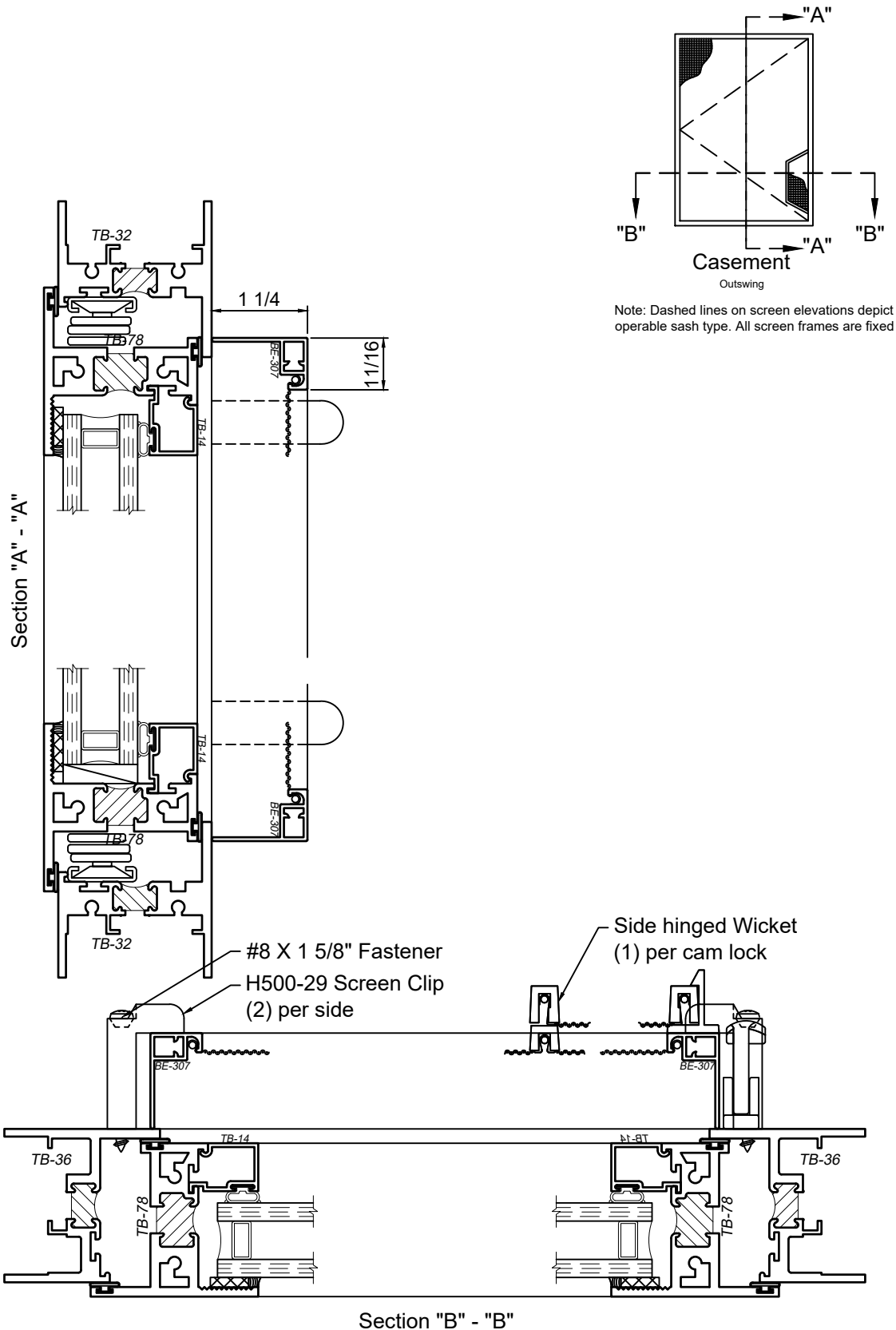
© WINCO WINDOW COMPANY, INC. 2021

1150 Series 2" Thermal Fixed, Casement & Projected Windows

Product Details - Screen Options - Outswing Casement

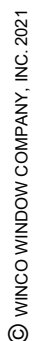
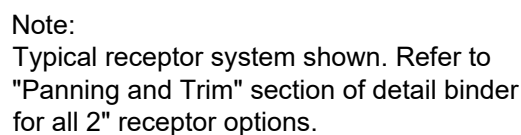


Note: Typical vent screen details shown. Winco reserves the right to alter the screen attachment detail due to job specific sizing and hardware. If you have specific screen applications you would like to see please contact your local Winco Sales Representative for more information.



