RAILSET

Section 09110

Non-Load Bearing Wall Framing

Part 1 – General

Railset is an anchoring system for cladding interior spaces. Railset constitute a viable secondary structural system for the support of various types of paneled materials which include both substrate and decorative finishes.

In its various configurations, Railset has the capacity to resist both the weight of the panels and the seismic loads that can be generated from the mass of the panels and Railset's assembled self-weight. As a minimum Railset has the capacity to sustain 5-PSF out-of-plane lateral load for partitions as prescribed by the International Building Code (IBC), the California Building Code and other similar regulatory standards.

Railset is configured by using extruded aluminum rails that create a *web* or anchoring plane for cladding materials. The rails are positioned and locked in place using four aluminum components; Edge Sleeve, Center Sleeve, "L" Bracket, Wall Mount. Cladding is attached to the Railset assemblies by four options.

1) Cleat mechanical attachment - aluminum cleats are attached to the back of the cladding. The cleats are slotted into the rails. Cleat fixing is a progressive panel installation.

2) Clip mechanical attachment – aluminum clips are inserted into kerfs machined into the edges of the cladding. The clips and cladding are progressively slotted into the rails.

3) Friction Fit Attachment – injection molded male profile is attached to the back of cladding and face fastened to an injection molded female component that is fixed to the rail screw boss reveal. This method is non-progressive.

4) Adhesive attachment – a substrate is positioned between horizontal and vertical rails to flush with the face of the web. The substrate is secured to edge sleeve flange. Edge sleeves are inserted into the web's horizontal and vertical rails. Cladding is adhered with construction adhesive to the web assembly in strict compliance with the cladding manufacturer's recommendations.

Railset in all applications is dependent on the existing building for support. The standard installation methods for Railset's *web* are as follows:

1) Direct Mount – The web is attached directly to an existing wall, partition or ceiling. Wall Mount Clips slotted into the rail. Wall Mounts slide on the rail to the stud location. Pre-drilled holes in the Wall Mounts are used to screw-fasten Railset to the stud at regular intervals across the installation.

2) Cavity Mount – The *web* is attached to the wall using stand-off to form a cavity or chase for utilities, plumbing, insulation, etc. The stand-off is created using standard Railset components and can be of any length. The stand-off is attached to the recess in the rail and mounted to the wall at the stud locations. Stand-offs are used at regular intervals across the installation.

3) Post Mount – A vertical post is configured with three rails screwed together to form a post in the shape of an I-Beam. The *web* can be attached to the posts on one and/or two sides. The attachment method is generally used with the building walls cannot be penetrated. The posts are mounted to the floor and ceiling.

1.1 SUMMARY

A. Provide Railset's *webs* and attachment accessories in accordance with requirements of the contract documents.
B. The installation contractor shall be responsible for verifying that all Railset assemblies are in accordance with the details provided by the manufacturer and installed per the code requirements of the project location.

1.2 WORK INCLUDED

A. Supply Railset frames and accessories.
B. Assemble Railset frame configurations.
C. Install Railset to meet the job site conditions.
D. Install Railset to meet the cladding attachment requirements.

1.3 RELATED SECTIONS

A. Section 09262, Shaft Wall Assemblies
B. Section 10615, Demountable Partitions
C. Section 05162, Space Frames
D. Section 097710, Decorative Panel Systems

1.4 SUBMITTALS

A. Submit the manufacturer's technical data including detail drawings and installation instructions.
B. Submit 3 each samples 4" in length of the rail in the specified finish.
C. Submit for approval Shop drawings of the project's assemblies showing locations and cladding attachments

1.5 SCHEDULING

A. Reference manufacturer's lead time as a component for installation scheduling.
B. Special scheduling for site coordination must be specified at the time of bidding.

