

Visuline® 2300 Series Non-Illuminated Display System



Wall Mount Installation

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Installation

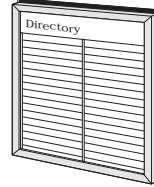
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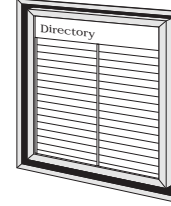
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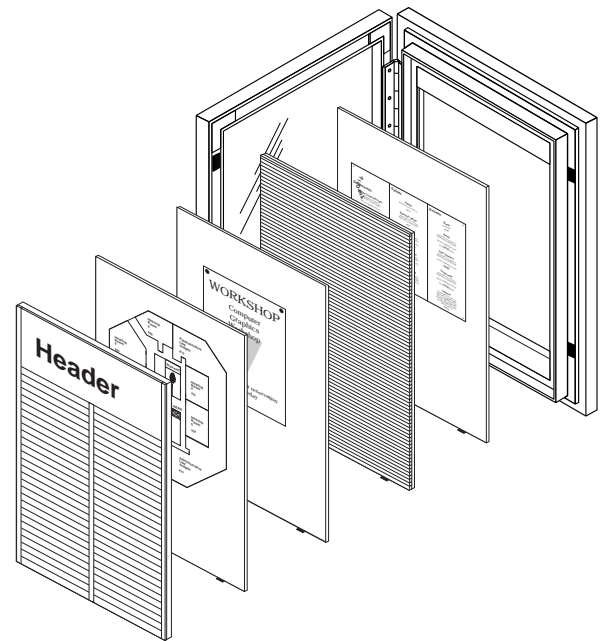
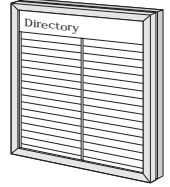
Semi-Recessed
Mounted
(2300.1 Series)



Full Recessed
Mounted
(2300.2 Series)



Surface Mount
(2300.3 Series)



Site Considerations

Mounting surface should be flat and plumb. Compliance will dictate whether Visuline door will function properly.

General Notes

The following general information will be helpful to you, but is not meant to cover all possible conditions and situations that may occur.

Because of widely varying site conditions, installation techniques must be determined on an individual basis. It should be understood that common sense, caution and care are factors which cannot be built into any product. These factors must be supplied by the actual person(s) installing and maintaining the product.

Handling

When handling large models you must *avoid racking and twisting*. Assure that you have the appropriate number of persons to accomplish this before removing the unit from its shipping crate.

It is recommended that the protective wrapping on the door remain until installation is complete. This will help prevent unwanted damage while handling.

Many models have sharp corners as a result of 45 degree miters. During handling, taping corners with masking tape will avoid both damage to unit and the risk of a cut or injury.

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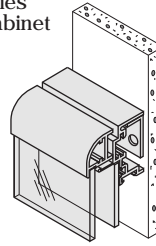
Mounting Surface Requirements

Surface Mounted (2300.3 Series)

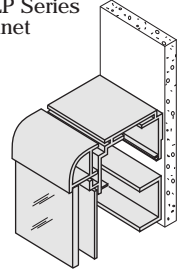
Mounting surface should be flat and plumb. An irregular surface may cause unit to "twist", resulting in possible door misalignment. Ample vertical support structure should be available within hollow wall surfaces. Wood studs are recommended. Metals studs should be reinforced with wood blocking. Displays mounted to solid wall surfaces (i.e. block, masonry, etc.) should be shimmed as required to maintain a plumb installation.

Surface Mounted

2300.3 Series
Visuline Cabinet



2300.3LP Series
LP Cabinet



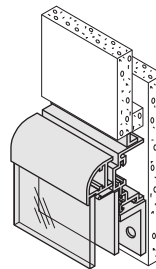
Recessed Mounted (2300.1 & 2300.2 Series)

Ascertain the wall cavity has been properly sized. It is important, especially for wide models, that the horizontal seat be smooth and level so that contact is even along the entire surface. This will prevent the unit from being racked and causing possible door misalignment. Refer to separate product Shop Drawings for specific height, width and depth requirements.

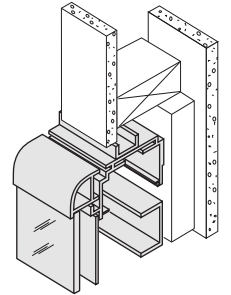
Assure there is appropriate vertical structure existing at the rear of the cavity. Wood supports should be used within the wall cavity. When metals studs are present, they should be reinforced with wood blocking. When cavity is backed by a solid surface (i.e. block, masonry, etc.), unit may need to be shimmed for a plumb installation. An even cavity depth should allow unit to anchor firmly thru the backside.

Semi-Recessed Mounted

2300.1 Series
Visuline Cabinet with
Standard 1/2" Reveal



2300.1LP Series
LP Cabinet with
Standard 1/2" Reveal



Semi-Recessed Mounted (2300.1 Series)

Standard 1/2" Reveal Trim:

Wall cavity must have *finished* edges and returns and be constructed square and plumb.

Full Recessed Mounted (2300.2 Series)

A 1" wide, full perimeter reveal is included with all full recessed displays and is required for proper door operation.

