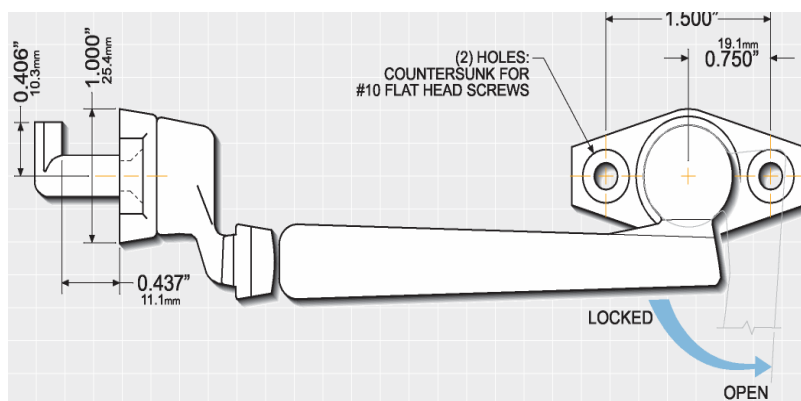


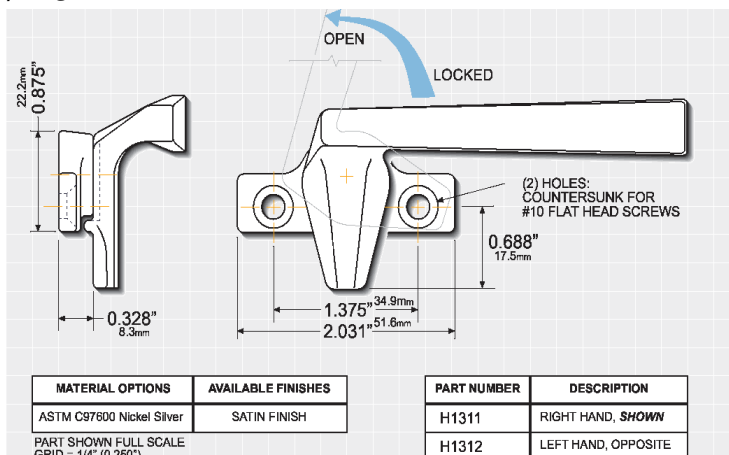
### H1010 PROJECT-IN HANDLE DLE



MATERIAL OPTIONS	AVAILABLE FINISHES
ASTM C97600 Nickel Silver	SATIN FINISH

PART SHOWN FULL SCALE  
 GRID = 1/4" (0.250")  
 ALL DIMENSIONS IN INCHES AND MILLIMETERS  
 NOMIAN DIMENSIONS PROVIDED DUE TO CASTING VARIANCE

### H1311/H1312 PROJECT-OUT HANDLE



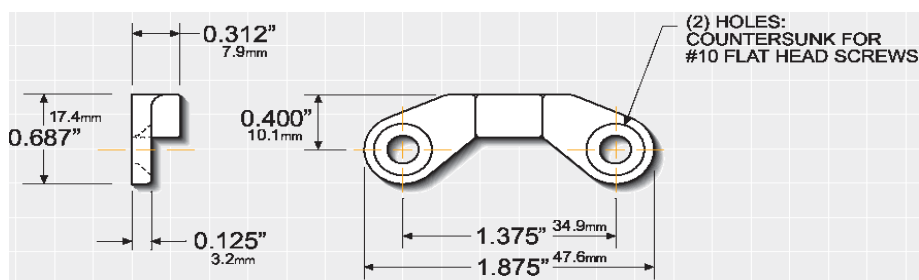
MATERIAL OPTIONS	AVAILABLE FINISHES
ASTM C97600 Nickel Silver	SATIN FINISH

PART NUMBER	DESCRIPTION
H1311	RIGHT HAND, <i>SHOWW</i>
H1312	LEFT HAND, OPPOSITE

PART SHOWN FULL SCALE  
 GRID = 1/4" (0.250")

