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PETRARCH ARCHITECTURAL WALL PANELS APPLIED OVER A SHEATHED STUDWALL BY MEANS OF A FIELD ASSEMBLED 1066 SUB-FRAME SYSTEM

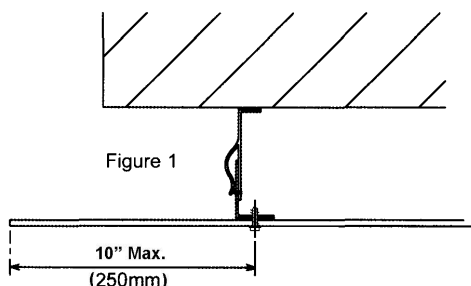
INTRODUCTION

The 1066 sub-frame system and the associated Petrarch wall panels will provide a ventilated Rain Screen weather protection barrier for the building façade. The framing system is designed to be securely anchored to the building structure at the floor slab, and at intermediate positions. The type of fasteners used to secure the framing is based upon the substructure and calculated loadings, and should be decided in conjunction with a reputable fastener manufacturer and/or structural engineer. The anchor bolts should protrude sufficiently to allow for any shims (packing) that may be required, due to any irregularities of the existing buildings surface. The bracket anchors must be tightened to the specified torque settings prior to installation of the rails.

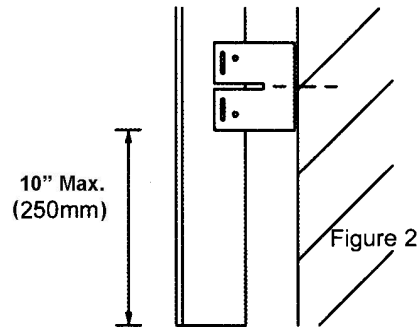
SUPPORT BRACKETS

The choice of support bracket type and size will initially depend upon the required total cavity depth. This will generally be dictated by the thickness of the insulation material required to achieve the desired thermal value, plus the minimum fully ventilated cavity typically of one inch (25 -30mm) depending on cladding choice. The corresponding double brackets provide the same cavity range and should be used when two rails are joined together.

The brackets must be installed at $90^{\circ} \pm 2^{\circ}$ to the structure with plumb alignment. If the existing structure's surface is irregular, local repairs should provide a flat base for the bracket. Brackets can be minimally shimmed off the wall using the alignment packers (shims).



At external corners, the bracket and rail position must not exceed a maximum of 10 inches (250mm) from the edge of the panels (Fig. 1). Maximum rail length from the support brackets at the top and bottom is also 10 inches (250mm) (Fig.2).



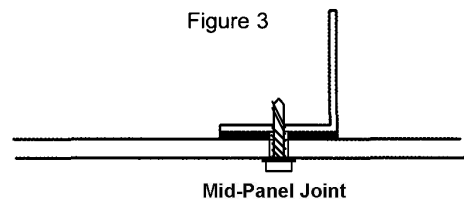
SUPPORT RAILS

Prior to installation of the rails, check to make sure that the support brackets are plumbed and that the bracket legs' stand-off will allow the rail to maintain the required cavity depth across the façade without exceeding the face level tolerance of 5/64" (2mm) in 24" (600mm) in either plane.

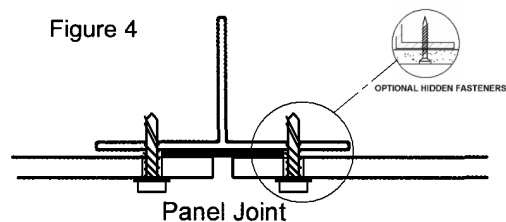
The brackets are designed to grip the rails via the "helping hand" principle. The rails can be easily aligned by tapping them in or out of the "helping hand" prior to securing them in place.

Note: This temporary grip fit is only an aid to installation and should not be left unattended or not secured during non-working periods.

There are two rail types used in the system. The type L rail is used at intermediate vertical mid-panel positions and abutments as the framing design may require (Fig. 3)



The T rail is used at panel vertical joints and where the framing design may otherwise require (Fig. 4). Maximum spacing of the rails does not normally exceed 24" (625mm).



The rails can be installed from the top or the structure working down or from the bottom of the structure working up. Experience has shown the latter to be more commonly used.

Before securing, it will be necessary to position the rail into the bracket to achieve the required cavity depth across the façade. There are different site practices to achieve this including lasers and string lines. Once the rails are aligned they can be secured in place through the hole provided in the bracket using self-tapping screws or sub-frame rivets.

Where two adjacent rails meet, a double bracket must be used (wall bracket LR 150) and the ends of the rails are to be independently secured using self-tapping screws or sub-frame rivets through the slotted holes provided to allow the rails to move when they expand and contract.