Standard 1" Continuous Angle Trim:

A 1" wide, full perimeter Continuous Angle Trim is attached to the perimeter reveal and is designed to capture (conceal) the cavity's *rough* edges and returns. Wall cavity must be within 1/4" of square and constructed plumb.

Optional 1/8" Flat Bar Trim:

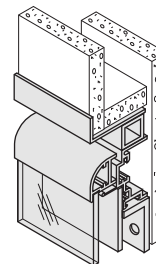
A 1/8" wide, full perimeter Flat Bar Trim is attached to the perimeter reveal and replaces the Continuous Angle Trim when the Continuous Angle is undesirable. Though the Flat Bar conceals the cavity returns, the cavity must be constructed square and its edges must be *finished*.

Optional Reveal Only:

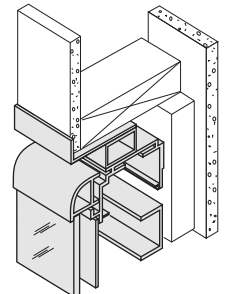
When space is limited, the reveal Trim can be eliminated. Wall cavity must have *finished* edges and returns and be constructed square and plumb.

Full Recessed Mounted

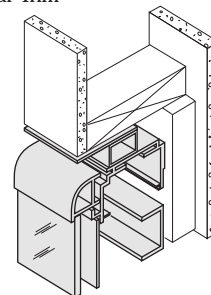
2300.2 Series
Visuline Cabinet with
Standard 1" Trim



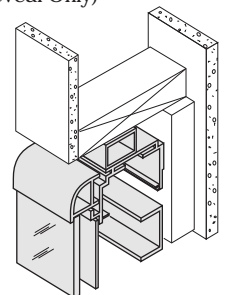
2300.2LP Series
LP Cabinet with
Standard 1" Trim



2300.2LP Series
LP Cabinet with Standard
1/8" Flat Bar Trim



2300.2LP Series
LP Cabinet with No Trim
(Reveal Only)



Visuline® 2300 Series Non-Illuminated Display System



Preparing to Install

Surface mounted modules utilizing the standard 2-3/4" thick Visuline cabinet (2300.3 Series), do not require preparation and are ready for installation.

For surface mounted modules utilizing the 3-1/2" deep LP cabinet (2300.3LP Series), proceed with the following instructions.

Open Door

To access the internal mounting structure, the door must first be opened. Units with optional door locks will have specific instructions applied to door face.

Dual Lock is an aggressive snap-locking device used with all door shapes. The door must be grasped at two positions as near as possible to the corners opposite the hinge side. (Refer to labels applied to door face.)

IMPORTANT: DO NOT attempt to open door by pulling only one corner as this could cause glass breakage or other door damage.

APCO Concealed Lock Option is a spring-loaded locking device hidden beneath the door frame. A special Concealed Lock Key is used to unlatch the door. (Refer to labels on door.)

Conventional Keyed Lock Option is either a plunger or camlock device which uses a common-type key. (Refer to labels on door.)

Side Hinged Doors:

Side hinged doors do not require door supports and must be held open while unit is laying flat. Exercise care not to "spring" the door by allowing it to open beyond 90 degrees.

Top Hinged Doors:

Smaller top hinged doors are equipped with support rods which pivot away from the cabinet to mate with a notch provided on backside of door frame. Care must be taken not to dislodge the rod(s) when door is open.

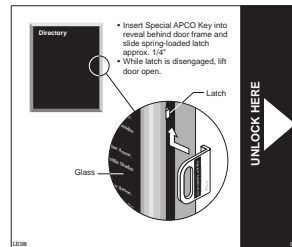
Larger and heavier top hinged doors are equipped with gas cylinder "assists". Keyed locks assure door remains closed. See Figure 3.

CAUTION: When cabinet is equipped with gas cylinder "assists", maintain pressure against door and use extreme care when opening. (See labels on door.)

