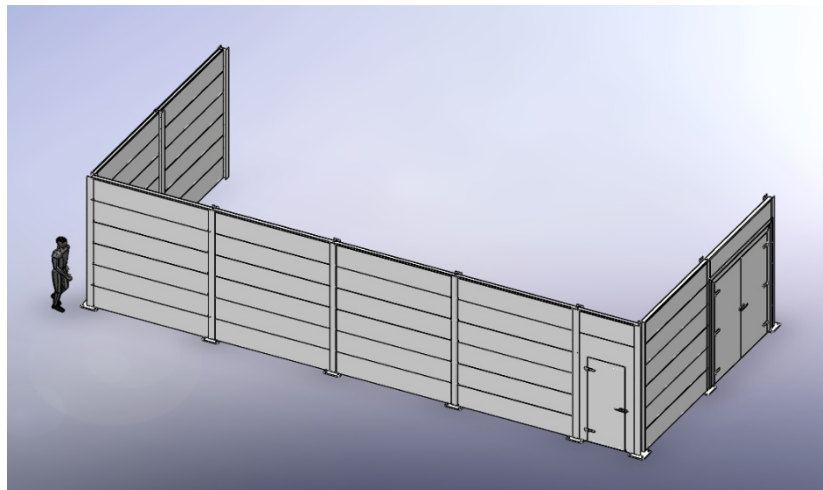
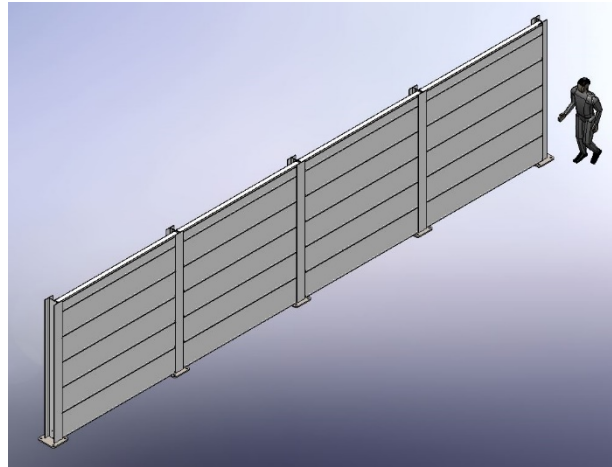


TYPICAL INSTALLATION PROCEDURES FOR **BARRIER WALLS**





GENERAL INFORMATION

VG Engineering Noise Barrier Walls provide a sound barrier between a noise source and the surrounding community. The barrier walls can be used for either indoor or outdoor applications, can be ground or rooftop mounted.

VG Engineering Barrier Walls use modular panels. A noise barrier system is easy to install and if used for temporary applications is easy to dismantle and relocate. Those panels are joined together mainly using Tongue-Groove Connection and designed flashing. Refer to following Installation Procedures as a guidelines for proper installation.

Acoustic Performance Information

Tests are performed by independent testing for the scope of accreditation under NVLAP lab code 100402-0.

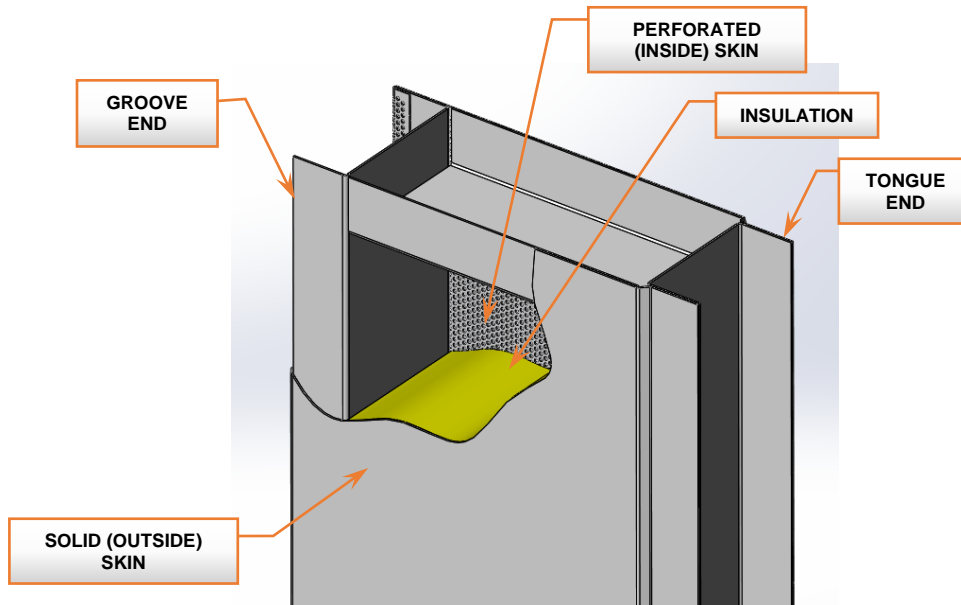
For **Sound Absorption Test**, the specimen is tested in accordance with the American Society for Testing and Materials designation ASTM C423-09a, "Standard Test Method for Sound Absorption Coefficient by the Reverberation Room Method".

