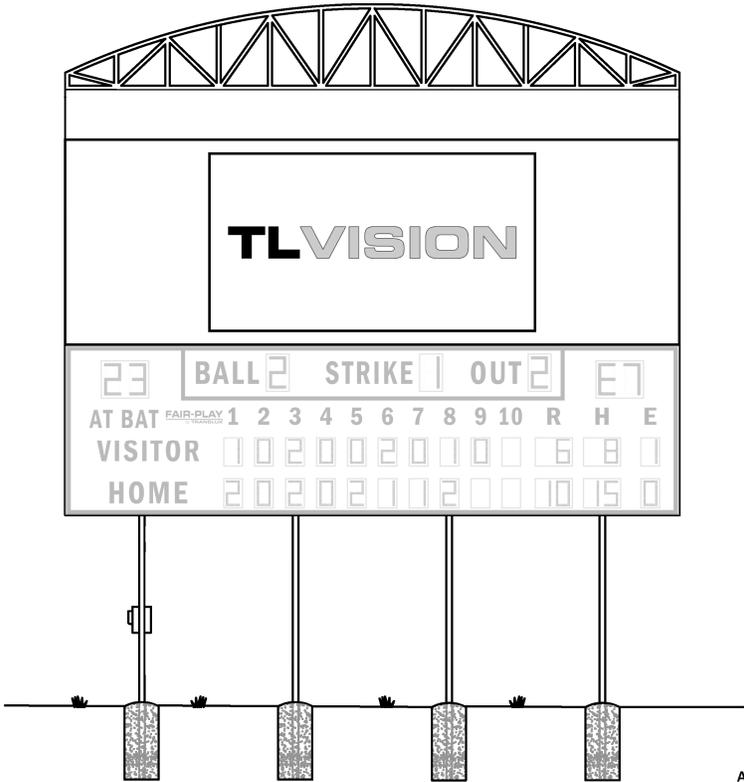


FAIR-PLAY

by **TRANS**LUX



OUTDOOR SPORTS

SCOREBOARD & TLVISION INSTALLATION RECOMMENDATIONS

98-0000-10 • REV 1109.15

INSTALL RECOMMENDATIONS DISCLAIMER

The suggestions and recommendation within this document are intended as a guide for the installation of Fair-Play outdoor scoreboards and/or Trans-Lux signs. While Fair-Play believes the instructions contained herein are accurate and correct, Fair-Play does not warrant the accuracy or correctness of such instructions and there are no warranties, expressed or implied and not limited to any warranties of merchantability of fitness for a particular purpose.

In no event shall Fair-Play be liable to dealer or its customer for any indirect, special or consequential damages or lost profits arising out of or related to this sale or the performance or breach thereof even if Fair-Play has been advised of the possibility thereof. Fair-Play's liability to dealer, if any, in connection with this sale shall in no event exceed the total amount paid by dealer for the sports display furnished by Fair-Play.

The installation of a Fair-Play scoreboard and/or Trans-Lux signs is the responsibility of others. Fair-Play assumes no responsibility for the design or construction of the installation. Fair-Play highly recommends that a professional engineer, appropriately licensed in the area, review and approve the installation. All soil testing, construction, welding, and electrical work should be performed by appropriately trained and licensed personnel.

These installation recommendations are subject to change without notice.

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EQUIPMENT LOCATION & PLACEMENT

- The sports display (scoreboard, TLVision and optional sign) must be positioned so that the spectators see what is being displayed.
- The control must be located such that the scorekeeper or control operator can monitor the event and see what is being displayed.
- For maximum visibility, the sports display must be placed at the south or west end of the field so that the sun does not shine directly on the face of the sports display during afternoon games. See Figure 1 below.

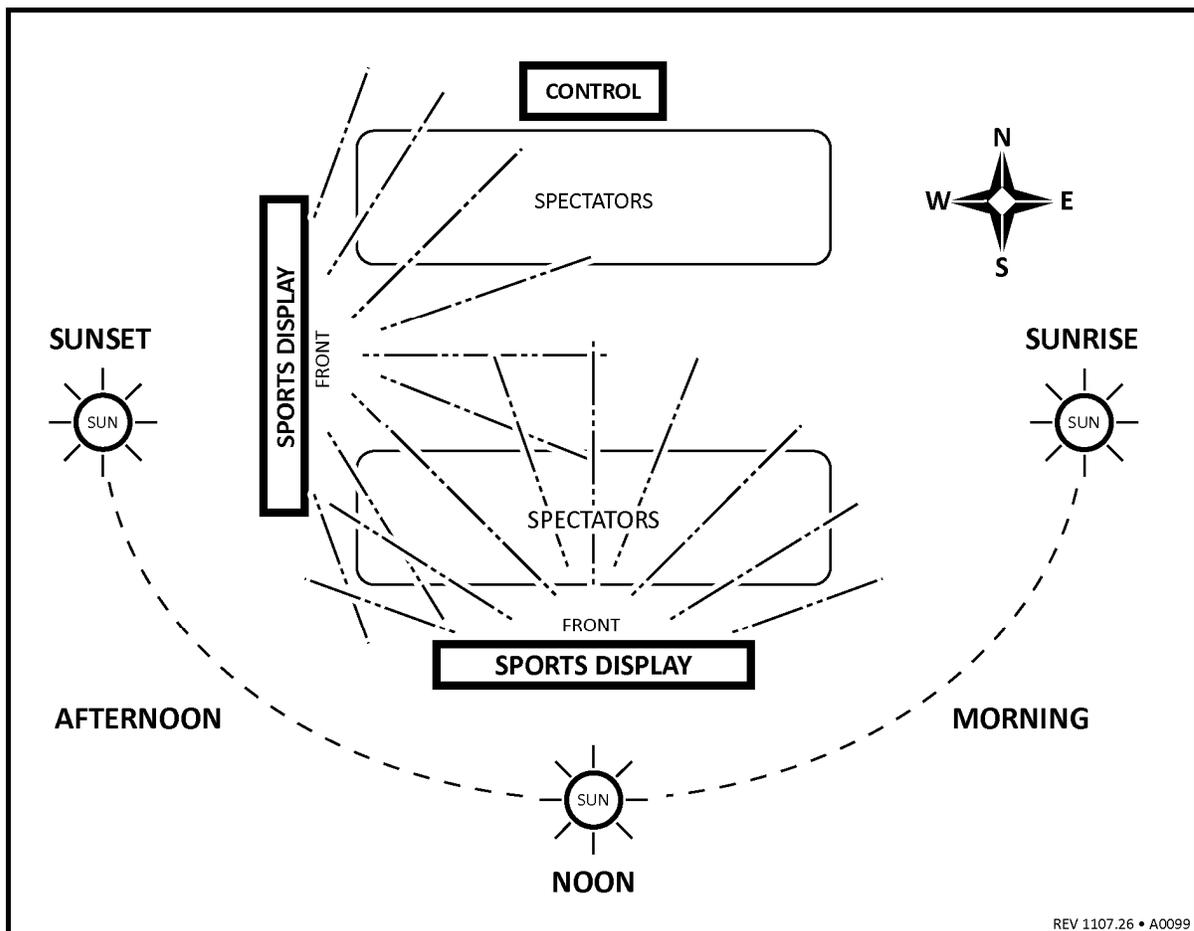


FIGURE 1 — SPORTS DISPLAY AND CONTROL PLACEMENT

VENTILATION

- Install the sports display so that air flow is not restricted. Customer's structure must allow for the free flow of outside ambient air to the product, without recirculation of air.
- Warranty will be void if components fail due to air flow restrictions.

SUPPORT STRUCTURE

The sports display is usually mounted on support columns (Figure 2 below), spaced and sized as shown on Table 1 on page 3.

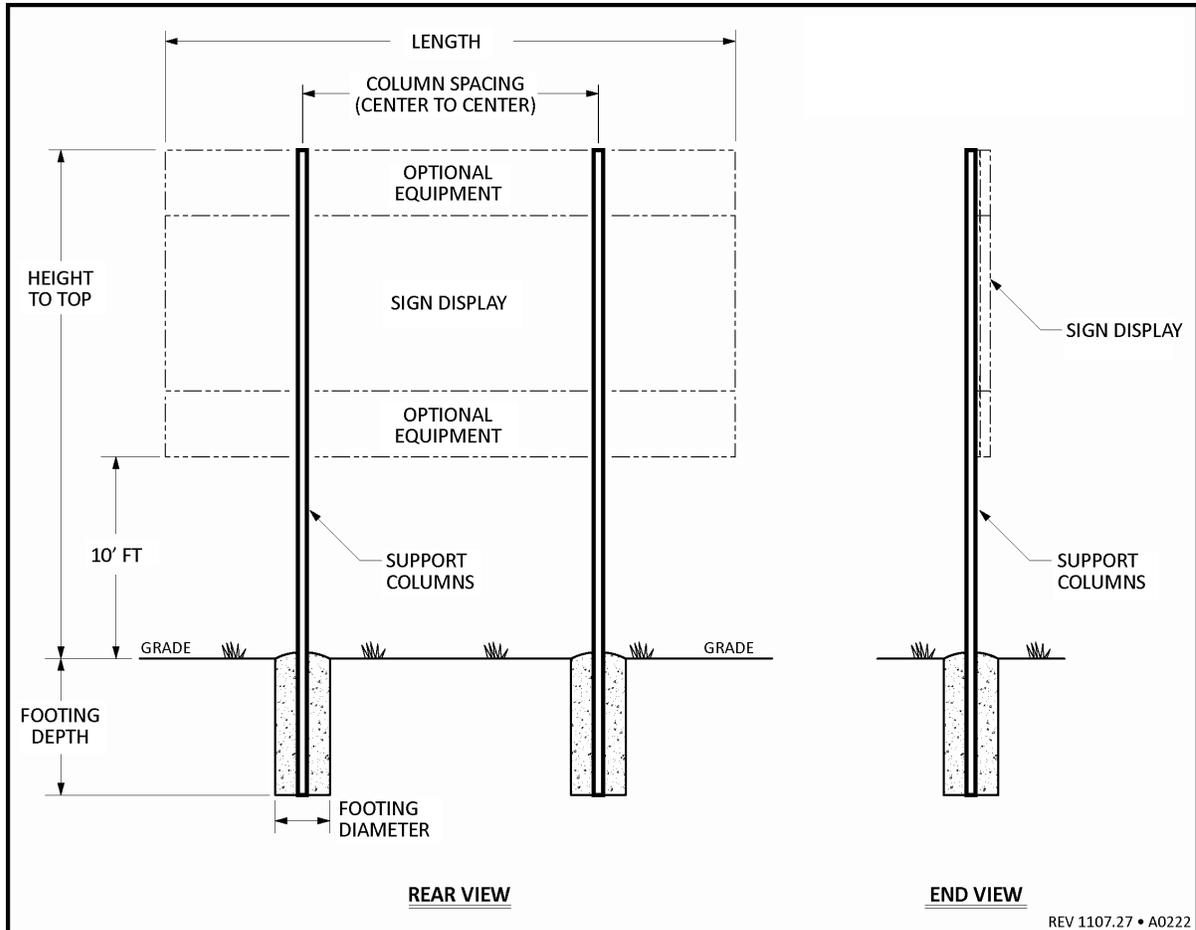


FIGURE 2 — TYPICAL SUPPORT COLUMN STRUCTURE

DESIGN CRITERIA

- Steel columns set in concrete are recommended, but other types of supports may be used.
- The design should be altered to take into account your soil conditions; the height of the sports display above the ground; and to comply with local codes which specify wind load requirements, etc.
- Any engineering design provided by others and submitted for review or record shall bear the stamp and signature of a licensed professional engineer registered in the state of installation.