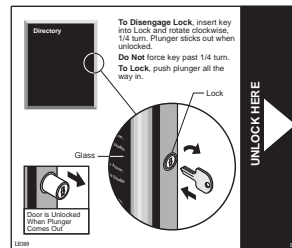
Open Door From Two Points



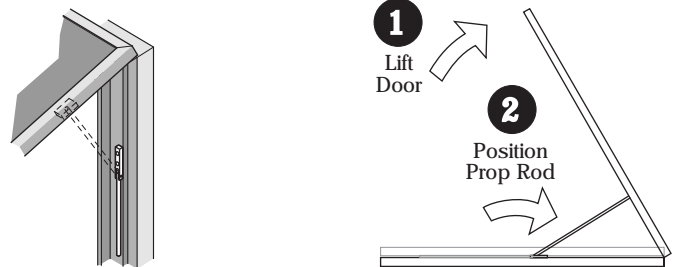
Concealed Lock Operation



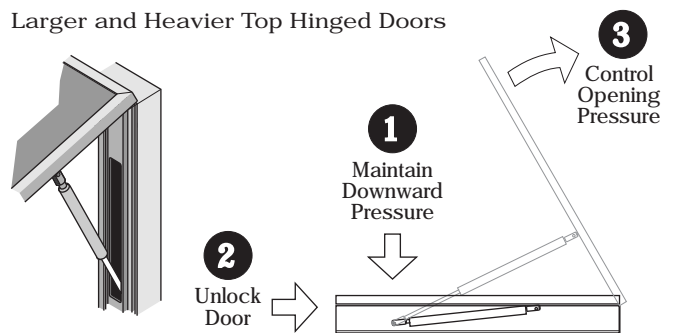
Conventional Keyed Lock Operation



Smaller Top Hinged Doors



Larger and Heavier Top Hinged Doors



Visuline® 2300 Series

Non-Illuminated Display System

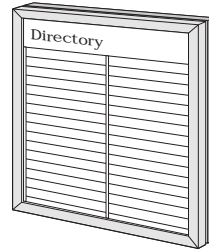


Remove Display Components

The surface mounted unit which utilizes the standard 2-3/4" thick Visuline cabinet (2300.3 Series), is the ONLY display that is shipped, ready to install. For all other Visuline series, the display components must be removed to expose the internal mounting structure.

The method which the display component is assembled and/or fastened into the cabinet, varies with each display option. When Visuline has different display components, there may be multiple fastening methods. The following are standard instructions for removing various display components.

NOTE: Retaining methods may vary from those shown. If you are not sure how to remove the display components, contact APCO at 404-688-9000.



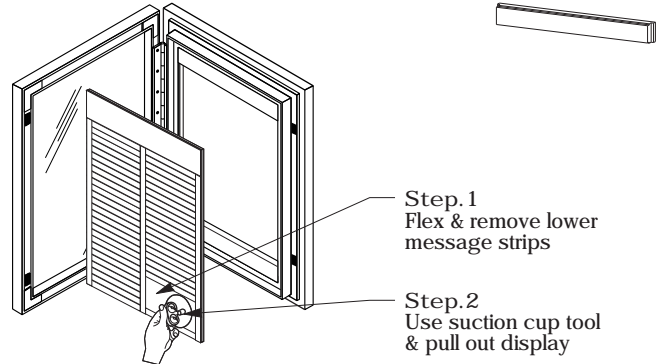
Surface Mount 2-3/4"
Visuline Cabinet
No preparation necessary.
Ready for installation

Directory

A Directory display with molded plastic message strips utilizes a one-piece acrylic back-up and is secured into the cabinet with velcro or preslock fasteners.

1. Remove 6 or so message strips from bottom right corner of display.
2. Using suction cup tool provided, grasp display backer and pull entire panel out of housing. **NOTE:** The bottom message strip in each column is permanent. Therefore, maintaining an upright position will keep messages from falling out.

Molded Plastic Message Strips



Step.1
Flex & remove lower
message strips

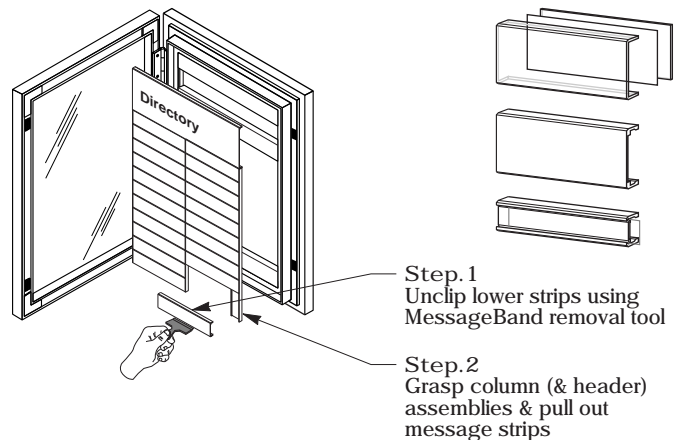
Step.2
Use suction cup tool
& pull out display

Directory

A Directory display with aluminum or plastic SignBands is constructed with removable columns. Each is secured into the cabinet with velcro or preslock fasteners.

1. Use Messageband removal tool provided and remove 2 or so Signbands from bottom of each column.
2. Grasp and pull columns out of housing. Note orientation of SignBands and columns to assure proper repositioning. Important: Far right column fabrication requires it to be replaced into its original location.

Aluminum & Plastic SignBands



Step.1
Unclip lower strips using
MessageBand removal tool

Step.2
Grasp column (& header)
assemblies & pull out
message strips

Visuline® 2300 Series

Non-Illuminated Display System



Remove Display Components

Maps and Plans

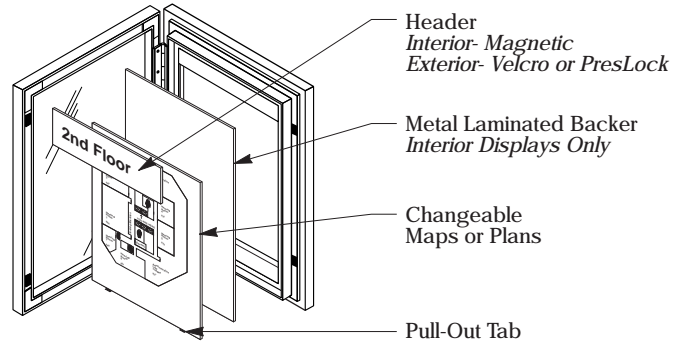
For interior applications, Maps and Plans are acrylic panels magnetically mounted to a metal backer. The backer is then fastened into the cabinet using Velcro or PresLock fasteners.