For **Sound Transmission Loss Test**, the specimen is tested in accordance with the American Society for Testing and Materials designation ASTM E90-2009, "Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions", and classified in accordance with the American Society for Testing and Materials designation ASTM E413-2010, "Classification for Rating Sound Insulation" and in accordance with ASTM Standard E1332-2010a entitled, "Standard Classification for Determination of Outdoor-Indoor Transmission Class".

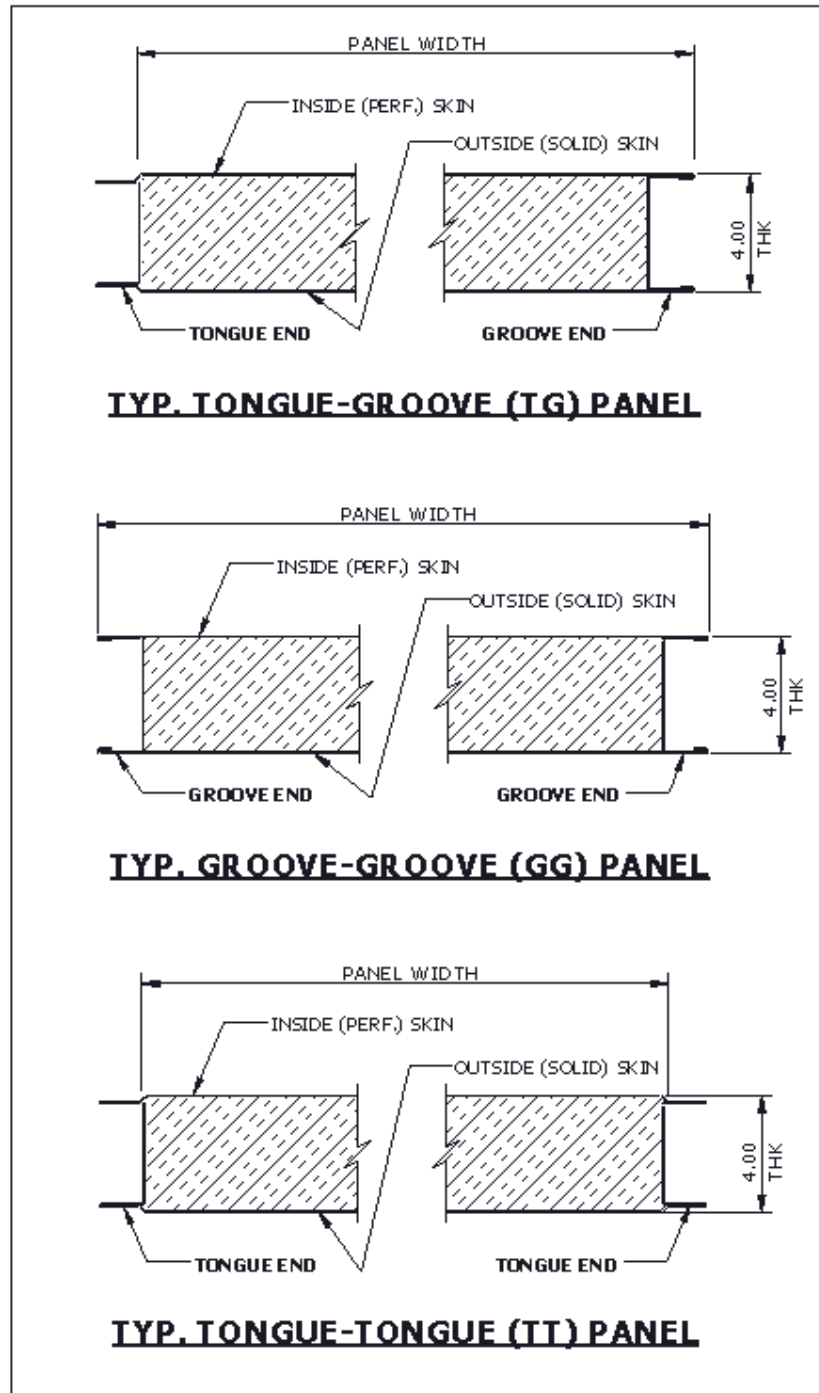
Standard Acoustic Panels

TYPICAL STANDARD PANEL SIZES AND CONSTRUCTION

PANEL TYPES	'TG' (Tongue-Groove) <i>** see <u>Panel Types</u> for dimensions</i> 'GG' (Groove-Groove) 'TT' (Tongue-Tongue)
PANEL THICKNESS	Standard – 4" Optional – 2" to 6"
PANEL LENGTH	Standard Length is 120", but can go up to 144"
PANEL MAT'L GAGES	Outside Skin – 18 ga OR 16 ga SOLID; Inside Skin – 22 ga PERFORATED or SOLID (depending on the application)
MATERIAL	Galvanized Steel G90, Satin Finish Galvanized Steel, Stainless Steel 304 or 316, Aluminum Optional – POWDER COATING
INSULATION	FIBERGLASS MINERAL WOOL