1.6 DELIVERY, STORAGE AND HANDLING

A. Railset pre-assembled *web* - frames, connecting rails and attachment accessories shall be handled and transported per the manufacturer's recommendations, in a manner not to create damage by excessive stress on the parts/assemblies.
B. Railset shipping containers are not to support external weights other than the stacking of the manufacturer's containers per manufacturer's recommendations.
C. Containers are to be shipped and stored vertically and supported at a minimum of three points of contact (i.e. two ends and one center location).
D. Railset materials are to be cut, drilled and de-burred per recommendations in the manufacturer's installation instructions.
E. Railset assemblies to use only the components and fasteners recommended in the manufacturer's installation instructions.

PART 2 – PRODUCTS

2.1 MANUFACTURER

Averve

215 Ledroit St., Unit A

Laguna Beach, CA 92651

2.2 MATERIALS

All materials are manufactured from 6063 Aluminum Alloy, T5 Temper, Mill Finish. Exposed hardware can be custom finished by anodizing or painting.

A. Rail: 1-7/8" wide x 10'-0" long x ½" thick. The rail has three screw bosses running the length of the rail, one in the 5/8" wide recess centered on the 1-7/8" side of the rail and one on each ½" thick rail edge. The screw bosses accommodate all assembly components and provide attachment points for utility boxes, light boxes, LED lights, directories, video monitors, etc. The side opposite the screw boss has a knurled face to grip face fastened materials that are attached with screws.

B. Alignment Bracket: 9/16" wide x 3-1/16" long x 1/8" thick. The alignment bracket is designed to align intersecting rails on the vertical and the horizontal. It is used at all corner, edge and midwall intersections. This component has two levels. The three lower levels have pre-frilled screw holes and mate with the recessed screw bosses on the rails. The two higher levels bridge the rail shoulders.

C. Center Sleeve: 1-7/8" wide x 3-5/8" long x 1/8" thick. The center sleeve is designed to align vertical and horizontal rails at center location wall intersections. The sleeve profile has a flange that inserts into a rail edge reveal and four countersunk holes to receive 4mm x 8 flat head machine screws to secure it to the rail intersection.

D. Edge Sleeve: 1-7/8" wide x 2-5/8" long x 1/8" thick. The edge sleeve is designed to align vertical and horizontal rails at all web perimeter conditions. The sleeve profile has a

flange that inserts into a rail edge reveal and four countersunk holes to receive 4mm x 8 flat head machine screws to secure the rail intersection.

E. "L" Bracket: 90-degree angle 9/16" wide x 1-1/2" legs x .118" gauge. Two 3/16" holes are pre-drilled into each leg. The primary purpose of this component is to maintain frame rigidity during transport. The "L" bracket braces the joint at the vertical and horizontal rails. It is screw-fastened on the opposing rail edge screw bosses. "L" brackets are generally placed at the outside four corners of a section assembly.

F. Angle: Standard 90-degree angle ¾" x ¾" x 10'-0" x .118" gauge. The angle slots into the rail edge screw boss. The angles are used to form inside and outside corners and floor, ceiling or vertical edge attachment plates.

G. Splice: 3" wide x 3-5/8" high x .118" gauge. The Splice has projected finials that slide into the rail's top and bottom edge screw bosses. The splice joins two rails horizontally or vertically. Bridging two rails, the splice is secured in place by screw-fastening through the recessed screw boss.

H. Wall Mount: 1-1/2" wide x 3-5/8" high x.118" gauge. The Wall Mount has projected finials that slide into the rail's top and bottom edge screw bosses. The Wall Mount is moved along the horizontal rail to the stud locations. Pre-drilled holes in the top and bottom flanges allow the Wall Mount to be easily secured to the stud.

I. Post Plate: 1-1/2" high x (varies) lengths x .118" gauge. The Plate is used to join two parallel vertical rails to form a post or a two-sided, freestanding assembly. Pre-drilled holes in the vertical edge of the Plate align with the edge screw bosses on the Rail. Screws secure the plate in position.