BUILDING CODES

The sports display support structures recommended in this document are intended to comply with International Building Code 2006 with the following assumptions:

- Basic Wind Speed: 90 MPH
- Exposure: B

CONCRETE

All concrete shall have a minimum ultimate compressive strength of 3000 psi at 28 day test.

STRUCTURAL STEEL

1. Structural steel material shall be ASTM:
 - A992 (50 KSI) Rolled W-Shape Columns
 - A36 A572 (50 KSI) Connection Material, Stiffener Plates and Rolled Plate
 - A500 Grade B HSS (46 KSI)
 - A53 Grade B Pipe
2. Structural steel details, fabrication, and erection shall conform to the AISC "Manual Of Steel Construction - ASD" latest edition. Unless otherwise shown or specified.
3. All structural tube ends to be covered with light gage end caps.
4. All new steel to be primed and painted with an approved color.

WELDING

Unless otherwise noted, all welds shall be continuous 1/4" fillet welds. All full and/or partial penetration welds shall be fully detailed on the shop drawings.

DRILLED PIERS

1. All drilled piers shall bear on undisturbed soil.
2. Provide for dewatering at excavations from either surface water or seepage.
3. The elevation identifying the bottom of shaft is an approximate length for estimating purposes only. The actual length will be determined in the field from the actual elevation of the bearing stratum to be verified by the on-site soils testing agency.
4. Concrete shall be placed immediately after shafts are cleaned, data is recorded and approval of bearing surface is obtained. Excavations shall not be left open overnight.
5. All piers shall be centered under columns.

CONSTRUCTION

- The contract structural drawings and specifications represent the finished structure. They do not indicate the means or methods of construction.
- Trans-Lux Corporation and/or any of its subsidiaries assume no responsibility for work completed by others.
- Field verify all existing dimensions, member sizes, and elevation shown on the drawings. All discrepancies shall be brought to the attention of the engineer immediately.

SAFETY REQUIREMENTS

- Comply with all applicable city, county, state and federal laws and regulations adopted pursuant thereto.
- Provide all measures necessary to protect the workmen and other persons during construction. Provide all necessary measures to avoid excessive stresses and to hold the structural elements in place during construction. Such measures shall include, but not be limited to, bracing; shoring for construction equipment; scaffolding; safety nets; support and bracing for cranes and hoists; guying, etc.

ATTACHING THE OPTIONAL SIGN

- The sign can be easily lifted into place using a crane or boom truck such as used by utilities and sign companies. The weight and dimensions of your sign are shown on the installation drawing.
- When lifting the sign, hook the slings or spreader bar cables into the eyebolts attached to the top edge of the sign. The eyebolts may be removed after the sign is secured to the supports.

Caution: *If eyebolts are removed, plug the open holes and apply sealant to avoid water damage; otherwise, if water damage occurs then warranty will be void.*

- The sign is to be bolted or welded to the supports at each hanger bracket position.

FLAT BRACKET

This bracket is used only on optional signs or sports message displays. The sign or sports message display is bolted to the support columns.

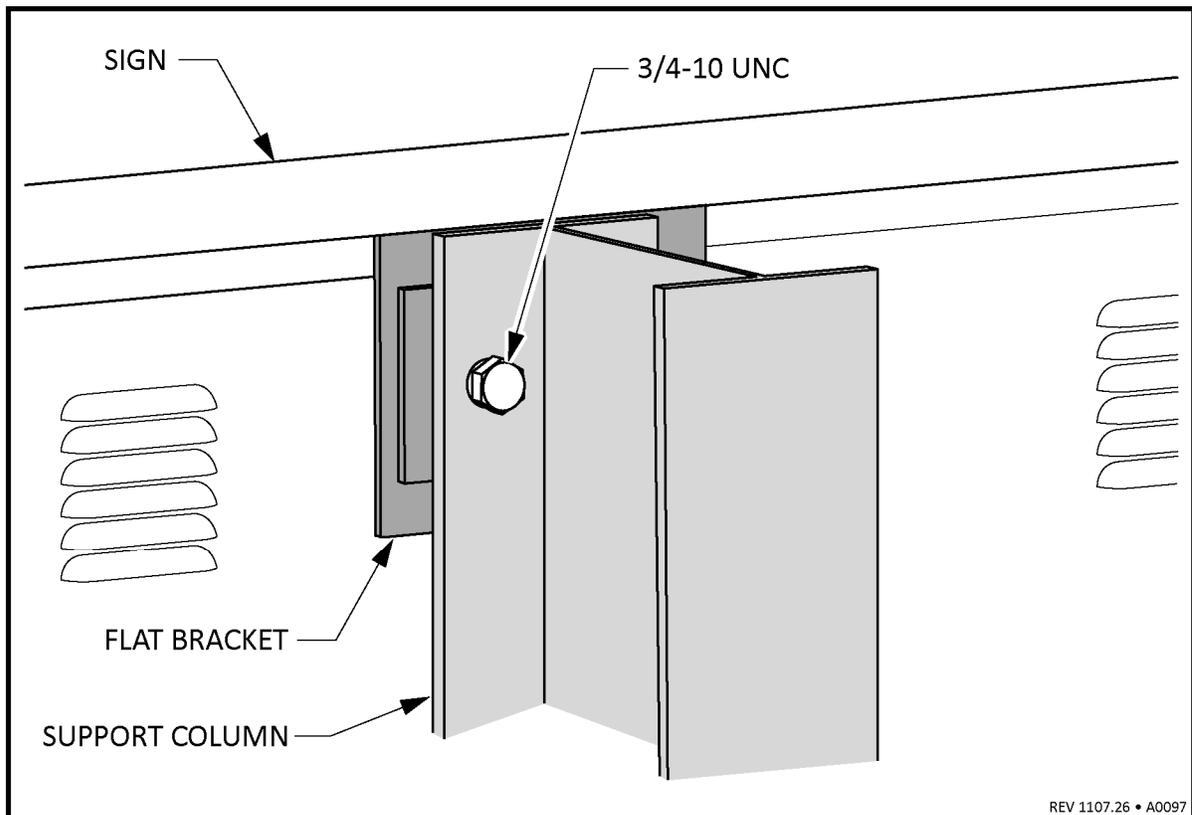


FIGURE 3 — FLAT BRACKET

ATTACHING THE SCOREBOARD

- The scoreboard can be easily lifted into place using a crane or boom truck such as used by utilities and sign companies. The weight and dimensions of your scoreboard are shown on the installation drawing.
- When lifting the scoreboard, hook the slings or spreader bar cables into the eyebolts or J-Brackets attached to the top edge of the scoreboard. The eyebolts may be removed after the scoreboard is secured to the supports.

Caution: *If eyebolts are removed, plug open holes in scoreboard and apply sealant to avoid water damage; otherwise, if water damage occurs then warranty will be void.*

- The scoreboard is to be bolted or welded to the supports at each hanger bracket position.

10" J-BRACKET

This method requires the scoreboard to be bolted to the support column.

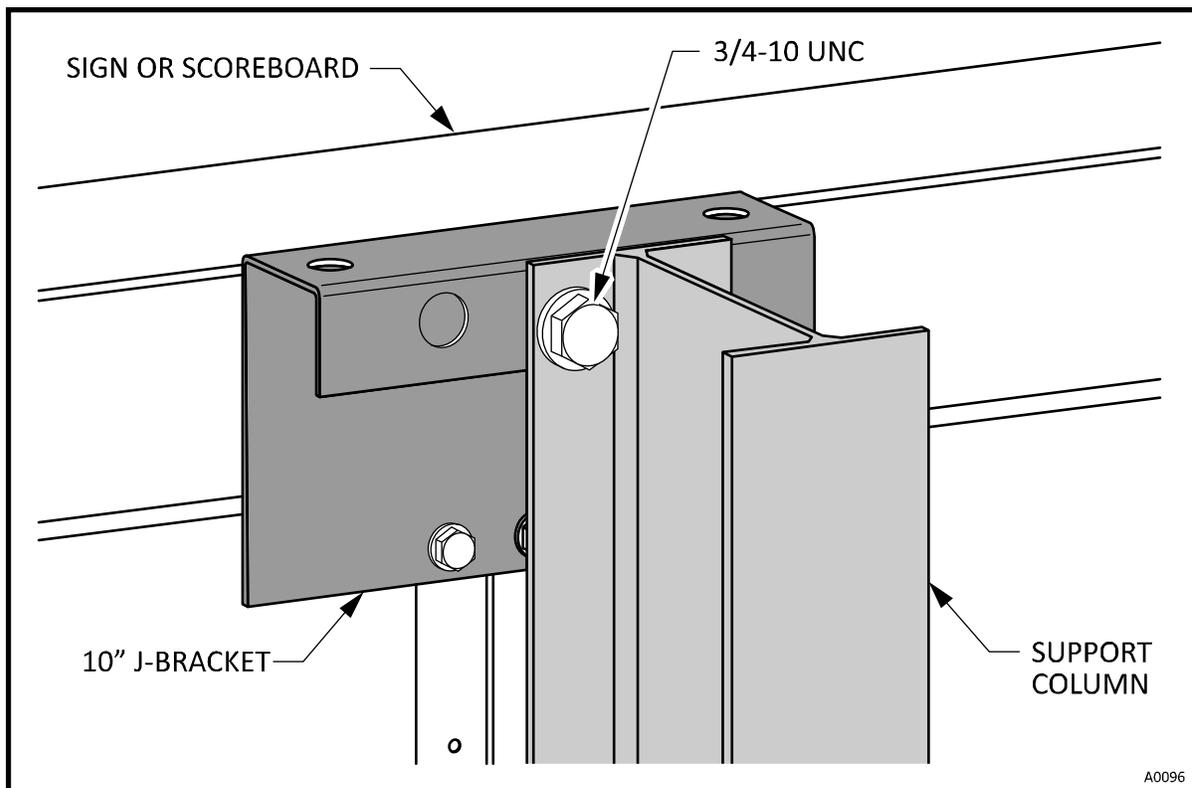


FIGURE 4 — 10" J-BRACKET

VARIABLE J-BRACKET

- This mounting method can use new or existing support columns when distances between supports are ± 6 or ± 12 inches from standard as shown in Table 1 on page 3.
- This mounting method can only be used for signs, scoreboards or sports message centers measuring up to 20 feet in length.

