

United McGill® products



A McGill AirSilence™ product

# UNI-HOUSING™ PRESSURIZED ENCLOSURES

FOR HEATING, VENTILATING, AND  
AIR CONDITIONING EQUIPMENT

**McGill AirSilence** LLC

An enterprise of United McGill Corporation —  
Founded in 1951

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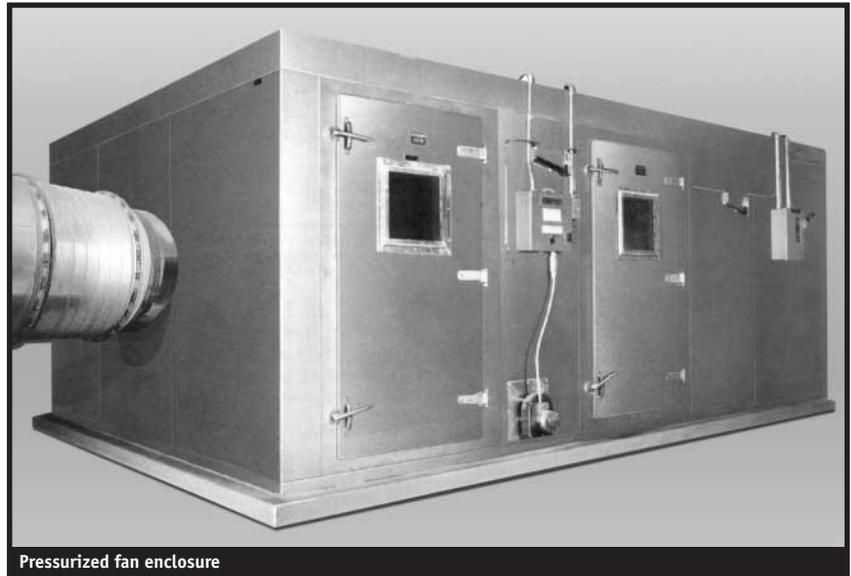
# UNI-HOUSING

## Pressurized Enclosures

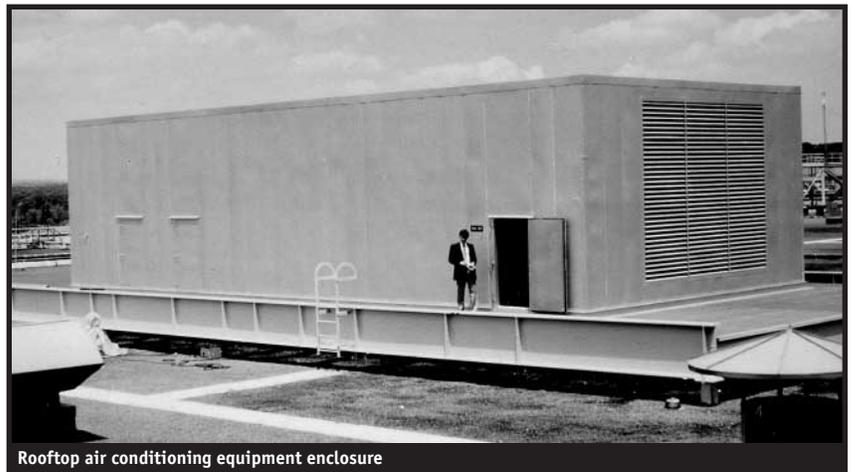
McGill AirSilence's UNI-HOUSING enclosures are an excellent choice for enclosing many types of HVAC equipment. Their modular panel construction creates a strong, self-supporting, and long-lasting enclosure that can be used for both indoor and outdoor applications. They are designed to have low leakage, provide excellent thermal and acoustical control, and facilitate easy on-site assembly. Depending upon the application and size of the enclosure, McGill AirSilence can deliver finished units or sub-assemblies to the job site.

### Applications

- Built-up air handling and fan system enclosures
- Air conditioning equipment enclosures
- Outside air intake plenums
- Supply/return air handling and fan system plenums
- Large rectangular duct systems fabricated from UNI-HOUSING panels



Pressurized fan enclosure



Rooftop air conditioning equipment enclosure



Large, insulated ductwork

# Panel Systems

## Type SL— Snap-Lock

A special built-in connection system allows the Type SL panels to snap lock together, forming a low-leakage, structurally sound, full-length joint. This mechanical interlocking joint requires no sheet metal screws. The three-step panel locking sequence shown (top right) illustrates the snap-lock action of the connection. First, one panel is started into the structural channel of the next panel. As the panels are pushed together, the locking lugs spring out and then snap back into position as the connection process is completed. Sealer, which is placed in the outside self-locking recess prior to connection, is hydraulically extruded in place as the panels are snap locked together.