ALL DIMENSIONS IN INCHES AND MILLIMETERS  
 NOMIAN DIMENSIONS PROVIDED DUE TO CASTING VARIANCE

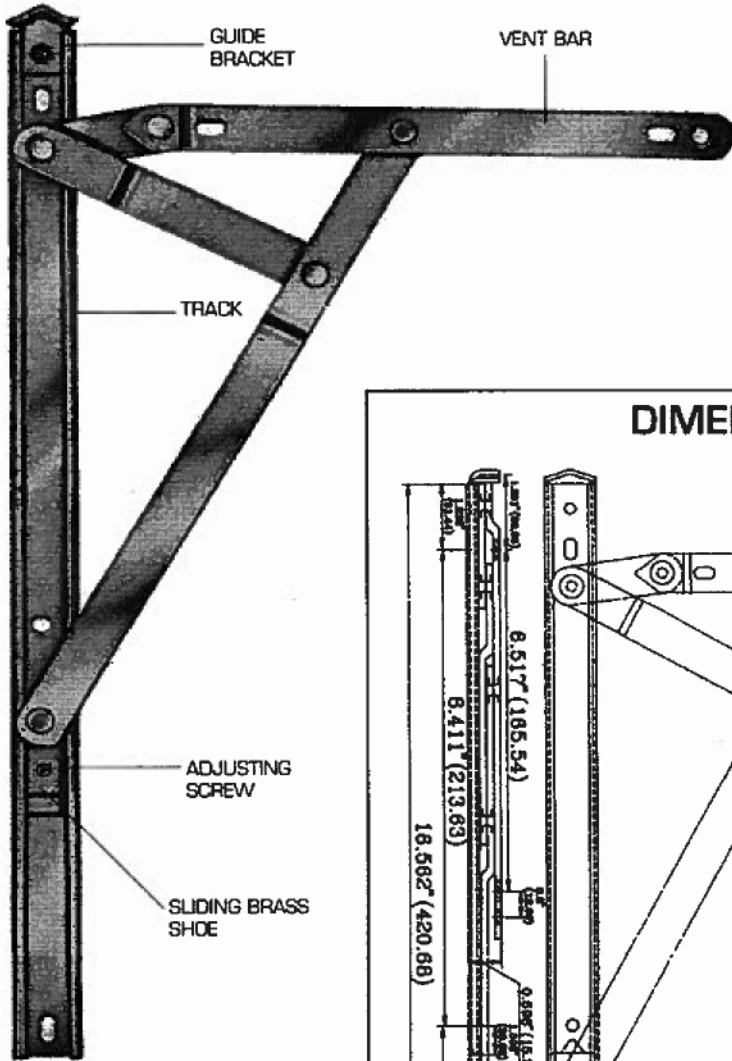
### S2502 STRIKE, PROJECT-OUT



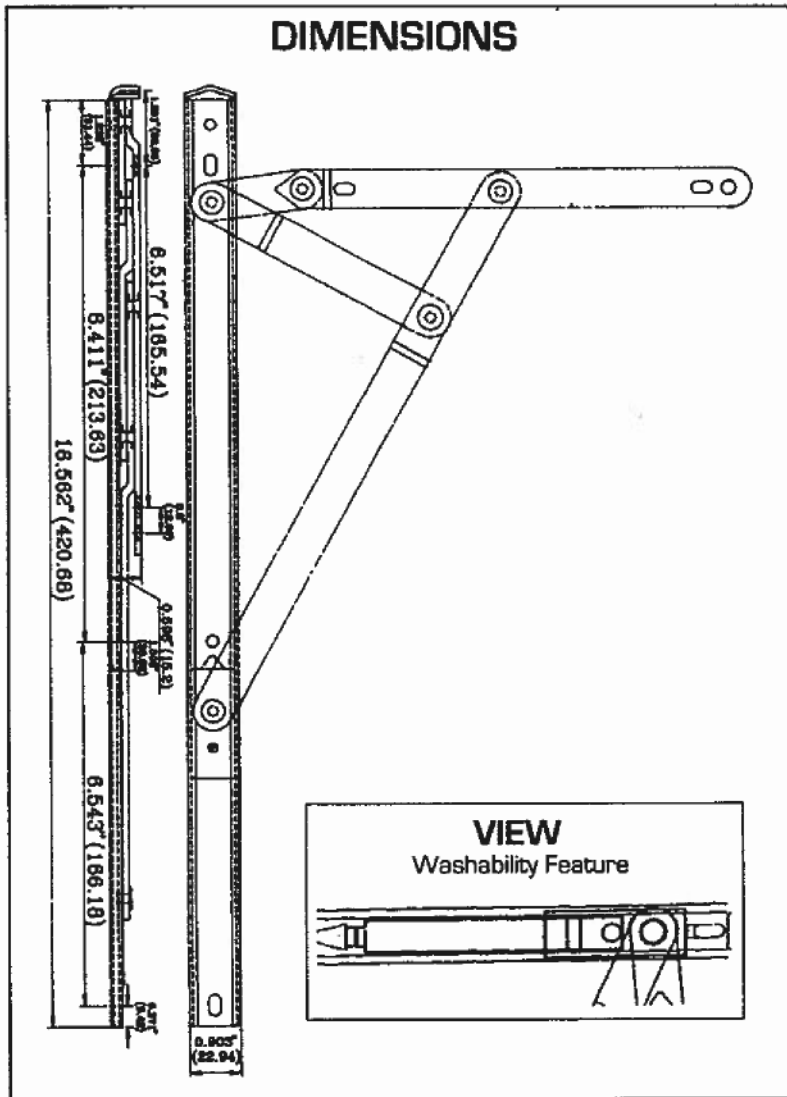
MATERIAL OPTIONS	AVAILABLE FINISHES
ASTM C97600 Nickel Silver	SATIN FINISH

PART SHOWN FULL SCALE  
 GRID = 1/4" (0.250")  
 ALL DIMENSIONS IN INCHES AND MILLIMETERS  
 NOMIAN DIMENSIONS PROVIDED DUE TO CASTING VARIANCE

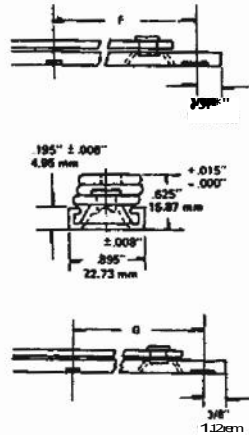
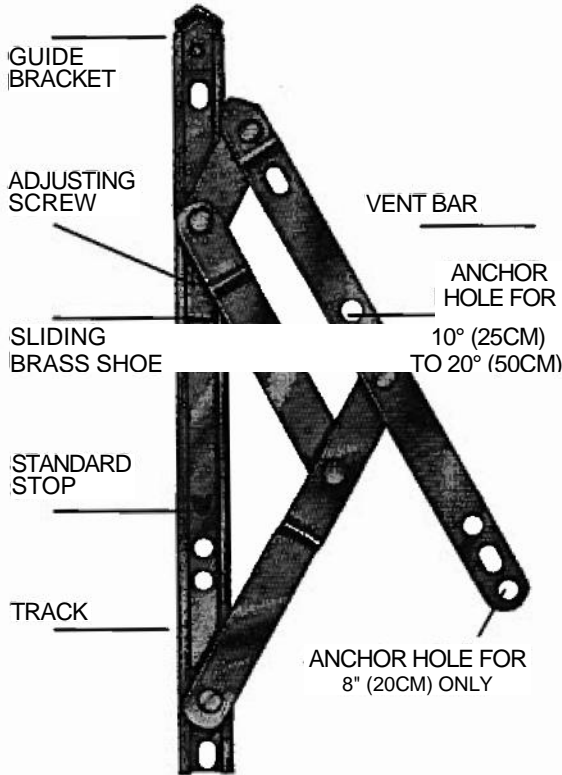
# CASEMENT HINGE 4305 SERIES



- Material: SS 3001400 Stainless Steel,
- Sliding Brass Shoe has Nylon Block for Screw adjustment of friction
- Nylon Washer between riveted joints