SCALE 6"=1'-0"

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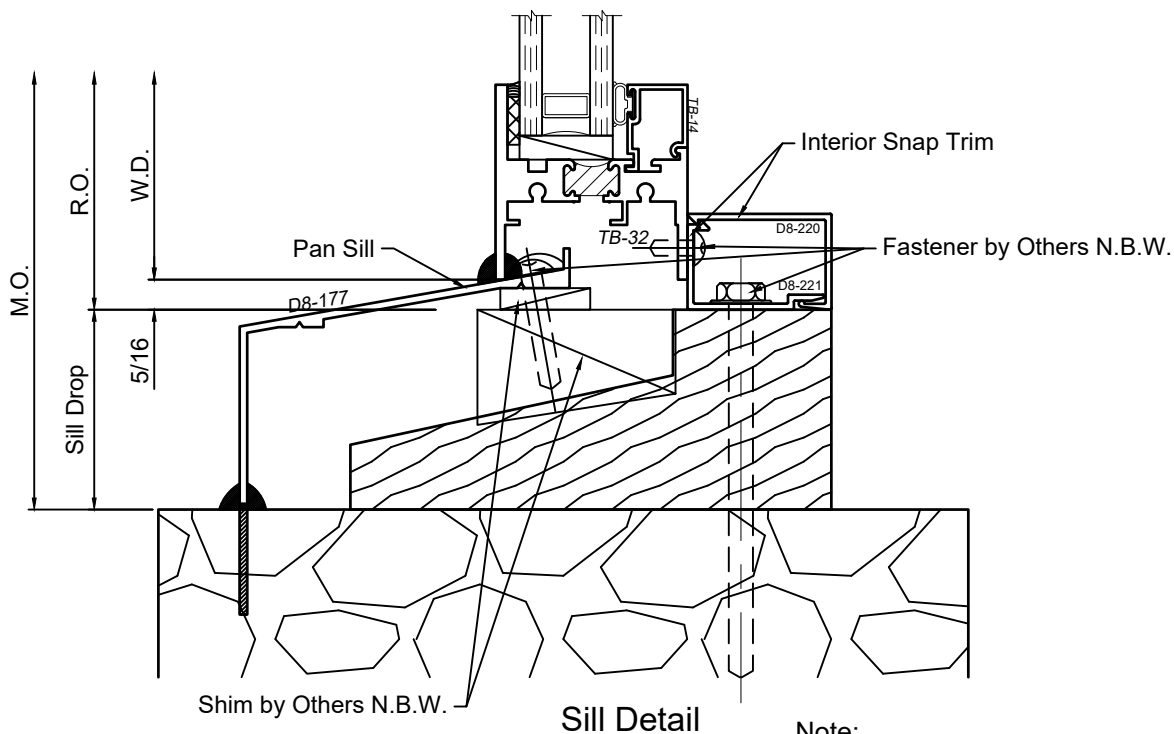
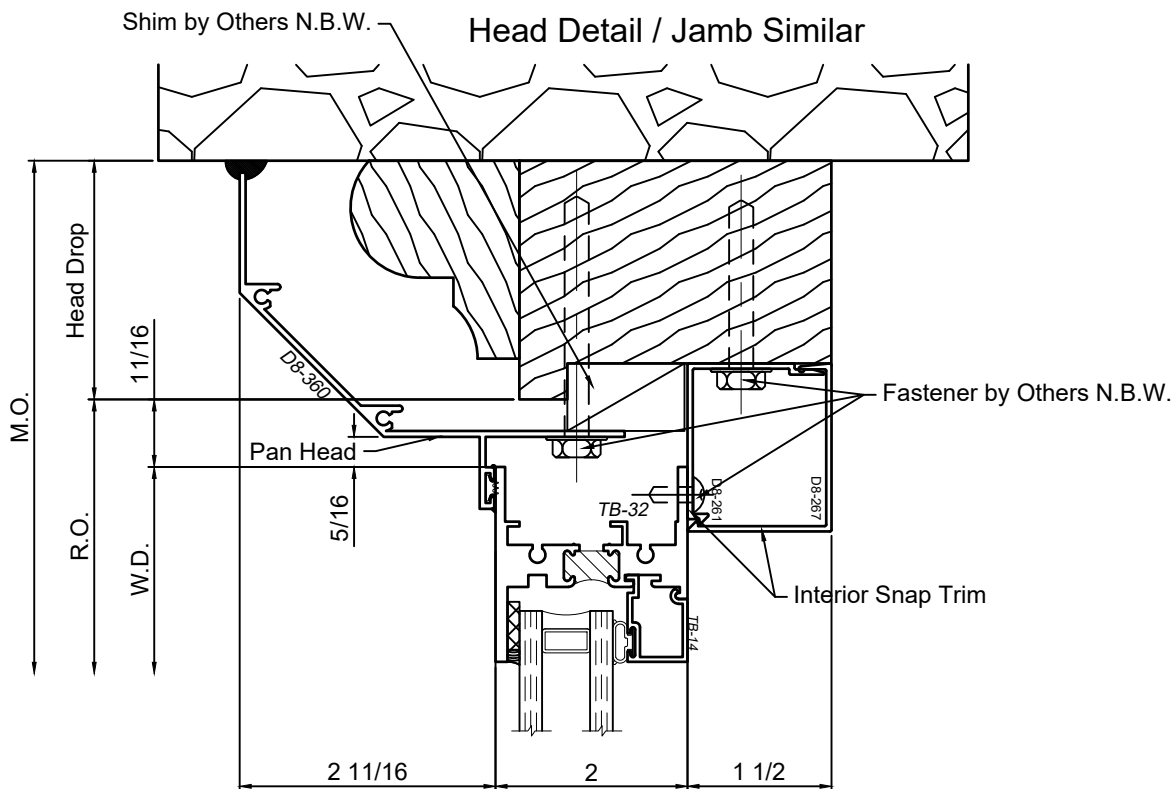


1150 Series 2" Thermal Fixed, Casement & Projected Windows

Product Details - Trim - Panning Installation



Note: See Winco Installation Instructions for a detailed description of installation notes and procedures.