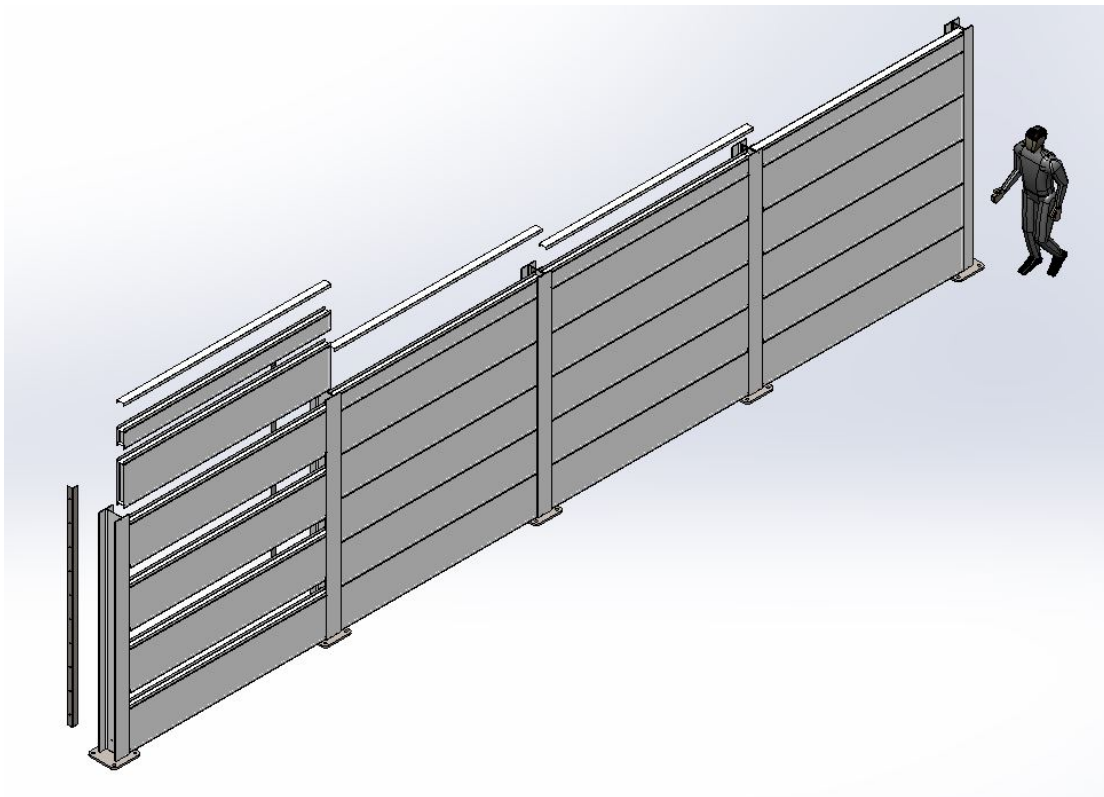
TYP 'TG' PANEL



Panel Types

INSTALLATION GUIDELINES

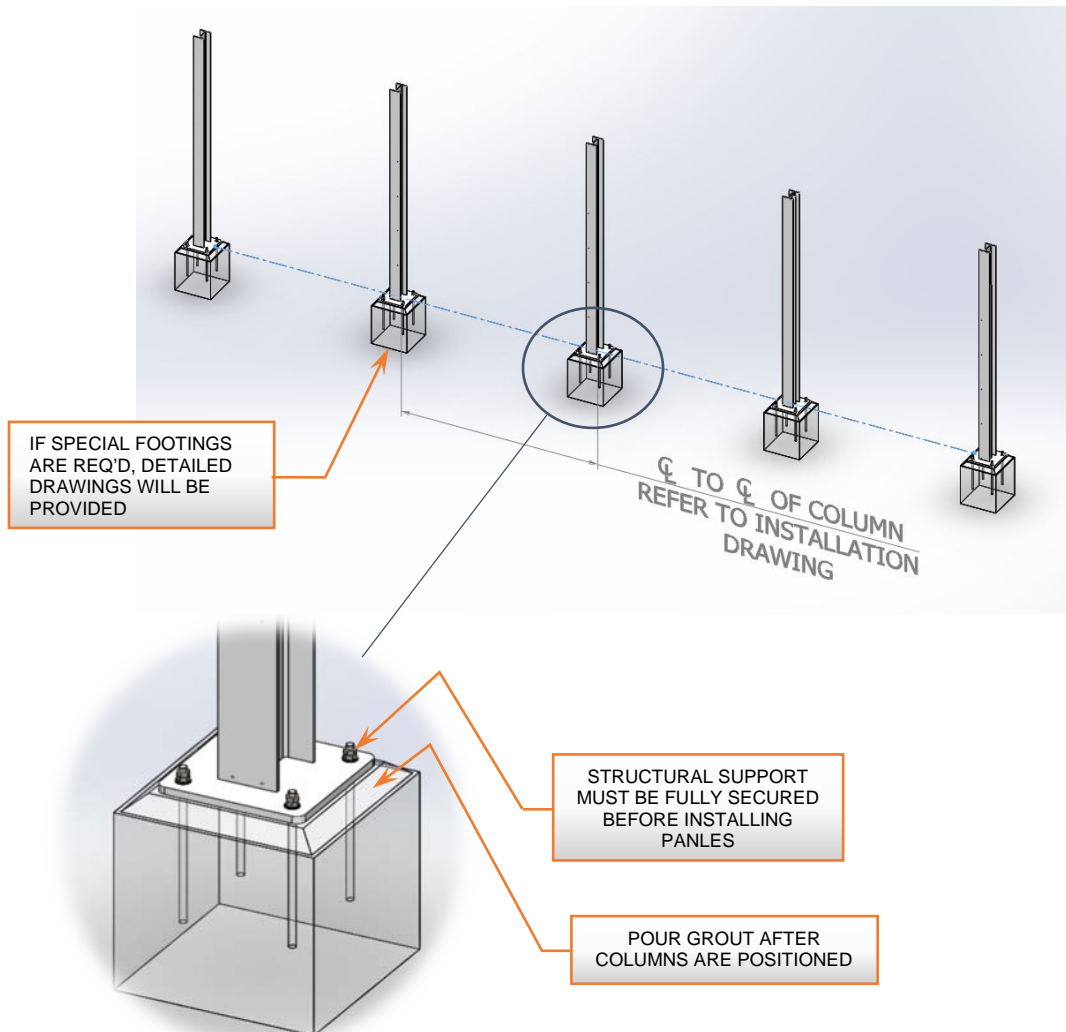
The following instructions are guidelines for typical installation of Barrier Walls. Always check Installation Drawings of Barrier Wall Layout for any specific requirements.