## Type TG— Tongue-and-Groove

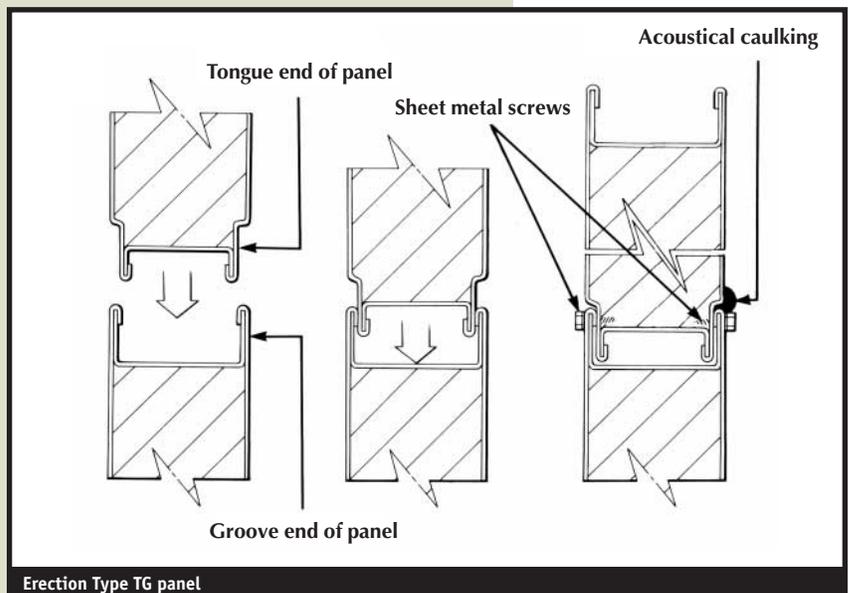
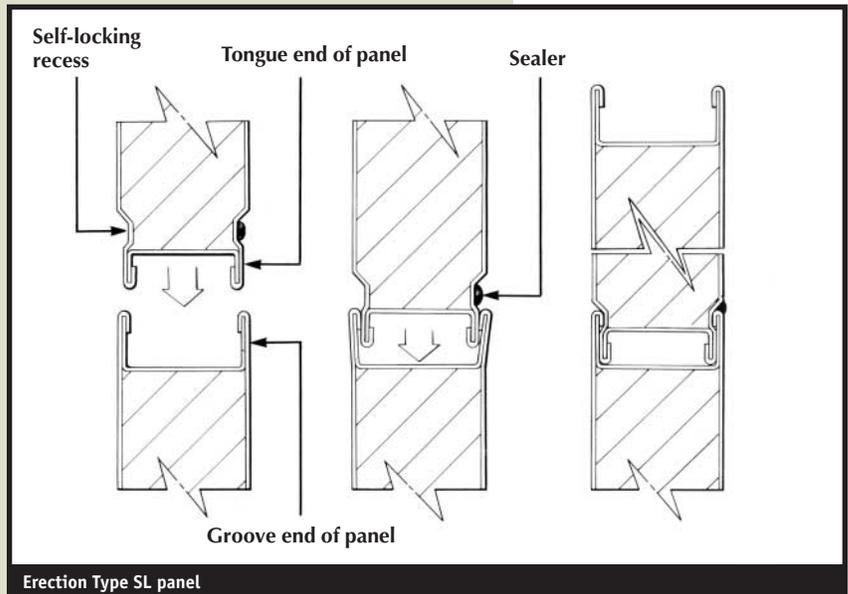
The Type TG panels utilize a tongue-and-groove joint design where the tongue end of one panel slips into the groove end of the adjoining panel (lower right). Fasteners (screws) are required for securing the panel joint. For installations where disassembly and re-erection may be required, it is recommended that a removable joint sealer be used instead of the standard McGill AirSeal United Duct Sealer™ sealant.