# FRICION HINGE 4302 SERIES



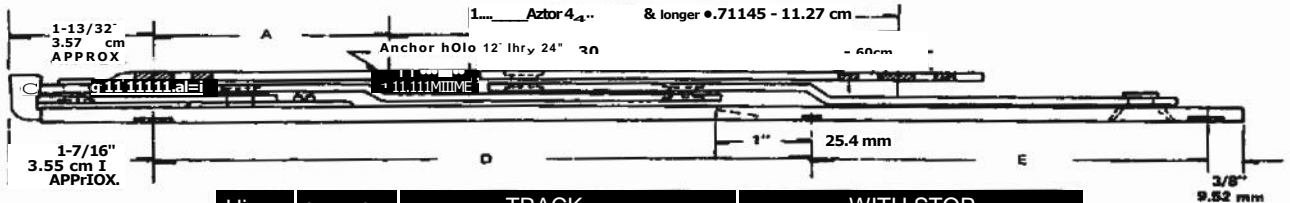
- Material: SS 300/400 Stainless Steel
- Available with or without Stop
- Sliding Brass Shoe has Nylon Block for Screw adjustment of friction
- Nylon Washer between riveted joints

Size	F
10" / 25 cm	1.375" / 3.49 cm
12" / 30 cm	1.625" / 4.12 cm
14" / 35 cm	2.125" / 5.39 cm
16" / 40 cm	2.625" / 6.66 cm
18" / 45 cm	3.125" / 7.93 cm
20" / 50 cm	3.625" / 9.20 cm
27" / 55 cm	4.125" / 10.47 cm

Size	G
16" / 40 cm	6.937" / 17.62 cm
18" / 45 cm	8.312" / 21.11 cm
20" / 50 cm	9.625" / 24.44 cm
22" / 55 cm	11.875" / 30.16 cm
24" / 60 cm	13.500" / 34.29 cm

WITH STANDARD STOP Hinge layout of hole centers for mounting

Hinge	Length	VENTILAKOR		BAR		Approx. Opening
10"	25 cm	2-9/16"	6.5 cm	6-1/2"	(16.5 cm)	581
12"	30 cm	2-9/16"	6.5 cm	4-15/16"	12.54 cm	521
14"	35 cm	2-9/16"	6.5 cm	5-15/16"	15.08 cm	481
16"	40 cm	2-9/16"	6.5 cm	6-15/16"	17.62 cm	491
18"	45 cm	2-9/16"	6.5 cm	7-15/16"	20.76 cm	491
20"	50 cm	2-9/16"	6.5 cm	8-15/16"	22.70 cm	491
22"	55 cm	2-9/16"	6.5 cm	9-15/16"	25.24 cm	451
24"	60 cm	2-9/16"	6.5 cm	10-15/16"	27.58 cm	450

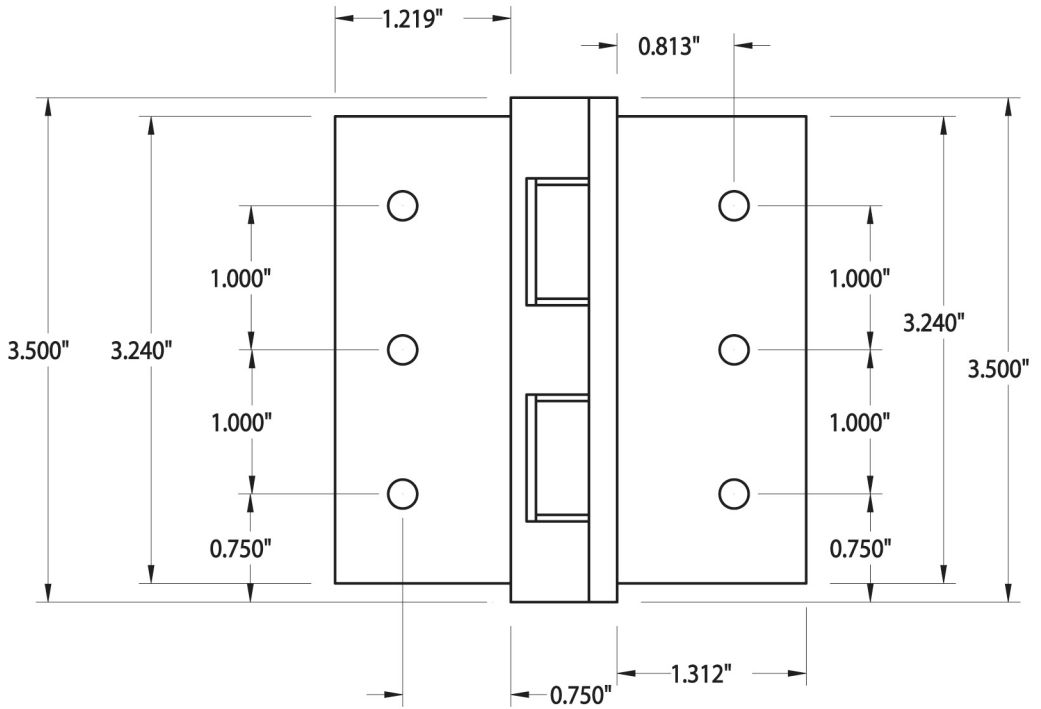
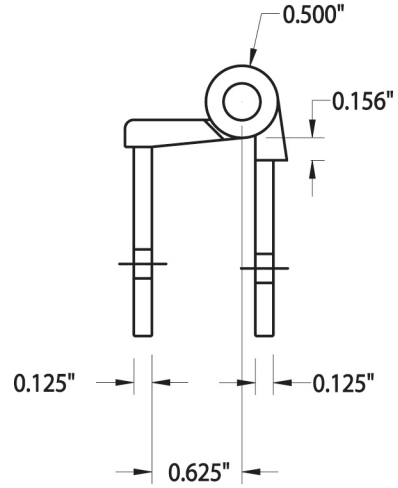
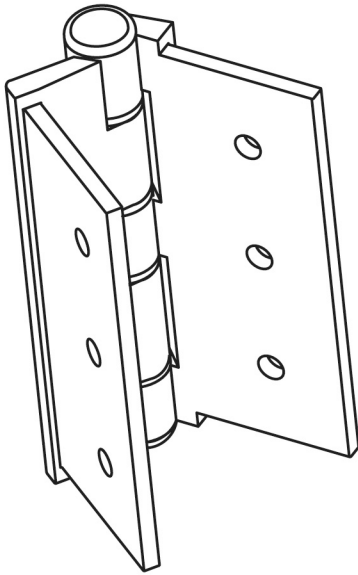


Hinge	Length	TRACK		WITH STOP	
10"	25 cm	6-11/32"	16.11 cm	2-1/4"	5.71 cm
12"	30 cm	6-19/32"	16.74 cm	4"	10.16 cm
14"	35 cm	6-15/16"	17.62 cm	5-21/32"	14.36 cm
16"	40 cm	7-21/32"	19.44 cm	6-15/16"	17.62 cm
18"	45 cm	8-9/32"	21.03 cm	8-5/16"	21.11 cm
20"	50 cm	8-31/32"	22.78 cm	9-5/8"	24.44 cm
22"	55 cm	8-23/32"	22.14 cm	11-7/8"	30.16 cm
24"	60 cm				

# BUTT HINGE

# ALUMINUM

NOTE: HINGE ASSEMBLY HAS 0.045" SPACERS BETWEEN KNUCKLES



SPECIFY FINISH WHEN ORDERING

PART NUMBER	DESCRIPTION
45057	SHOWN

MELRON CORPORATION

PART SHOWN  $\frac{3}{4}$ " SCALE.



