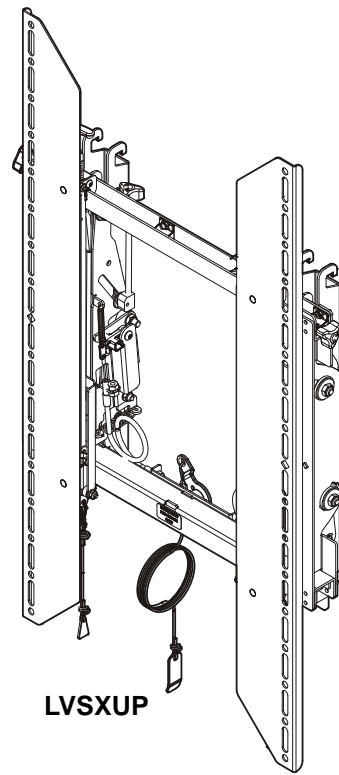
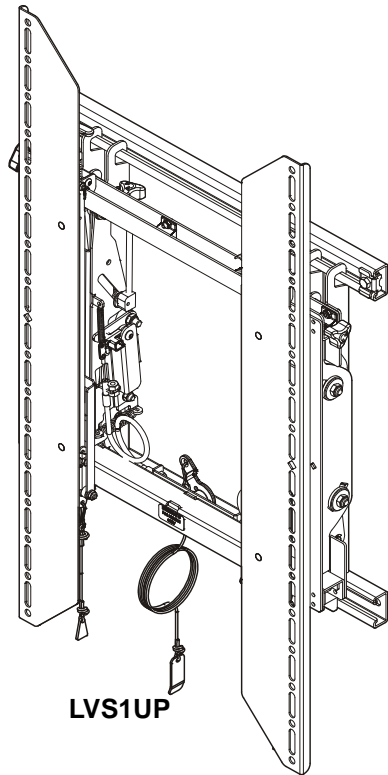


---

# INSTALLATION INSTRUCTIONS

---



---

## ConnexSys™ Portrait Video Wall Mounting System

---

## DISCLAIMER

Milestone AV Technologies and its affiliated corporations and subsidiaries (collectively "Milestone"), intend to make this manual accurate and complete. However, Milestone makes no claim that the information contained herein covers all details, conditions or variations, nor does it provide for every possible contingency in connection with the installation or use of this product. The information contained in this document is subject to change without notice or obligation of any kind. Milestone makes no representation of warranty, expressed or implied, regarding the information contained herein. Milestone assumes no responsibility for accuracy, completeness or sufficiency of the information contained in this document.

Chief®, ConnexSys™, RapidDraw™, and PowerZone™ are trademarks of Milestone AV Technologies. All rights reserved.



## IMPORTANT SAFETY INSTRUCTIONS



**WARNING:** A WARNING alerts you to the possibility of serious injury or death if you do not follow the instructions.



**CAUTION:** A CAUTION alerts you to the possibility of damage or destruction of equipment if you do not follow the corresponding instructions.



**WARNING:** Failure to read, thoroughly understand, and follow all instructions can result in serious personal injury, damage to equipment, or voiding of factory warranty! It is the installer's responsibility to make sure all components are properly assembled and installed using the instructions provided.



**WARNING:** Failure to provide adequate structural strength for this component can result in serious personal injury or damage to equipment! It is the installer's responsibility to make sure the structure to which this component is attached can support five times the combined weight of all equipment. Reinforce the structure as required before installing the component.



**WARNING:** Use this mounting system only for its intended use as described in these instructions. Do not use attachments not recommended by the manufacturer.



**WARNING:** Never operate this mounting system if it is damaged. Return the mounting system to a service center for examination and repair.



**WARNING:** Do not use this product outdoors.



**WARNING:** Exceeding the weight capacity can result in serious personal injury or damage to equipment! It is the installer's responsibility to make sure the combined weight of all components attached to the LVS1UP/LVXSUP does not exceed maximum weights listed in table below.

MODEL	Maximum Weight Allowed
LVS1UP	150 lbs (68.0 kg)
LVXSUP	150 lbs (68.0 kg)

**IMPORTANT ! :** The video wall system ships either with rails (LVS1UP) or without (LVXSUP). If you're installing a video wall of LVXSUP mounts you will need to provide the strut channel for mounting to the wall. (See **LET'S GET STARTED! Measurements You'll Need** section for further information.)

**IMPORTANT ! :** The LVS1UP/LVXSUP is designed to be mounted to:

- a bare 8" thick solid concrete wall. Fasteners must be placed a minimum of 16" (406mm) and a maximum of 24" (610mm) apart **AND** within 4" (102mm) of each end of the rail/strut channel.
- a 5/8" minimum thickness plywood-backed, steel stud wall covered with drywall having a maximum thickness of 5/8". **Five** fasteners must be evenly spaced in the top rail/strut channel along the width of the display with at least 3-1/2" (89mm) spacing between each fastener **AND** within 3-1/2" (89mm) from each end of rail/strut channel. Repeat to secure bottom rail/strut channel.
- a 2" x 4" wood stud wall covered with drywall having a maximum thickness of 5/8". Fasteners must be placed a minimum of 16" (406mm) and a maximum of 24" (610mm) apart **AND** within 4" (102mm) of each end of the rail/strut channel.