For exterior applications, Maps and Plans are laminated aluminum panels secured directly into the Visuline cabinet using Velcro or PresLock fasteners.

1. Grasp pull-out tabs provided at bottom of panel and pull entire display out of housing.
2. If pull-out tabs are not provided, Position suction cup tool in corner of display and gently remove map panel insert. Separate metal backer, used in interior applications, will be also be removed using suction cup tool.

CAUTION: Avoid over-bending acrylic inserts and metal backers as this may distort and/or destroy the material.

Maps and Plans

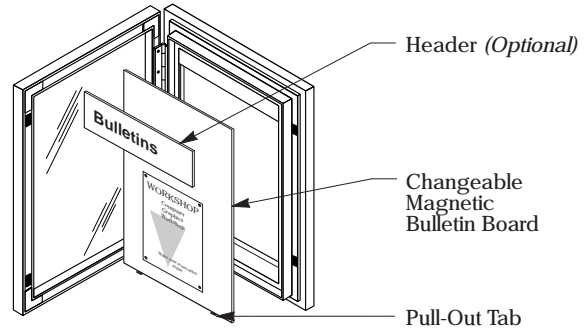


Magnetic Bulletin Board

For *Interior Applications Only*, Magnetic Bulletin Boards secure directly into the Visuline cabinet using Velcro or PresLock fasteners.

1. Grasp pull-out tabs provided at bottom of bulletin board display and pull entire panel out of housing.
2. If pull-out tabs are not provided, Position suction cup tool in corner of display and gently remove bulletin board.

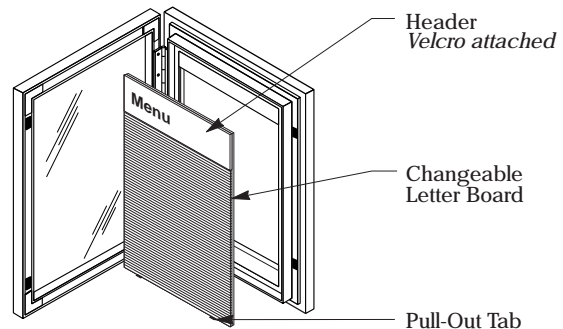
CAUTION: Avoid over-bending bulletin board display as this may distort and/or destroy the backer material.



Changeable Letter Board

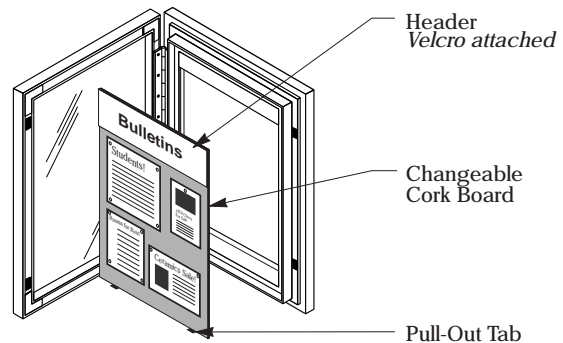
Changeable Letter Boards secure directly into the Visuline cabinet using Velcro or PresLock fasteners. To remove insert, grasp pull-out tabs provided at bottom of letter board display and pull entire panel out of housing.

Important: When exposed to continuous, direct sunlight, a display case can generate internal temperatures upwards of 200 degrees Fahrenheit. Such temperatures will distort almost any plastic material, including the press-in characters. APCO does not warranty products that fail under these conditions.



Cork Board

Cork Boards secure directly into the Visuline cabinet using Velcro or PresLock fasteners. To remove insert, grasp pull-out tabs provided at bottom of letter board display and pull entire panel out of housing.



Visuline® 2300 Series Non-Illuminated Display System



Installation- Surface Mount Visuline Cabinet (2-3/4" thick)

Upper and lower aluminum mounting angles are provided. The installer positions these angles against the mounting surface, drills mounting holes and secures with appropriate fasteners. Because of widely varying surface conditions, anchor hardware is provided by the installer. Fasteners should be specified by qualified persons based on mounting surface structure and should be installed in accordance with manufacturer's specifications.

APCO recommends a minimum of two (2) fasteners per mounting angle with one (1) additional fastener per each common stud width.

IMPORTANT: When handling large models you must *avoid racking and twisting*. Assure that you have an appropriate number of persons to support the unit during installation.

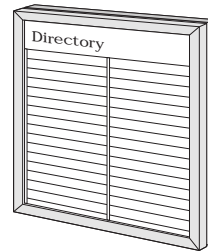
The standard Visuline cabinet housing is open on the backside. It is placed over the angles and secured with flat head screws along the top and bottom. Fasteners are virtually unnoticeable.