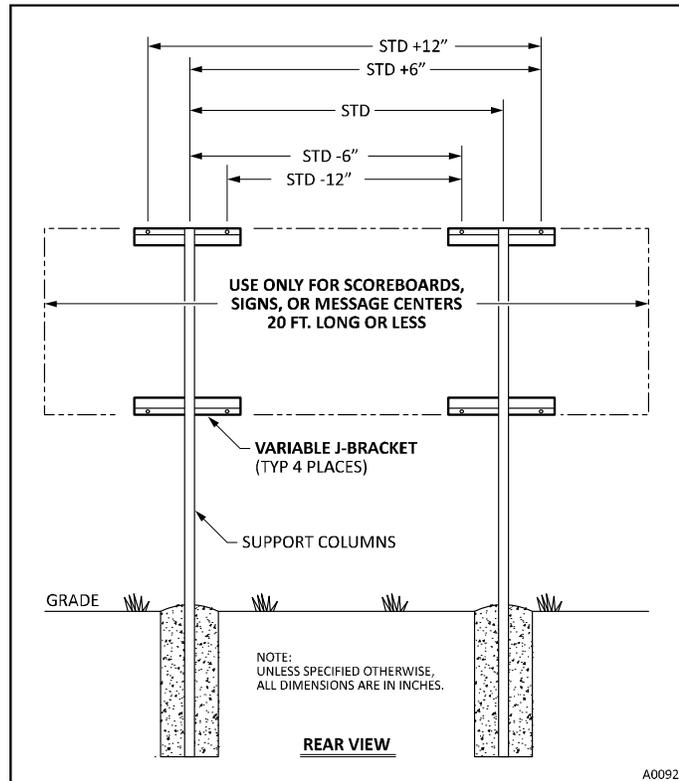


FIGURE 5. SUPPORT SPACING FOR VARIABLE SCOREBOARD MOUNTING SYSTEM

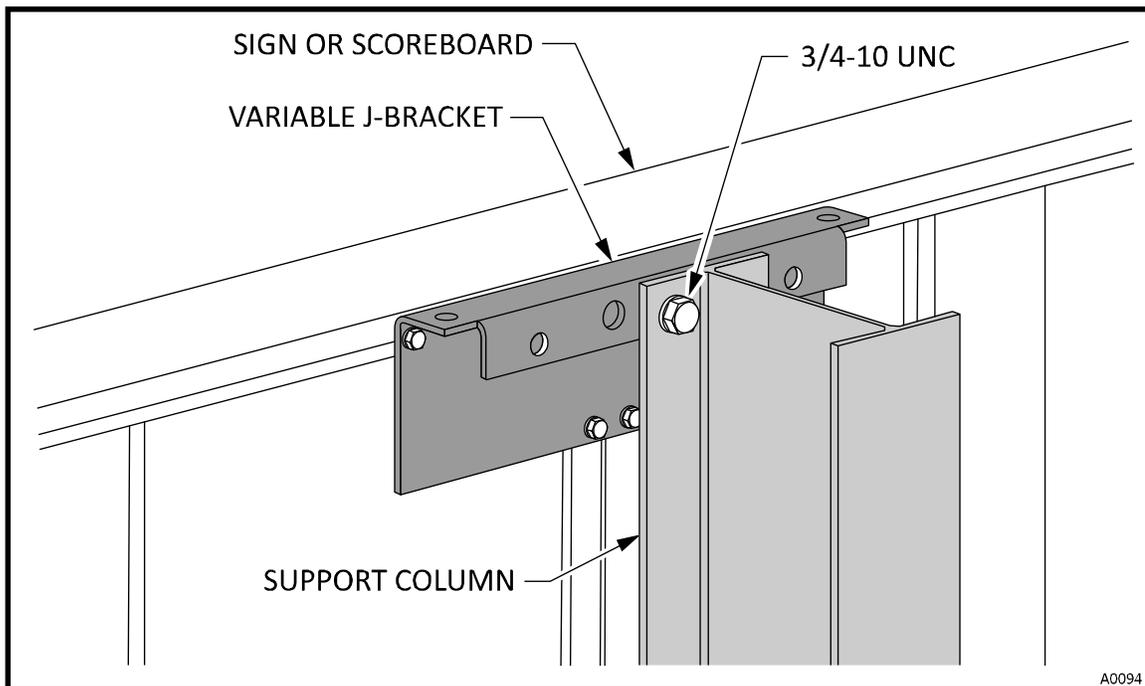


FIGURE 6 — VARIABLE J-BRACKET

STRINGER

- This method is used when it is not cost effective to reposition the existing support columns to the recommended standard spacing distance (shown in Table 1. Column & Footing Size on page 3).
- The stringers are usually made from tube steel and are welded to the support columns during installation.
- The stringer must be properly sized for the application by an appropriately licensed engineer.

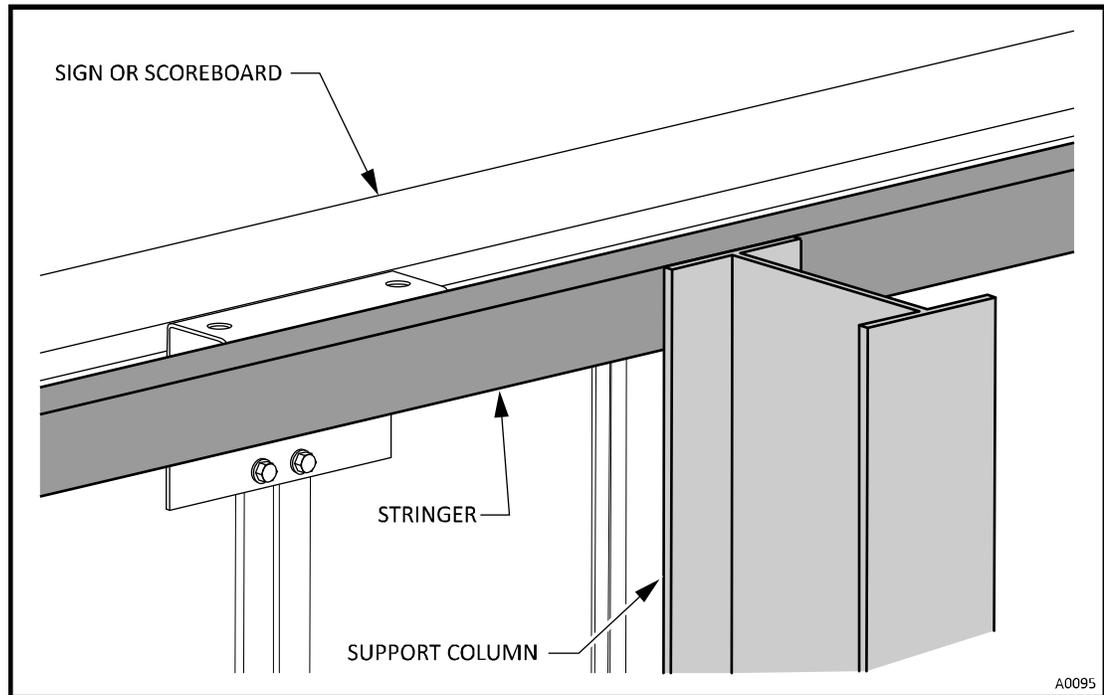


FIGURE 7 — STRINGER

SCOREBOARD CONTROL & POWER

CONDUIT AND WIRING REQUIREMENTS

- Electrical load requirements are stated on the ID label — located on the right side of the scoreboard as you are facing the front.
- Final connections to be completed after cabinets have been erected and permanently fastened.
- Final connections must be performed by a qualified electrician or service technician.
- Refer to Figure 9 — Control Data & Power Conduit Routing below.

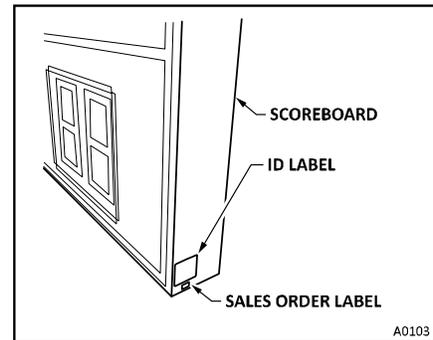


FIGURE 8 — ID LABEL

Warning: *Make sure power source is disconnected. Do not make final connections with live power. Failure to do so could result in serious injury or death caused by electrocution.*

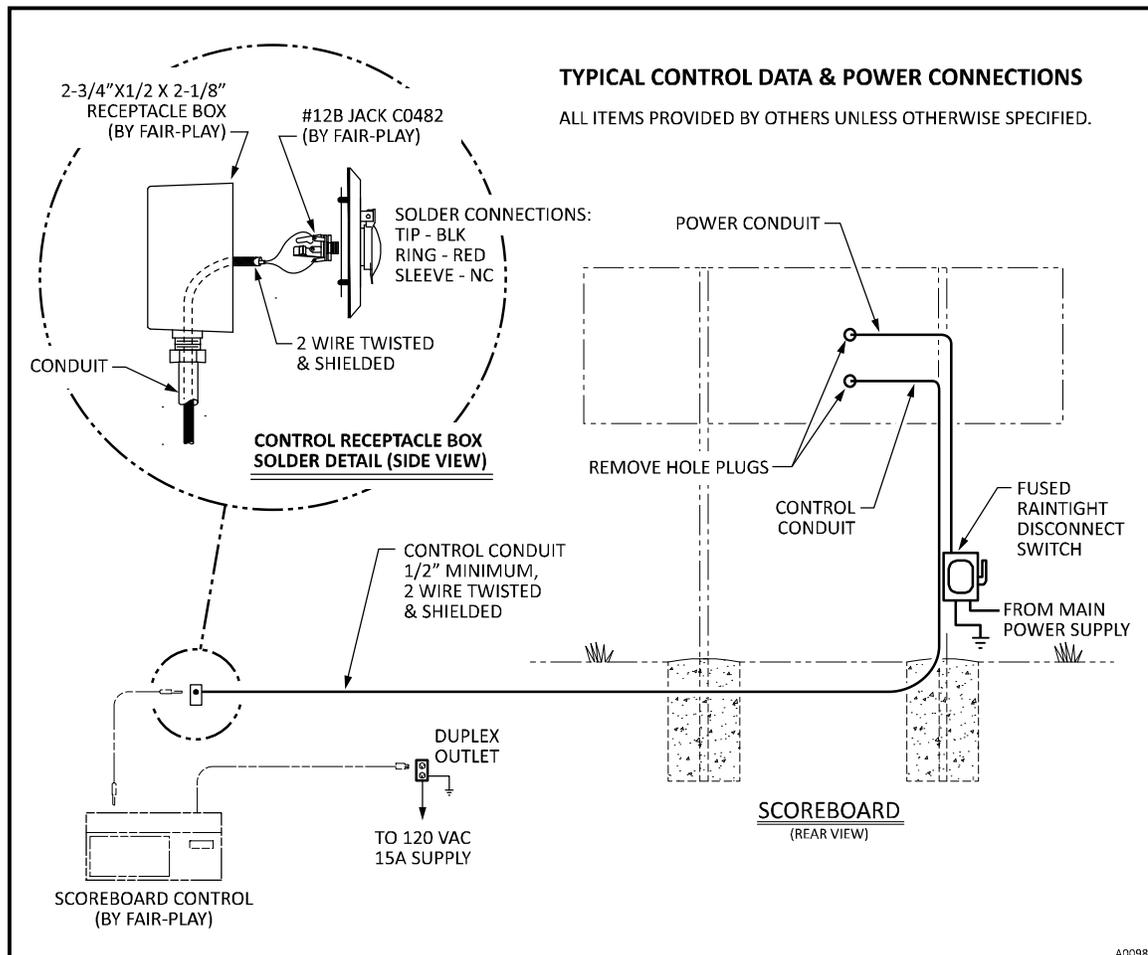


FIGURE 9 — CONTROL DATA & POWER CONDUIT ROUTING

ACCESSING THE CONTROL & POWER CONNECTIONS

Warning: Disconnect main power before opening the access door.