Type SL snap-lock



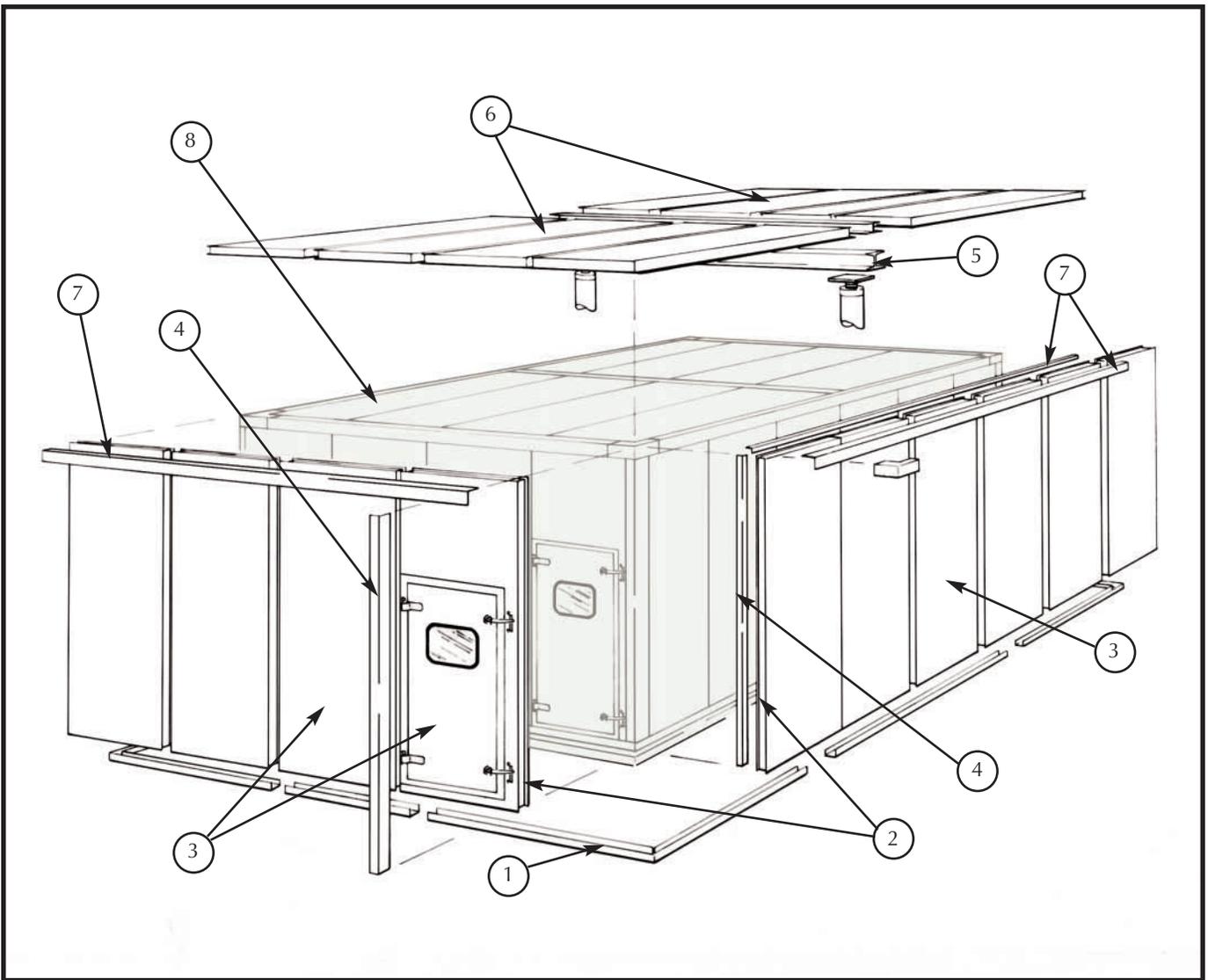
Type TG tongue-and-groove



# Assembly Instruction

## Installation Sequence

1. Locate base channel.
2. Set corner panels.
3. Install wall, partition, and door panels.
4. Add wall trim—outside and inside.
5. Add structural steel (as required).
6. Add roof panels.
7. Add roof trim—outside and inside.
8. Completed enclosure.