Designed for face-mount applications on single vent awning windows, this operator's unique pivot shoe design allows approximately 10" of opening. The double arm design also helps achieve corner pull-in and sash stability of ventilator. Acetal pivot shoes slide smoothly in the track assuring positive operation and creating a self-cleaning action. Available in both front-mount and rear-mount styles. Also incorporating an adjustable stabilizing tab (optional), which helps reduce flexing of window frame during operation.

**LOGO OPTIONS:** Have you considered *personalizing* your window with your company name or logo? All of Truth's operator handles are capable of accepting your own "signature". Contact Truth for further details.

**WARRANTY:** Protected under the terms of the Truth Warranty for Window and Door Manufacturers and Authorized Distributors. Refer to Truth's Terms and Conditions for further details.

**MATERIAL:** High-pressure die-cast zinc case, crank handle and knob. Hardened steel worm and gear arm. Acetal pivot shoe. Non-magnetic stainless steel track. Optional stainless steel arms.

**CORROSION PROTECTION:** Truth's E-Gard® Hardware has a multi-stage coating process that produces a superior physical and aesthetic finish. Plus, it is resistant to a wider range of corrosive materials, including industrial cleaning materials and environmental pollutants. This proprietary process has been tested to be approximately three times better than common zinc plated finishes.

*For the severe conditions associated with coastal areas, Truth has stainless steel hardware. See Tech Note #7 for further information about corrosion protection and these special hardware options.*

**FINISH:** Electrostatically applied, durable coatings that provide excellent resistance to chipping, scratching and corrosion while maintaining color stability for years in direct sunlight. Please refer to Truth's Color Chart for examples of Truth's most popular finish options. Truth also offers a wide range of decorative "plated" finishes - contact Truth for additional information on availability of these finishes on specific product lines.



### ORDERING INFORMATION & OPTIONS:

1. Choose Operator style desired - specify by part number. See table within drawings for details.
2. Specify finish number.
3. Select mounting hardware (sold separately):

#11454 - Contour Handle (painted) or #10579 - Roto Gear Operator Handle - shown above (painted).

**Optional handle styles**, such as Truth's *Folding Handle*, are also available. Order Track separately - specify by part number. See table within drawings for details (2 per operator). #12789 - Stabilizing Tab Kit. #20947 - Backing Plate (2 per operator). #20189 - Backing Grommet (optional). #21306 - Protective red plastic spline cap (optional). #30171 - Rubber-cork adhesive backed gasket (optional).

### RECOMMENDED SCREWS:

Types of screws required determined by material of profile used. Refer to drawings for complete information on screw type and quantity needed (sold separately). For additional information regarding screw selection - see Truth Tips and Tech Note #11.

### TRUTH TIPS:

1. Operator mounting screws must pass through one PVC wall and Truth Backing Plates #20947 or one PVC wall and one insert wall. Track mounting screws must pass through two PVC walls or one PVC wall and one insert wall. For this reason, it is necessary to use a longer screw than is recommended.
2. When selecting mounting screws for Truth hardware, coating compatibility is one of the most important criteria. For best corrosion resistance the coating on the screws should be the same as the coating on the hardware. For more information see Tech Note #11.

3. This operator is intended for single vent applications only, and should not be used on multi-vent applications.

4. For accurate hardware replacement, pre-drilling is recommended.

5. Truth recommends that Backing Plates (#20947) and/or a Stability Tab (#12789) be used for added support to the operator in an effort to reduce the amount of flex experienced in many PVC Profile Systems.

6. For metal window profiles, Truth recommends machine screws.

However, in most applications, sheet metal screws will provide adequate holding power.

7. Butt Hinges can be used with the pivot shoe operator, however, some degree of sash chatter will usually occur. Chatter is caused by the weight of the window pushing the operator closed rather than the operator pulling the window closed.

8. A window operator alone provides poor forced entry resistance and must always be used in conjunction with sash locks when forced entry resistance is required.

9. The Pivot Shoe Operator can be used with all Truth 13 Series Awning and 4-Bar Hinges. To insure maximum operator efficiency, it is important that operator, hinge, and sash height is properly matched. Consult sash size table found in the Hinge section of the catalog.

### INCLUDE TRUTH SPECS ON YOUR NEXT WINDOW PROJECT

Window operators shall be provided which allow easy adjustment of window position. The mechanism should be crank operated and provide wide range of open positions. Connection to the movable sash should use pivoting slide shoes and stainless steel guide tracks.