1. Refer to BOM on Installation Drawing for a complete list of material supplied. All Parts are Tagged as per BOM 'Part No' identification.
2. All Cap (Top) Channels and Flashings (if applicable) are supplied in 10 ft lengths (unless specified otherwise in BOM) and are to be field cut to size.

3. INSTALL STRUCTURAL SUPPORT

- Locate and mark barrier wall layout. Installation Drawings will indicate if special footings (foundations) are required for Structural Support Installation. If that is the case Foundation must be completed as per site specific design approved by a Licensed Professional Engineer.
- Erect the structural columns on concrete bases. Using shims or nuts, provide the required gap between concrete base and base plates for grouting. Adjust and align panels according to the drawings.
- Pour grout between concrete bases and base plates after all columns are properly positioned.



4. **INSTALL PANELS**

Typically panels are installed by sliding down between two columns (starting with bottom panel). The Tongue End is at the top and Groove End is at the bottom.

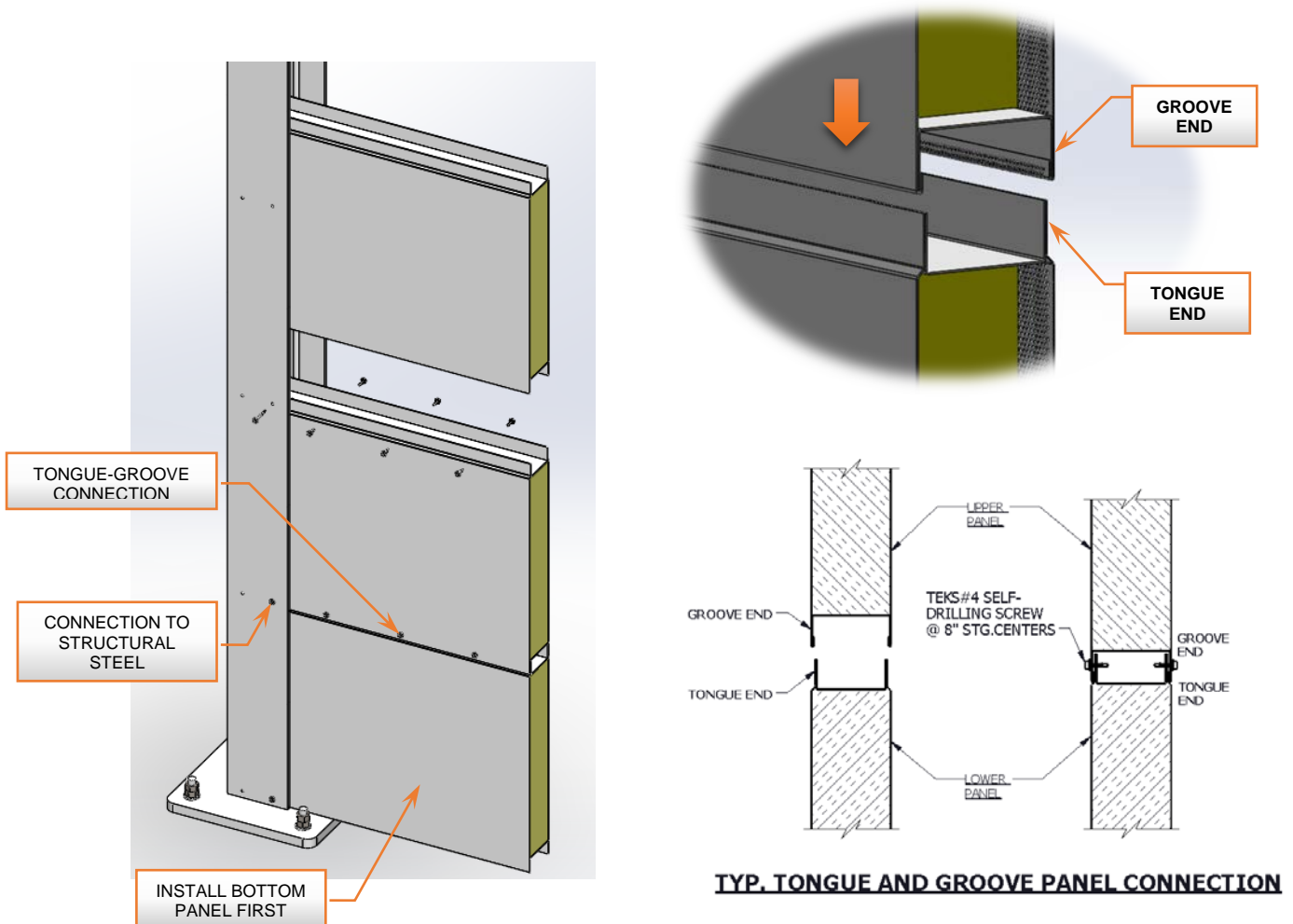
** (If H-JOINER is used then straight end panels are used) – see 4B illustration.