Installation

1. Locate one aluminum mounting angle where top of module is to occur. The 1" leg should protrude out from the mounting surface. The opposite leg is positioned downward. Assure angle is level. Drill mounting holes and secure upper angle to mounting surface using appropriate fasteners.
2. Temporarily rest Visuline onto top angle. Place a guide line onto the mounting surface along the bottom edge of the cabinet. Masking tape can be used to avoid marking the surface. Remove the unit.
3. Position lower angle approximately 1/8" above the guide line to assure angles are hidden once installation is complete. The 1" leg should protrude out from the mounting surface. The opposite leg is positioned upward. Anchor angle as required.

NOTE: For top hinged units with keyed lock(s), two or more lower mounting angles are provided. They should be installed left and right of each door lock.

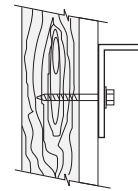
4. Position Visuline over upper and lower angles. Mark each angle using holes in cabinet housing as a guide. Remove unit.
5. Using the 9/64" drill bit provided, drill holes through upper and lower aluminum angles at points marked. A minimum of two holes should be drilled in each angle.
6. Relocate Visuline module over mounting angles and secure using #8 phillips, flat head screws provided.



Surface Mount Visuline Cabinet
(2-3/4" Thick)

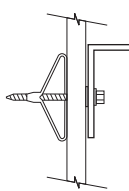
Fastener Suggestions

Dry Wall/Lag
Screws



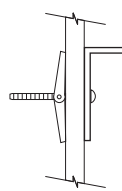
Hollow Walls with
Wood Studs: Dry
wall, gypboard, etc.

Star Anchors



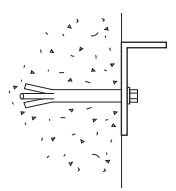
Hollow Walls:
Dry wall,
gypboard, etc.

Toggles

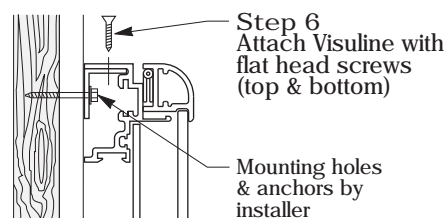
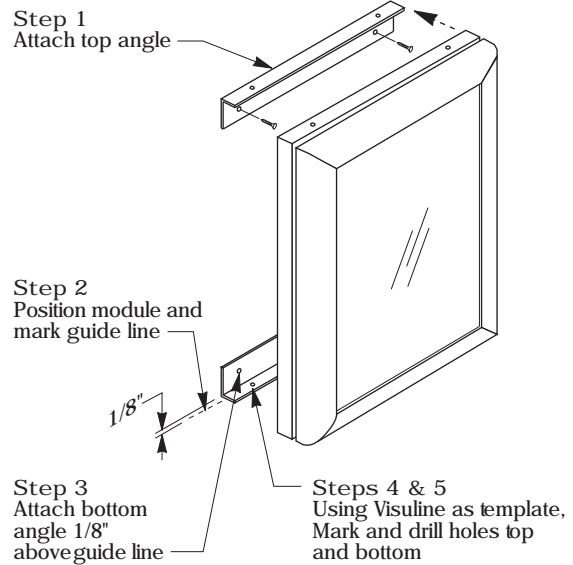


Hollow Walls:
Dry wall,
gypboard, etc.

Expansion
Anchors



Stone & Masonry
Walls: granite,
marble, brick,
concrete, etc.



Visuline® 2300 Series Non-Illuminated Display System



Installation- Surface Mount LP Cabinet (3-1/2" thick)

Horizontal bars are welded into display cabinets for mounting thru the backside. The installer drills mounting holes and provides necessary anchor hardware. Fasteners should be specified by qualified persons based on mounting surface structure and should be installed in accordance with manufacturer's specifications. DO NOT over-torque fasteners. This may distort the cabinet and cause door to function improperly.

APCO recommends a minimum of four (4) fasteners per unit with two (2) additional fasteners per each common stud width.

IMPORTANT: When handling large models you must *avoid racking and twisting*. Assure that you have an appropriate number of persons to support the unit during installation.

Installation

APCO recommends installer construct a full size template to match display size. Cardboard from the shipping crate can be used.

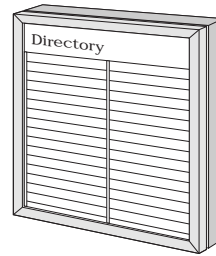
1. On the template, mark 2 vertical lines minimum 3" from left and right.
2. With door closed, carefully turn Visuline face down onto a protective surface. Place template onto backside of cabinet. Draw a line across the template at the center of each of the cabinet's horizontal mounting bars.
3. Position template against mounting surface. For hollow surfaces, locate and transfer wall stud locations onto horizontal template marks. For solid wall surfaces, select desired mounting points and transfer to template. In each case, ensure mounting points are between vertical template marks. Punch small holes in template at each mounting point.
4. Return the template to the backside of the Visuline and transfer each mounting point. Drill thru cabinet's horizontal bars at each hole marked. NOTE: Ensure clearance holes are the appropriate size to match anchor hardware.
5. Locate Visuline and anchor as necessary. If door fails to function properly, refer to Trouble Shooting Guide in this section.

Mounting to Metal Studs

Mechanical fasteners recommended for anchoring to metal studs are 1/4" diameter (minimum) machine screws, nuts and large fender-washers or preferably, 1/4" thick back-up plates.