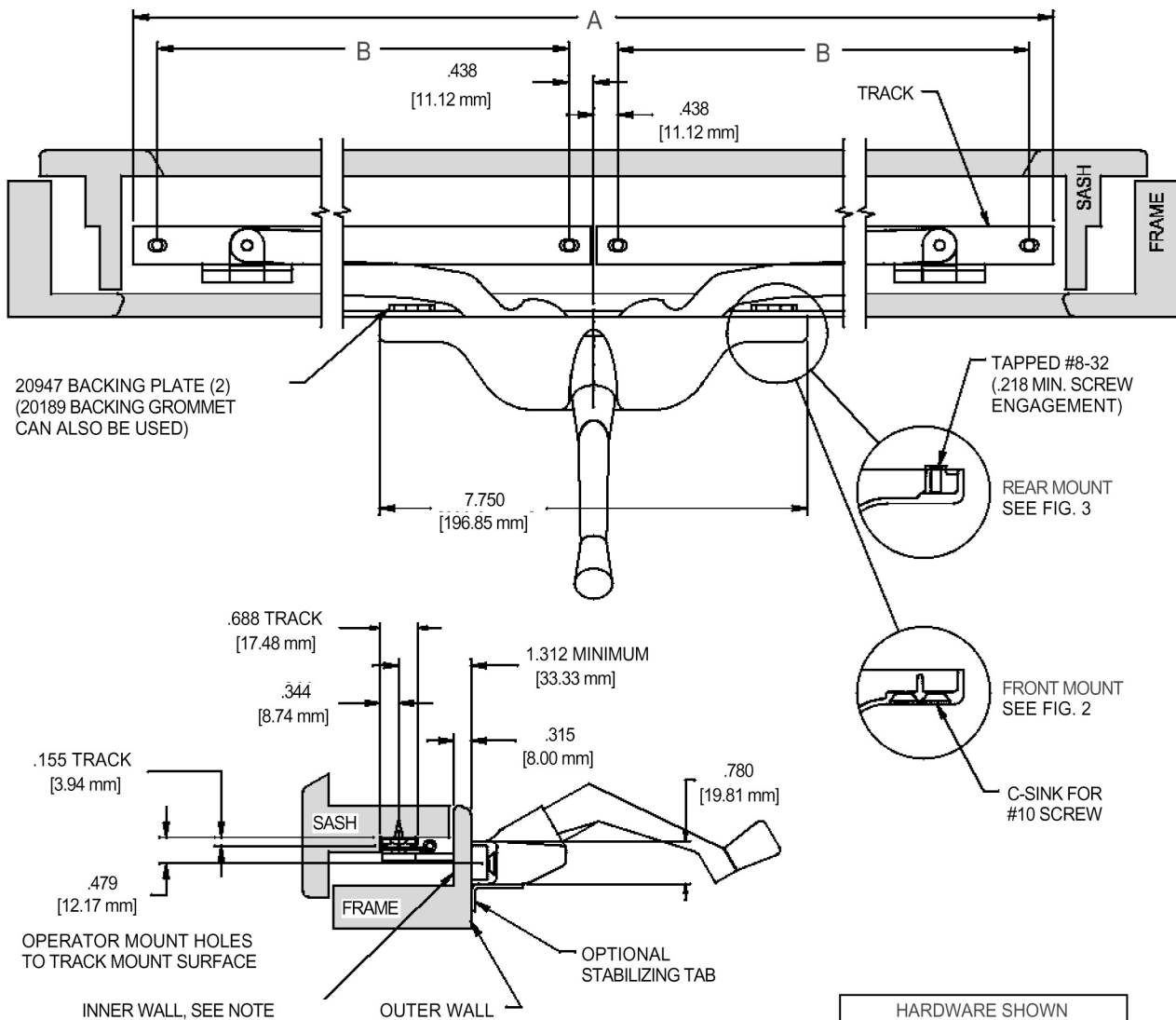
# PIVOT SHOE OPERATOR

Window operators will be of twin push arm design driven by hand crank. The operator must be constructed of E-Gard® components, hardened steel

worm and gear arms and high pressure zinc alloy die castings. Stainless steel shoe guide tracks.

Window Operators shall be 22 series Pivot Shoe Operator as manufactured by Truth Hardware, Owatonna, MN.

FIG. 1 APPLICATION OF 22 SERIES PIVOT SHOE OPERATOR



20947 BACKING PLATE (2)  
(20189 BACKING GROMMET  
CAN ALSO BE USED)

TAPPED #8-32  
(.218 MIN. SCREW  
ENGAGEMENT)

REAR MOUNT  
SEE FIG. 3

FRONT MOUNT  
SEE FIG. 2

C-SINK FOR  
#10 SCREW

OPERATOR MOUNT HOLES  
TO TRACK MOUNT SURFACE

OPTIONAL  
STABILIZING TAB

INNER WALL, SEE NOTE

OUTER WALL

HARDWARE SHOWN	
22.10	OPERATOR
30169	TRACK (2)
10579	HANDLE
20947	BACKING PLATE (2)

NOTE:  
INNER WALL MAY BE RELIEVED TO ALLOW SUFFICIENT ARM CLEARANCE IN THE CLOSED POSITION. RELIEF REQUIRED FOR CLEARANCE WILL VARY DEPENDING ON THE TRACK MOUNTING POSITION RELATIVE TO THE OPERATOR.

OPERATOR PART No.	ARM LENGTH	OVERALL LENGTH A	MOUNTING STYLE	STABILIZING TAB TO ORDER	RECOMMENDED TRACK	TRACK LENGTH B
22.10	11.00 (279.4mm)	27.75 (704.9mm)	FRONT	PART No. 12789	30169	13.00 (330.2mm)
22.17	5.50 (139.7mm)	16.75 (425.5mm)			31594	7.50 (190.5mm)
22.18	9.00 (228.6mm)	25.75 (654.1mm)			31322	12.00 (304.8mm)
22.19	11.00 (279.4mm)	27.75 (704.9mm)	REAR		30169	13.00 (330.2mm)

## SINGLE ARM OPERATOR (FACE-MOUNT)

Contemporary styling of Truth's face mounted Single Arm Operator complements the overall window design. Created for use with Truth's 14 Series Concealed Casement Hinges or 29 Series Butt Hinges. The Single Arm Operator provides arm movement for 90° of the window opening. These operators can also be used with Truth's 4-Bar Hinges. See Truth Tips for additional clarification.

### PRODUCT APPLICATION

**ASSISTANCE:** If you are designing a new window profile, or are having difficulty selecting hardware for your window, please contact Truth. Our highly trained Product Specialists can assist you with the selection of the appropriate hardware to meet your performance requirements, as well as providing personalized application drawings.

**LOGO OPTIONS:** Have you considered *personalizing* your window with your company name or logo? All of Truth's operator handles are capable of accepting your own "signature". Contact Truth for further details.

### WARRANTY:

Protected under the terms of the Truth Warranty for Window and Door Manufacturers and Authorized Distributors. Refer to Truth's Terms and Conditions for further details.

**MATERIAL:** High-pressure die cast zinc case, crank handle and knob. Hardened steel worm gear and gear arm. Non-magnetic stainless steel arm roller, rivet, sash track and screws.