Note:
Typical panning system shown. Refer to
"Panning and Trim" section of detail binder
for all panning and interior snap trim options

SCALE 6"=1'-0"

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1150 Series 2" Thermal Fixed, Casement & Projected Windows

Product Details - Trim - F-Anchor and Snap Trim Installation

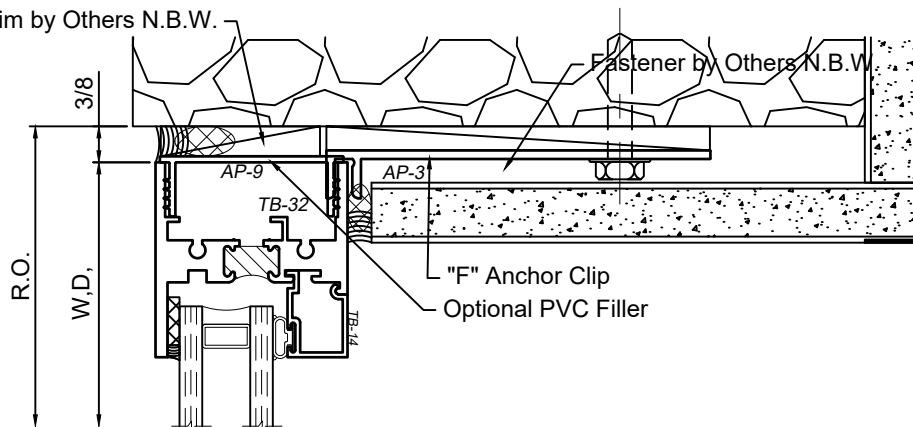


Note: See Winco Installation Instructions for a detailed description of installation notes and procedures.

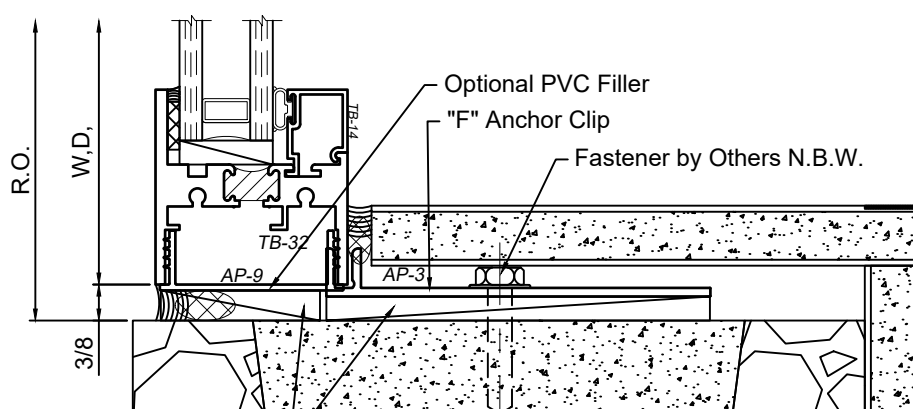
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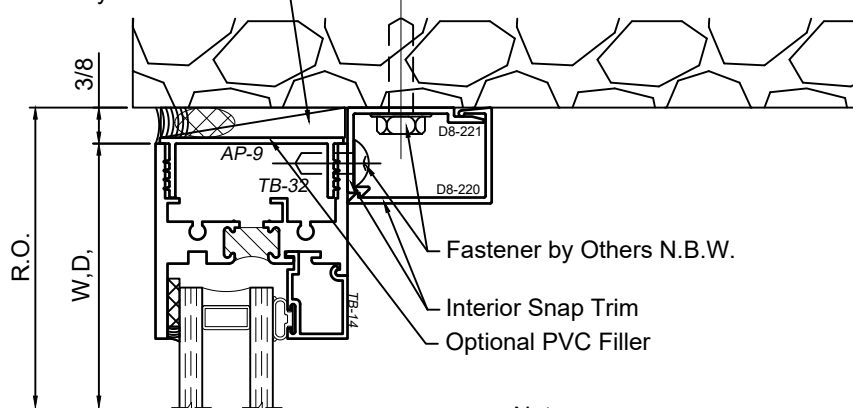
Shim by Others N.B.W.