Warning: Incoming 120 VAC main power connections must be performed by a qualified electrician or service technician.

- Remove the service door to access the control data and power connections. Refer to Figure 10 below.

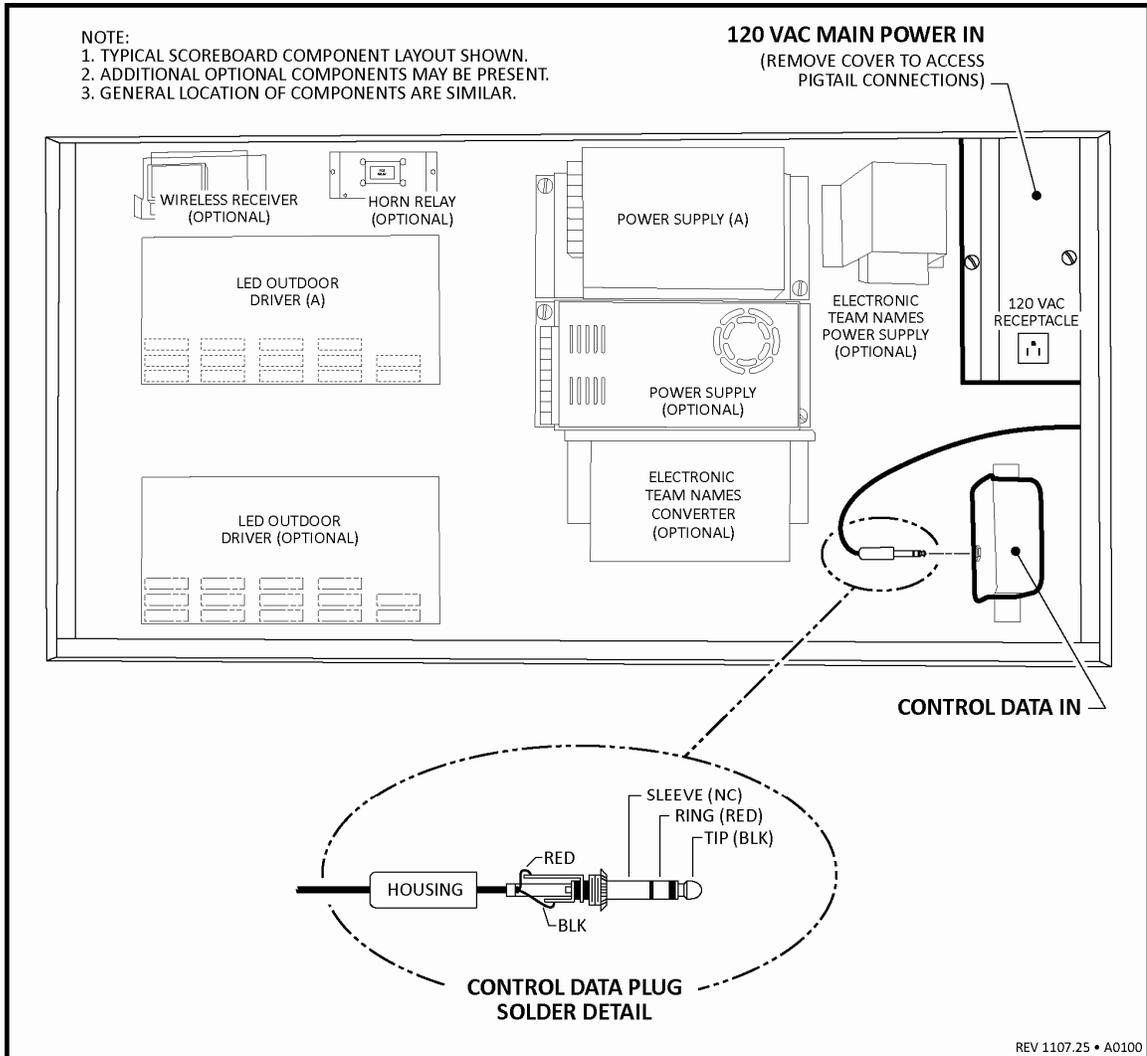


FIGURE 10 — LOCATION OF MAIN POWER IN AND CONTROL DATA IN

CONTROL DATA IN

WIRED CONTROL

1. A knock-out plug is provided on the rear of the scoreboard for the control conduit.
2. A 10' foot data control cable (with plugs) is provided — for connecting from the control to the **Control Receptacle Box**.
3. A single 2-wire shielded data control cable in a dedicated conduit (1/2" or larger) is required from the **Control Receptacle Box** to the **Control Data In Hook-Up Box** in the scoreboard. Solder connections are required for the plug and jack connectors.

Caution: *Do not route incoming power and data control cable in the same conduit as this may cause interference with the operation of the scoreboard.*

Note: *Do not pass cable through any cable passages without using a grommet, plastic bushing, or edge protection to protect the cable. If grommet, plastic bushing or edge protection is missing, seek one from your local supplier or contact Fair-Play. All cable passage holes are 2-1/2" diameter.*

WIRELESS CONTROL

- The (external) control cable and conduit are not required for wireless systems. A wireless **receiver** is installed inside the scoreboard. Data comes from the **receiver** and feeds the **LED Outdoor Driver(s)**.

POWER

FUSED DISCONNECT

A fused disconnect (provided by others) is normally mounted on one of the support columns within view of the scoreboard face. Refer to Figure 9 on page 10.

120 VAC SINGLE PHASE

- A knock-out plug is provided on the rear of the scoreboard for the power conduit.
- Your scoreboard is wired for connection to a 120 VAC single phase; two wire grounded power supply at the scoreboard.
- Total power required, when all LED's or lamps are turned on, is listed on the identification label provided with your scoreboard. Wire size should be determined by a local electrician typically determined by both load and wire lengths.

GROUND WIRE

The proper grounding of the electrical circuits and the scoreboard is an important aspect of an installation to ensure reliable operation, reduce potential lightning damage and for safety. Refer to Figure 11 below and to Article 250 of the National Electric Code.

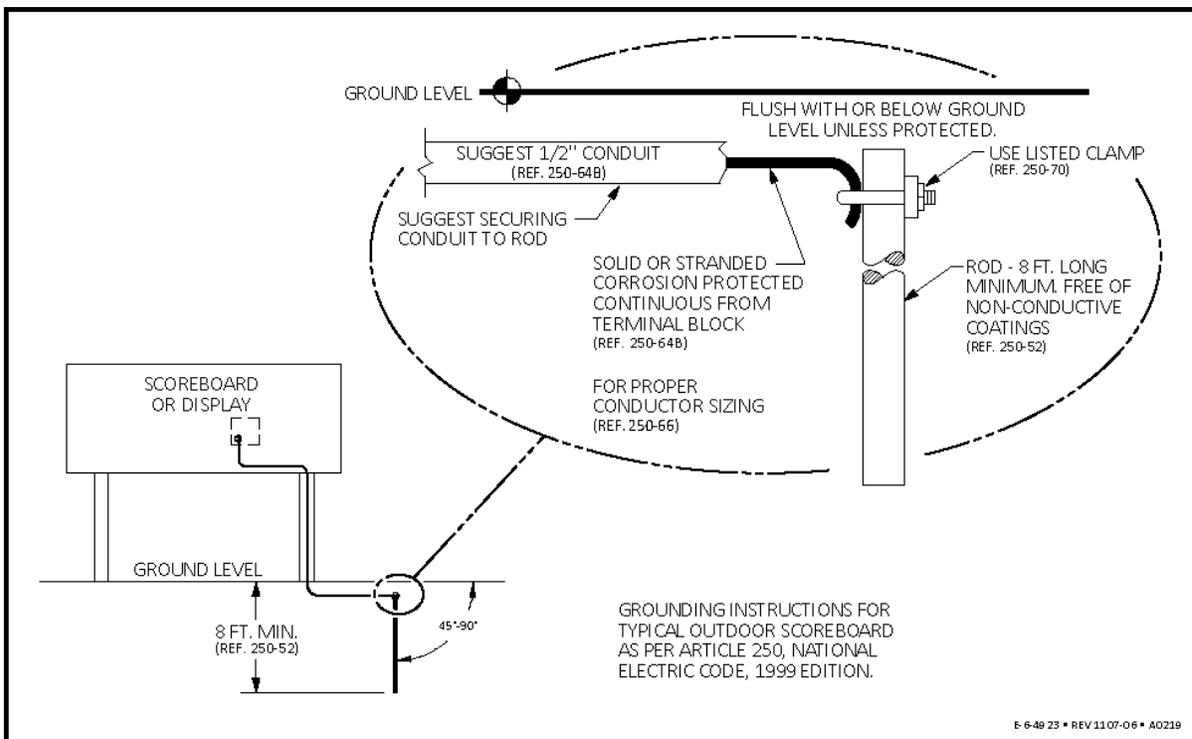


FIGURE 11 — TYPICAL GROUND WIRE CONNECTION

SPLIT CABINETS

All split cabinets require wires be routed to the customer hook-up location to operate all sections.

WATER INGRESS

- No additional penetrations may be created in the product unless they are sealed per NEMA 4 Standard.
- All field penetrations must be tested using a stream of water poured from a container located not less than 6 inches away horizontally. Warranty will be void if this testing is not completed during installation or if there is water ingress from field modifications.
- Any cabinets located above the product must not allow water to build up and then flow through conduits into the product.
- Penetrations between product and higher cabinets must be sealed between the cabinet internal spaces using water tight cable to conduit seals.
- Holes remaining from eye bolt removal must be filled, sealed and tested.

CONTROL

- A standard 120VAC control console is supplied with power cable and must be connected to a dedicated 120 VAC grounded outlet.
- Optional battery powered controls are available.
- An optional wireless and battery powered control may be available depending on the scoreboard type.
- The control must be operated and stored in a dry location.
- Refer to the user manual for the operation and maintenance of your specific control.

HORN

- Horns are optional and are not available on all models.
- Horns are shipped separate and installed by customer. Refer to 98-0020-01 Installation Instructions For Outdoor Horns.