### CORROSION PROTECTION:

Truth's E-Gard® Hardware has a multi-stage coating process that produces a superior physical and aesthetic finish. Plus, it is resistant to a wider range of corrosive materials, including industrial cleaning materials and environmental pollutants. This proprietary process has been tested to be approximately three times better than common zinc plated finishes.

*For the severe conditions associated with coastal areas,* Truth has developed certain product lines utilizing either **CoastGard® Hardware**, or stainless steel hardware. See Tech Note #7 for further information about corrosion protection and these special hardware options.



**FINISH:** Electrostatically applied, durable coatings that provide excellent resistance to chipping, scratching and corrosion while maintaining color stability for years in direct sunlight. Please refer to Truth's Color Chart for examples of Truth's most popular finish options. Truth also offers a wide range of decorative "plated" finishes - contact Truth for additional information on availability of these finishes on specific product lines.

### ORDERING INFORMATION:

1. Choose operator style desired (specify by part number).
2. Specify finish number.
3. Specify left- or right-hand (determined by the side the hinge is on when viewed from the inside). See Truth Tip # 1 for further information.

4. Select mounting hardware (sold separately):

#11454 - Contour Handle (painted) or #10579 - Roto Gear Operator Handle - shown above (painted).

**Optional Handle styles**, such as Truth's *Folding Handle*, are also available.

**Operator Track** - see Figures 2 & 3 for available track options.

#21306 - Protective red plastic spline cap  
Rubber-cork adhesive backed operator gasket (optional).

#32357 - 375 pcs per roll

#30174 - 400 pcs per box

#20947 - Backing Plate (2 per operator).

### RECOMMENDED SCREWS:

Types of screws required determined by material of profile used. Refer to drawings for complete information on screw type and quantity needed (sold separately). For additional information regarding screw selection - see Truth Tips and Tech Note #11.

### TRUTH TIPS:

1. 23 Series Single Arm Operators are handed by the hinge side when viewed from the inside (commercially handed).

2. Sash weight should be limited to 35 lbs. to insure ease of operation for the lifetime of the window. When used on a sash weighing over 35 lbs., operating torque will noticeably increase and operator life will be reduced.

3. Operator torque can be kept to a minimum by using an operator with the longest available arm that will fit a given window width.

4. Before selecting an operator, the hinge should be selected depending upon desired window features and hinge requirements (example: egress vs. washability).

5. If your window design requires the use of a 4-Bar Hinge and single arm operator, an egress 4-Bar Hinge must be used for proper operation. Single Arm Operators do not work well with 4-Bar Hinges that offer washability. If the window design requires a 4-Bar Hinge and washability is desired, then a 23 Series Dyad Operator should be used.

6. The Truth Single Arm Operator works well with a Butt Hinge. Always use an operator with the longest arm possible for best operation.

7. The Casement Single Arm Operators with 6" and 7.5" arms were designed for use on narrow sashes. A Truth Limit Device must be used when using one of these operators in combination with a Truth Egress Hinge.

**TRUTH TIPS (can't):**

8. This operator may be mounted closer to the lock side of the window to effectively limit opening and improve corner pull-in performance.

9. Truth recommends that a Snubber be used at the center of the hinge side on any casement window which has a tendency to bow outward at the center in the closed position. Adding a Snubber may increase the negative air pressure rating of a casement window.

10. When used in high rise applications of over two stories, Truth recommends using a Limit Device. (or see Tip #8)

11. For accurate hardware placement in vinyl or metal applications, pre-drilling of the window profile is recommended.

12. Operator mounting screws must pass through one PVC wall and Truth Backing Plates #20947 or one PVC wall and one insert wall. Track mounting screws must pass through two PVC walls or one PVC wall and one insert wall. For this reason, it is necessary to use a longer screw than is recommended.

13. Truth recommends that stainless steel screws be used to fasten stainless steel components to the window. When selecting mounting screws for Truth hardware, coating compatibility is one of the most important criteria. For best corrosion resistance the coating on the screws should be the same as the coating on the hardware. For more information see Tech Note #11.

14. For metal window profiles, Truth recommends machine screws. However, in most applications, sheet metal screws will provide adequate holding power.

15. Truth recommends that Backing Plates (#20947) be used for added support to the operator in an effort to reduce the amount of flex experienced in many PVC profile systems.

16. If air infiltration around the operator is a concern, the gasket (#30174) should be used.

17. A Spline Cap (#21306) is available to protect the operator splines from dirt and other windows from damage during shipping, installation, and final building construction.

**INCLUDE TRUTH SPECS ON YOUR NEXT WINDOW PROJECT**

Window operators shall be provided which allow easy adjustment of window position. The mechanism should be crank operated and provide smooth operation of egress or butt hinges. Connection to the movable sash must be easily detachable for window cleaning and maintenance.

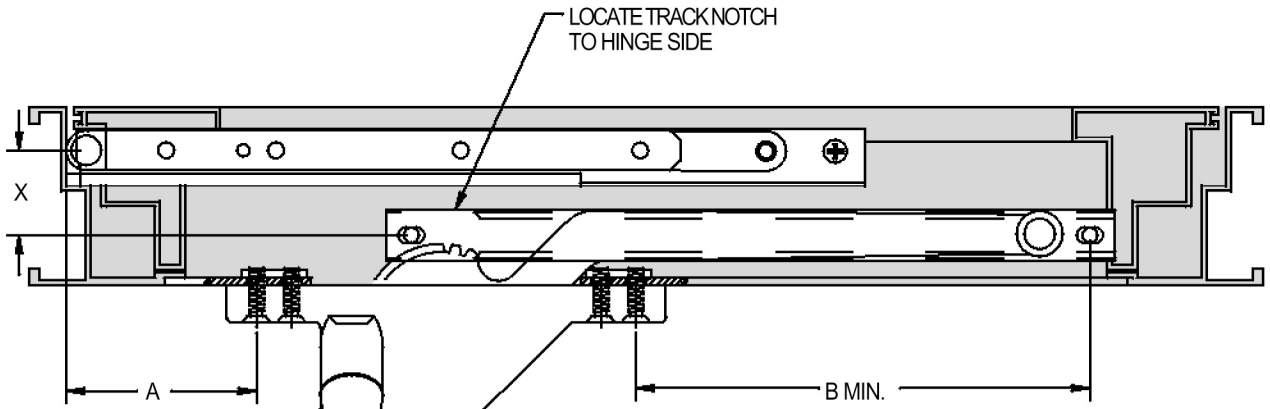
Window operators will be of single push arm design driven by a hand crank. The operator must be constructed of E-Gard® components, hardened steel worm and gearing and high pressure zinc alloy die cast housing.