**NOTE:** For installation on a curved wall, the wall radius must be greater than 200" (508cm).

**--SAVE THESE INSTRUCTIONS--**

**TABLE OF CONTENTS**

IMPORTANT SAFETY INSTRUCTIONS .....2

TABLE OF CONTENTS .....3

LEGEND .....4

DIMENSIONS .....5

TOOLS REQUIRED FOR INSTALLATION .....6

PARTS .....6

LET’S GET STARTED! Measurements You’ll Need .....7

MOUNTING PATTERN OFFSET CALCULATION .....8

STRUT CHANNEL REQUIREMENTS (LV SXUP) .....8

CURVED VIDEO WALLS ON FLAT WALL .....9

    Calculating Wall Radius .....9

ALLOWING SPACE FOR MOUNT ADJUSTABILITY.....9

ATTACHING STRUT CHANNEL OR RAIL .....10

HANGING LVS1UP/LV SXUP MOUNT ON RAIL/STRUT CHANNEL.. 11

    Preparing Strut Channel (LV SXUP only) ..... 11

    Hanging Mounts ..... 11

INSTALLING INTERFACE BRACKETS .....12

ADDING DISPLAYS TO MOUNTS .....12

ADJUSTMENTS .....13

COMPLETING THE INSTALLATION .....15

    Cable Management Clips ..... 15

    Security ..... 15

SERVICE .....15

    Extending and Retracting Mount ..... 15

    Interface Bracket Kickstands ..... 15

    RapidDraw Display Release ..... 16

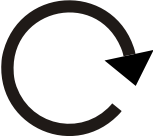

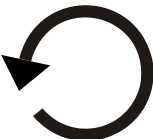









FASTENER INSTALLATION METHODS .....16

    Wood Stud ..... 16

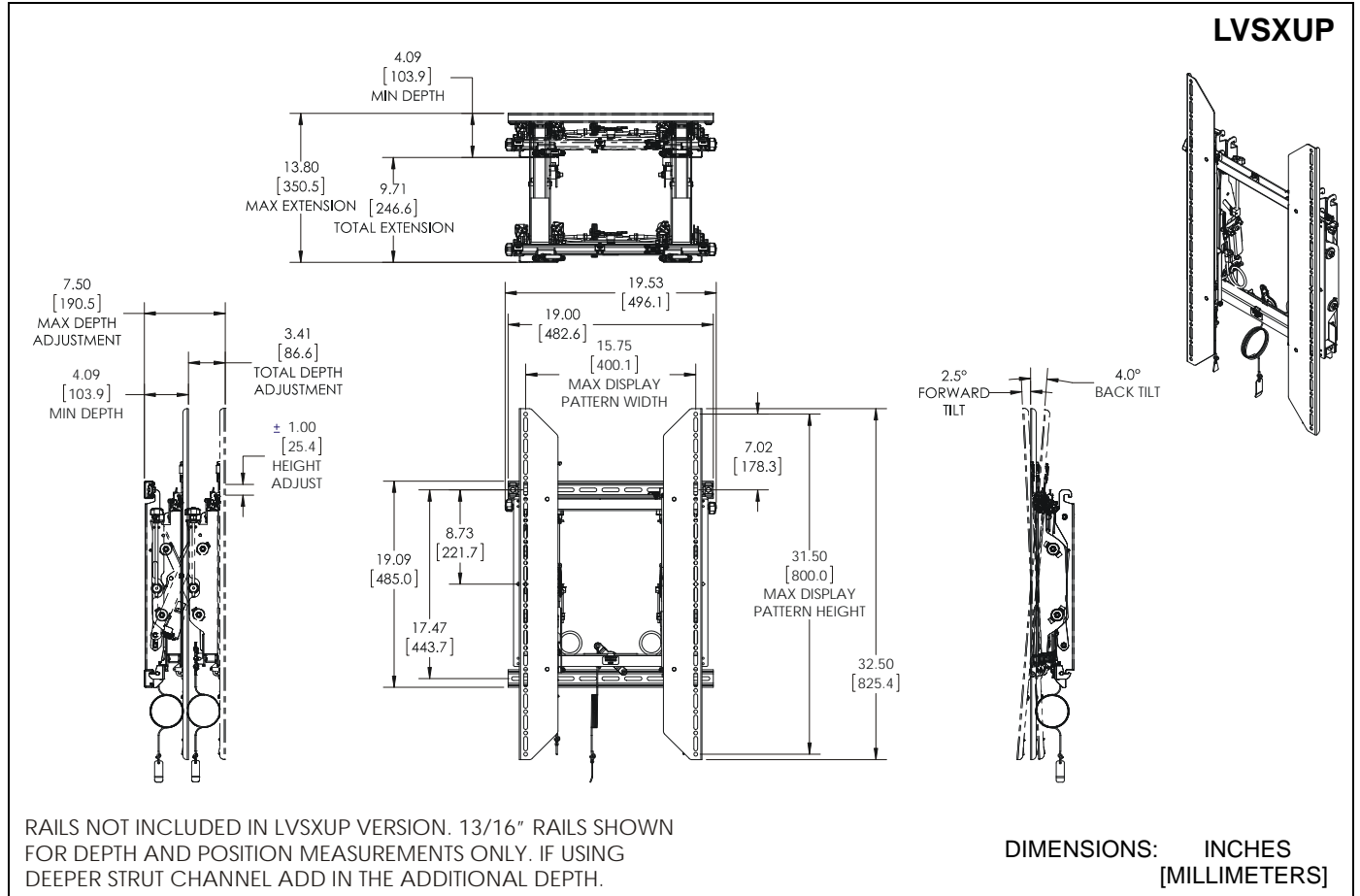
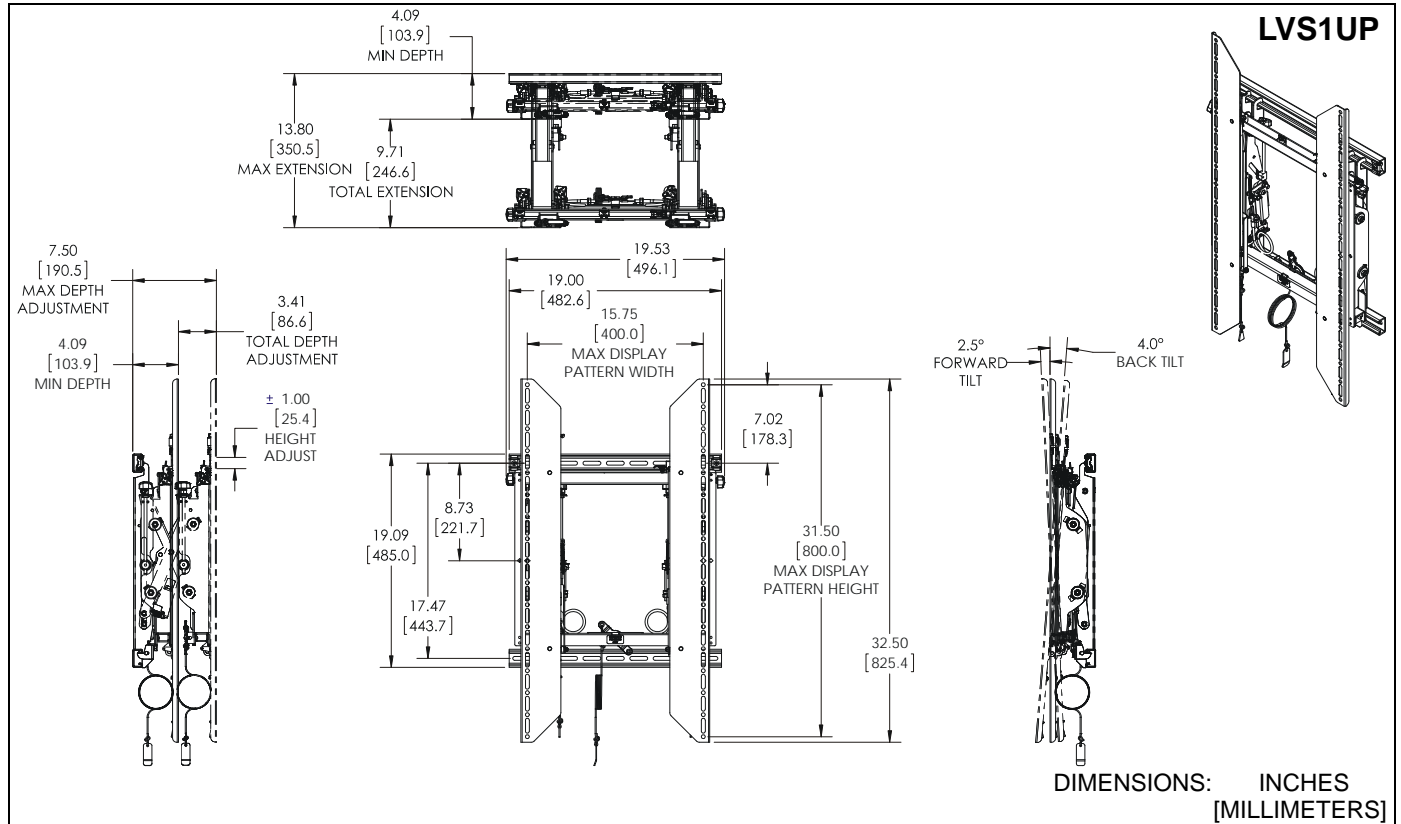
    Concrete ..... 16

    Plywood-Backed Steel Stud ..... 17

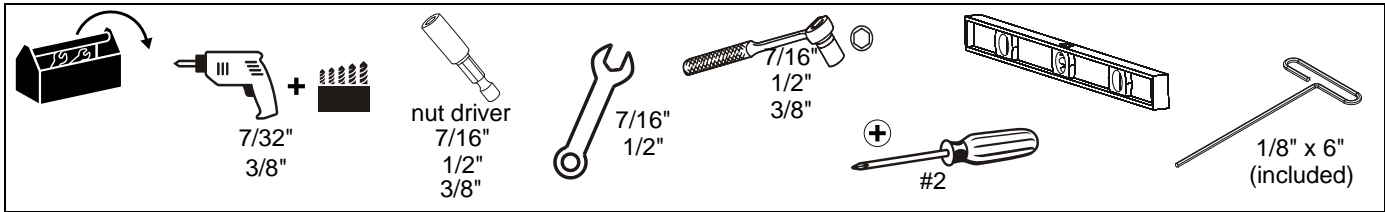
## LEGEND

	<b>Tighten Fastener</b> Apretar elemento de fijación Befestigungsteil festziehen Apertar fixador Serrare il fissaggio Bevestiging vastdraaien Serrez les fixations		<b>Pencil Mark</b> Marcar con lápiz Stiftmarkierung Marcar com lápis Segno a matita Potloodmerkten Marquage au crayon
	<b>Loosen Fastener</b> Aflojar elemento de fijación Befestigungsteil lösen Desapertar fixador Allentare il fissaggio Bevestiging losdraaien Desserrez les fixations		<b>Drill Hole</b> Perforar Bohrloch Fazer furo Praticare un foro Gat boren Percez un trou
	<b>Phillips Screwdriver</b> Destornillador Phillips Kreuzschlitzschraubendreher Chave de fendas Phillips Cacciavite a stella Kruiskopschroevendraaier Tournevis à pointe cruciforme		<b>Adjust</b> Ajustar Einstellen Ajustar Regolare Afstellen Ajuster
	<b>Open-Ended Wrench</b> Llave de boca Gabelschlüssel Chave de bocas Chiave a punte aperte Steeksleutel Clé à fourche		<b>Remove</b> Quitar Entfernen Remover Rimuovere Verwijderen Retirez
	<b>By Hand</b> A mano Von Hand Com a mão A mano Met de hand À la main		<b>Optional</b> Opcional Optional Opcional Opzionale Optie En option
	<b>Hex-Head Wrench</b> Llave de cabeza hexagonal Sechskantschlüssel Chave de cabeça sextavada Chiave esagonale Zeskantsleutel Clé à tête hexagonale		<b>Security Wrench</b> Llave de seguridad Sicherheitsschlüssel Chave de segurança Chiave di sicurezza Veiligheidsleutel Clé de sécurité