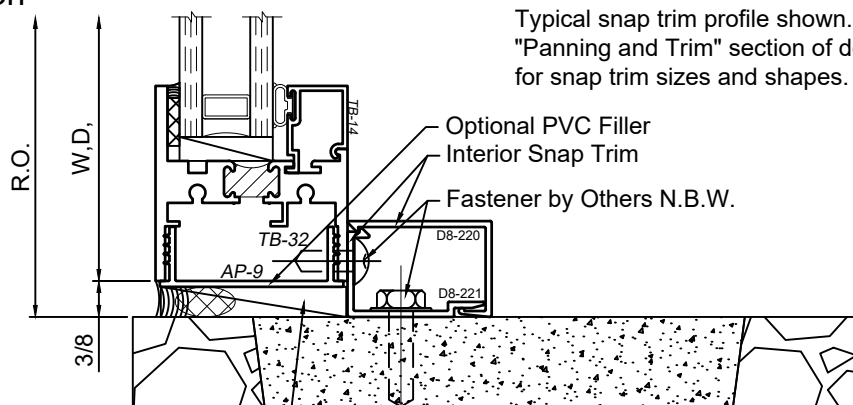
"F" Clip Installation



Shim by Others N.B.W.



Snap Trim Installation

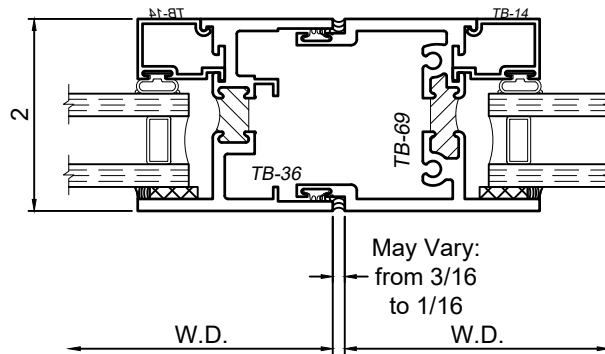


Note:
Typical snap trim profile shown. Refer to
"Panning and Trim" section of detail binder
for snap trim sizes and shapes.

SCALE 6"=1'-0"

Shim by Others N.B.W.

Typical Side Stack Framing



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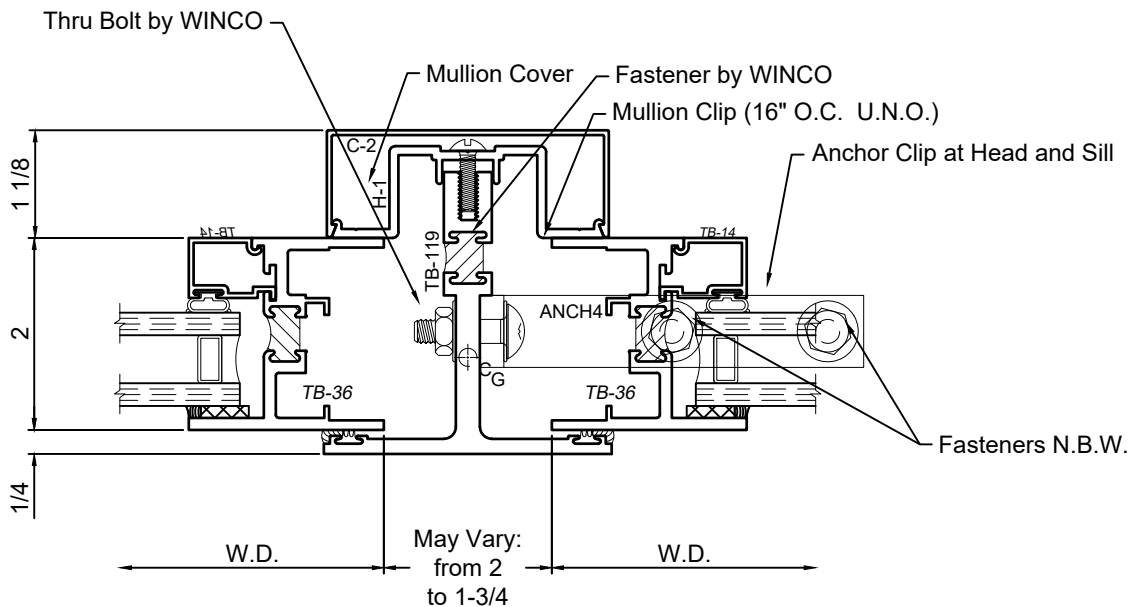
SCALE 6"=1'-0"