<p>Caution: <i>Horns should not be supplied by others and attached to the scoreboard without the written approval of Fair-Play. Electrical loads imposed by unauthorized horns may damage the circuits and void the warranty.</i></p>
--

ATTACHING THE TLVISION

LIFTING BARS AND BRACKETS

- The TLVision can be easily lifted into place using a crane or boom truck such as used by utilities and sign companies.

The weight and dimensions of your TLVision are shown on the installation drawing.

- When lifting the TLVision, hook the slings or spreader bar cables into the holes of the **lifting bars** or **lifting brackets** attached to the rear of the TLVision.

- The TLVision is to be bolted or welded to the supports or a stringer can be used.

Refer to the following pages:

- **Bolted** on page 20,
- **Stringers** on page 21,
- **Welded** on page 22.
- The **lifting bars** or **lifting brackets** may be removed after the TLVision is secured to the supports.

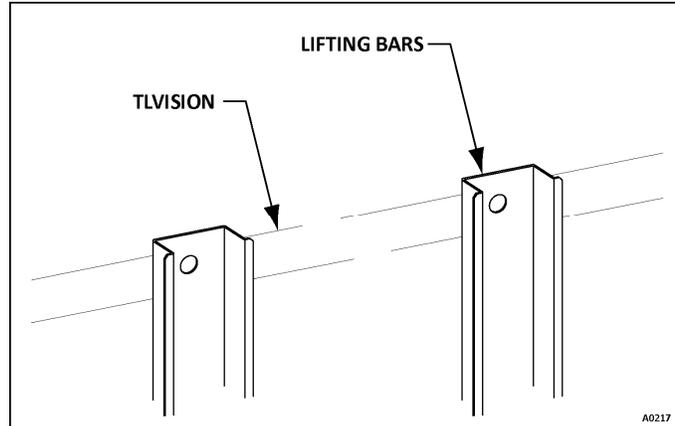


FIGURE 12 — LIFTING BAR

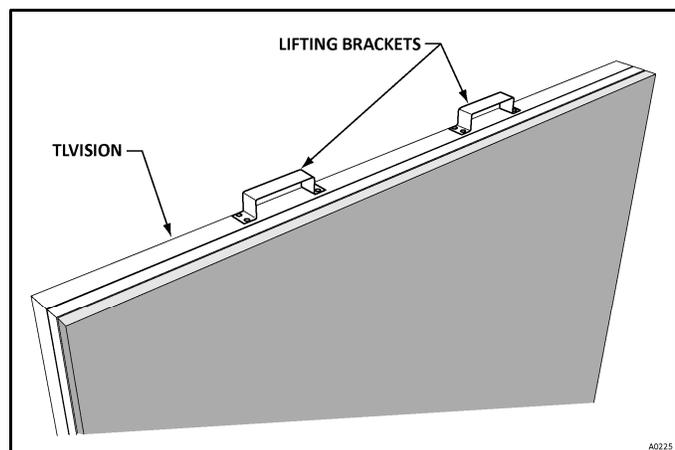


FIGURE 13 — LIFTING BRACKETS

SPLIT CABINETS

- All split cabinet sections must be installed in their correct location.
- All data cable wires must be routed and reconnected to operate all sections. Refer to Figure 22 on page 24 and Figure 25 on page 26.

1. INSTALL TLVISION SECTIONS

- Install TLVision to the support columns beginning with the bottom section.
- When installing the top section, align the guide pins to the holes of the top section.

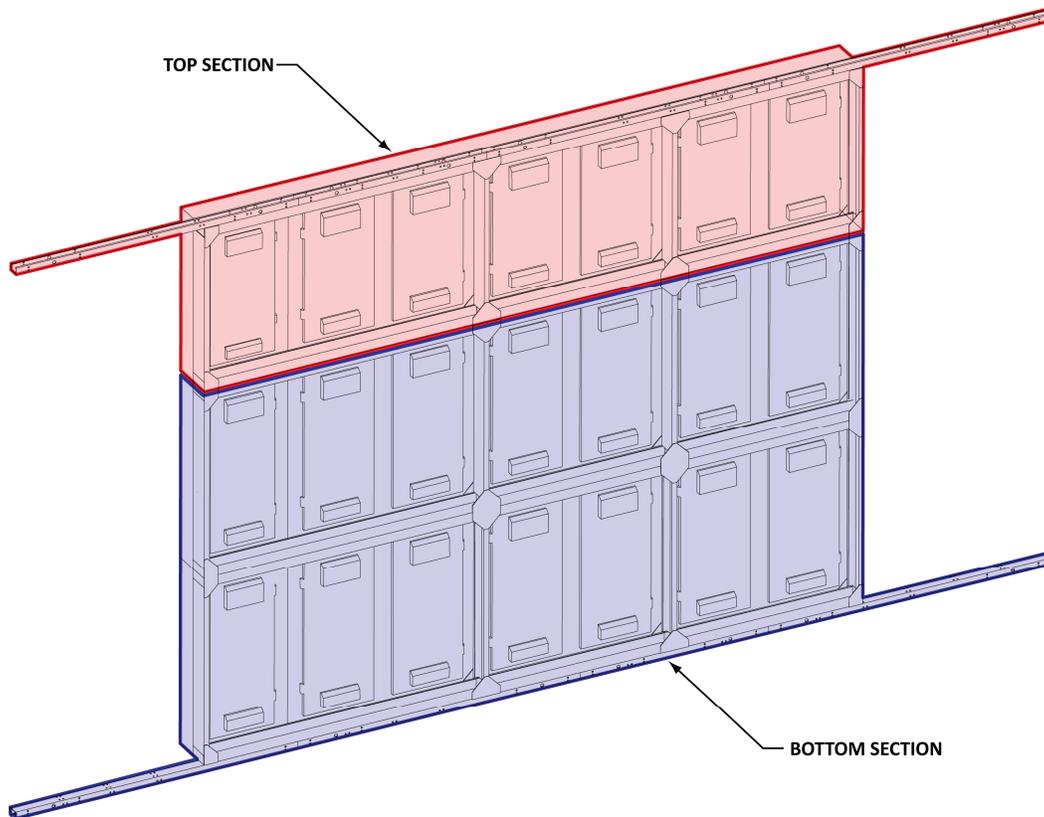


FIGURE 14 — INSTALL TLVISION SECTIONS

A0223-1

2. INSTALL TOP SHELL

- a. Place one of the frame shells on top of the TLVISION. The top and bottom shells are identical. See Figure 15 below.

The Top Shell must be butted against the U-channel and the ends must be even with the edge of the cabinet.

- b. Drill 5/16 diameter holes thru the Top Shell using the small hole as a guide.
- c. Insert Fab-Lok anchors through the drilled hole.

Use a 5/8" boxed end wrench or vise grips to hold outer nut and tighten the 5/16 hex head until the Fab-Lok is anchored.

Note: *Fab-Lok fasteners require considerable torque to start collapsing, then less torque when they start to set.*

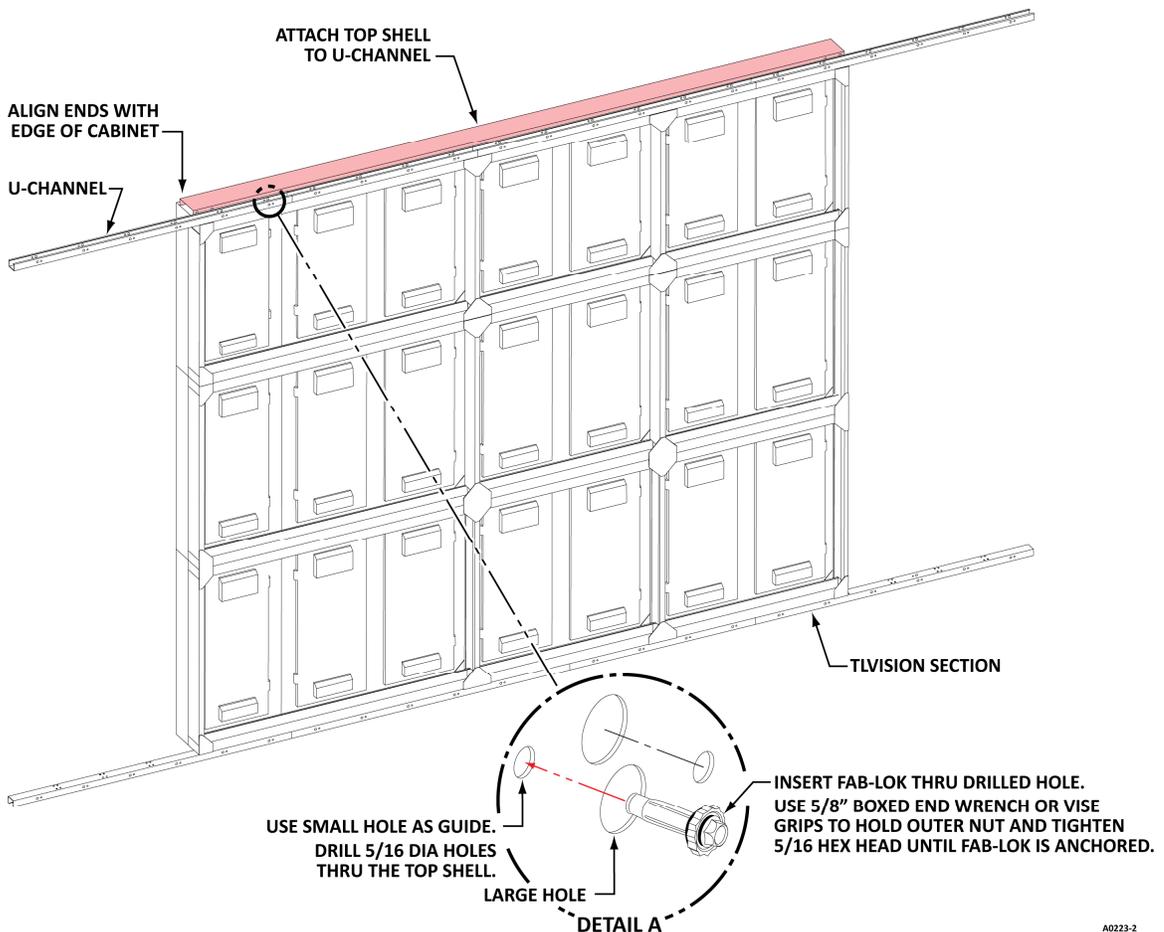


FIGURE 15 – TOP SHELL TO TLVISION SECTION

A0223-2

3. INSTALL 1ST SIDE PANEL

- Install the Side Panel into place and by inserting the sleeve into the Top Shell. See Figure 16 below. It is normal to have a 1/4" gap between the Side Panel and the TLVision cabinet.

Secure the top end using 3/8 hex bolts four (4) places.

- Install the Bottom Shell by sliding it in over the sleeve of the Side Panel.

Secure the bottom end using 3/8 hex bolts four (4) places.

Allow for 1/2" gap between Bottom Shell and the TLVision cabinet. Temporarily hold up other end of Bottom Shell for next step.