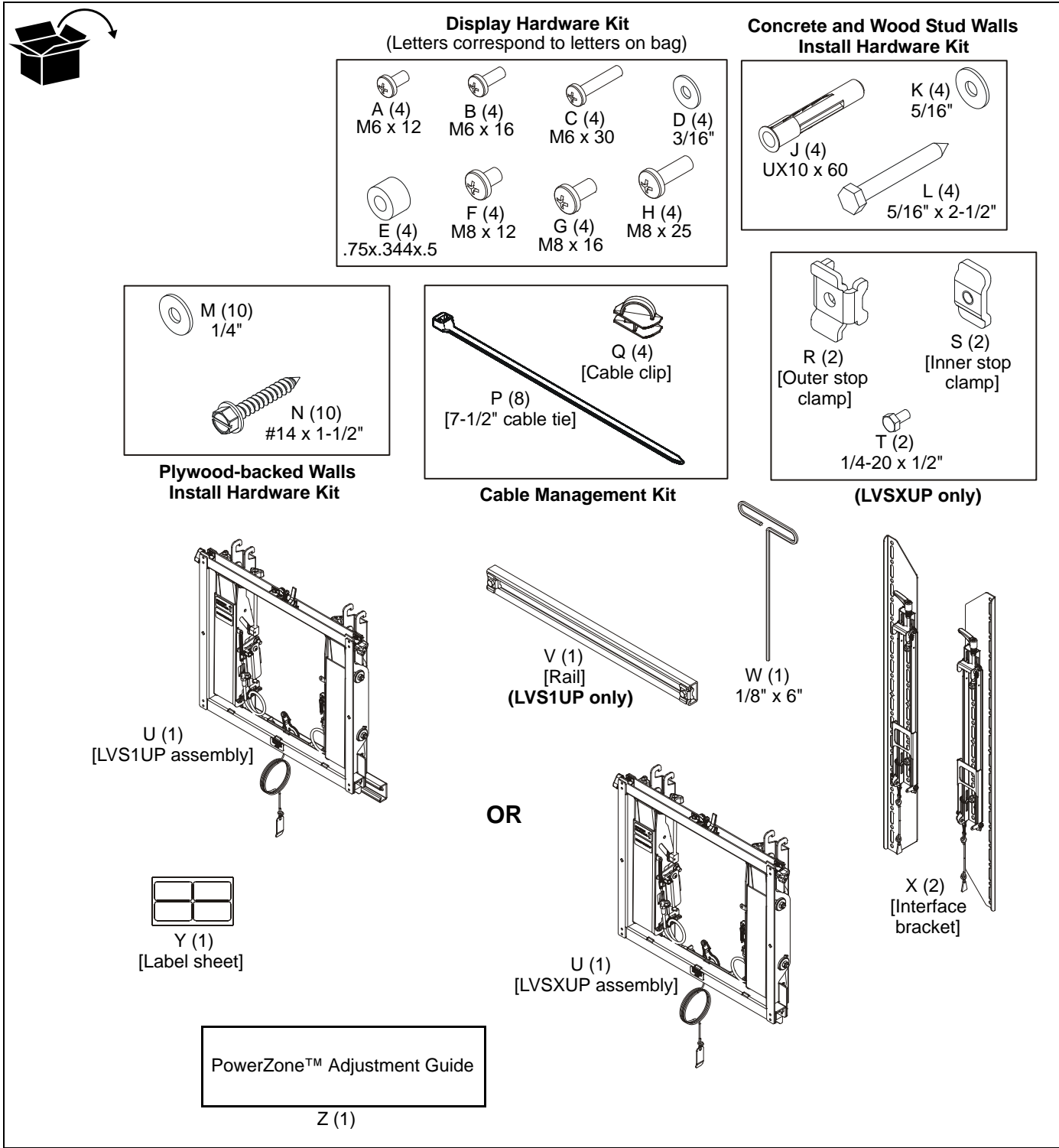
**DIMENSIONS**



**TOOLS REQUIRED FOR INSTALLATION**



**PARTS**

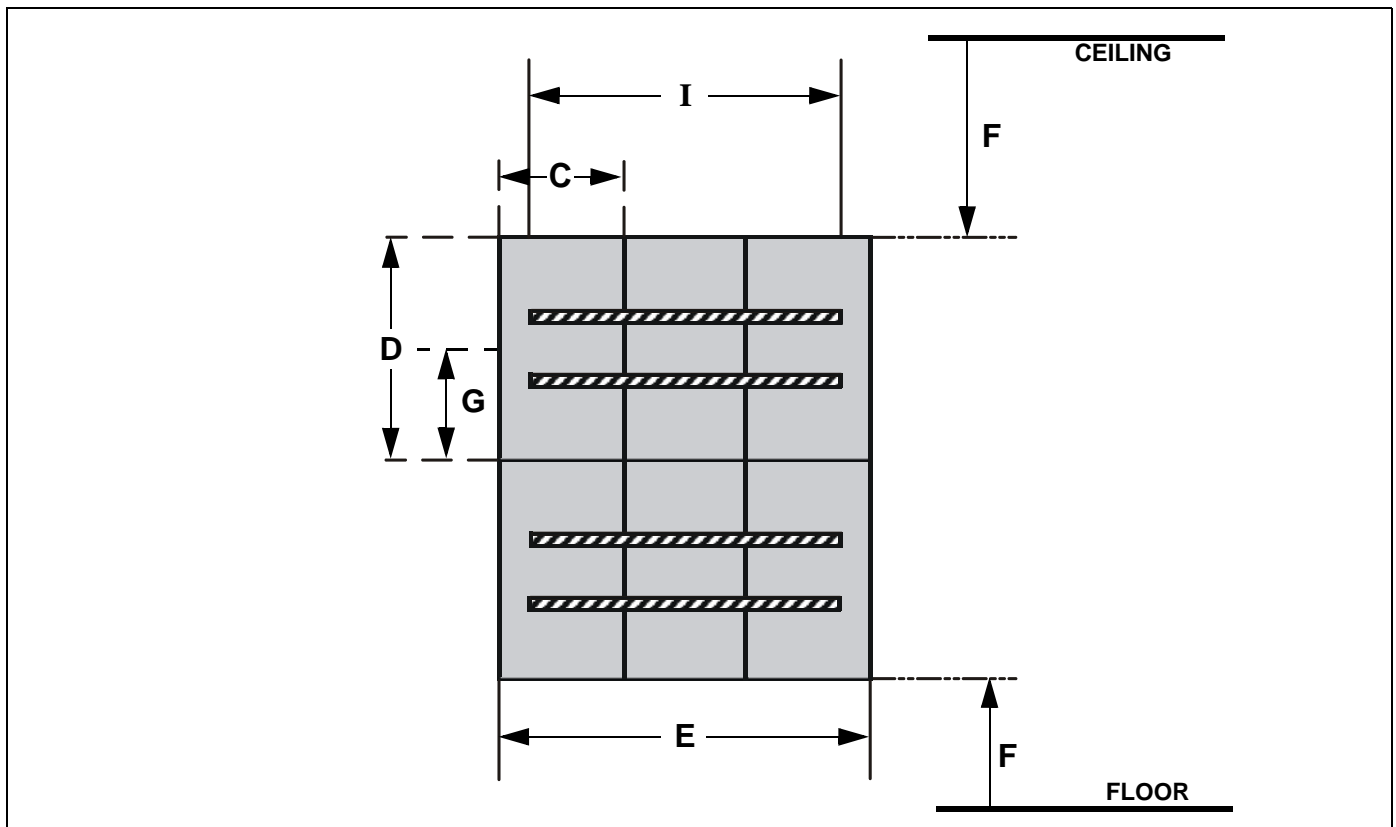


**LET'S GET STARTED!**

**Table 1: Measurements You'll Need**

Description	Measurement
<b>A</b> - Number of displays in each row	
<b>B</b> - Number of displays in each column	
<b>C</b> - Width of individual display	
<b>D</b> - Height of individual display	
<b>E</b> - Total width - <b>(A) x (C)</b>	
<b>F</b> - Floor to bottom of display (bottom row) <b>OR</b> Ceiling to top of display (top row)	
<b>G</b> - 1/2 height of display <b>(D) / 2</b>	
<b>H</b> - Display mounting pattern offset. <b>Only applies to some displays. Calculation instructions (See Figure 2)</b>	
<b>I</b> - Strut channel length* <b>(E) - 4" (102mm) (LVXSUP only)</b>	
<b>J</b> - Number of strut channel lengths <b>(B) x 2 (LVXSUP only)</b>	
<b>R</b> - Radius of curved wall <b>(Curved wall installations only)</b>	

\* Check with your local strut channel dealer to determine the lengths available. You may need to buy multiple pieces or cut longer pieces down to size.



**Figure 1**

**MOUNTING PATTERN OFFSET CALCULATION**

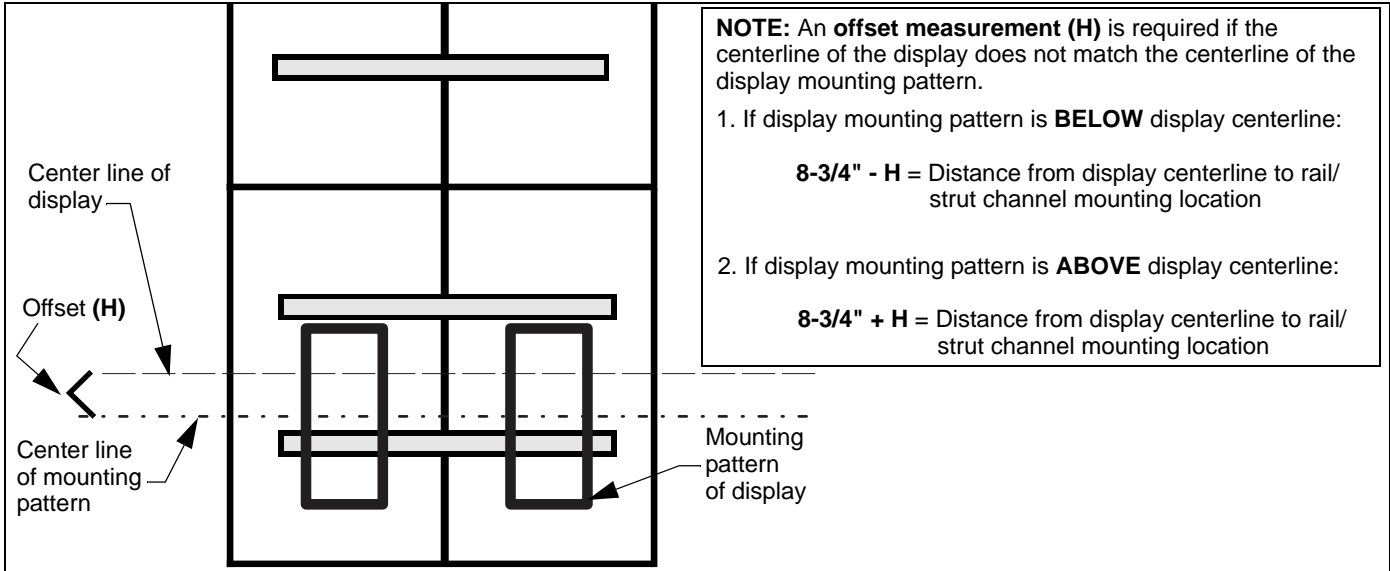


Figure 2

**STRUT CHANNEL REQUIREMENTS (LVXSUP)**

**IMPORTANT ! :** Strut channel **must** be made of steel with a minimum yield strength of 33ksi (230MPa), **OR** aluminum (6063-T6, 6005-T5 or stronger) with a minimum yield strength of 30ksi (207MPa), and meeting the profile and dimension requirements outlined in Table 2, dependent on whether it is a flat wall or curved wall installation. (See Figure 3) and (See Figure 4)

Table 2: Strut Channel Material and Dimension Requirements

STRUT REQUIREMENTS		
MATERIAL	ALUMINUM	STEEL
Minimum Yield Strength	30ksi (207MPa)	33ksi (230 MPa)
Material Thickness	[0.078"] (2mm)	14 ga [0.075"] (2mm) or 12ga [0.104"] (2.5mm)
K (Flat wall)	13/16" (21mm) or 7/8" (22mm)	13/16" (21mm) ≤ K ≤ 3-1/4" (83mm)
K (Curved wall)	13/16" (21mm) or 7/8" (22mm)	
R - Minimum Wall Radius	> [200"] (50.8m)	> [400"] (101.6m)
L - Flange Length	1/4" (6mm) ≤ L ≤ 9/32" (7mm)	