1150 Series 2" Thermal Fixed, Casement & Projected Windows

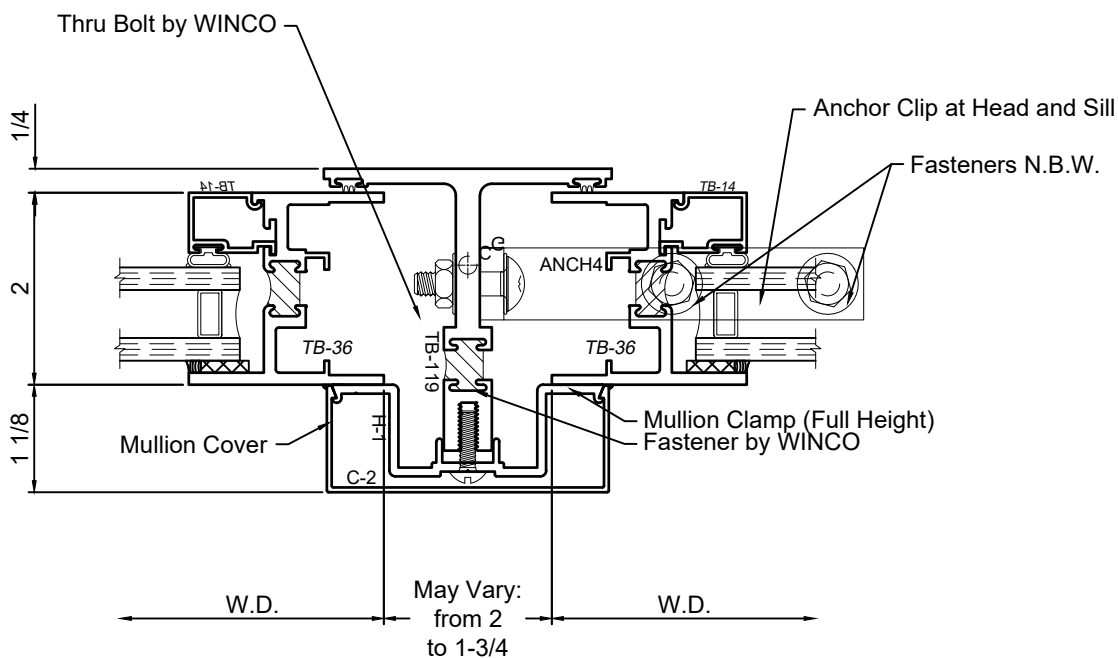
Product Details - Trim - Mullion



TB-119 Mullion set from Building Interior



TB-119 Mullion set from Building Exterior



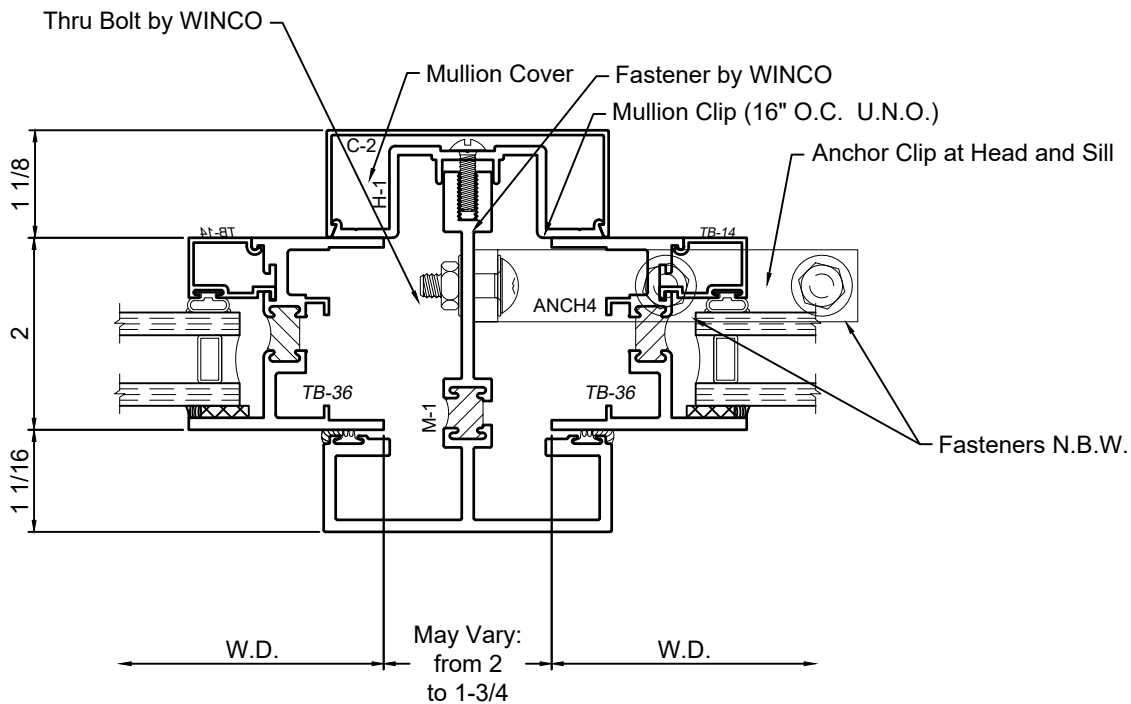
SCALE 6"=1'-0"