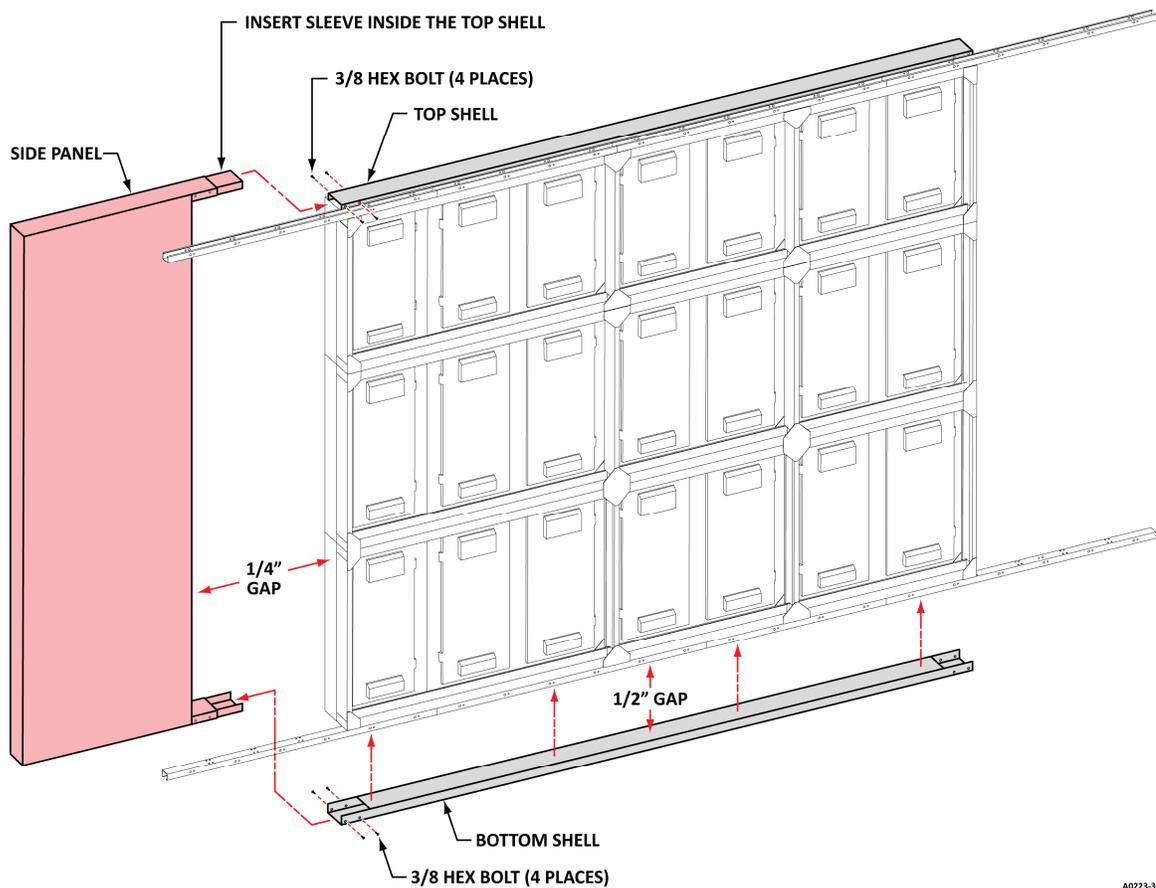


FIGURE 16 – SIDE PANEL TO TLVISION SECTION

4. INSTALL 2ND SIDE PANEL

1. Install the Side Panel into place by inserting both top and bottom sleeves into the Top Shell and Bottom Shell. Secure with 3/8 hex bolts. See Figure 17 below.

It is normal to have a 1/4" gap between the Side Panel and the cabinet and 1/2" gap between the Bottom Shell and the cabinet.

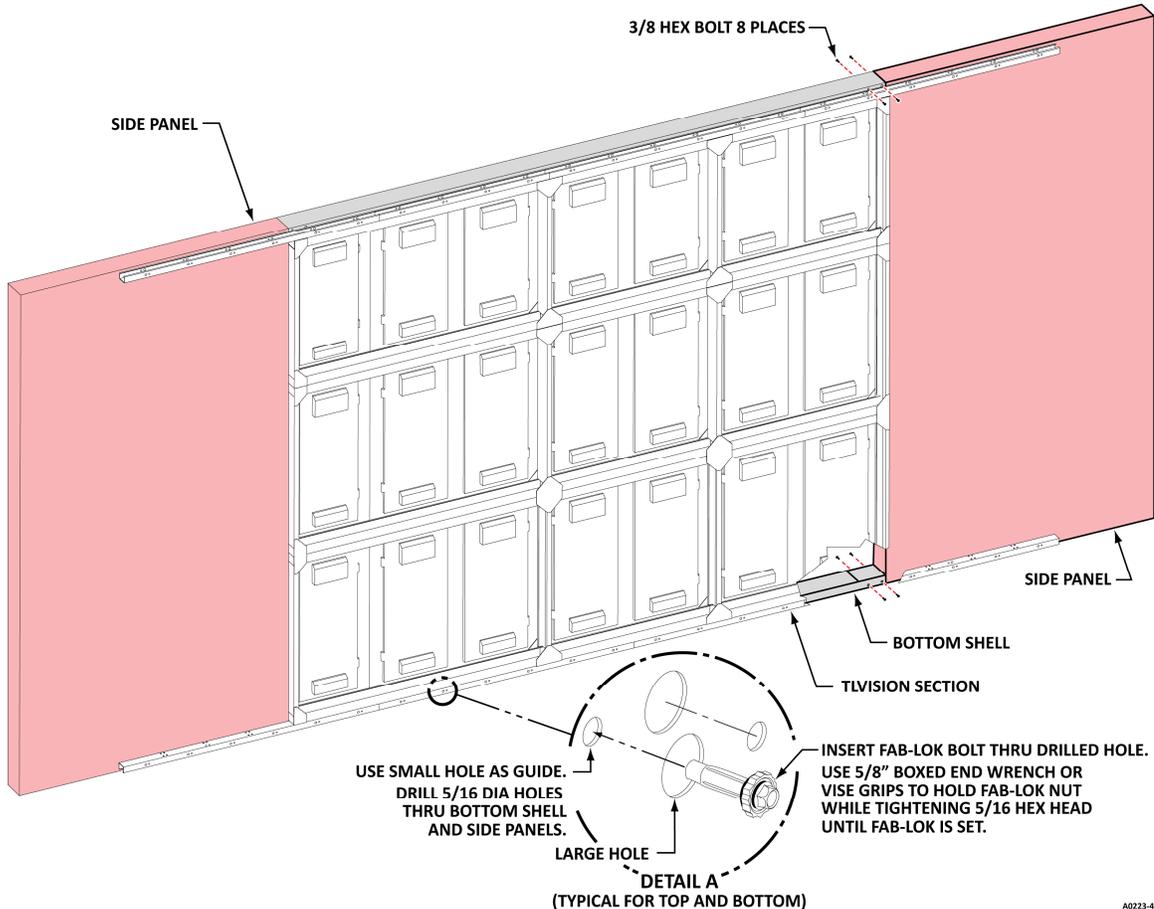


FIGURE 17 - INSTALL SIDE PANELS TO TLVISION SECTION

2. Locate the guide holes on the U-Channel and use the small hole as guide to drill 5/16" holes through the left and right Side Panel frames and the Bottom Shell. See detail in Figure 17 above.
3. Install Fab-Lok fasteners to anchor the Side Panel to the U-Channel.

Tighten Fab-Lok fasteners by holding the outer nut with a 5/8" boxed end wrench or vise grips and tighten the 5/16 hex head bolt until the Fab-Lok is set. Fab-Lok bolts require considerable torque to start collapsing, then less torque until they start to set.

All Fab-Lok bolts must be securely fastened.

BOLTED

Mount the TLVISION to the support column by bolting to the horizontal Mounting Channels only. Use existing holes or drill additional holes. The U-channel is only for mounting trim packages.

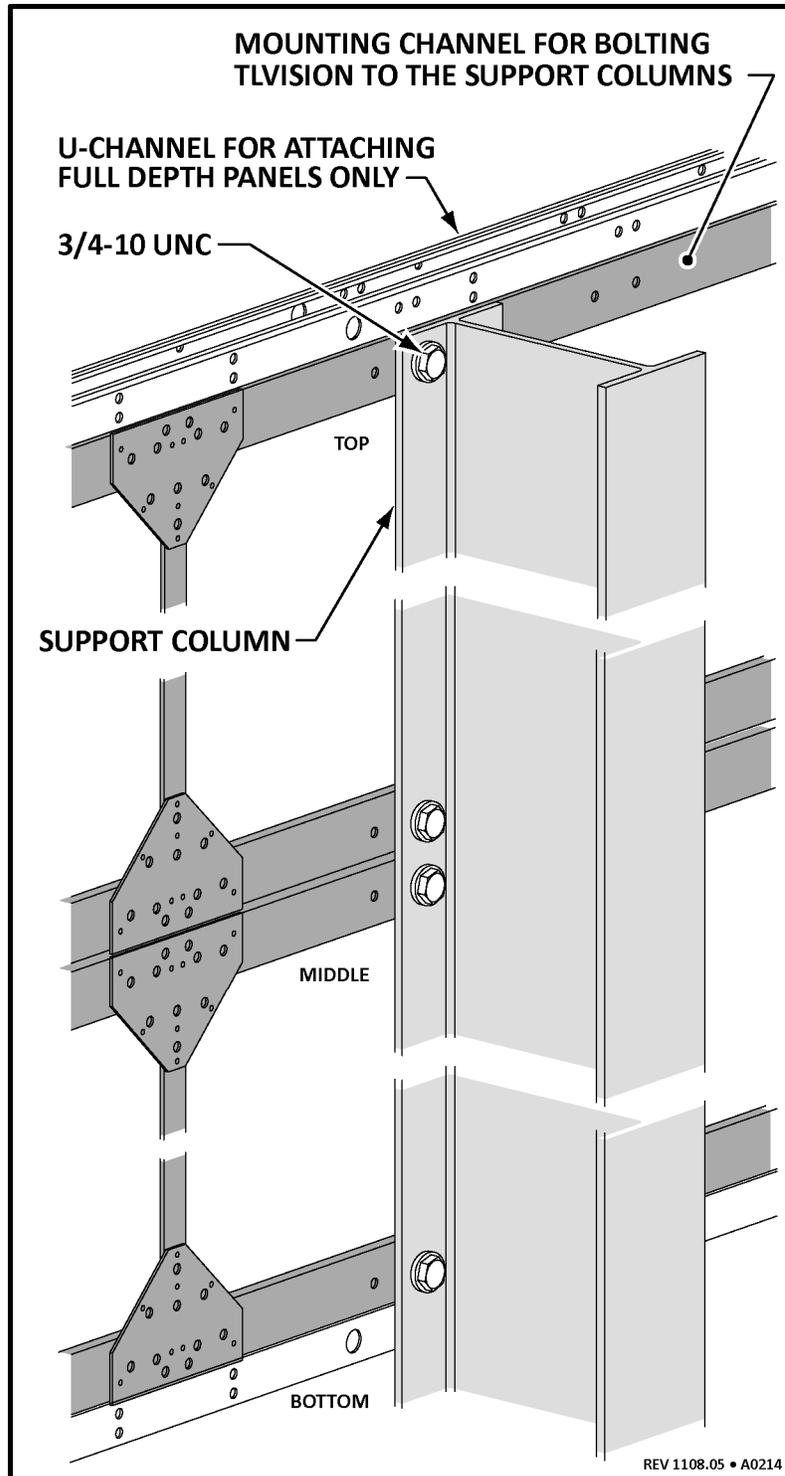


FIGURE 18 — BOLTED

STRINGERS

- This method is used when it is not cost effective to reposition the existing support columns to the recommended standard spacing distance (shown in Table 1. Column & Footing Size on page 3).
- The stringers are usually made from tube steel and are bolted or welded to the Mounting Channel and welded to the support columns during installation.
- The stringer must be properly sized for the application by an appropriately licensed engineer.