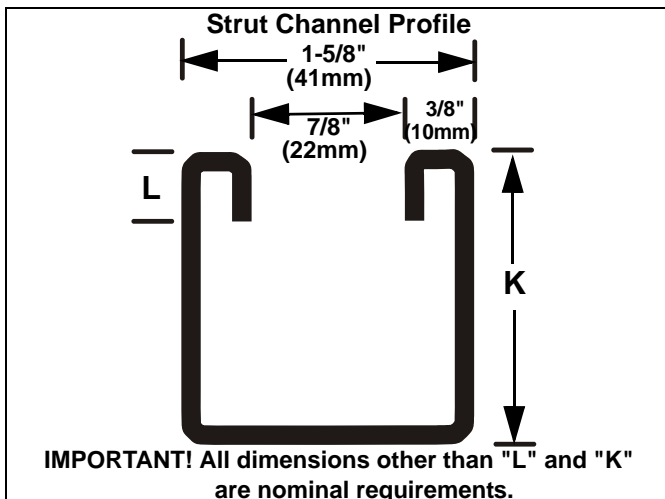


Figure 3

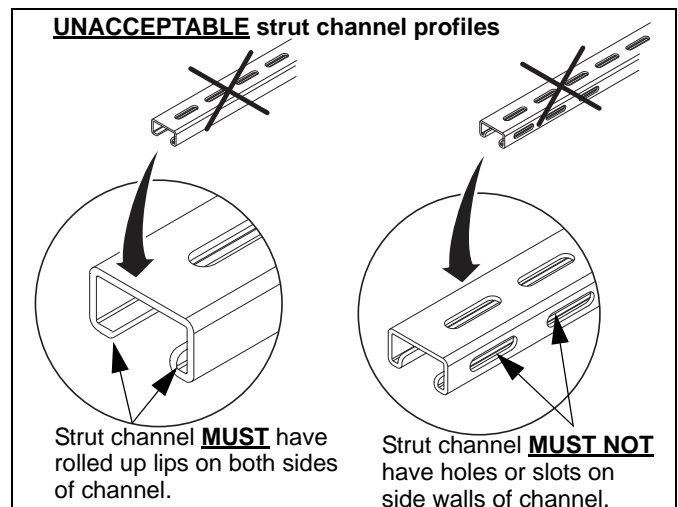


Figure 4



**CURVED VIDEO WALLS ON FLAT WALL**

- 5.5° is the maximum angle a mount can make from vertical;
- Two or more mounts placed side-by-side can create a maximum angle of 11° (on a flat wall);
- All other requirements/restrictions listed in Table 2 still apply.

**CALCULATING WALL RADIUS**

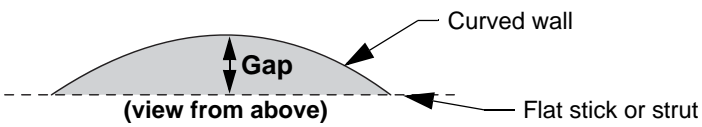
1. Place a rigid, flat stick or channel strut (at least 3 ft or 1m long, but preferably longer) against the curved wall. Do NOT bend the stick or strut.
2. Measure the largest gap between the stick/strut and the wall.

**EXAMPLE:**

<b>Stick/Strut Length</b>	48 inches
<b>Gap</b>	0.375 inches
<b>Radius (R)</b>	768.1875 inches

**Radius =  $\text{Gap}/2 + (\text{Length}/8 \times \text{Length}/\text{Gap})$**

Radius =  $0.375/2 + (48/8 \times 48/0.375)$



(view from above)

Figure 5

**ALLOWING SPACE FOR MOUNT ADJUSTABILITY**

**IMPORTANT ! :** In order to enable the most adjustability within the video wall, include some extra depth when planning the installation.

**As a rule of thumb, assume the mount is 4.5" deep and add 0.125" for every 10' of displays [ $1"/120" \times 0.125" = 0.00104"$ ]**

**EXAMPLE:** With a 4x3 Portrait video wall where the height is 48.9" x 3 and the width is 28.3" x 4. (See Figure 6):

- take the longest dimension (height) and multiply it by 0.00104 (or  $1"/120" \times 0.125"$ )
- $48.9" \times 3 \times 0.00104" = 0.153"$

For this example, you would then install under the assumption the depth will be 4.5" + 0.153".

**Table 3: Depth Adjustment Factor**

WALL TYPE	RADIUS	DEPTH ADJUST FACTOR
Flat walls	N/A	<b>0.00104" per inch</b>
Curved walls	Radius >500"	<b>0.0025" per inch</b>
Curved walls	200"<Radius<500"	<b>0.00312" per inch</b>

**NOTE:** The maximum mount thickness to design into the installation is 7.00".

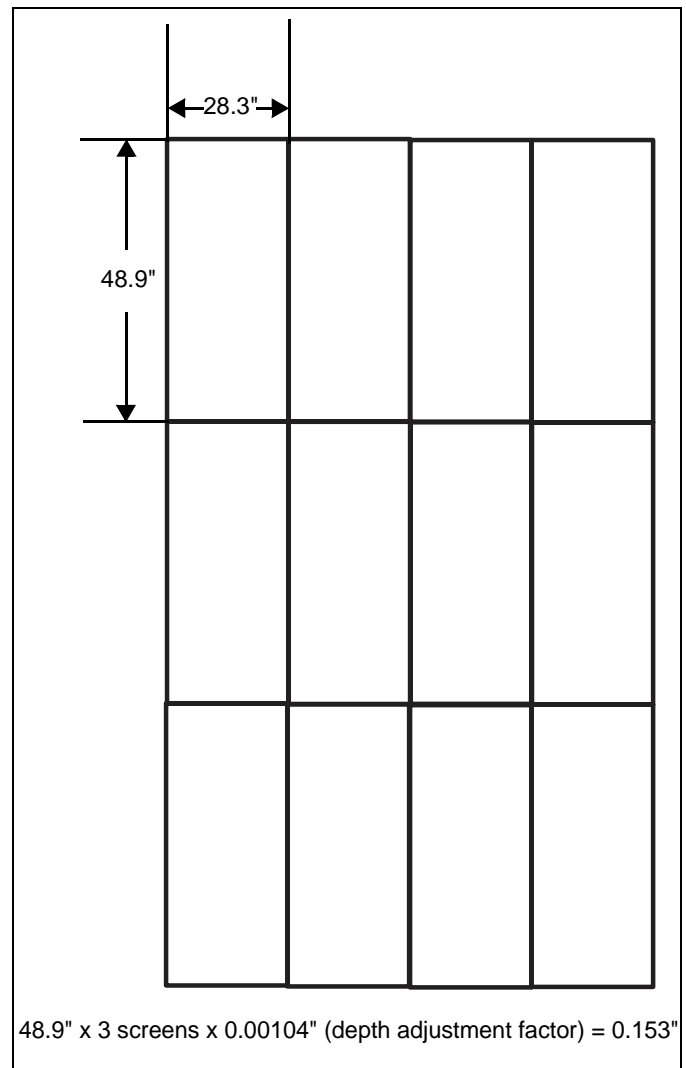


Figure 6

**ATTACHING STRUT CHANNEL OR RAIL**

**IMPORTANT ! :** Reference measurements noted on page 7.

1. Mark distance **(F)** from floor to desired location for **bottom** of display **OR** from ceiling to desired location for **top** of display (if installing top row first). (See Figure 1) and (See Figure 7)
2. Mark distance **(G)** from bottom of display (or top of display) to center line of display. (See Figure 1) and (See Figure 7)
3. Measure up 8-3/4" (222mm) from centerline of display and mark location for top strut channel/rail attachment.

**NOTE:** If an offset measurement **(H)** is needed (See Figure 2):

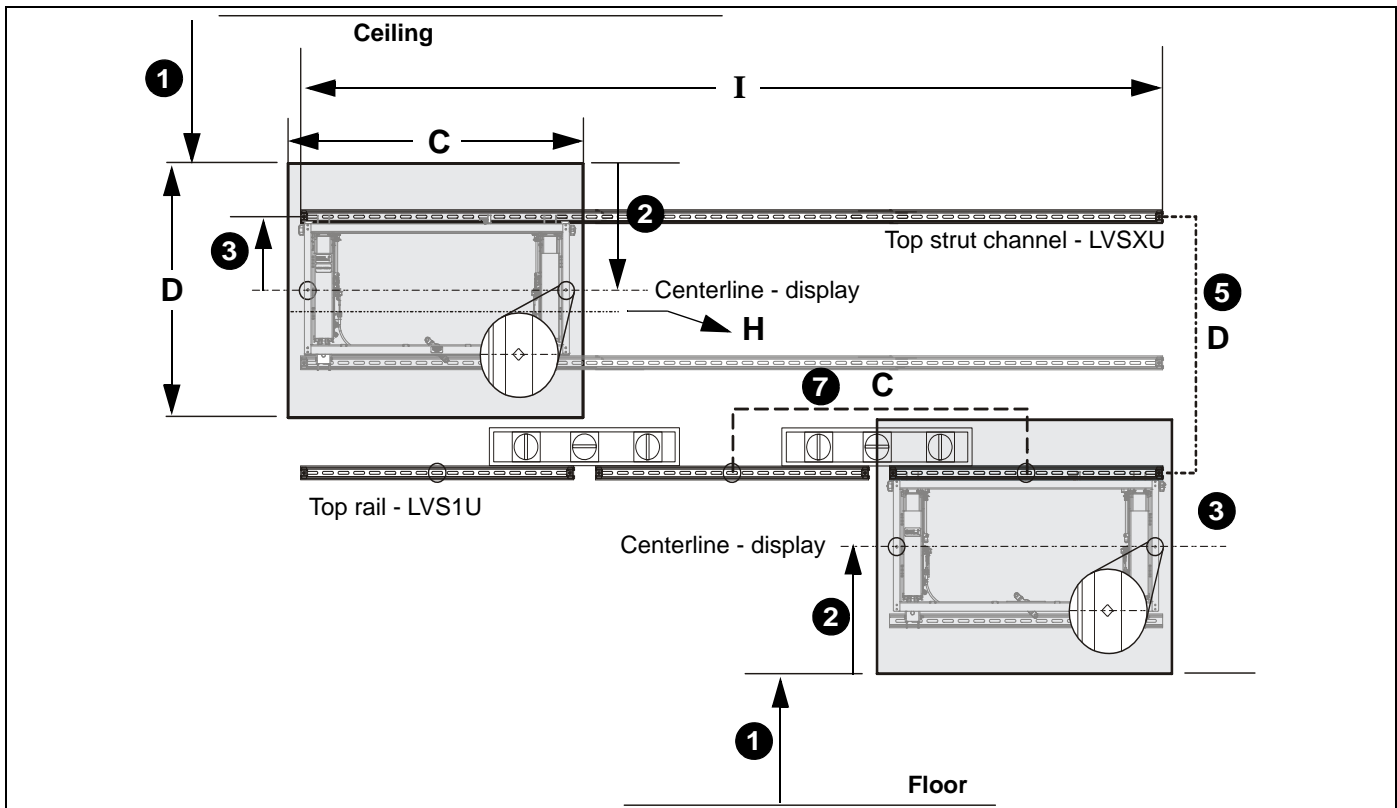
- If display mounting pattern is **BELOW** display centerline, measure up: **8-3/4" (222mm) - H**
  - If display mounting pattern is **ABOVE** display centerline, measure up: **8-3/4" (222mm) + H**
4. Level and attach strut channel/rail (V) using the provided hardware. See **Parts** drawing, (See Figure 7) and (See Table 4).
  5. Mark distance **(D)** (up or down) from first strut channel/rail slots and mark location of next row of strut channel/rail.
  6. Repeat for remaining rows of strut channels/rails.
  7. **(LVXSUP only)** Proceed to **Hanging LVS1UP/LVXSUP Mount On Rail/Strut Channel** section.
  8. **(LVS1UP only)** Measure over **(C)** (width of display) from center of first installed rail, level and mark location of adjacent rail. (See Figure 1) and (See Figure 7)
  9. Repeat Step 8 for remaining rails in that row.
  10. Attach upper rails (V) using **Fastener Information**. (See Table 4)