Panels are then centered between columns and secured to structural column.

Following Panel is secured to lower panel by Tongue-Groove Connection and to structural column.

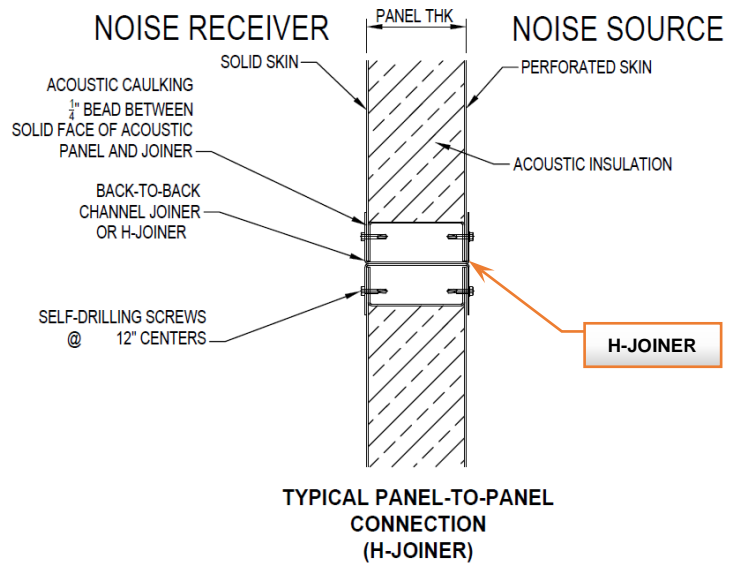
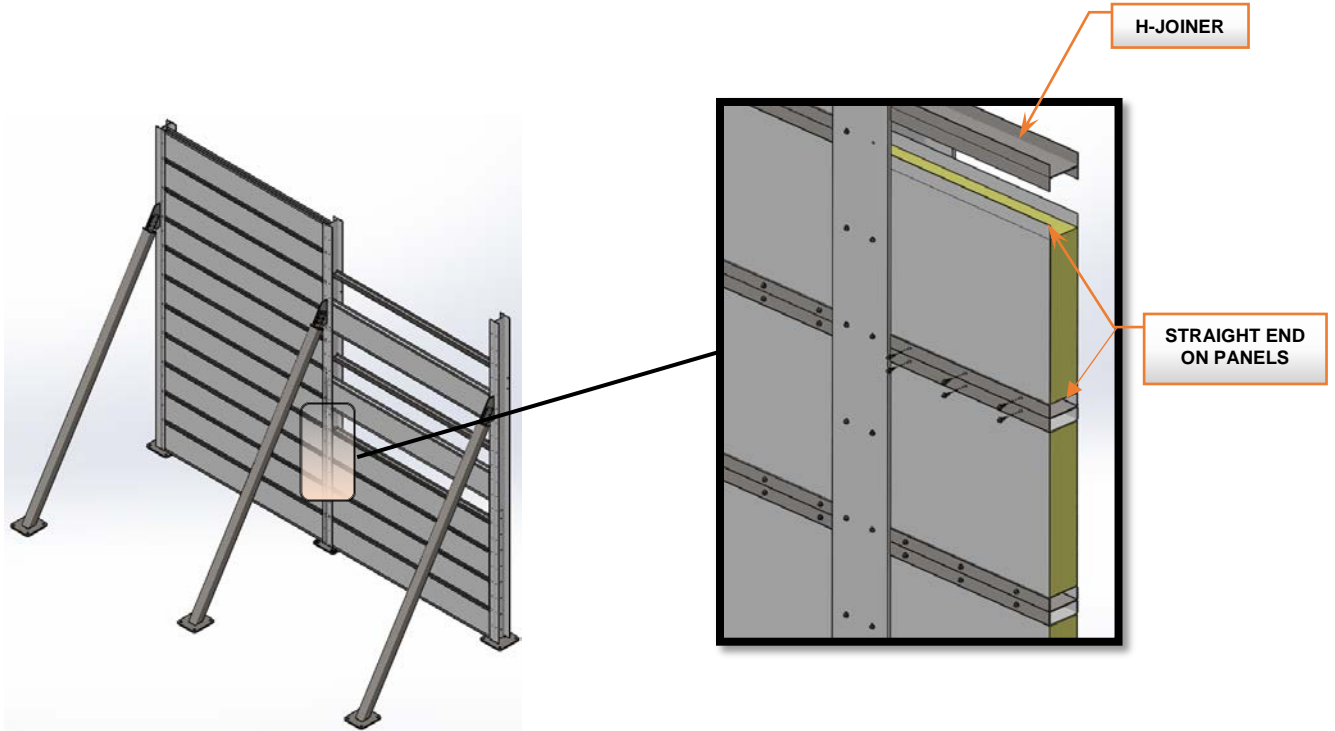
Installation drawing will indicate if sealant (caulk) is required at Tongue-Groove connections. SEALANT REQUIREMENT MUST BE FOLLOWED AS SPECIFIED TO ENSURE ADEQUATE ACOUSTIC PERFORMANCE.