Note: There must be a 3/8" (10mm) gap between adjacent rails to allow for expansion.

The rails are secured to the brackets using a self-tapping screw or soft set rivet bit through the predrilled holes and slots in the brackets, the rail should be positioned such that at maximum cavity depth, the rivet or screw center should be a minimum of 19/32" (15mm) from the edge of the rail. If this cannot be achieved, the bracket should be shimmed out using adjustment sleeves or replaced with the next size bracket, if excessive packing (shims) is required.

To allow for expansion and contraction of the rails, all fasteners should be secured through the slots provided in the brackets, except the fastener at the mid-point in the rail. The mid-point fastener should be through the holes provided in the bracket to allow expansion and contraction at each end of the rail.

EXTERNAL WALL PANELS

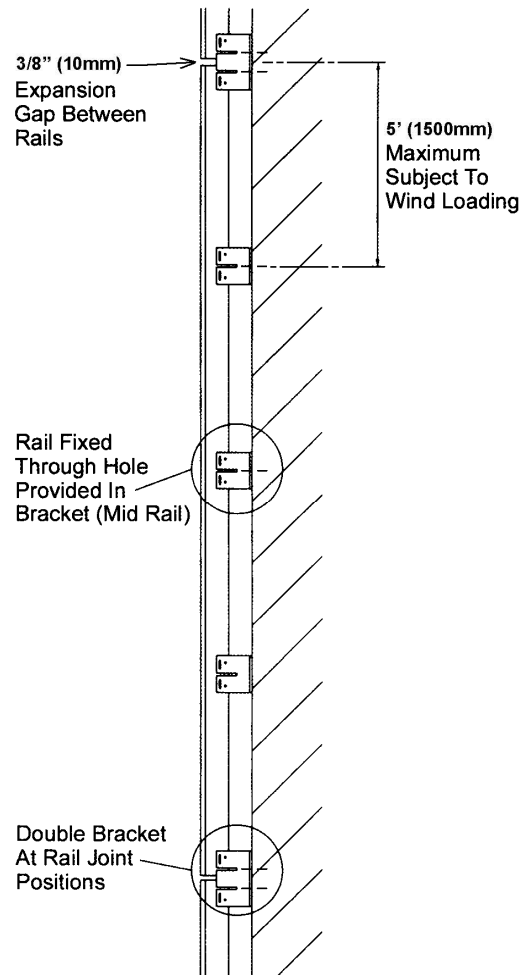
The rails and associated framework must be positioned to accommodate the chosen method for securing the Petrarch Wall Panels to the 1066 sub-frame system. (Face or Mechanical Back Fastened, or Silicone Setting System)

Note: Petrarch Wall Panels should never be secured to two adjacent rails across the 3/8" (10mm) expansion gap.

The number of fasteners required to secure the wall panels will depend on the panel size and the dead and wind loading. The hole size in the panel should be 1/16" (1.5mm) larger than the screw diameter leaving allowances for panels to move. Screws are required at maximum 24" (625mm) on center. Screws should not be less than one inch (25mm) from any edge. At corners, the distance should be one inch (25mm) from one edge and 2" (50mm) from the other.

SYSTEM LIMITATIONS

This system is applicable to all Petrarch panels, maximum size 47 3/4" x 119 3/4", providing adequate holding to carry the dead weight of the panel and wind load conditions of 30 lbs. per sq. ft. For high wind load conditions over 30 lbs. per sq. ft., panel fastener spacing may be required at centers closer than 24" (625mm). Unusual applications and installations above three stories may require additional sub-frame support depending on location, substructure, and calculated loadings. This system is stick built, field assembled, and set from exterior staging. Success in setting Petrarch panels in a 1066 System is dependent upon care in the selection of materials for both performance and compatibility, a thoroughly planned installation procedure, plus, of course, careful workmanship and quality control. CEP's technical staff should be consulted in early design or construction stages to review all construction applications.



This data is presented as a technical guide to architects, engineers and contractors in preparing specifications and installation. Final requirements should be verified by a qualified engineer or architect.

CAVITY INSULATION

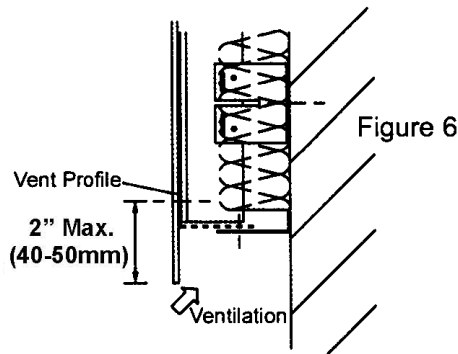
The type of insulation will be chosen by the specifier and must fasten directly to the face of the structure in accordance with the manufacturers' instructions. Insulation should be vapor permeable to allow water vapor to migrate from the structure into the cavity. The 1066 sub-framing system should be adjusted to maintain the minimum required ventilation cavity, once the insulation has been installed.