11. Measure up from attached rails the distance **(D)** and mark for next row of rails (V). (See Figure 1) and (See Figure 7)
12. Repeat Steps 4 - 10 for that row of rails.
13. Repeat Step 11 for any remaining rows of rails (V).

**IMPORTANT ! :** See **Fastener Installation Methods** section at end of Installation Instructions for details on installing product into various wall types.

**Table 4: Fastener Information**

WALL TYPE	PILOT HOLE	FASTENERS (see PARTS drawing)
Drywall attached to plywood-backed walls / Steel studs	N/A	<b>#14 x 1-1/2" hex slot head screw (N) &amp; 1/4" washer (M)</b> . 5 fasteners must be evenly spaced in the top rail/strut channel along the width of the display with at least 3-1/2" (89mm) spacing between each fastener <b>AND</b> within 3-1/2" (89mm) from each end of rail/strut channel. Repeat for lower rail/strut channel.
Wood stud (2" x 4")	7/32" x 3"	<b>5/16 x 2-1/2" hex head lag (L) &amp; 5/16" washer (K)</b> . Fasteners placed at stud locations, min. 16" (400mm) and max. 24" (610mm) <b>AND</b> within 4" (102mm) of each end of the rail/strut channel.
Concrete	3/8" x 3"	<b>5/16 x 2-1/2" hex head lag (L) &amp; Fischer UX10x60 anchor (J)</b> . Fasteners placed a min. 16" (400mm) and max. 24" (610mm) apart <b>AND</b> within 4" (102mm) of each end of the rail/strut channel.



**Figure 7**

## HANGING LVS1UP/LV SXUP MOUNT ON RAIL/STRUT CHANNEL

### Preparing Strut Channel (LV SXUP only)

1. On the top rail, slide one inner stop clamp (S) into end of strut channel section. (See Figure 8)
2. Fasten outer stop clamp (R) to inner stop clamp (S) using one 1/4-20 x 1/2" hex head screw (T). (See Figure 8)
3. Repeat for each end of each top section of strut channel.

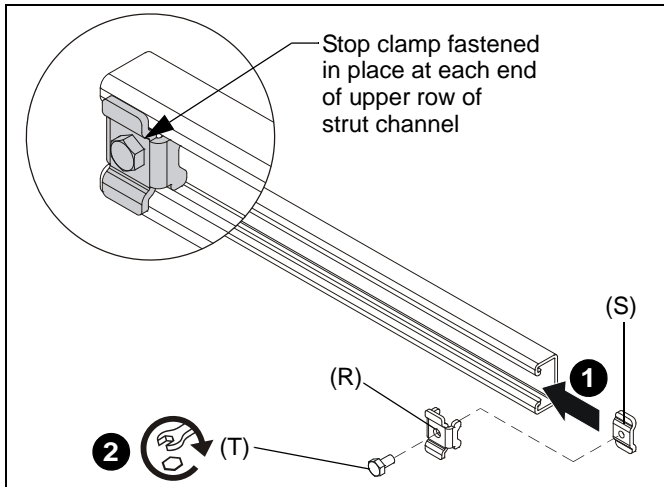


Figure 8

### Hanging Mounts

1. Lift mount and hang it on lower lip of upper strut channel or rail (V). (See Figure 9)

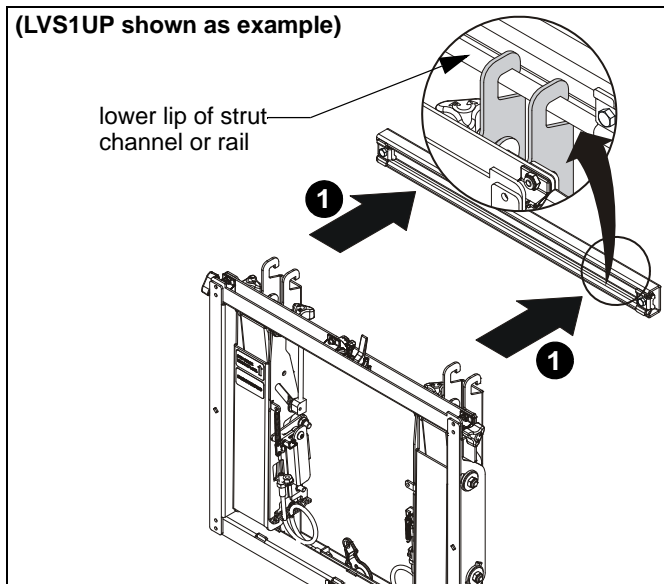


Figure 9

2. Repeat for remaining mounts in that row, and slide mounts along rails/strut channels to desired location.
3. **LVSXUP only:** Add lower strut channel to bottom of all mounts in row by lifting strut channel up from below mounts and setting upper lip of strut channel onto mounts' latching hooks. (See Figure 10)

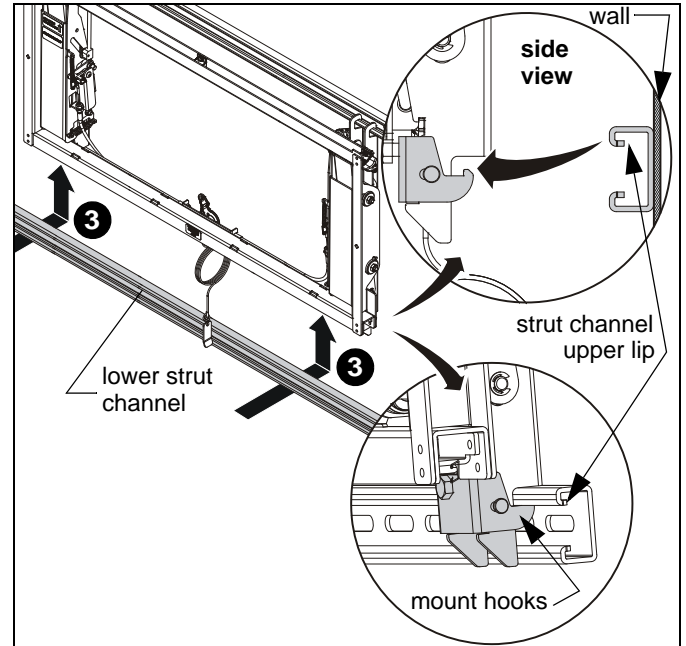


Figure 10

4. Tighten two hex head fasteners at bottom of each mount. (See Figure 11)

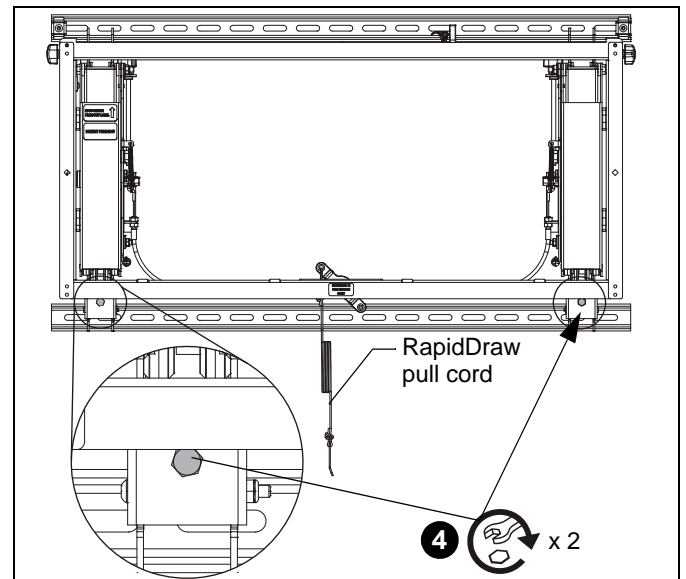


Figure 11

5. Fasten bottom rail (LVS1UP) or lower strut channel (LV SXUP) to wall using the provided hardware. See **Parts** drawing, and (See Table 4).
6. Extend RapidDraw pull cord to bottom row of displays so that it is accessible, re-tie to correct length and label the pull cord using label (Y) so that it is identifiable. (See Figure 11)

**IMPORTANT ! :** See **Service** section for more information on properly configuring the RapidDraw cord and display release.

7. Repeat **Attaching Strut Channel or Rail** and **Hanging LVS1UP/LV SXUP Mount On Rail/Strut Channel** sections for each row of displays.

### INSTALLING INTERFACE BRACKETS

1. Place displays face down on a soft, non-abrasive surface.



**CAUTION:** Using screws of improper diameter may damage your display! Proper screws will easily thread into display mounting holes.

2. Select screw *diameter* by examining hardware (A-C and F-H) (6mm or 8mm) and comparing with mounting holes on display. (See Figure 12)
3. Select spacers:
  - Spacers are **NOT** required if mounting holes are not recessed and interface brackets (X) can lay flat against display.
  - Spacers (E) **ARE** required if mounting holes are recessed, or if protrusions prevent interface brackets (X) from laying flat.