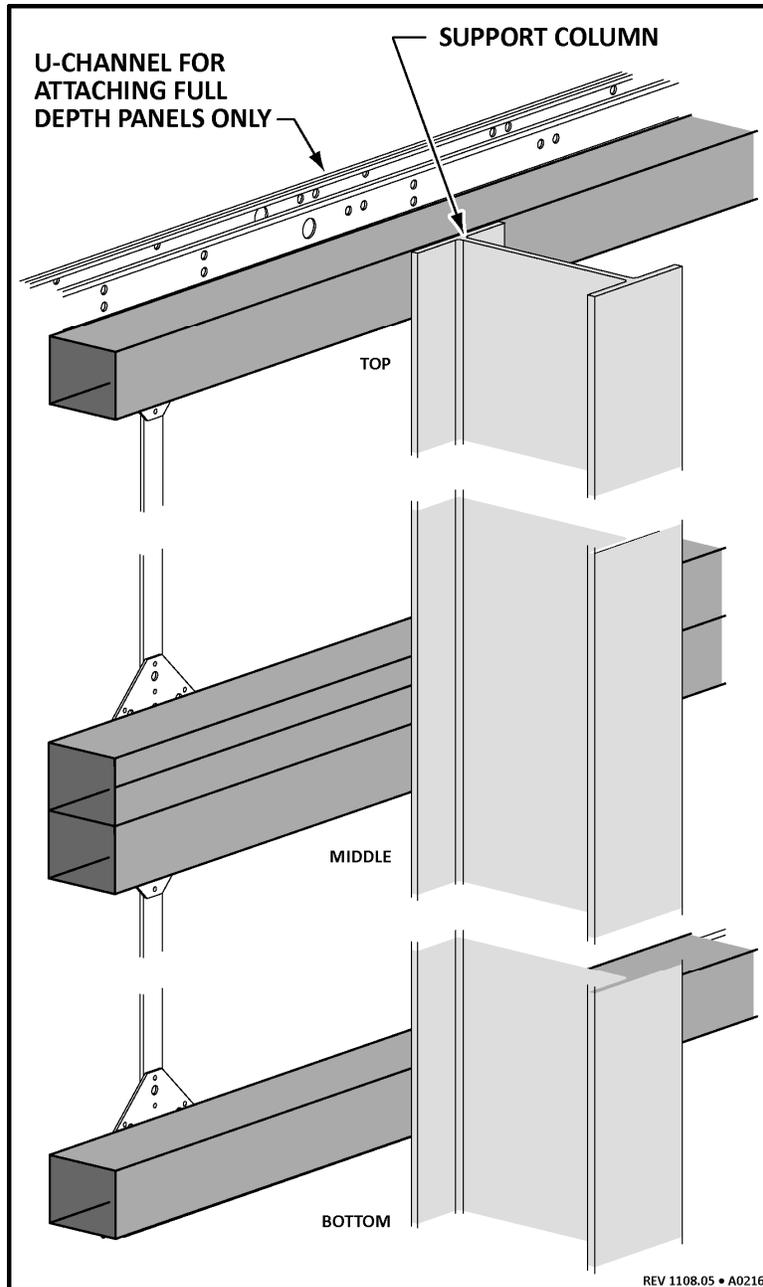


FIGURE 19 — STRINGER

WELDED

Mount the TLVision to the support column by welding to the horizontal Mounting Channels only. The U-channel is only for mounting trim packages.

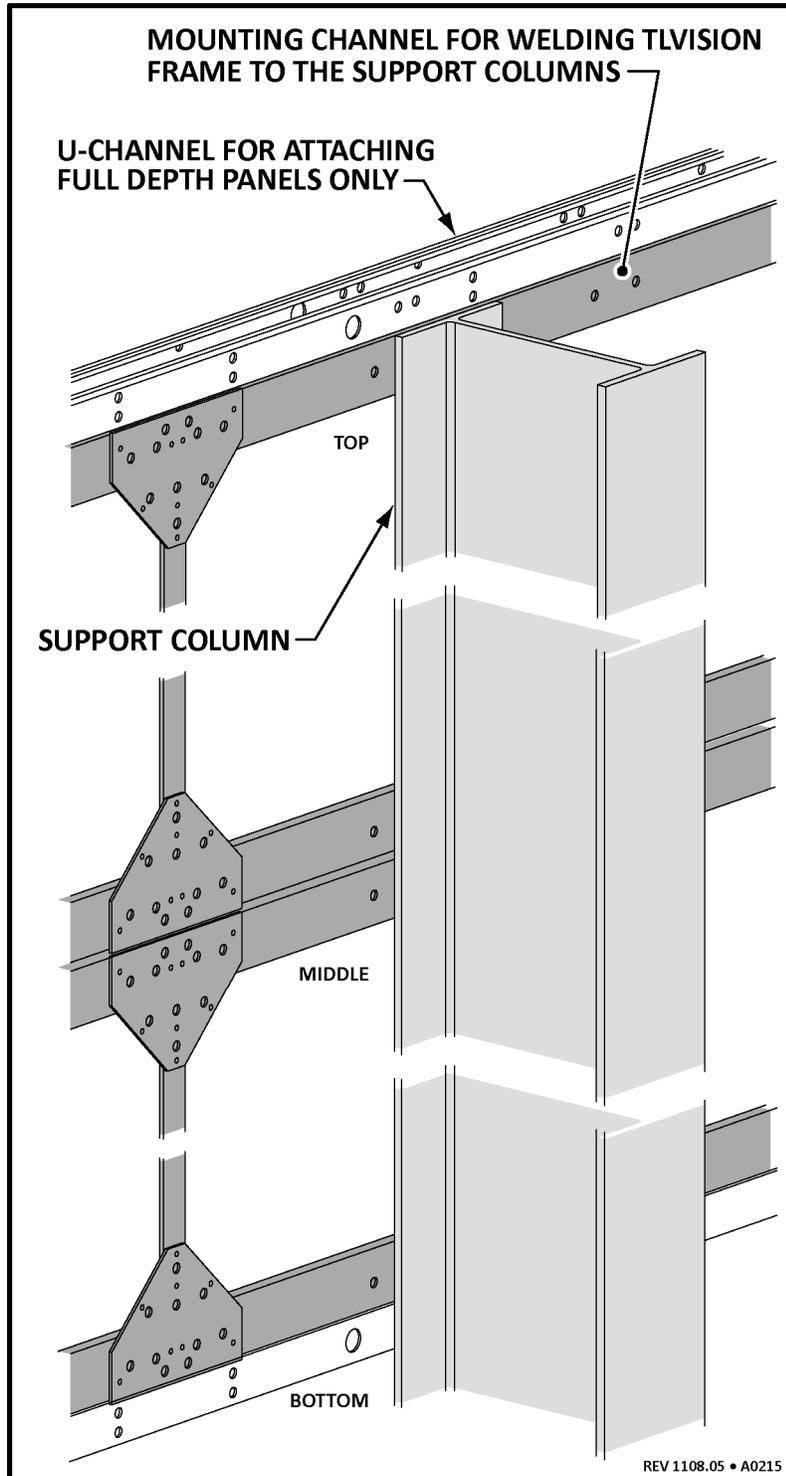


FIGURE 20 — WELDING

POWER & DATA

CONDUIT AND WIRING REQUIREMENTS

- Electrical load requirements are stated on the ID label — located near the power plug behind each panel module.
- Refer to wiring diagram supplied with your equipment.
- Final connections are to be completed after TLVision has been erected and permanently fastened.
- Final connections must be performed by a qualified electrician or service technician.

Warning: *Make sure power source is disconnected. Do not make final connections with live power. Failure to do so could result in serious injury or death caused by electrocution.*

WATER INGRESS

- Additional penetrations may be created in the TLVision cabinet only if they are sealed per NEMA 4 Standard. Additional penetrations are NOT allowed to the TLVision module enclosures. Refer to Figure 21 below.

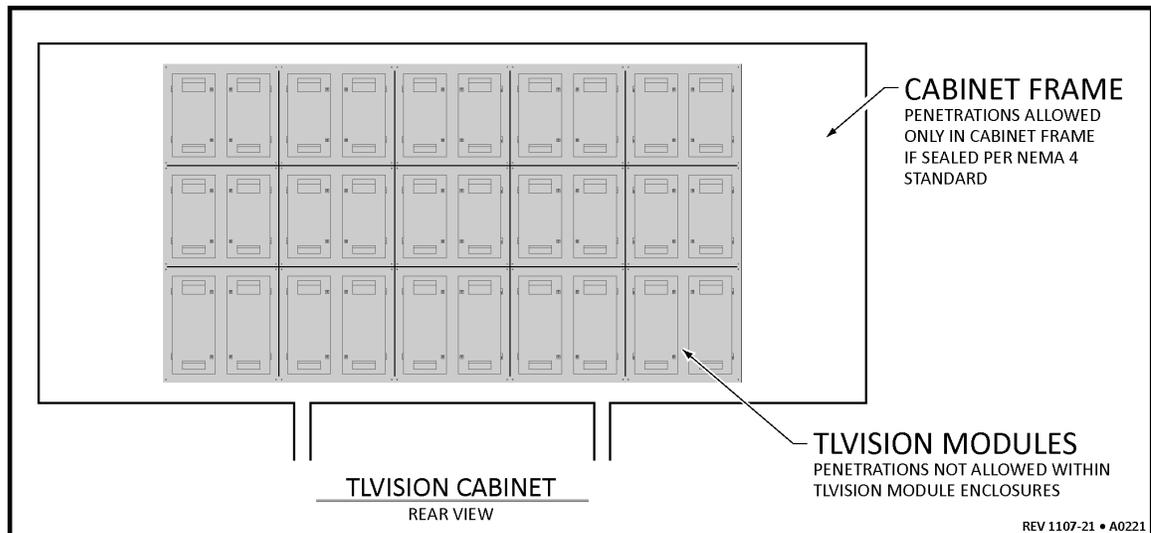


FIGURE 21 — CABINET FRAME VS TLVISION CABINET

- All field penetrations must be tested using a stream of water poured from a container located not less than 6 inches away horizontally. Warranty will be void if this testing is not completed during installation or if there is water ingress from field modifications.
- Any cabinets located above the TLVision must not allow water to build up and then flow through conduits into the TLVision.
- Penetrations between the TLVision and higher cabinets must be sealed between the cabinet internal spaces using water tight cable to conduit seals.