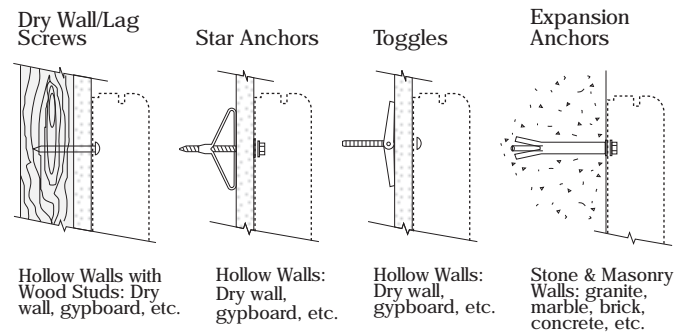
Access to metal wall studs are accomplished by sawing a 4" to 6" in diameter hole thru the mounting surface. A properly located hole provides access to multiple anchor locations. It is important that each hole be positioned so that it is concealed behind the unit once it is installed.

CAUTION: Care must be taken when drilling into any mounting surface to avoid contact with existing pipes, conduit and other utility lines.

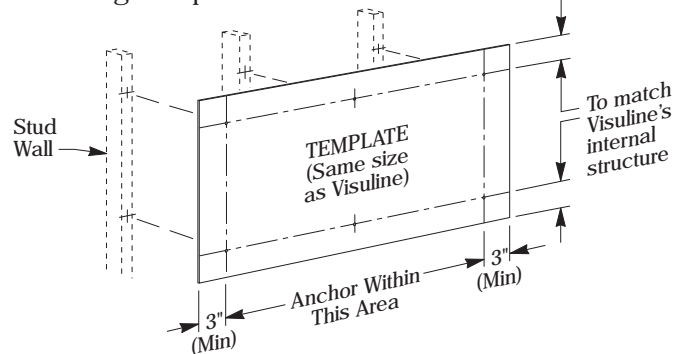


Surface Mount LP Cabinet
(3-1/2" Thick)

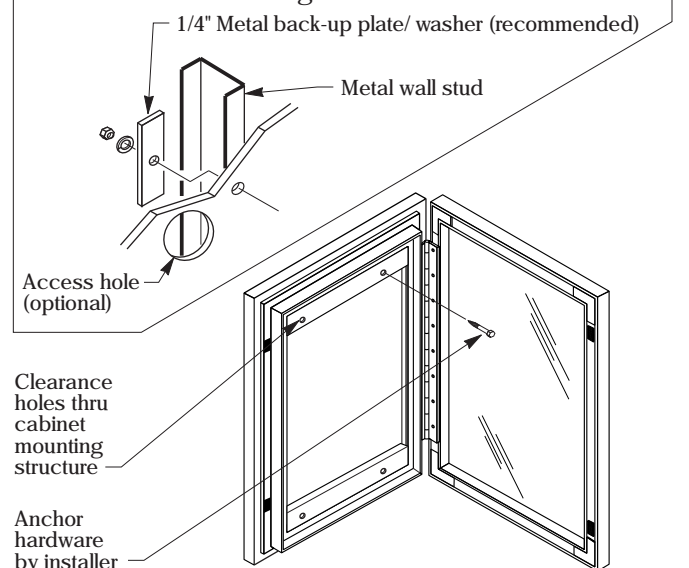
Fastener Suggestions



Mounting Template



Metal Stud Mounting



Visuline® 2300 Series Non-Illuminated Display System



Recessed Mounting

Cavity Requirements - Recessed Mounting (2300.1 & 2300.2 Series)
 Ascertain the wall cavity is the appropriate size. Product Shop Drawings illustrate recommended installation clearances. Cavity must be flat, plumb and level. Also assure there is appropriate structure existing on the backside for vertical attachment and on the bottom for horizontal seating.

It is important, especially for wide models, that the horizontal seat be smooth and level so that contact is even along the entire horizontal surface. This will support the unit and help prevent door misalignment.

Semi-Recessed and Full Recessed displays include internal, horizontal mounting structure. A snug fit of the cabinet within the cavity is important. Shim if necessary to accomplish a good fit. Hardware should be specified based on the mounting surface structure.

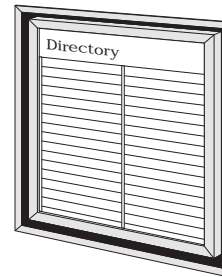
Conditions may require unit to be positioned temporarily so that mounting locations can be marked. The display would be removed so that pilot holes can be drilled. This may not be necessary when anchoring to wood studs.

IMPORTANT: When anchoring cabinet into cavity, DO NOT over-torque fasteners as this may distort the cabinet and cause the door to function improperly.

When opening a side hinged door, exercise care not to "spring" the hinge by allowing it to swing beyond 90 degrees. Also, DO NOT exert downward pressure on a door while open. For a top hinged door with prop rod supports, take care not to dislodge rods while handling. Gas cylinder operated doors will support themselves.