**CAUTION:** Using screws of improper length may damage your display! Proper screws will have adequate thread engagement without contacting bottom of display mounting holes.

4. Select screw *length*: (See Figure 12)
  - By hand, insert **SHORTEST** length screw of selected diameter (A or F) through 3/16" washer (D, if using screw A), bracket (X), selected spacer (E, if required), into display mounting hole. Do NOT thread screw into hole at this time.
  - Proper screw length requires base of screw head to protrude above flat washer (if flat washer is used) a *distance equal to or greater than the screw diameter*. If screw length is inadequate, select longer screw. Select *shortest* screw which will protrude the required distance.

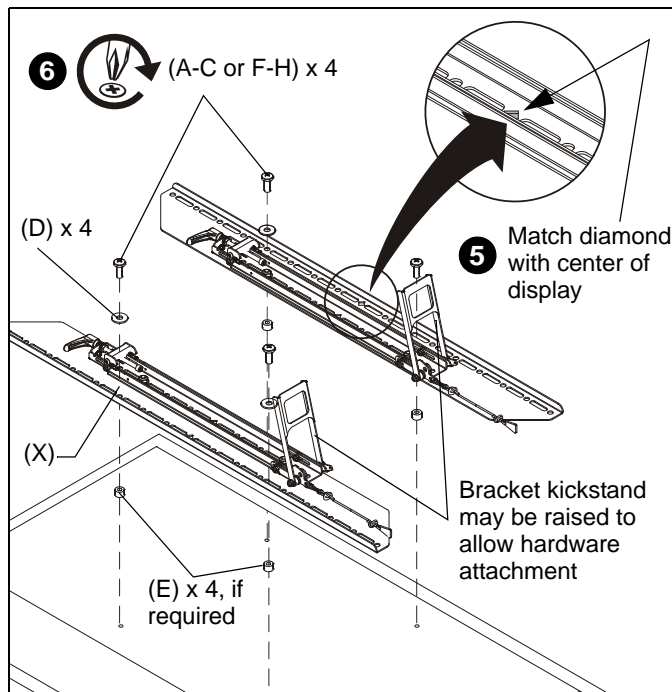


Figure 12

5. Make sure diamond on interface brackets is even with center of display. (See Figure 12)
6. Use selected screws (A-C or F-H), washers (D, if using screws A, B or C) and spacers (E), if necessary, to connect interface brackets (X) to back of display. (See Figure 12)

### ADDING DISPLAYS TO MOUNTS

1. Raise display with attached interface brackets and hook top of brackets into top of mount. (See Figure 11)
2. Slowly bring bottom of display in towards mount until it clicks into place.
3. Repeat Steps 1 and 2 for remaining mounts in that row.

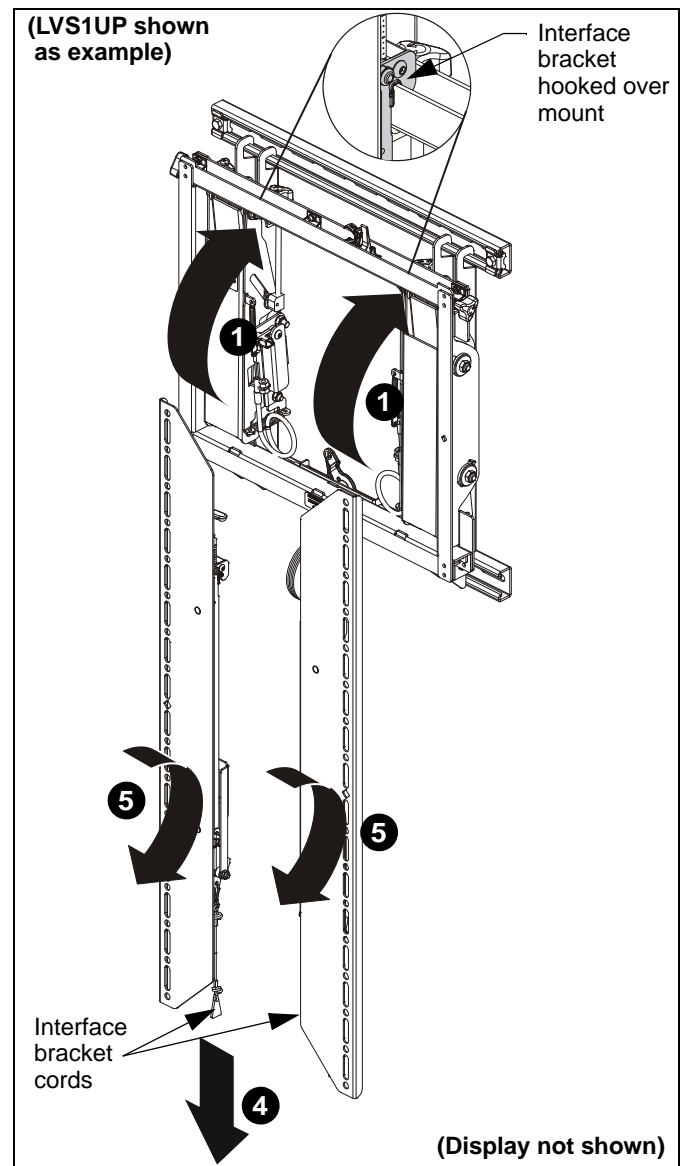


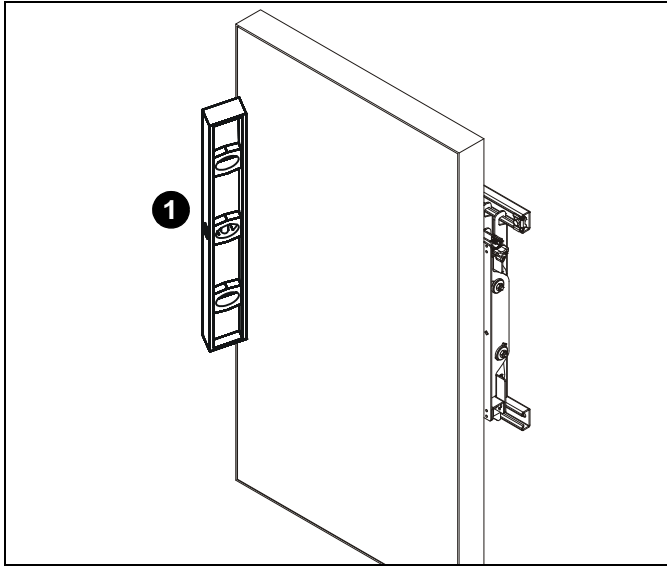
Figure 13

4. The displays can be easily removed by pulling both interface bracket cords down. (See Figure 13)
5. Pull the bottom of the display out.
6. Lift up display to lift hooks off the mount.

**ADJUSTMENTS**

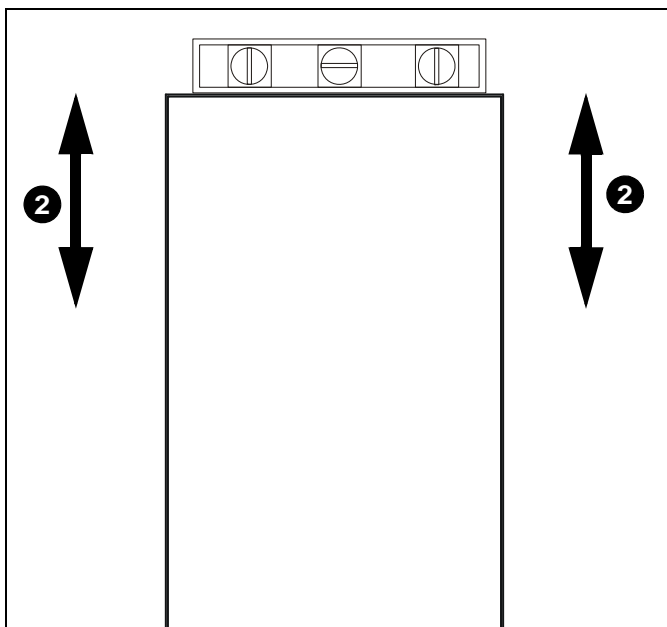
**NOTE:** The following steps are also referenced on the next page (See Figure 18) and the PowerZone Adjustment guide (Z).

1. Place the level against the front of the display and use knob (#1 in Figure 18) to straighten the tilt. (See Figure 14)



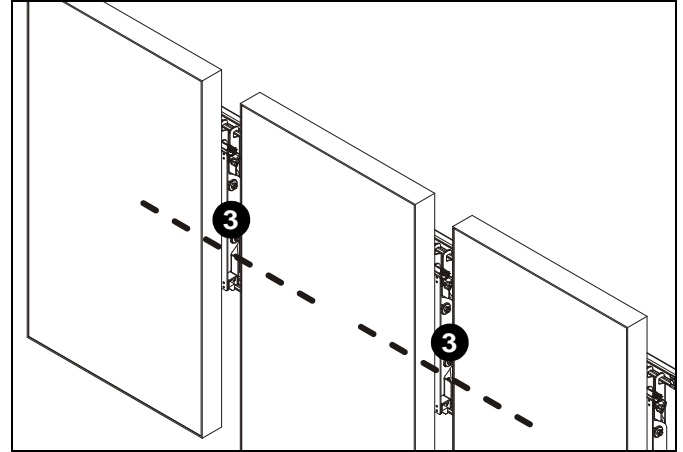
**Figure 14**

2. Place a level on top of display and use the knobs at the top of the interface brackets (#2 in Figure 18), to raise/lower each side of display and level the display. (See Figure 15) and (See Figure 18)