4A illustration – Tongue-Groove Panels



TYP. TONGUE AND GROOVE PANEL CONNECTION

4B illustration – H-JOINER



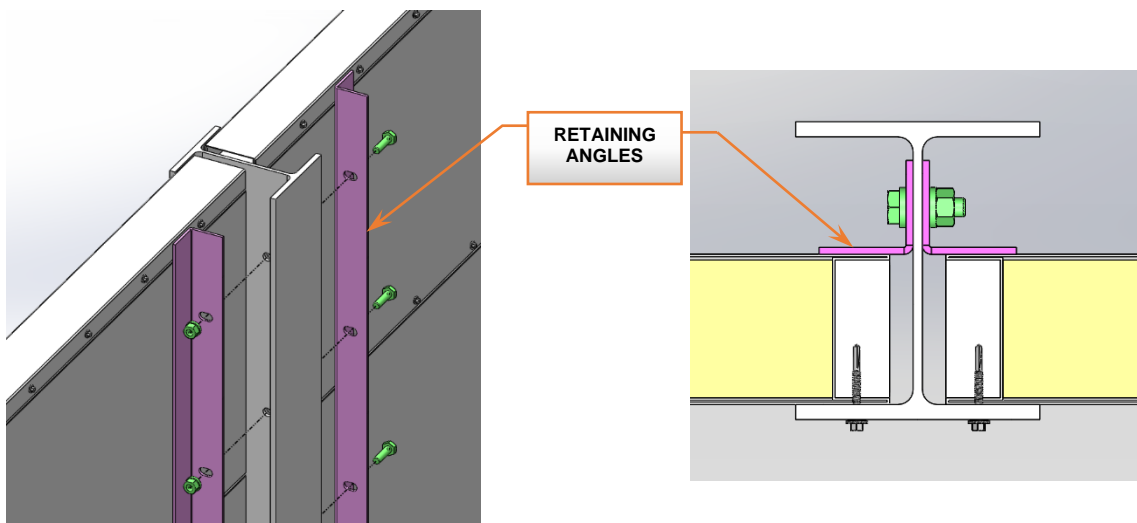
5. INSTALL CAP CHANNELS

Cap channels are usually provided in 10 ft lengths and need to be cut to size on site. Secure Cap Channel to Top Panel as shown below.