Assembly and installation sequence

## Standard Panel Construction

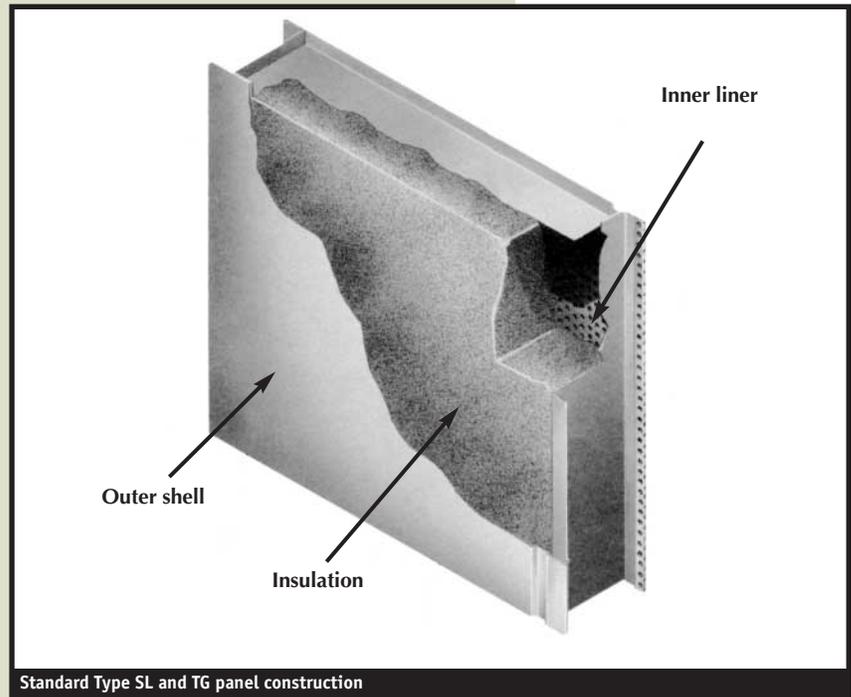
UNI-HOUSINGS can be constructed from McGill AirSilence's Type SL or Type TG panel systems. The Type SL and Type TG panels are identical except for their panel joint designs. The Type SL panel has a self-locking (snap-lock) design that offers quick assembly and is used in applications where disassembly is not a primary concern. The Type TG panel has a simple tongue-and-groove design that is recommended when future disassembly and re-erection of the enclosure may be required. Both panels have a sandwich-type construction consisting of a solid galvanized steel outer shell, acoustical/thermal insulating fill, and a perforated inner liner of galvanized steel. All of the standard wall, door, roof, and floor panels are available with either the snap-lock joint design or tongue-and-groove joint design.

### Material Types and Thicknesses

The standard material for both the outer shell and inner liner is galvanized steel. It can be specified as either solid or perforated and has a minimum G-60 zinc coating. The perforated steel has a 23 percent open area. Many different material and gauge combinations of outer shell and inner liner can be selected, with the inner liner being either solid or perforated.

Solid Outer Skin
20-gauge
18-gauge (standard)
16-gauge
Solid or Perforated Inner Skin
22-gauge (standard)
20-gauge
18-gauge

Both SL and TG panels are available in a standard 4-inch thickness. A 2-inch thickness is optional, with other thicknesses available by special order. Standard panel widths are 24 inches and 36 inches, with standard lengths up to 12 feet. Other widths and longer lengths are also available through special order. For most enclosures, at least one special-width panel will be required as a fill-in panel to match the specified dimensions of each wall, floor, or roof assembly. Also, in most cases, maximum panel lengths will be determined by the working design pressures.



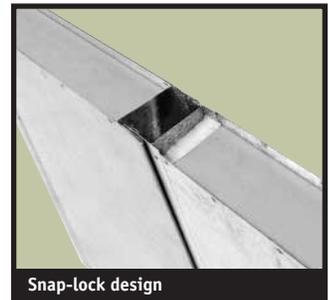
Standard Type SL and TG panel construction

### Insulation

The standard acoustical/thermal fill material used in Type SL and Type TG panels is 1.55 pcf fiberglass, giving the standard 4-inch-thick panel a value of R17. Optional joint insulation may be specified when insulation between panel joints is required. However, since independent testing has shown the thermal effect of insulation in the joint to be negligible, insulation is not considered necessary for thermal control in most applications. The fill will not settle or promote the growth of bacteria, mold, vermin, or insects. A moisture barrier can also be specified that consists of one layer of polyethylene plastic separating the insulation from the inner perforated metal liner.