The insulation must be packed closely around the support brackets to minimize potential cold bridging at bracket positions. Insulation slabs must be closely abutted to all edges so that they form a continuous cover on all walls. Adequate fasteners must be used to insure that the insulation cannot sag and partly or completely block or bridge the cavity between the insulation and the rear of the exterior wall panels.

CAVITY BOTTOM CLOSURE

At the foot of all the wall panels and at the head of windows and openings, a perforated bottom closure (vent screen) must be used to prevent the entry of vermin, while permitting the necessary air-flow ventilation. The ventilation gaps at the base and the head of the wall panels should be 3/8" (10mm), for up to three stories. Above three stories, contact CEP Panels Technical Department.

For a neat looking finish, an aluminum angle the size to fit the depth of the cavity can be used to support the perforated bottom closure / vent screen. If this method is used, the aluminum angle must be attached to the building prior to securing the perforated closer piece and the panels. Locate the upstanding leg of the closure piece between the bottom of the wall panel rail and the panel so that it is secured by the bottom row of the sub-frame. (Fig. 6)



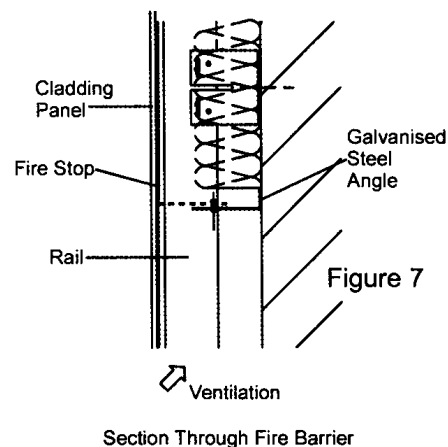
CAVITY FIRE STOPS

These may be required, generally installed at each floor level and above window openings. They consist of a support angle of suitable size System 1066

for the depth of the rain screen cavity and a flat length of intumescent fire stop, ventilated to allow ventilation into the cavity (Fig. 7).

At the required fire stop location, the support angle is secured to the structure on 20" (500mm) centers along the upright. The perforated fire stop is then positioned with the leading edge flush with the face of the rails so that it is up against the rear of the panels, and fastened to the support angle on 12" (300mm) centers (Fig. 7).

The fire barrier should be neatly trimmed around the rails. Any gaps greater than 3/8" (10mm) should be filled with a suitable intumescent or fire check sealant.



DESIGN NOTES

The 1066 sub-framing system aluminum rails and brackets have a similar thermal coefficient of expansion to that of the Petrarch wall panels. However, in planning, extrusion lengths should be dimensioned as if they were independent and unrestrained, using aluminum's 13.0×10^{-6} in/in °F coefficient of expansion. A 3/8" gap should be allowed between abutting parts both vertical and horizontal. The 1066 System rails and brackets for framing are supplied by CEP Panels, Inc. For more information, contact:

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PANEL PREPARATION

Confirm that the panel is in good condition and cut to the proper size. Secure wall panels in place using appropriate fasteners as noted earlier.

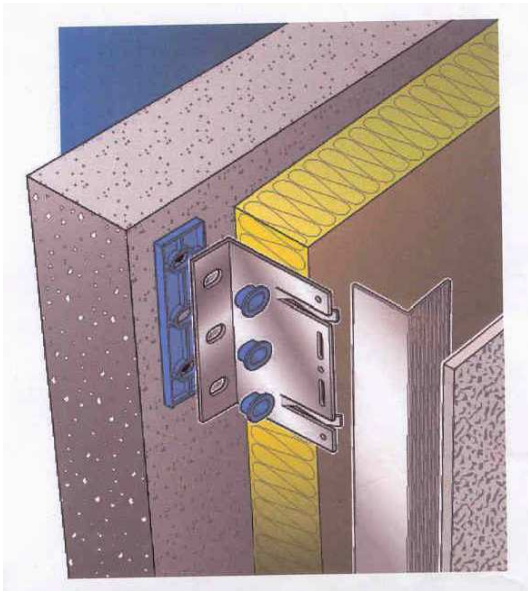
QUALITY CONTROL

Finally, it is strongly recommended that the project specifications call for a job site meeting of representatives of CEP, the architect, general contractor and the installing sub-contractor prior to the start of panel installation.

NOTE:

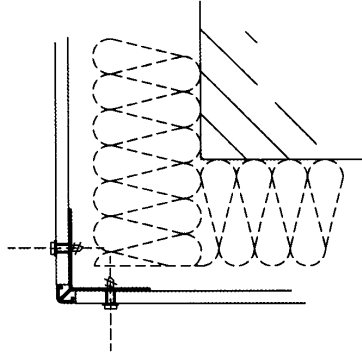
The installation of Petrarch panels using the 1066 sub-framing rain screen system must conform to this design and installation data paper, dated July, 2010, or all warranties are void.