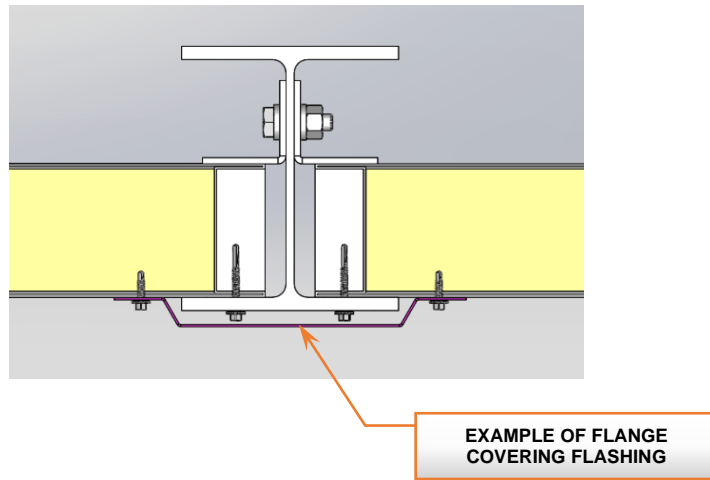
6. INSTALL RETAINING ANGLES

Retaining angles are supplied with factory punched holes, matching the holes on structural columns. They are installed after panels are secured in-place.



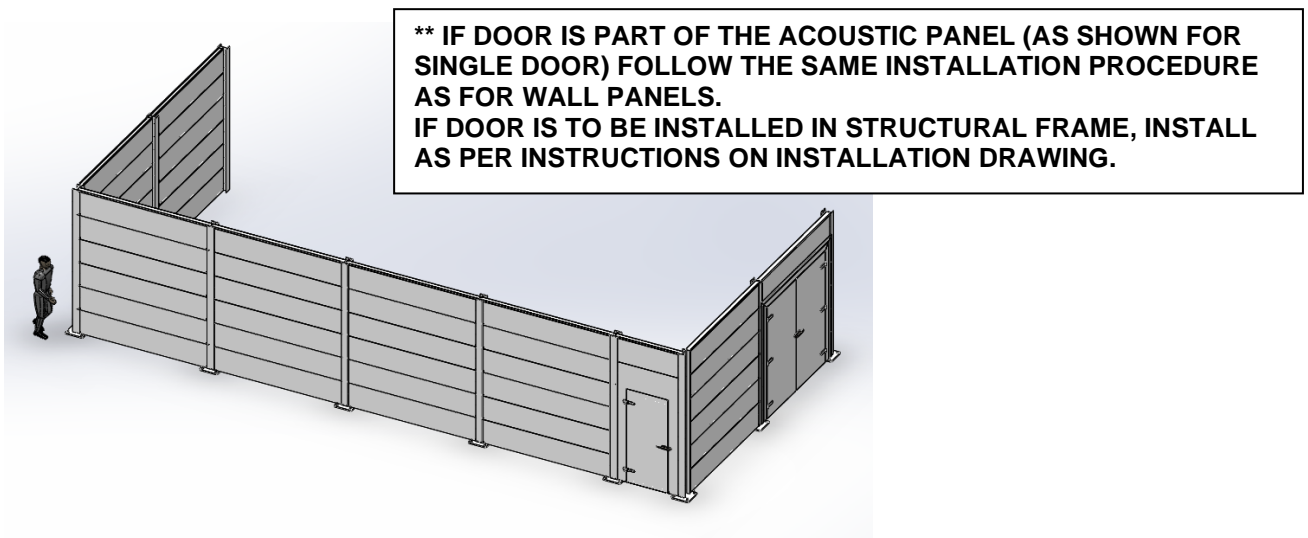
7. **INSTALL FLASHING (IF APPLICABLE)**

In some instances customer may require special flashing to be provided (for esthetics purposes, etc.). In this case special details will be provided on Installation Drawings for all applicable components.



8. **OPTIONAL COMPONENTS**

Barrier Wall may be equipped with acoustic doors, acoustic louvres or any required openings.



Installation Guidelines shown in this Installation Manual represent most common Barrier Wall Design and Connections. There are many other design methods available and offered by VG Engineering.

All Barrier Walls supplied by VG Engineering are designed per industry standards and follow all the applicable IBC building codes including wind, snow and seismic loading conditions.

VG Engineering services include:

- Layout Drawings
- Installation Instructions
- Structural Steel Support Framework
- Foundation Design (for ground level barriers)
- Certified Calculations, P.E. or S.E. stamp as required