### Surface Burning Characteristics

The Type SL and Type TG panels meet or exceed stringent fire safety requirements. ANSI/NFPA 90A Installation of Air Conditioning and Ventilating Systems specifies "...a flame spread rating not over 25 without evidence of continued progressive combustion and a smoke developed rating no higher than 50..." for all duct coverings, duct linings, tapes, dry adhesives, and panel core materials used in air handling units and in duct systems. The standard for developing these ratings is UL-723 Tests for Surface Burning Characteristics of Building Materials (ASTM E-84, NFPA 255). All insulating materials, inner and outer surfaces, and sealants used in UNI-HOUSING enclosures meet the requirements of ANSI/NFPA 90A.



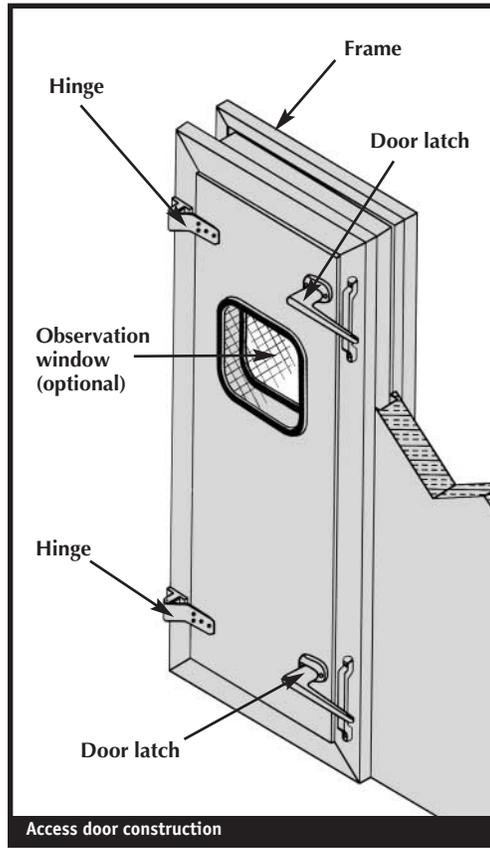
Snap-lock design



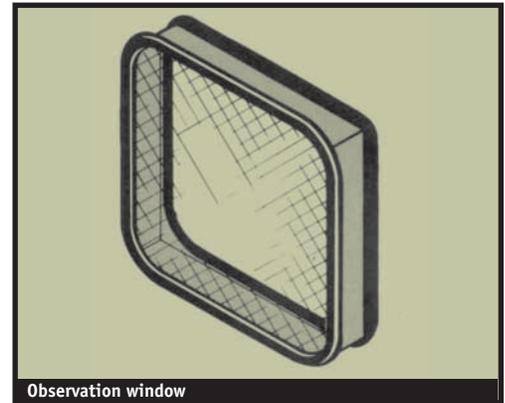
Tongue-and-groove design



Personnel door



Access door construction



Observation window

### Access and Personnel Doors

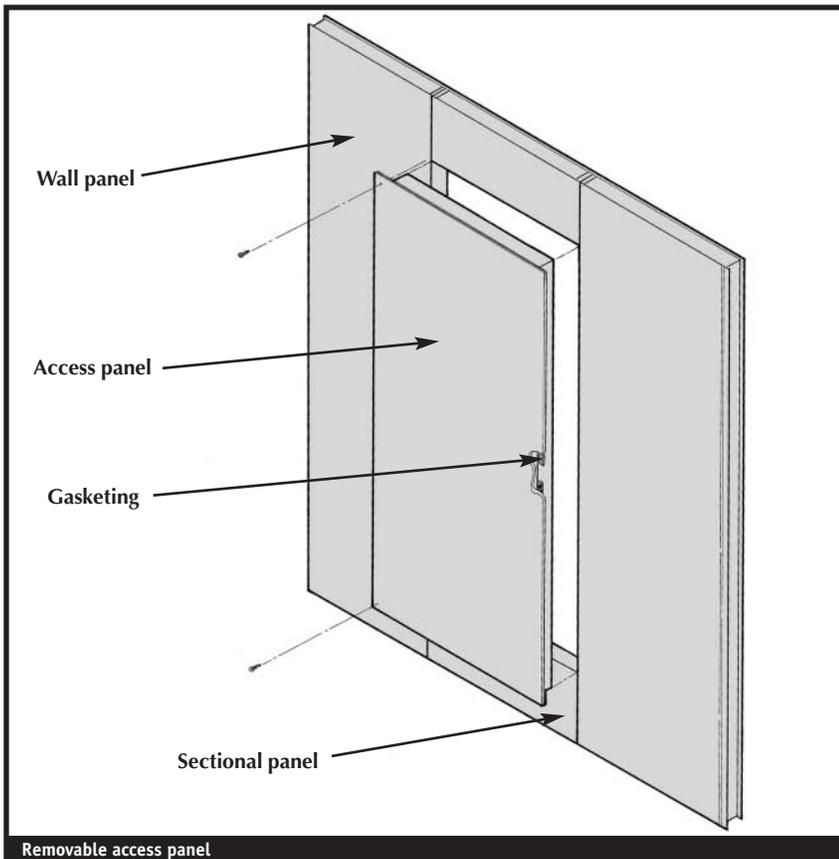
All panel systems for enclosures and barriers can be furnished with a wide variety of personnel, machinery, and material access doors. Standard access doors are 24 inches wide by 60 inches high. They are insulated and equipped with a minimum of two hinges, two door latches (with inside personnel safety releases), and gasketing. Access doors are available in both right- and left-hand swings, opening in or out.