Window Operators shall be 23 series Single Arm Operator as manufactured by Truth Hardware, Owatonna, MN.



# SINGLE ARM OPERATOR (FACE-MOUNT)

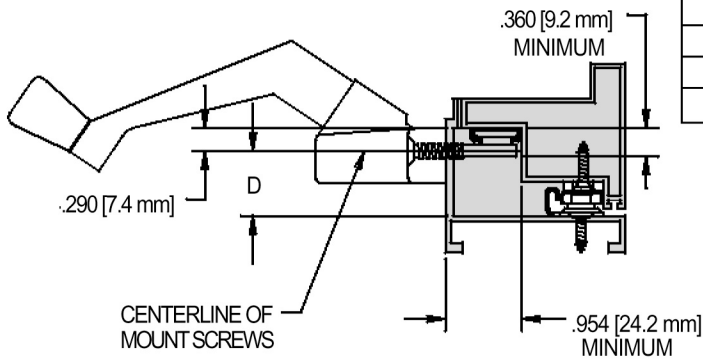
FIG. 1 APPLICATION OF THE 23 SERIES SINGLE ARM OPERATOR



HARDWARE SHOWN	
23.38	OPERATOR
14.77	HINGE
31002	TRACK
10579	HANDLE
20947	BACKING PLATE(2)

LEFT HAND SHOWN

APPLICATION TABLE FOR 90° SASH OPENING		
AVAILABLE HINGES	Y HINGE CONSTANT	D (MINIMUM)
14.05	3.939 [100.1mm]	.476 [12.1mm]
14.06	4.567 [116.0mm]	
14.75	3.939 [100.1mm]	
14.76	4.567 [116.0mm]	
14.77	1.311 [33.3mm]	
14.80	3.939 [100.1mm]	.562 [14.3mm]
35.10	.495 <sup>[12.6mm]</sup>	
35.11	.495 <sup>[12.6mm]</sup>	.627 [17.5mm]
35.12	.389 <sup>[9.9mm]</sup>	
35.13	.389 [9.9mm]	

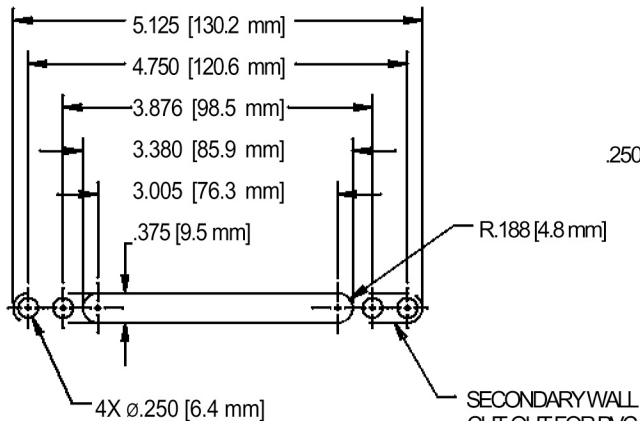


NOTE:

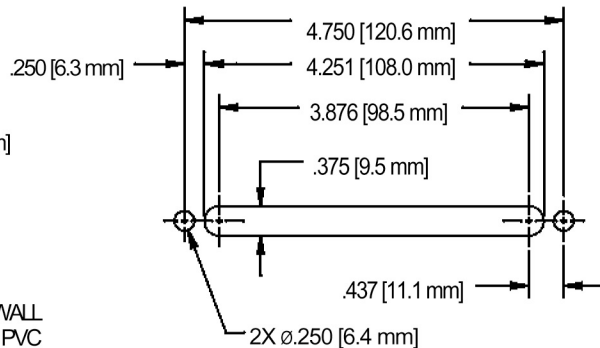
1. TO DETERMINE THE DIMENSION, FIRST DETERMINE WHICH HINGE IS TO BE USED, THEN DETERMINE THE HINGE CONSTANT, Y, FROM THE