ATTACHING THE TLVISION

POWER

POWER JUNCTION BOX

Customer must provide a power junction box mounted on the support beam.

FUSED DISCONNECT

A fused disconnect (provided by others) is normally mounted on one of the support columns within view of the TLVision face. Refer to Figure 22 below.

120 VAC SINGLE PHASE

- A plug is provided on the rear of the TLVision modules for the power cable.
- Unless specified otherwise, the TLVision is wired for connection to a 120 VAC single phase; two wire grounded power supply.
- Total power required, when all LED's or lamps are turned on is listed on the identification label located on the back of the TLVision. Wire size should be determined by a local electrician typically determined by both load and wire lengths.

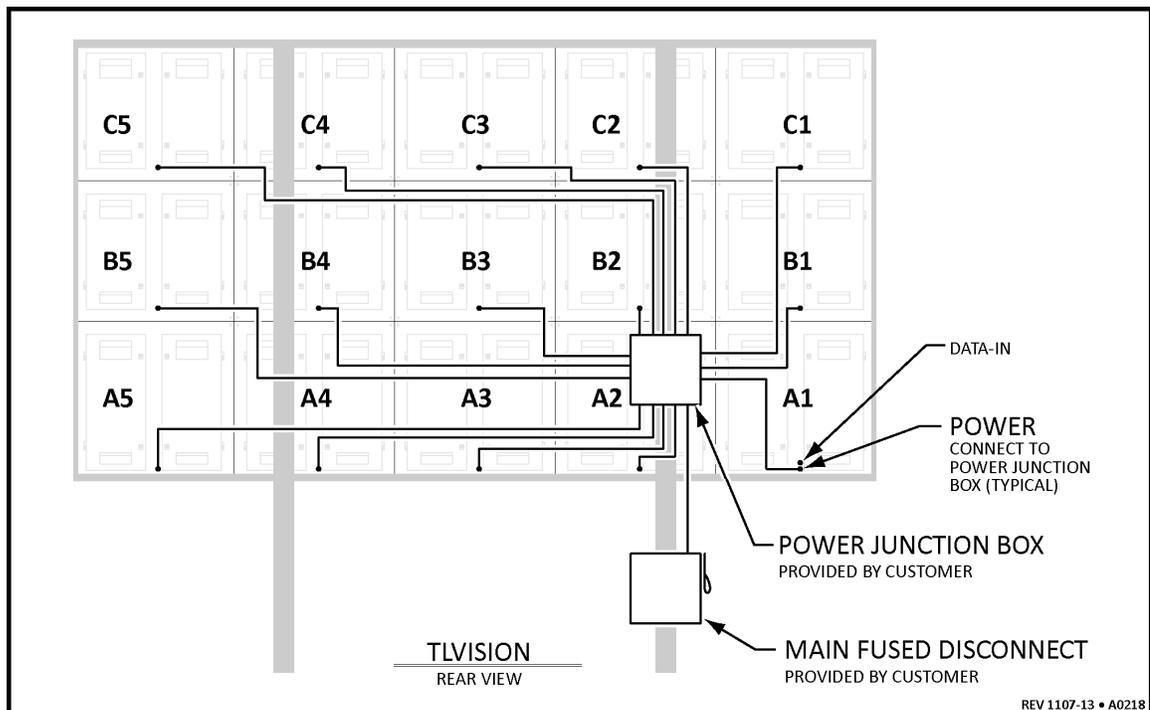


FIGURE 22 — POWER CABLE CONNECTIONS

GROUND WIRE

The proper grounding of the electrical circuits and the TLVision is an important aspect of an installation to ensure reliable operation, reduce potential lightning damage and for safety. Refer to Figure 23 below and to Article 250 of the National Electric Code.

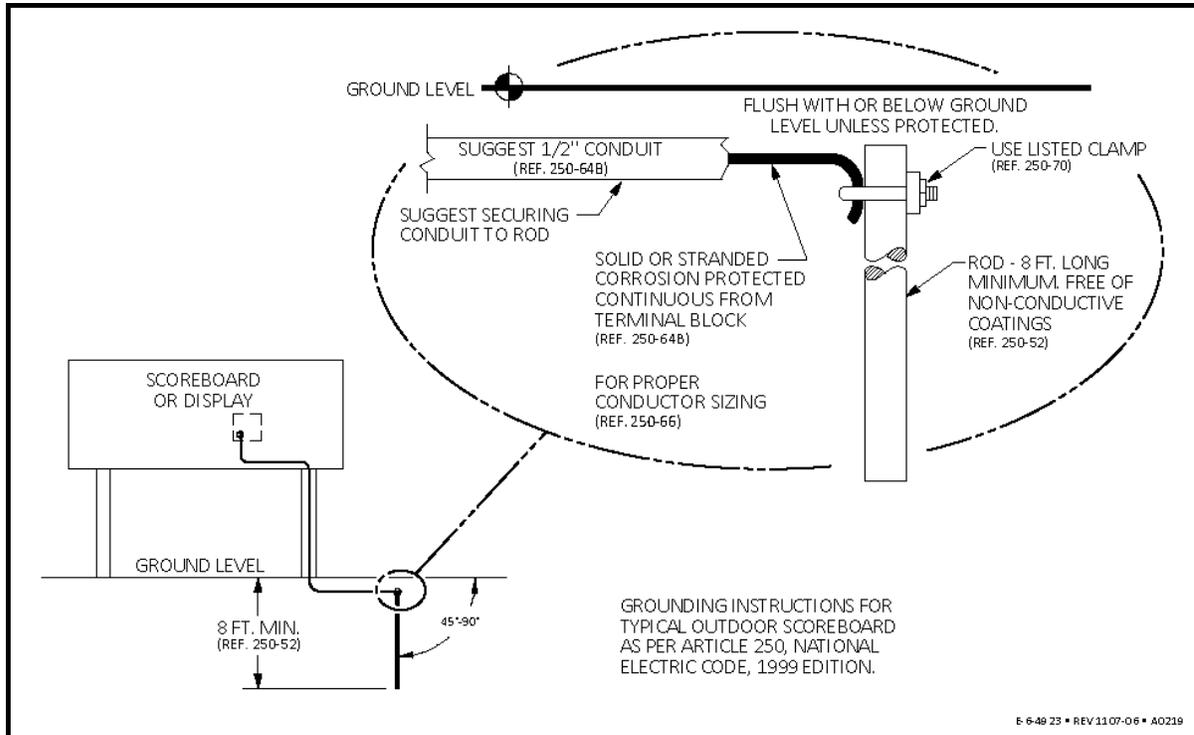


FIGURE 23 — TYPICAL GROUND WIRE CONNECTION

ATTACHING THE TLVISION

CONTROL DATA

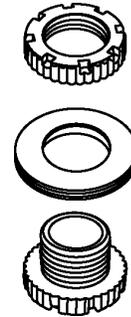
FIBER OPTIC CABLES

- Located on the rear of the TLVision is the DATA-IN plug. Connect the (customer provided) fiber optic cables to the TX and RX ports.

DATA CABLES

1. Locate the cable passage hole between the top and bottom sections. The passage hole is for the data cable that connects the bottom section to the top section.
2. Install the sealing grommet(s) provided with your TLVision.
3. Locate the data cable in the lower section near the hole. It is pigtailed near the receiver. Uncoil the data cable, route it to the top section through the cable passage hole and then connect it to the receiver in the top section.

Repeat the process of connecting the data cables from the bottom section to the top section as necessary depending on the number of the TLVision sections.



A0226

FIGURE 24 — SEALING GROMMET

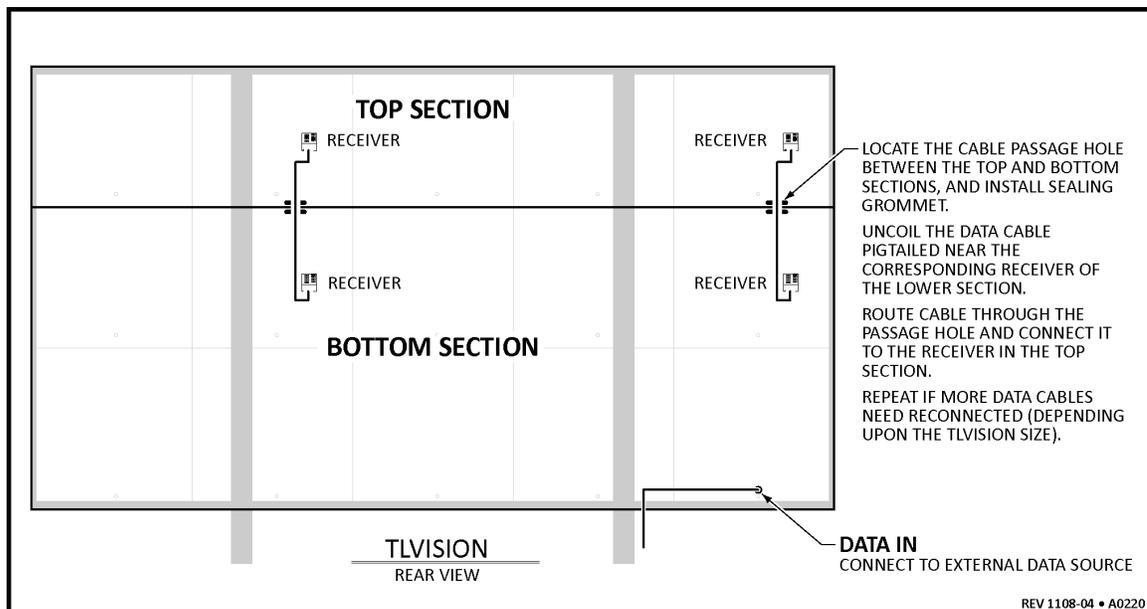


FIGURE 25 — CONNECT DATA CABLES TO TOP SECTION

Note: Do not pass cable through any cable passages without using a grommet, plastic bushing, or edge protection to protect the cable. If grommet, plastic bushing or edge protection is missing, seek one from your local supplier or contact Fair-Play. All cable passage holes are 2-1/2" diameter.

CONTROL

- A transmitter is supplied with power cable and must be connected to a dedicated 120 VAC grounded outlet.
- Connect the transmitter to the ProLine PC.
- If the TLVision is used to display score information then connect the MP-70 to the ProLine PC.
- Optional battery powered MP-70 controls are available.
- The MP-70 control must be operated and stored in a dry location.
- Refer to the user manual for the operation and maintenance of your MP-70 control.

HORN

- Horns are optional and are not available on all models.
- Horns are shipped separate and installed by customer. Refer to 98-0020-01 Installation Instructions For Outdoor Horns.

<p>Caution: <i>Horns should not be supplied by others and attached to the TLVision without the written approval of Fair-Play. Electrical loads imposed by unauthorized horns may damage the circuits and void the warranty.</i></p>
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