### Removable Access Panels

When interior access is required to service or repair equipment, UNI-HOUSING pressurized enclosures can be fabricated with conveniently located, removable access panels. They use the same construction as the surrounding non-removable panels, but they have a larger-sized outer shell. The larger-sized outer shell allows the use of a self-sealing gasket on its inside perimeter and the use of fasteners to secure the panel in place.

### Observation Windows

Access windows for pressurized access doors are factory installed with an inner and outer pane of wire-reinforced glass, and have an air space between frames along with an air-tight window seal. Standard size is 12 inches by 12 inches. Other sizes and types are available. Observation windows can be provided on all doors.

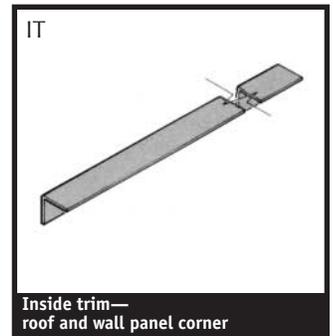
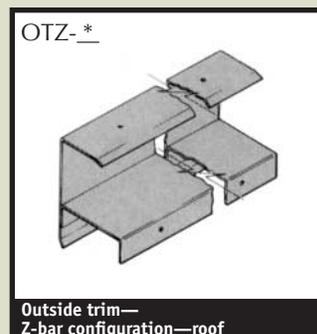
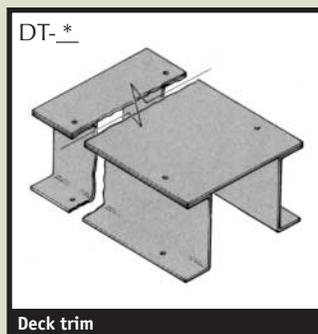
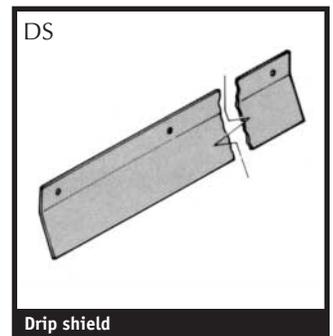
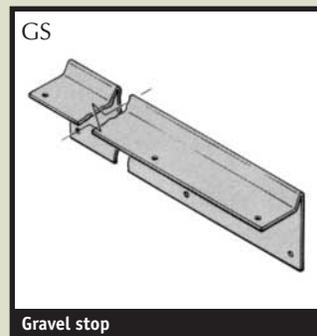
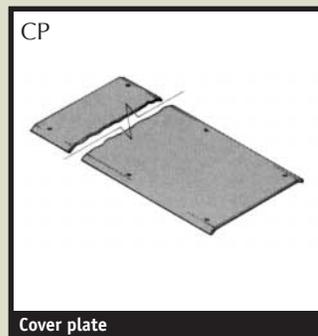
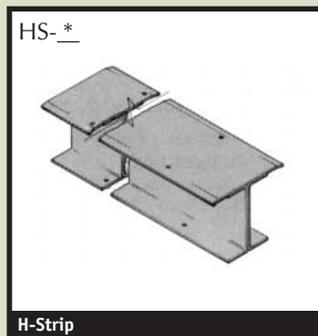
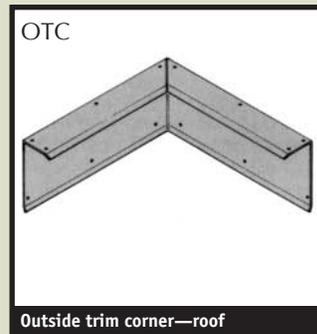
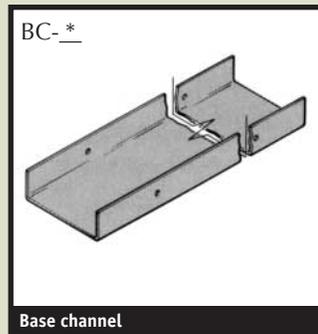
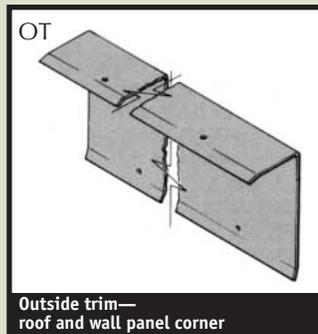