Semi-Recessed Mounting (2300.1 Series)



Full Recessed Mounting (2300.2 Series)

Fastener Suggestions

The most structural method of mounting a unit is to use lag screws and secure directly into wood studs. This method should be used whenever possible. Toggles and Star Anchors are standard type fasteners to use when a stud does not exist.

Various Expansion Anchors are available for mounting to stone or masonry. Be sure to follow manufacturer's installation suggestions.

Semi-Recessed Mounting (2300.1 Series)
 Before installing the Semi-Recessed Visuline, read "Cavity Requirements" above.

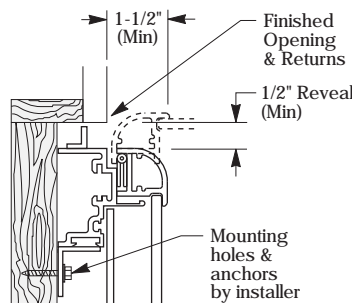
In a Semi-Recessed application, a 1/2" wide decorative reveal is secured to the outer cabinet perimeter. The cabinet mounts into a *Finished* opening with minimal installation clearance. Verify cavity opening is square by measuring diagonal from corner to opposite corner. These dimensions must be equal. Cavity opening and returns should be finished. Product Shop Drawings illustrate recommended installation clearances.

IMPORTANT: For door to operate properly and open 90 degrees, it must protrude a minimum 1-1/2" from the surrounding wall surface. Do not utilize the reveal or reveal trim as a structural support for mechanical fastening.

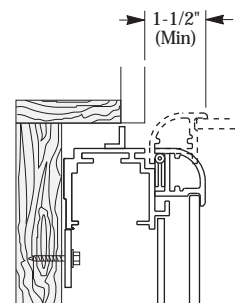


Semi-Recessed Mounting (2300.1 Series)

Visuline Cabinet



LP Cabinet



Visuline® 2300 Series Non-Illuminated Display System



Recessed Mounting

Full Recessed Mounting (2300.2 Series)
Before installing the Full Recessed Visuline, read "Cavity Requirements" on previous page.

In a Full Recessed application, a 1" wide by 1-1/2" deep reveal is secured to the cabinet, maintaining the necessary clearance for proper door operation. This space is continuous around the full perimeter and must not be obstructed.

IMPORTANT: Do not utilize the reveal or reveal trim as a structural support for mechanical fastening.

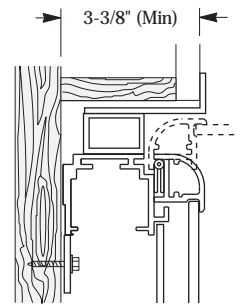
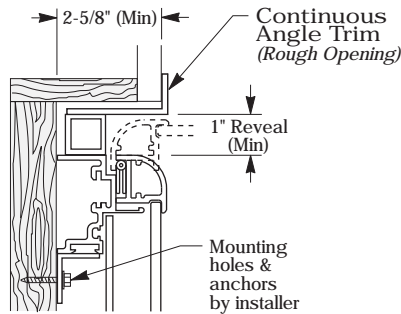


Full Recessed Mounting
(2300.2 Series)

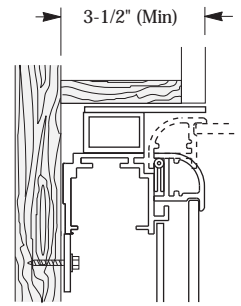
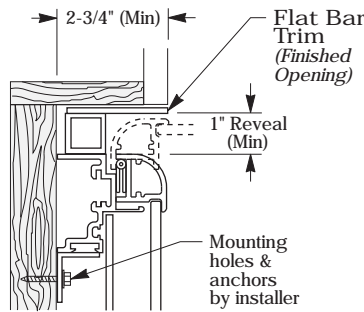
Continuous Angle Trim (Standard)
As a standard, full recessed Visulines are provided with a 1" wide Continuous Angle Trim. The trim is attached to the perimeter reveal and is used to conceal the cavity's *Rough* opening. Cavity opening should be squarely constructed to within 1/8". Verify by measuring diagonal from corner to opposite corner. Product Shop Drawings illustrate recommended installation clearances.

Visuline Cabinet

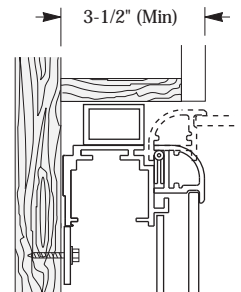
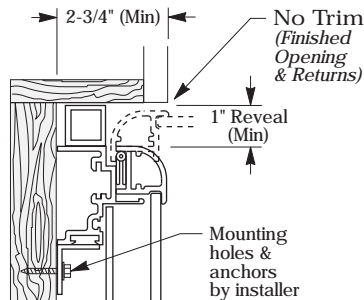
LP Cabinet



Flat Bar Trim (Optional)
When the 1" wide Continuous Angle Trim is undesirable, a 1/8" wide Flat Bar Trim can be used. Cavity will become a *Finished* opening. It will be smaller in size and must be constructed squarely. Measure diagonal from corner to opposite corner. These dimensions must be equal. Product Shop Drawings illustrate recommended installation clearances.