1150 Series 2" Thermal Fixed, Casement & Projected Windows

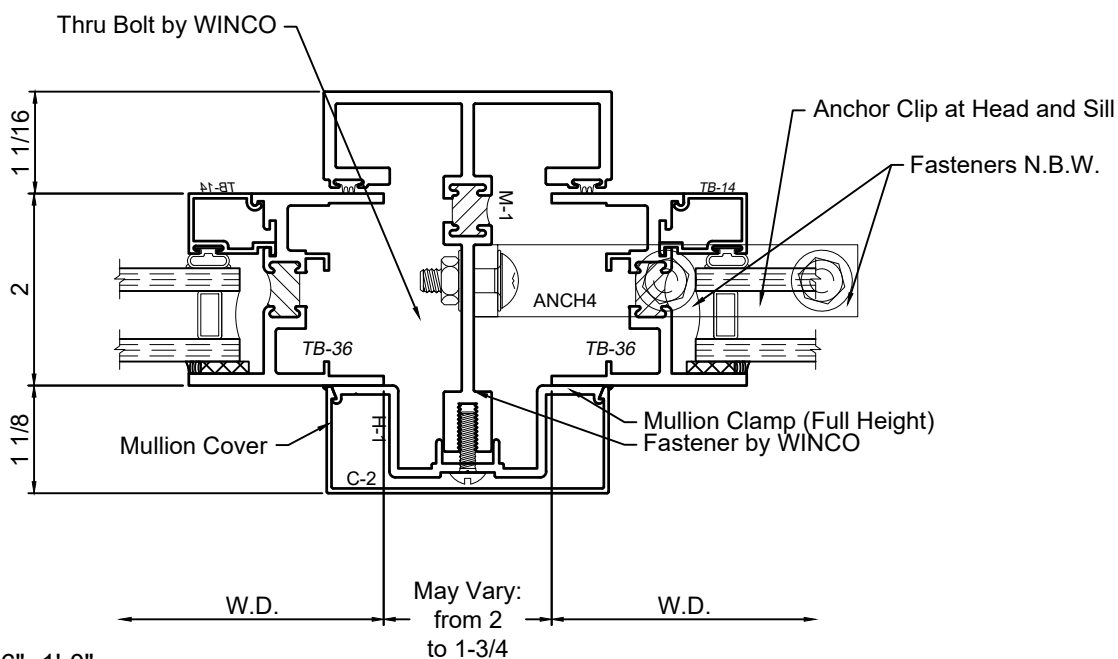
Product Details - Trim - Mullion



M-1 Mullion set from Building Interior



M-1 Mullion set from Building Exterior



SCALE 6"=1'-0"

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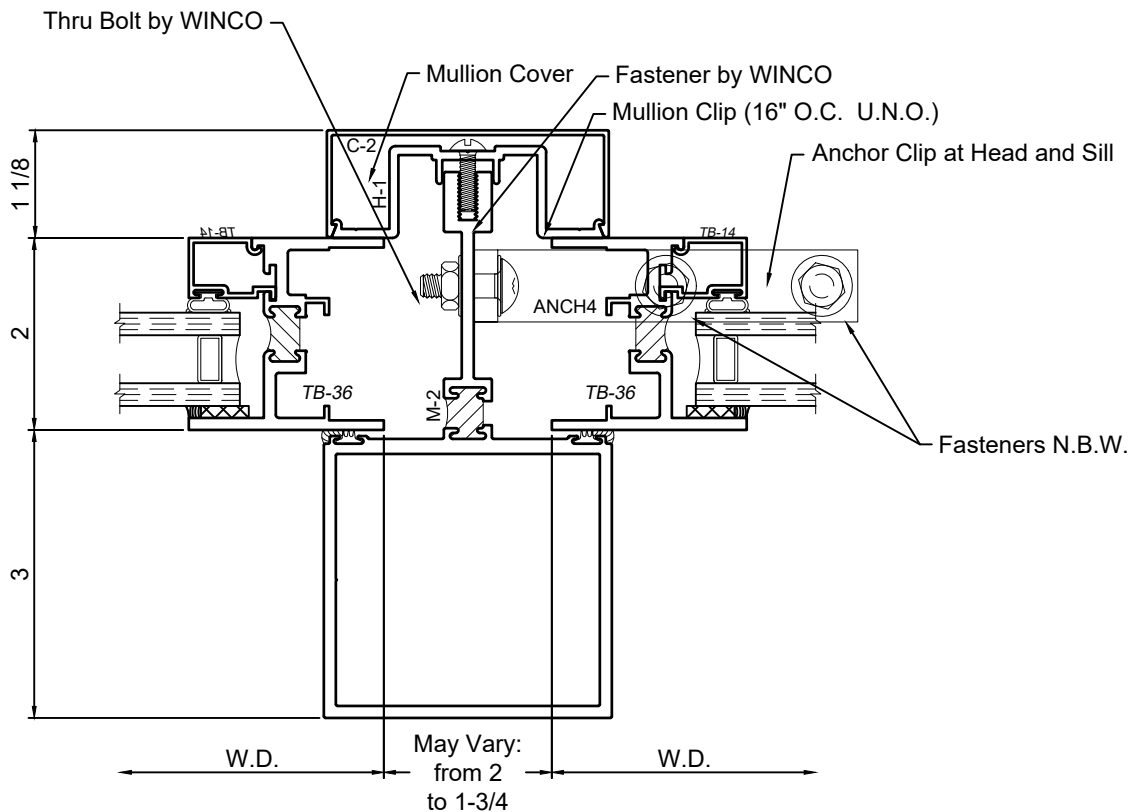
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1150 Series 2" Thermal Fixed, Casement & Projected Windows