Removable access panel

# Factory Preformed Trim and Structural Items

McGill AirSilence supplies a complete line of factory-made trim items for joining and erecting panel members and finishing out the UNI-HOUSING enclosure. These include standard trim items as well as optional special trim and structural items.

All base channel and outside trim is pre-punched during production for #10 by 3/4-inch sheet metal screws on 6-inch centers. No field drilling of these trim items is required. Pre-punching assures proper location of necessary fasteners. Inside trim is not pre-punched in order to allow location of screws at panel joints.



**Preformed Trim and Structural Items**

Part Identification	Part Description	Standard Length	Applicable Panel System
<b>Standard Trim Items</b>			
IT	Inside trim—roof and wall panel corner	12 feet	SL, TG
OT	Outside trim—roof and wall panel corner	12 feet	SL, TG
BC-*	Base channel	12 feet	SL, TG
OTC	Outside trim corner—roof	16 inches x 16 inches	SL, TG
OTCR	Outside trim corner—reversed/roof	16 inches x 16 inches	SL, TG
<b>Special Trim Items (optional)</b>			
HS-*	H-Strip	12 feet	SL, TG
CP	Cover plate	12 feet	SL, TG
GS	Gravel stop	12 feet	SL, TG
DS	Drip shield	12 feet	SL, TG
DT-*	Deck trim	12 feet	SL, TG
DTC-*	Deck trim—corner	16 inches x 16 inches	SL, TG
OTZ-*	Outside trim—Z-bar configuration—roof	12 feet	SL, TG
OTCZ-*	Outside trim corner—Z-bar configuration—roof	16 inches x 16 inches	SL, TG
<b>Structural Items (optional)</b>			
PS	Pipe support	Cut-to-length	SL, TG
IBW	Structural beam—wide flange	Cut-to-length	SL, TG
SA-2	Structural angle— 2 inches x 2 inches x 10 gauge	10 feet	SL, TG
SA-4	Structural angle— 2 inches x 4 inches x 10 gauge	10 feet	SL, TG

\* (4 = 4-inch-thick panel; 2 = 2-inch-thick panel)

All base channel and outside trim is prepunched during production for #10 x 3/4-inch sheet metal screws on 6-inch centers. No field drilling of these trim items is required. Prepunching assures proper location of necessary fasteners. Inside trim is not prepunched in order to allow location of screws at panel joints.

### Sealer

UL-Classified United Duct Sealer is supplied in quart cartridges in sufficient quantity to assemble each UNI-HOUSING enclosure. It is used at the base channels, outside trim, panel joints, and with the inner trim if a pressure differential exists.

### Fasteners

Where required, self-drilling sheet metal screws (#10 by 3/4 inch) are supplied with each UNI-HOUSING enclosure for assembly of trim. Sheet metal screws are not required for the Type SL panel joint except for occasional support of panels around large openings.

### Piece Marking

A convenient piece-marking and color-coding system for all UNI-HOUSING enclosure components is utilized. Each panel carries an identification mark that is keyed to the assembly drawings and indicates its location and function. A color-coding system is used to assure proper panel selection during assembly if more than one UNI-HOUSING enclosure is to be assembled at the job site.