No Trim (Optional)
In those applications where decorative trim is completely undesirable, cavity opening and returns must be *finished*. Cavity must be constructed accurately in terms of both size and squareness. It will be important however, that the 1" reveal remains for proper door operation. Product Shop Drawings illustrate recommended installation clearances.



Visuline® 2300 Series Non-Illuminated Display System



Reassembly

Reassembly

1. Re-insert display panel/insert(s).

Before closing door, ensure the following;

Side Hinged Doors:

- Exercise care not to "spring" the hinge by allowing the door to swing open beyond 90 degrees.
- DO NOT exert downward pressure on an open door.

Top Hinged Doors:

- Ensure safety ribbons are secured to backside of door frame.
 - Disengage and relocate prop-rods if applicable.
 - For doors with gas cylinder "assists", apply even pressure to both ends while closing. DO NOT close by pushing on any one corner as this may distort the glass and possibly cause glass breakage.
2. Close and press door frame firmly. There should be an audible "click" as a result of the Dual Lock fasteners being engaged. If door fails to function properly, refer to Trouble Shooting Guide in this section.
 3. Remove remaining protective wrappings.
 4. Forward printed Maintenance Instructions to facility manager. For top hinged units, store padded corner guards and safety pylons for future servicing.

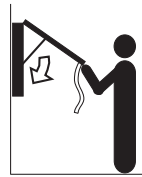
**NEVER LEAVE DOOR OPEN WHILE
UNATTENDED !**

Side Hinged Doors

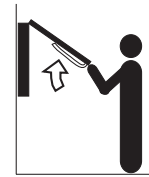


Do Not Exert
Downward Pressure
on Open Door

Top Hinged Doors Prop-Rod Door Support



Lift Door &
Disengage
Prop-Rods



Secure Safety
Ribbons



Close Door &
Listen For
Audible "Click"

Top Hinged Doors Gas Cylinder Door Support



Secure Safety
Ribbons



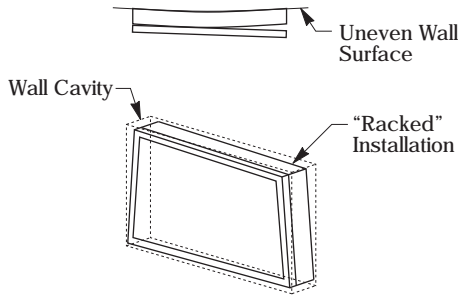
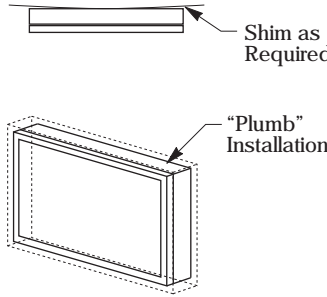
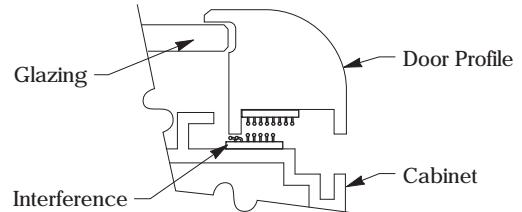
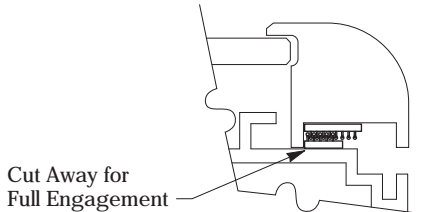
Close Door &
Listen For
Audible "Click"

Visuline® 2300 Series Non-Illuminated Display System



Trouble Shooting Guide

The following Trouble Shooting Guide is not meant to cover all possible factors but to evaluate known variables.

Problem	Possible Causes	Solution
<p>Door not closing</p>	<p>Unit may be “racked” due to false installation. The mounting surface may not be flat or the wall opening may not be plumb.</p>  <p style="text-align: center;">Incorrect</p>	<p>Verify all anchors are tight. If unit is racked, loosen mounting fasteners and shim as required.</p>  <p style="text-align: center;">Correct</p>
	<p>Standard Dual Lock locking device has been damaged. A visible sign is the majority of the interlocking prongs are pressed flat.</p>	<p>Dual Lock must be replaced. Consult factory for replacement instructions.</p>
	<p>The door profile is contacting the Dual Lock and not allowing the door to fully close.</p> 	<p>View the Dual Lock as the door closes. Note the area whereby the door makes contact. Damaged Dual Lock on cabinet face will be pressed flat. Use a sharp utility knife and carefully cut away this section until Dual Lock engages with an audible “click”.</p> 
	<p>Excessive force may have been applied to an open door, damaging the hinge rivets.</p>	<p>Remove and replace distorted rivets.</p>
	<p>Excessive force may have been applied to an open door, distorting the continuous hinge.</p>	<p>Hinge replacement is required. Consult factory for instructions.</p>
	<p>Door making contact with cabinet prior to fully closing.</p>	<p>Install a “Door Guide” at location of interference. Consult factory for instructions.</p>

Service & Maintenance Instructions
Service & Maintenance Instructions are provided with each unit and should be forwarded to the facility manager.

Need Technical Assistance
Telephone (404) 688-9000 and ask for APCO’s Installation Department or Engineering Department.