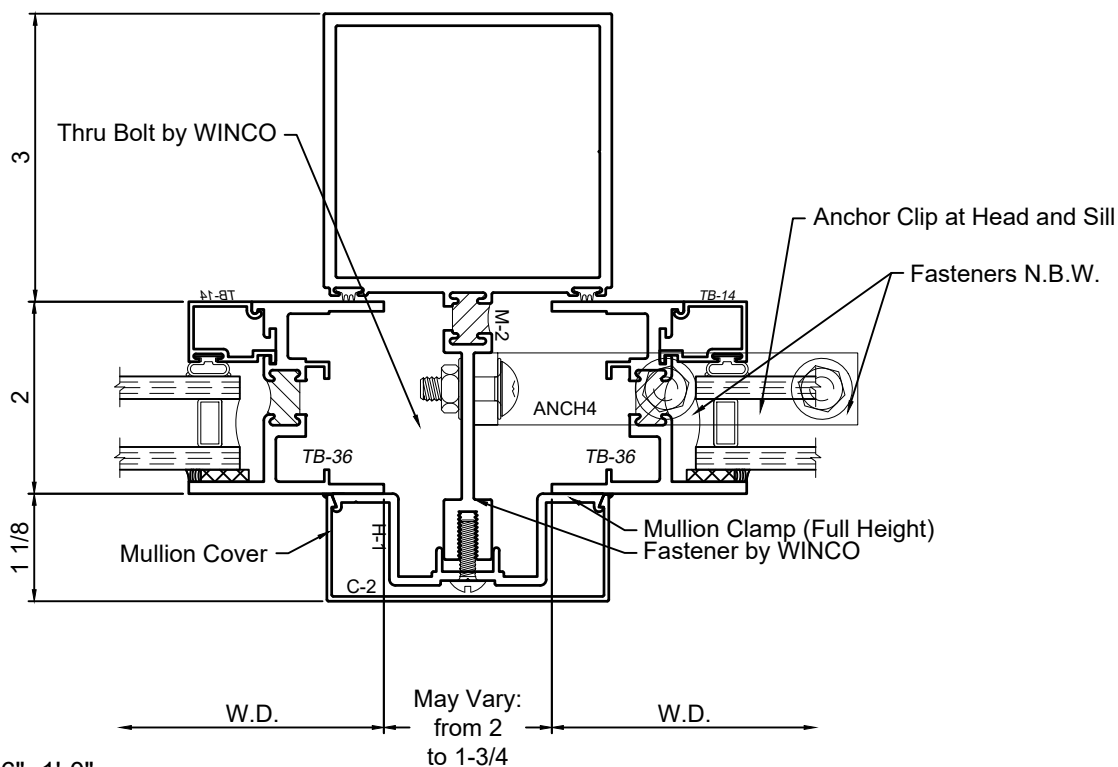
Product Details - Trim - Mullion



M-2 Mullion set from Building Interior



M-2 Mullion set from Building Exterior

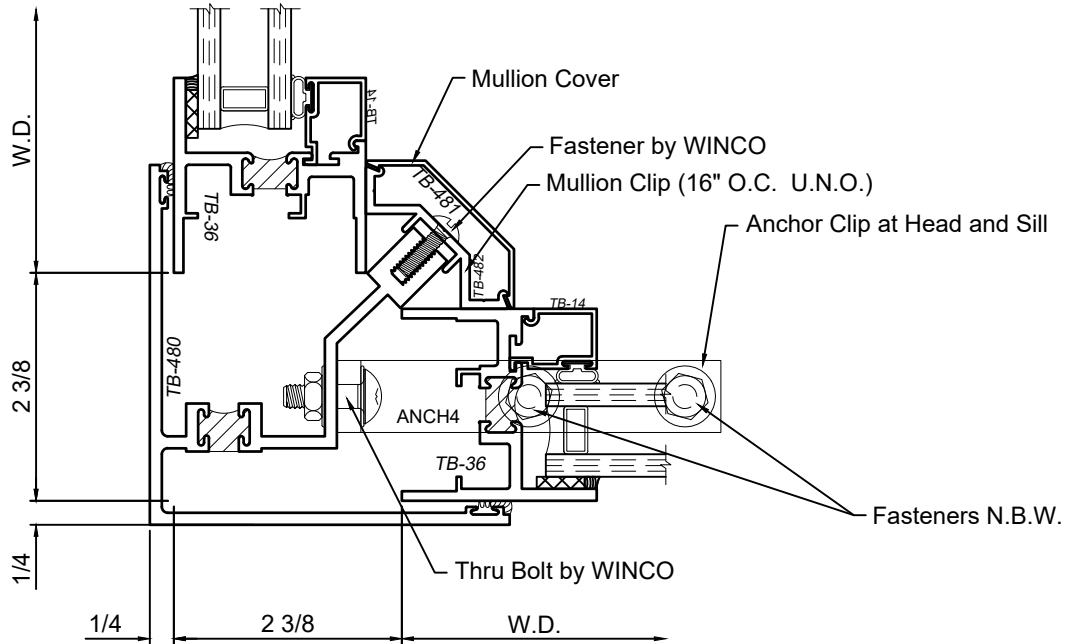


SCALE 6"=1'-0"

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TB-480 90° Corner Mullion



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SCALE 6"=1'-0"

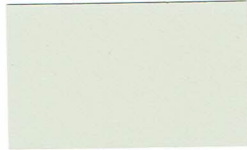


FINISHER OF CHOICE!™

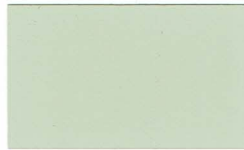
Standard Colors (* see note on back)