### Structural Steel

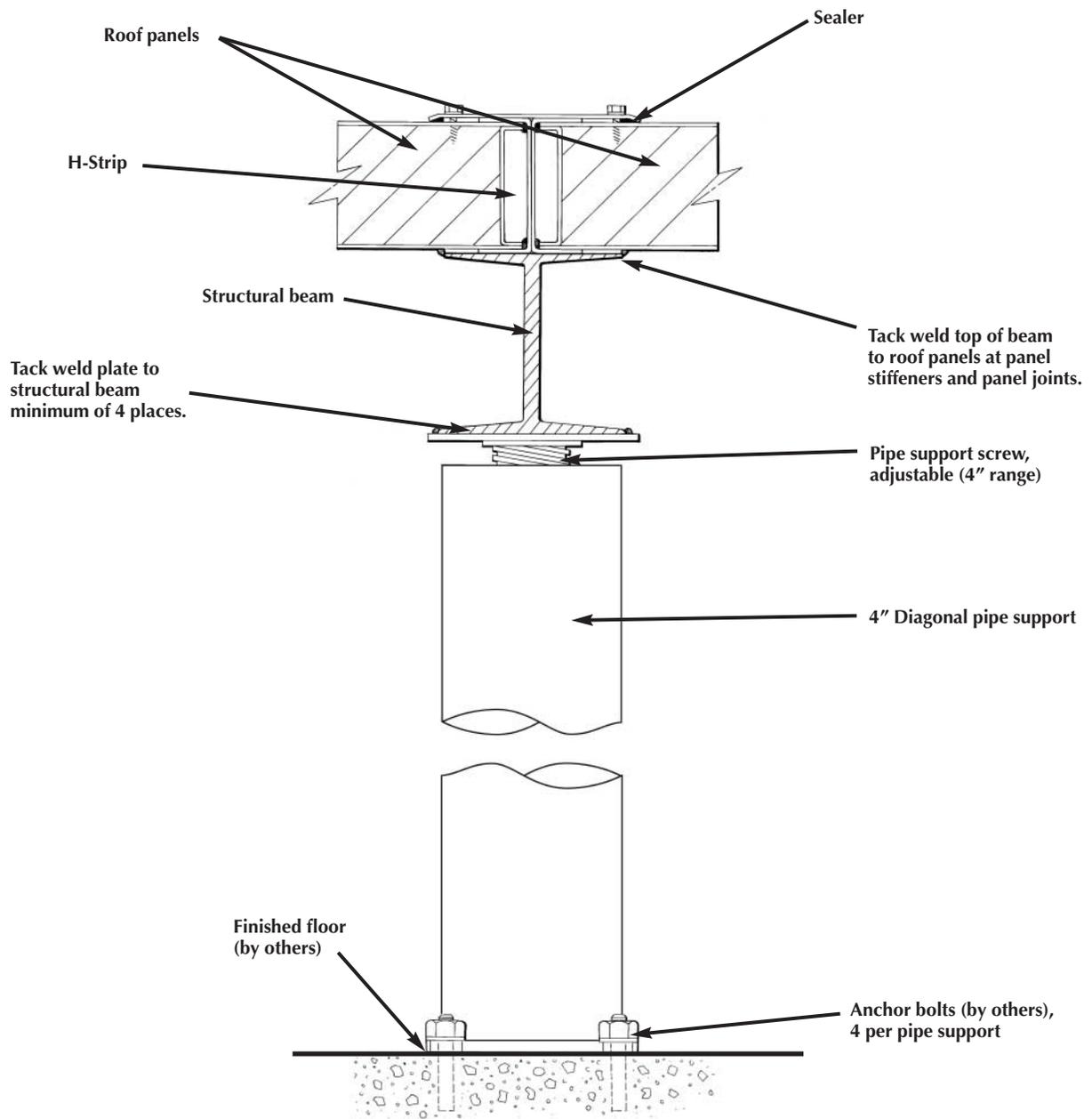
Optional structural steel items such as pipe supports, structural beams, angles, and channels may be required in certain UNI-HOUSING enclosures. In such cases, McGill AirSilence provides this information on the assembly drawings and will supply structural steel components at an additional price.

### Technical Information

In-depth information about the UNI-HOUSING enclosure's thermal, condensation, and acoustical performance, its special design and installation considerations, and its recommended specifications are addressed in McGill AirSilence's publication *Engineering Considerations and Recommended Specifications for UNI-HOUSING™ Enclosures*.



Piece marking



Typical panel support detail

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An enterprise of United McGill Corporation —  
Founded in 1951

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