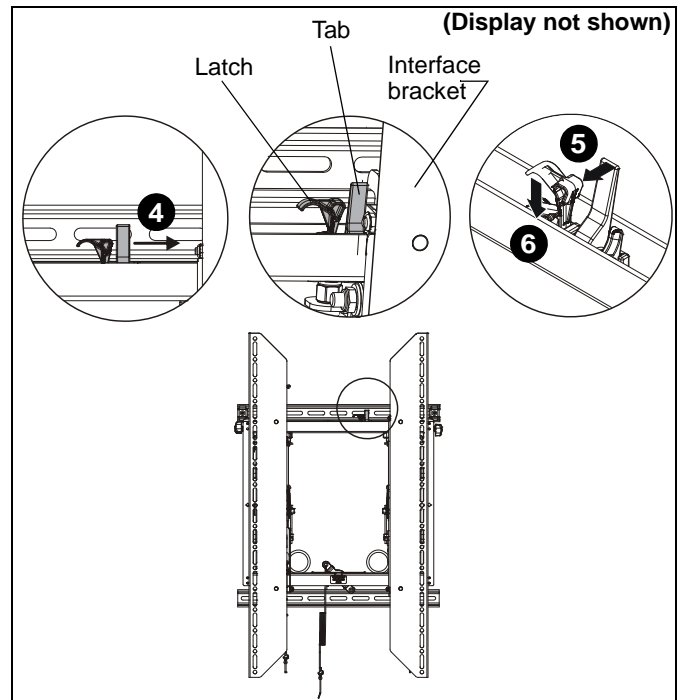
**Figure 15**

3. Place level across face of adjoining screens and adjust depth (#3 in Figure 18) to make displays flush across the front of the video wall. (See Figure 16) and (See Figure 18)



**Figure 16**

4. Slide latch mechanism until tab sits flush against the interface bracket.
5. Pull tab forward to lock latch mechanism to interface bracket. (See Figure 17)
6. Push latch down to engage the micro lateral adjustment knobs (#4B and #4C in Figure 18). (See Figure 17) and (See Figure 18)
7. Turn micro lateral adjustment knobs clockwise to move display toward knob end until displays are in correct position. (See Figure 18)



**Figure 17**

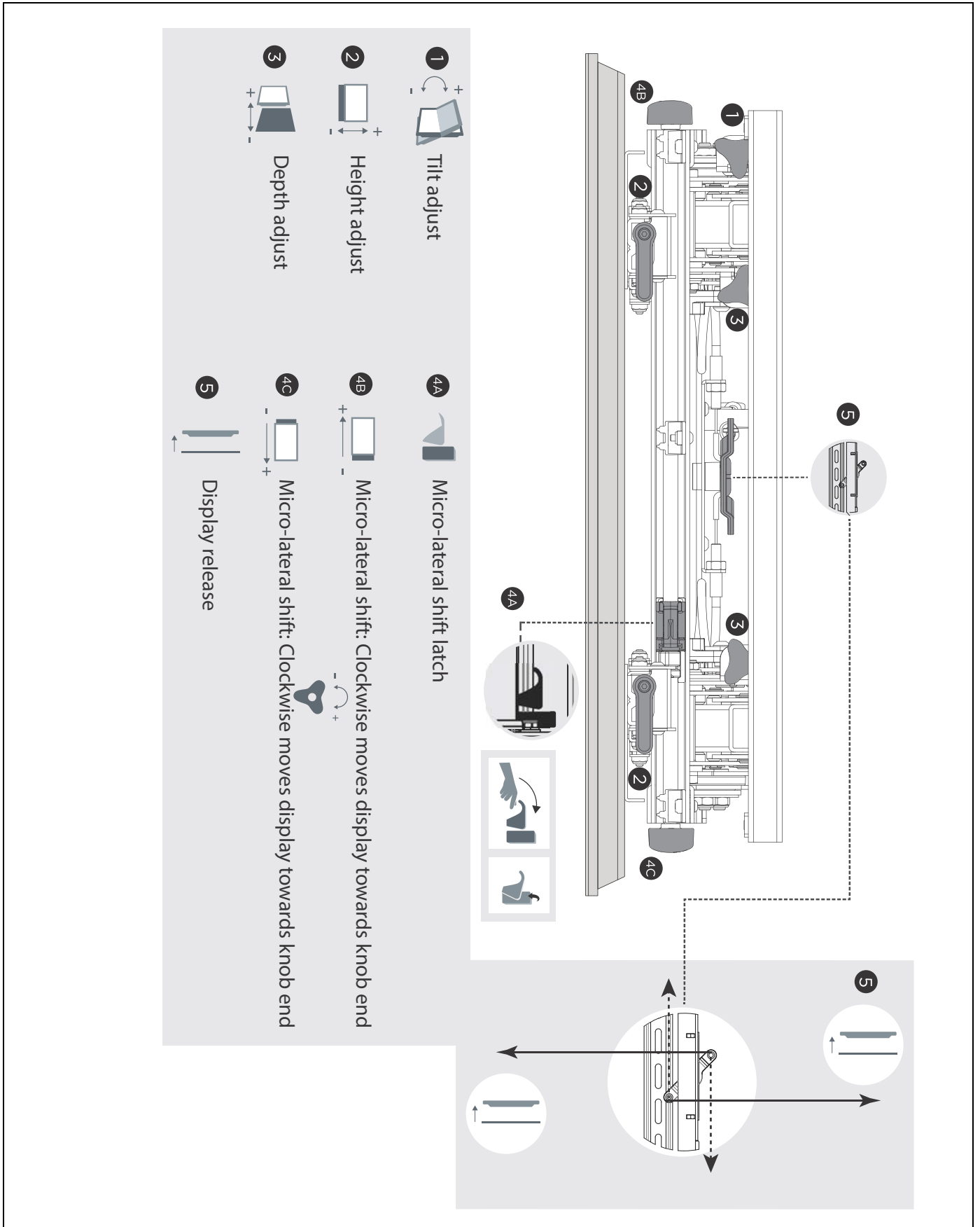


Figure 18

## COMPLETING THE INSTALLATION

### Cable Management Clips

1. Place cable clip (Q) into rail/strut channel and turn 90° in either direction until cable clip is vertical. (See Figure 19)
2. Route cables and RapidDraw release cords along rails/strut channels, through cable clips.
3. Fasten cables and cords to cable clips (Q) using cable ties (P).

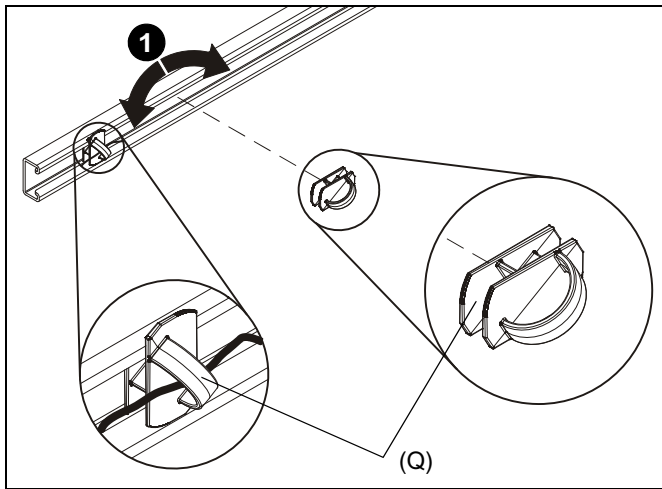


Figure 19

### Security

The displays may be secured to the mounts by using a padlock (not included) through the bottom of the interface brackets. (See Figure 20)

**NOTE:** Padlock must have a 1/4" (6mm) shackle diameter.

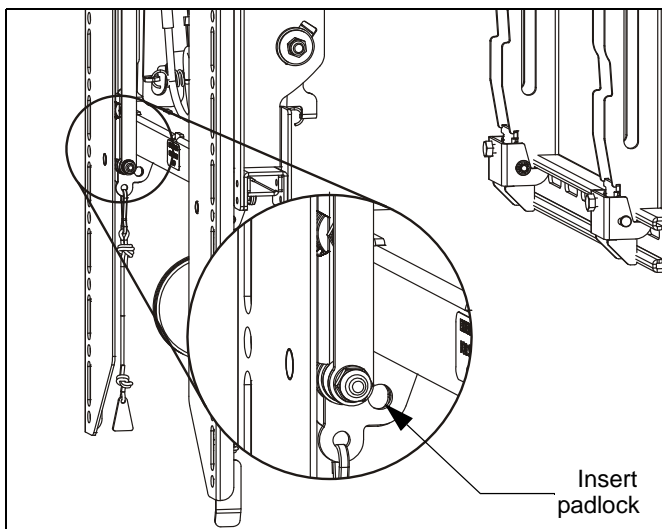


Figure 20

## SERVICE

### Extending and Retracting Mount

The mounts may be extended and retracted **only** in a service situation.

1. **To Extend Mount:** Pull on the RapidDraw release cord designated for the specific mount.
2. When the mount releases, carefully grasp bezel edges of display and pull out slowly, being careful to clear surrounding displays.
3. **To Retract Mount:** Carefully push against display bezel edges, being careful to clear surrounding displays.
4. Push display against mount until it clicks into place.

### Interface Bracket Kickstands

The interface brackets are equipped with kickstands which must **only** be used in a service situation.

1. Pull down on interface bracket release cords. (See Figure 21)
2. Pull out bottom of display.
3. Flip down the kickstands on both interface brackets, and prop against mount during service.

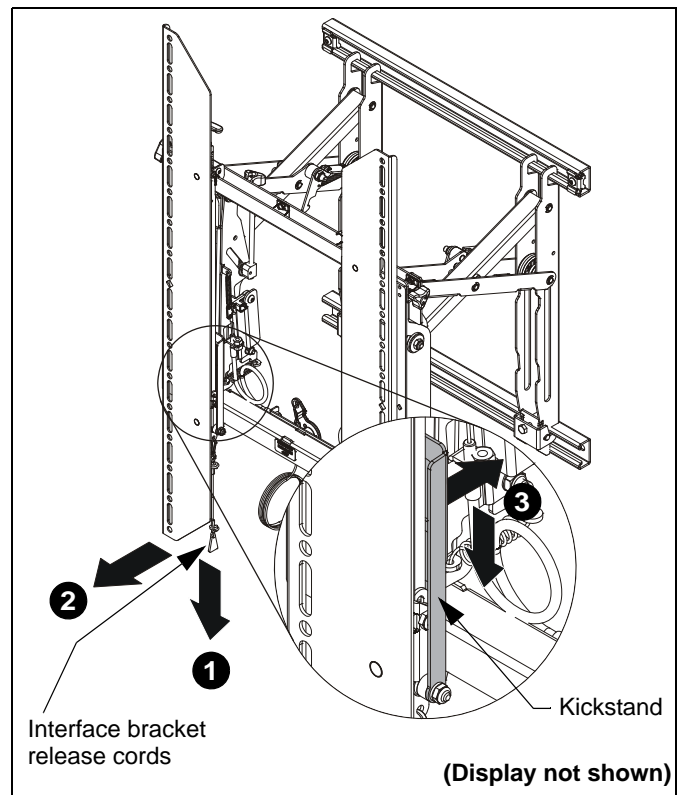


Figure 21

4. After service, hold display while flipping up both kickstands.
5. Slowly bring bottom of display in towards mount until it clicks into place.