This CEP design and installation data paper supersedes all installation instructions. Check for later additions.

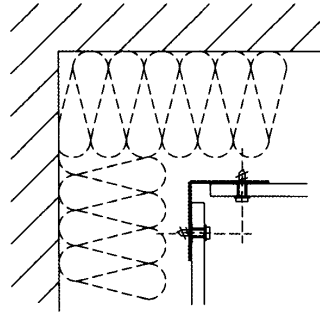


Typical Details

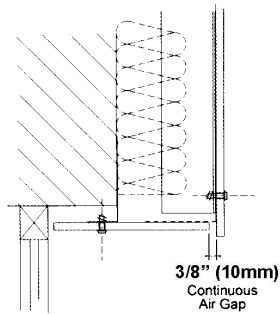
External Corner – the panels are secured to an external corner profile positioned a maximum of 10" (250mm) from rail fixing.



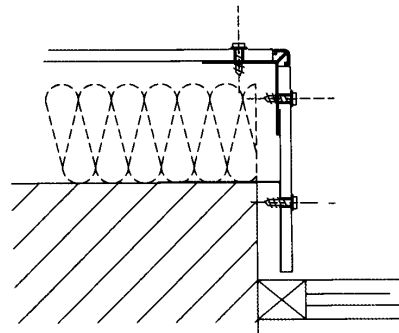
Internal Corner – using an aluminium angle 60x60mm, the panels are secured to the angle. Again the corner profile is to be positioned no greater than 10" (250mm) from the rail fixing.



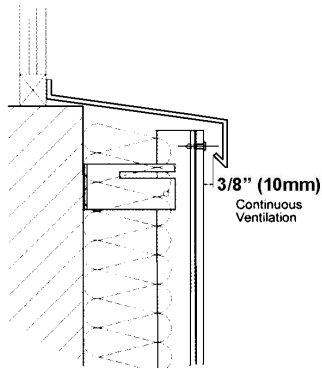
Window Head – at the head of windows it is necessary to install a perforated closer. The return panel should be secured to an aluminium angle fixed across the head of the window opening.



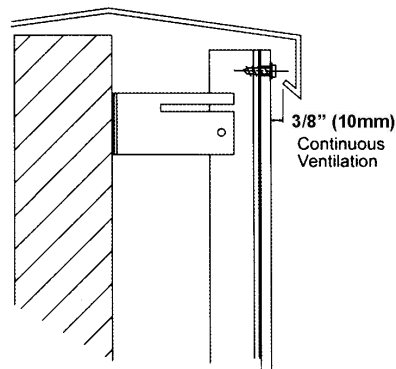
Window Reveal – the reveal panel is supported on an aluminium angle fixed to the existing structure. The corner of the reveal is constructed using an external corner profile.

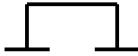













Window Sill – the window sill will be either aluminium or concrete. In all instances a continuous air gap of 3/8" (10mm) should be provided.



Coping Detail – at the head of the cladding a continuous air gap suitable for the height of the building should be allowed.



Omega and Z System		Description	Unit	Price
Omega / Shadow Box		50/40/75/40/50x1.9mm	3m length	
Z Section		40x40x45x1.9mm	3m length	
1066 Adjustable System		Description	Unit	Price
Support Bracket 80		40mm Projection	Each	
		60mm Projection	Each	
		80mm Projection	Each	
		100mm Projection	Each	
		120mm Projection	Each	
		140mm Projection	Each	
		160mm Projection	Each	
Support Bracket 150		40mm Projection	Each	
		60mm Projection	Each	
		80mm Projection	Each	
		100mm Projection	Each	
		120mm Projection	Each	
		140mm Projection	Each	
		160mm Projection	Each	
Thermostop Gasket		PVC Bracket Gasket 80	Box 100	
		PVC Bracket Gasket 150	Box 100	
Thermostop Plug		Fixing Gasket	Box 100	
Alignment Packers		50 x 40 2mm Yellow	Box 100	
		50 x 40 3mm White	Box 100	
		50 x 40 5mm Grey	Box 100	
Sub Frame Rivets		10mm Mill Finish	Box 100	
Aluminium T Rail		80 x 52 x 2mm	3m Length	
Aluminium L Rail		50 x 42 x 2.5mm	3m Length	
Fire Barriers Stainless Steel Intumescent		One hour rated	110mmx1.25m Length	
Foam Tape		Grey 1.5mm x 50mm	25m roll	
		Black 1.5mm x 100mm	50m roll	
Aluminum Joint Profiles		Black	3m length	