J. Panel Cleat: 1-1/2" wide x 1-3/4" high x .131" gauge. The panel Cleat has a single projected finial designed to slot into either the top or bottom Rail edge screw boss. The flange behind the finial has two pre-drilled holes for ease of mounting Cleat to panel. The finial slides into the screw boss while the flange on the Cleat keeps the panel square to the rail. The panel is now installed on the Rail.

K. Panel Clip: 2-1/2" wide x 2" high x .131" gauge. The panel clip has a single projected finial designed to slot into the horizontal rail edge screw boss. The clip also has two finials on the face that engage kerfs slotted into panels to anchor the panels to the rail

web. Lastly, the clip has a slot between the face finials. The slot accepts decorative trim inserts positioned at the horizontal panel joints.

L. Friction Fit Male and Female Parts: Injection molded components designed to fix cladding to the web. Male component is screw fastened to the cladding back. The female component has a flange that mates with the rail's edge reveal the screw fastened to the rail's recess reveal on the face of the rail.

M. Spline: 1-3/4" wide x /131" gauge, length determined by panel height. The spline has two finials on the face to engage kerfs in the vertical edge of the panel. The spline is not attached to the rail web. It functions to align the vertical edge of panels. Between the finials is a slot that accepts decorative trim inserts positioned at the vertical panel joints.

2.3 STRUCTURAL CALCULATIONS

The following information is excerpted from a report by a structural engineer registered in the state of California. The full report is available upon request.

A. As a minimum, the Railset frame system has the capacity to sustain the 5 PSF out of plane lateral load for partitions as prescribed by the International Building Code (IBC), the California Building Code and other similar regulatory standards.

B. Provided the Railset frame system is adequately secured to the building structure as recommended in the manufacturer's installation instructions, the in-plane lateral loads are not critical. This is because the attached cladding to Railset provides the necessary rigidity against deformation.

C. The Railset frame system carries vertically the load of the finishes as well as that of the systems self-weight. The maximum vertical reaction at the vertical rail to the support floor is 200 lbs.

D. The maximum horizontal reaction at the floor at each "L" Bracket (at 32" maximum on center) is 135 lbs. acting perpendicular to the plane of the assembly.

E. The maximum reaction at each wall mount (at 32" maximum on center) is 55 lbs. acting perpendicular to the wall and 55 lbs. acting horizontally along the wall plane.

F. Connections to the walls should be of sheet metal screws to metal stud walls, wood screws to lumber studs and expansion anchors to concrete or masonry walls. Sheet metal screws and expansion anchors should have ICC approvals.

2.4 ALTERNATE SUBMISSIONS

A. Alternate manufacturer frame systems require certified structural engineer calculation

B. Alternate structural calculations must equal Railset structural calculations.

C. Alternate system must be submitted to specifier 10 days prior to bid.

D. Alternate system must be pre-approved by specifier prior to bid.

Part 3 – Execution

3.1 INSPECTION

A. Installer is responsible to examine the site conditions to insure the site follows the manufacturer's recommendations.
B. Installer must confirm correct field dimensions.
C. Installer must verify field conditions and shop drawings are compatible.
D. Installer must inspect manufacturer's shipping documents and materials received to determine they are correct.
E. Installer must notify the shipping carrier of material damaged parts received per the carrier's specified procedures.
F. Installer must notify the manufacturer within 10 working days of any material discrepancy such as shorted parts or wrong sizes received when compared to the approved shop drawings and bill of lading.

3.2 INSTALLATION

A. Follow manufacturer's printed installation instructions.
B. Follow manufacturer's approved shop drawings.

C. Assemble and install only manufacturer's hardware and accessories.
D. If off-site assembly is used, insure site access is available for deliveries.
E. Insure installation sequencing of unit constructed assemblies follows site and trade organizations.

3.3 CLEANING

A. Clean exposed hardware and cladding per the manufacturer's recommended procedures.

3.4 PROTECTION

A. Protect materials in storage at job site. Notify general contractor of need to protect work from other trades at site. Damaged work at job site is not the responsibility of the manufacturer.

END OF SECTION