## RapidDraw Display Release

The RapidDraw pull cord and display release allows easy service access to any specific display in the video wall.

Each mount ships with the pull cord installed. It is installed so that when pulled from **below** the mount or from the **right** of the mount it will release the display for service.

The following steps should be taken if an installation requires that the pull cord be accessible from the **left** of the display or **above** the display:

1. Unhook the pull cord from the mount. (See Figure 22)
2. Reinstall the pull cord in the opposite hole on the mount. (See Figure 22)

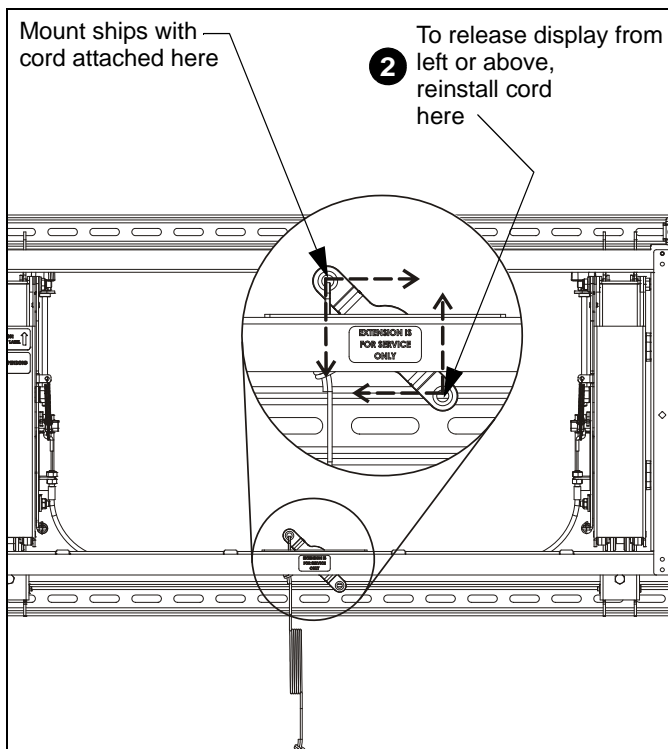


Figure 22

## FASTENER INSTALLATION METHODS

**IMPORTANT ! :** (See Table 4) for appropriate hardware and pilot hole sizes for various wall types.

### Wood Stud

1. Use one 5/16" x 2-1/2" lag bolt (L) through product and into pilot hole. (See Figure 23)
2. Repeat for remaining pilot holes.

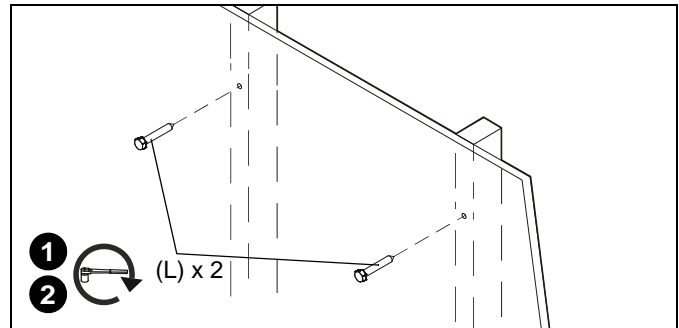


Figure 23

### Concrete

1. Install one UX10 x 60 anchor (J) into each pilot hole using a hammer, making sure that the anchor is flush with the wall. (See Figure 24)
2. Use one 5/16" x 2-1/2" lag bolt (L) through product into each anchor in wall.

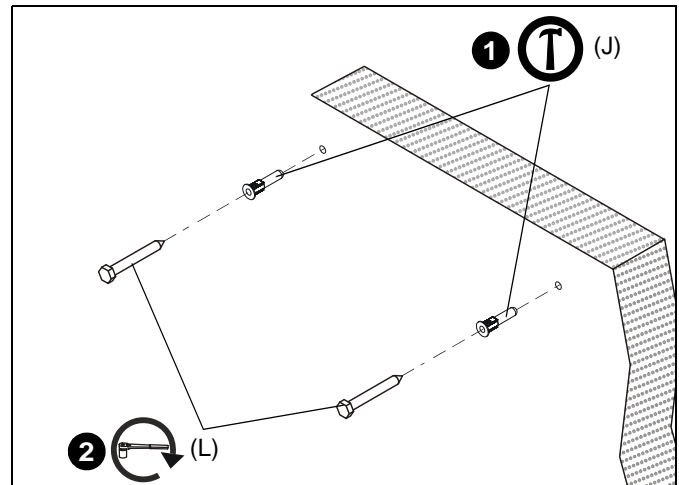
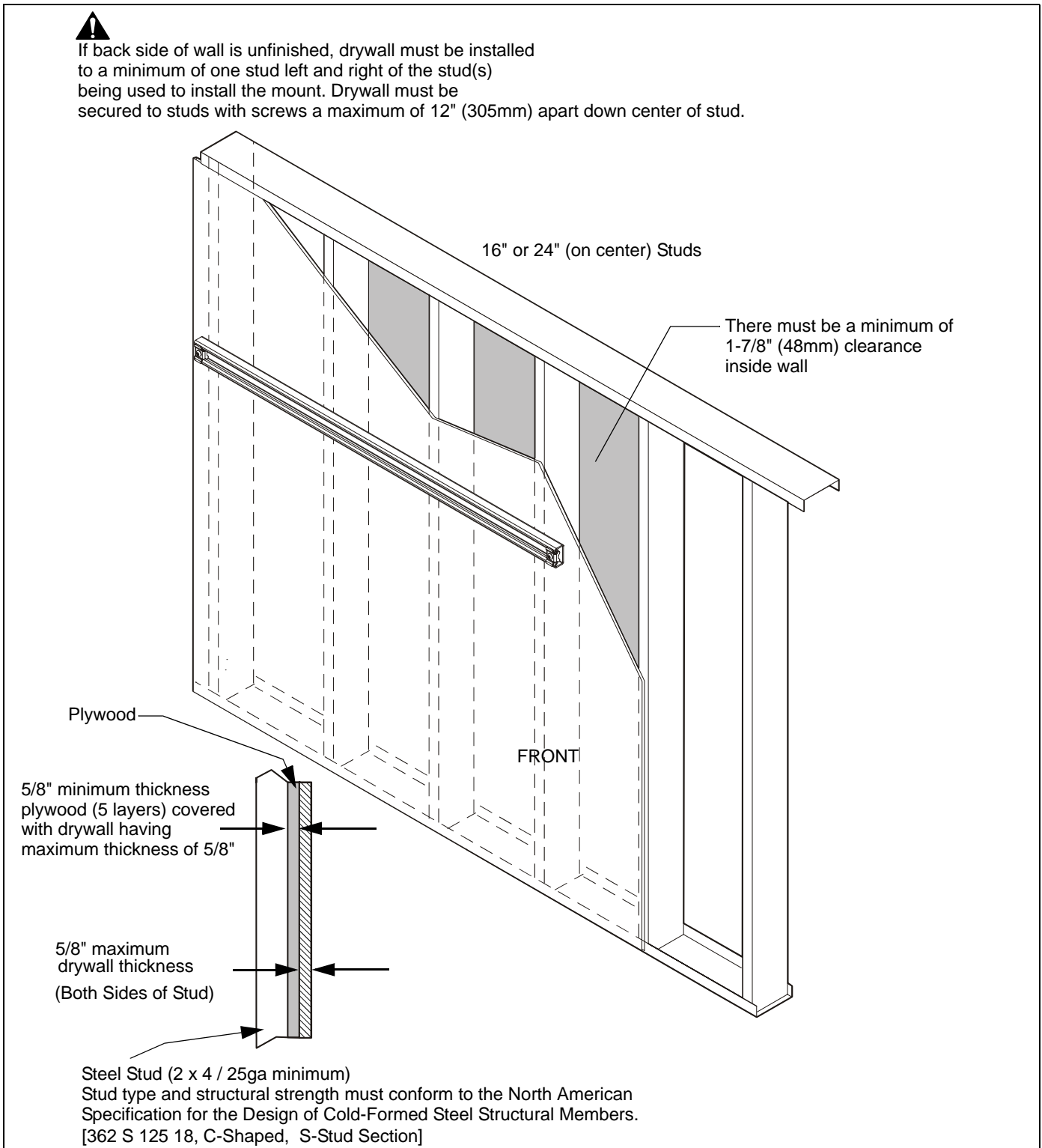


Figure 24



**Plywood-Backed Steel Stud**

1. Use one #14 x 1-1/2" hex-head washer slot head screw (N) and one 1/4" washer (M) through strut channel or rail. (See Figure 25)



**Figure 25**







Our Mounts. **Your Vision.**

Chief, a products division of  
Milestone AV Technologies

8800-002639 Rev02  
©2016 Milestone AV Technologies  
[www.milestone.com](http://www.milestone.com)  
05/16

<b>USA/International</b>	<b>A</b> 6436 City West Parkway, Eden Prairie, MN 55344 <b>P</b> 800.582.6480 / 952.225.6000 <b>F</b> 877.894.6918 / 952.894.6918
<b>Europe</b>	<b>A</b> Franklinstraat 14, 6003 DK Weert, Netherlands <b>P</b> +31 (0) 495 580 852 <b>F</b> +31 (0) 495 580 845
<b>Asia Pacific</b>	<b>A</b> Office No. 918 on 9/F, Shatin Galleria 18-24 Shan Mei Street Fotan, Shatin, Hong Kong <b>P</b> 852 2145 4099 <b>F</b> 852 2145 4477