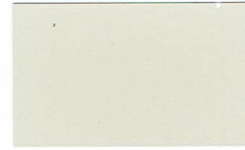
Bone White
LT609



Ivory
LT611



Sandstone
LT607



Burnt Sun
LT612



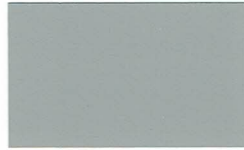
Sierra Tan
LT621



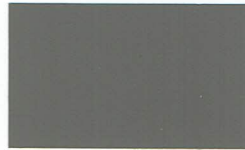
Beige
LT603



Light Seawolf Beige
LT614



Dove Gray
LT615



Slate Gray
LT604



Charcoal Gray
LT605



Patina Green
LT616



Dark Ivy
LT617



Hartford Green
LT606



Military Blue
LT610



Interstate Blue
LT623



Colonial Red
LT622



Boysenberry
LT608



Sage Brown
LT620



Quaker Bronze
LT602



Black
LT601

Premiere Colors (** see note on back)



Carnival Red II
LT726



Classic Copper
LT727



Champagne Pearl
LT728



Pewter
LT729



Silver
LT730

LINETEC

FINISHER OF CHOICE!

What makes Linetec the finisher of choice for so many manufacturers and specifiers?

From what they tell us, it's the reliability and quality that comes from working with an industry leader. As the nation's largest independent architectural finisher, Linetec offers liquid Kynar® and Hylar® PVDF coatings, powdercoat, and anodize finishes as well as a variety of other value-added services.

PAINTING

Linetec enjoys partnerships with PPG, Valspar, and Akzo Nobel, the leading manufacturers of high-performance architectural Kynar® and Hylar® PVDF coatings. With over 30,000 unique colors in our palette and the ability to match almost any color in-house, you can be assured that Linetec will provide the perfect color for your project.

UNLIMITED COLORS

Linetec's in-house computerized blending offers you an unlimited choice of colors in Kynar® and Hylar® PVDF coatings and baked enamel paints. We provide 48-hour custom color matching service and reliable lead times on custom color orders. Color consistency is exceptional from batch to batch and project to project.

QUALITY

Through the use of our 5-stage chrome pretreatment system and our highly automated paint line, Linetec is able to produce top quality finishes with consistent results. With this technology and our Quality Assurance team inspecting every job for color, mil thickness, appearance and multiple other performance specifications, you can be assured of the best possible finish.

AAMA PAINT SPECIFICATIONS

SOUTH FLORIDA WEATHERING

Color Retention
Gloss Retention
Erosion Resistance
Chalk Resistance

AAMA 2605

10 yrs - fade = 5 Delta E
10 yrs - 50% retention
10 yrs - 10% loss
10 yrs - chalk = 8

AAMA 2604

5 yrs - fade = 5 Delta E
5 yrs - 30% retention
5 yrs - 10% loss
5 yrs - chalk = 8

AAMA 2603

1yr - "slight" fade
No specification
No specification
1 yr - "slight" chalk

ACCELERATED TESTING

Salt Spray
Humidity

4,000 hours
4,000 hours

3,000 hours
3,000 hours

1,500 hours
1,500 hours

COMPLIANT SYSTEMS

70% Kynar 500® PVDF
70% Hylar 5000® PVDF

50% Kynar® PVDF
50% Hylar® PVDF

Baked Enamel

CARE & CLEANING

The Kynar® and Hylar® PVDF based products that meet AAMA 2604 and AAMA 2605 specifications are warranted to retain their color and gloss level for many years. To assure they retain their original beauty, these highly durable finishes should be cleaned occasionally. When selecting a cleaning solution use mild soap solutions; avoid using strong acid or alkali cleaners as they may damage the finish. For additional information regarding care and cleaning contact your Linetec representative or visit www.linetec.com.

With Linetec there is almost no limit to the paint colors available. We have the capabilities to in-house blend 70% Kynar 500® and Hylar 5000®, 50% Kynar® and Hylar®, and Baked Enamel paints. To view more paint selections: Valspar's, PPG's, and Akzo Nobel's paint cards are available via our website at www.linetec.com. Metal color chip samples can be ordered directly from our website.

* Standard Colors are two coat in-house blendable paints. Normal lead-times apply. Please indicate desired paint system when ordering (70%, 50%, or Baked Enamel).

** Premiere Colors require additional processing, lead-times, and cost. Please indicate desired paint system when ordering (70%, 50%, or Baked Enamel).

Expand your Architectural Options with Linetec



Winco Window Co
6200 Maple Ave
St. Louis MO 63130
800-525-8089

Range Color Sample

- | | |
|---|--|
| ☐ 110 Champagne | ☐ Light Range |
| ☐ 111 Light Bronze | ☒ Dark Range |
| ☐ 112 Medium Bronze | |
| ☒ 113 Dark Bronze | ☒ Class 1 |
| ☐ 115 Black | |
| ☐ 215 Clear | |

The color obtained in the Anodizing process is dependent on many factors such as Thickness, Alloy, Shape, Temper, etc.. Therefore it is impossible to produce a perfect color match. As a result color variation should be expected. These range samples are to show extreme color variation allowable in any project.