ABOVE TABLE AND ADD IT TO THE DIMENSION

$$A = Y + X$$



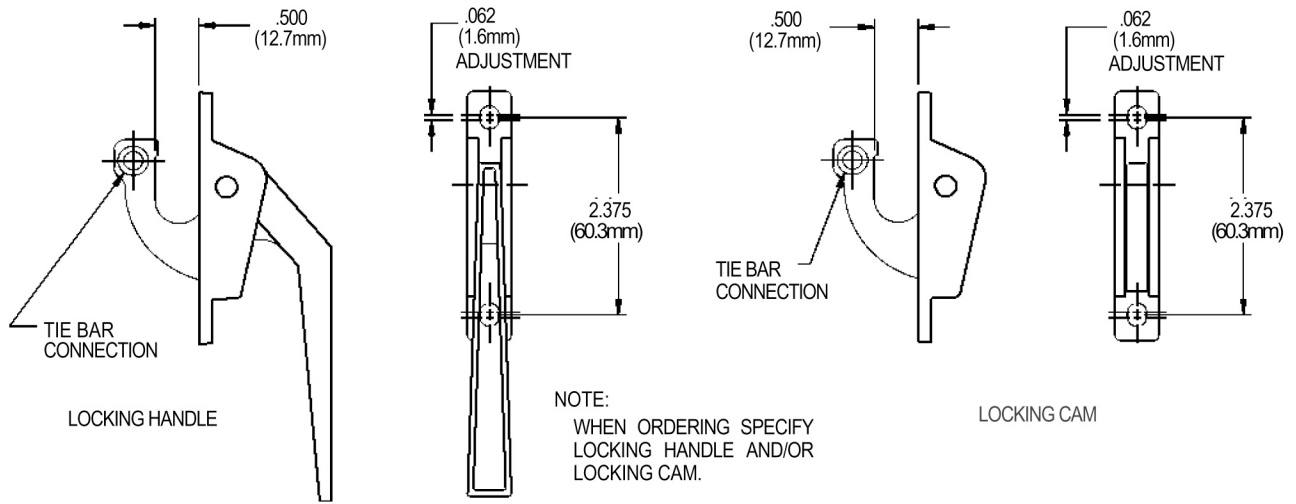
OPERATOR CUT-OUT



OPTIONAL OPERATOR CUT-OUT

# LOCKING HANDLE

FIG. 5 LOCKING HANDLE AND LOCKING CAM 24.13



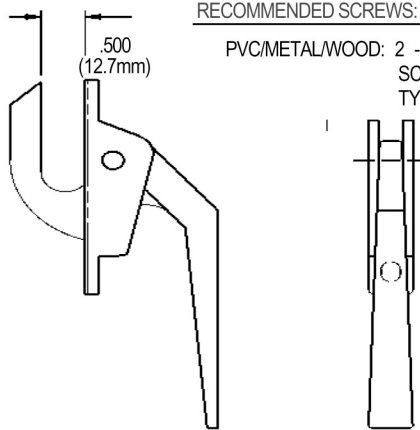
AVAILABLE KEEPERS	A	B	C
21087	.250(6.4mm)	.718(18.3mm)	1.0(25.4mm)
21088	.375(9.5mm)		
21089	.438(11.1mm)	.812(20.6mm)	
20800	.250(6.4mm)		
31376	.438(11.1mm)	.718(18.3mm)	
31384	.250(6.4mm)		

RECOMMENDED SCREWS:

PVC/METAL/WOOD: 2 - #10 PHILLIPS, PAN HEAD, SST SCREWS (LENGTH AND THREAD TYPE DETERMINED BY PROFILE)

FIG. 6 LOCKING HANDLE 24.23

NOTE:  
NOT TIE BAR COMPATIBLE.



RECOMMENDED SCREWS:

PVC/METAL/WOOD: 2 - #10 PHILLIPS, PAN HEAD, SST SCREWS (LENGTH AND THREAD TYPE DETERMINED BY PROFILE)

AVAILABLE KEEPERS	A	B	C
21087	.250(6.4mm)	.718(18.3mm)	1.156(29.4mm)
21088	.375(9.5mm)		
21089	.438(11.1mm)	.812(20.6mm)	
20800	.250(6.4mm)		
31376	.438(11.1mm)	.718(18.3mm)	
31384	.250(6.4mm)		

Designed to compliment Truth's window operators. The vertical movement of these handles lock and unlock the sash. Face-mounted and rear-mounted styles are available within this product line. For casement applications that may have a hard to reach second locking point, many of the #24 Series Locking Handles are able to use a Tie Bar which allows the two locking points to work in tandem. Consult the following tables for detailed information regarding the dimensional differences of each.

While a number of models are available from Truth, listed below are a few of the exciting characteristics of Truth's new #24.25 Locking Handle with its specially designed zinc die-cast handle and housing. The unique construction of this lock, with its *new gasket*, helps to produce a more insect-free, air-free and light-free seal.

**IMPROVED CAM DESIGN:**

The #24.25 locking cam has been redesigned with a slight taper to its nose to help improve keeper engagement, and to produce a smoother locking action with .437" (11.1 mm) pull-in. *Alignment indicators on the cam provide quick visual verification of keeper placement.*

**POSITIVE LOCKING ACTION:**

A strong detent in both open and closed positions creates a solid and secure feel to the #24.25 Locking Handle - no more "flopping" handles. Helps resist window opening during shipment.

**VARIETY OF COLORS:**

Available in a variety of standard colors to complement all window profiles. The new zinc housing is painted to match the handle which eliminates the possibility of color variances between the two components. A perfect match to your operator also.

**TANDEM OPERATION:**

For tandem locking operation, a concealed tie bar is easily adaptable. Unlike other models, this same model (#24.25) can be used in both tie bar and non-tie bar applications greatly reducing unnecessary cost and inventory.

**WARRANTY:**

Protected under the terms of the Truth Warranty for Window and Door

Manufacturers and Authorized Distributors. Refer to Truth's Terms and Conditions for further details.

**MATERIAL:** High pressure zinc die-cast locking handle and housing. Stainless steel strike. Aluminum tie bar.

**FINISH:** Electrostatically applied, durable coatings that provide excellent resistance to chipping, scratching and corrosion while maintaining color stability for years in direct sunlight. Please refer to Truth's Color Chart for examples of Truth's most popular finish options. Truth also offers a wide range of decorative "plated" finishes - contact Truth for additional information on availability of these finishes on specific product lines.

**ORDERING INFORMATION & OPTIONS:**

1. Choose Locking Handle style desired - specify by part number.
2. Select mounting hardware (sold separately).  
Stainless Steel Strikes - Specify by part number per your application requirements.  
Tie Bars - See table located in drawings for the Tie Bar that best meets your application.

**RECOMMENDED SCREWS:**

Types of screws required determined by material of profile used. Refer to drawings for complete information on screw type and quantity needed (sold separately). For additional information regarding screw selections - see Truth Tips and refer to Tech Note #11.

**TRUTH TIPS**

1. For accurate hardware placement in vinyl or metal applications, pre-drilling of the window profile is recommended.
2. For vinyl window applications, mounting screws should pass through two PVC walls, or one PVC wall and one insert wall. For this reason, it may be necessary to use a longer screw than is recommended.
3. Truth recommends that stainless steel screws be used to fasten stainless steel components to the window. When selecting mounting screws for Truth hardware, coating compatibility is one of the most important criteria. For best corrosion resistance the coating on the screws should be the same as the coating on the hardware.



4. For metal window profiles, Truth recommends machine screws. However in most applications, sheet metal screws will provide adequate holding power.

5. Keepers with positive pick-up tabs cannot be used in tie bar applications.

6. Truth recommends that a Snubber be used at the center of the hinge side on any casement window which has a tendency to bow outwardly at the center in the closed position. Adding a Snubber may increase the negative air pressure rating of the window.

**INCLUDE TRUTH SPECS ON YOUR NEXT WINDOW PROJECT**

Window locking handles shall be included which will increase both security and weather seal tightness. The locks must hold securely up to 200 lbs. of force per lock for negative air pressure and forced entry resistance.

Window sash locks will be used which provide up to .437" (11.1 mm) of pull-in. The lock must also allow tandem operation of two locks to meet ADA hardware height standards. The lock shall be constructed of high pressure zinc alloy die castings and utilize a stainless steel strike.

Window locks shall be 24 series, Locking Handle as manufactured by Truth Hardware, Owatonna, MN.