

SECTION 074044

EXTRUDED ALUMINUM RAINSCREEN SUPPORT

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Engineered, aluminum rainscreen support framing at exterior cavity walls.
- B. Related Sections:
 - 1. _____

1.2 REFERENCES

- A. Reference Standards: See Section _____.

1.3 SYSTEM DESCRIPTION

- A. Structural Design: Provide engineered design capable of withstanding combined effects of stresses from dead loads, wind loads, normal thermal movement, and other anticipated stresses without evidence of permanent defects or failure.
 - 1. Wind Load: Uniform pressure (velocity pressure) as indicated on Structural Drawings, acting inward or outward.
 - 2. Dead Loads: Design for loading to accommodate support of cladding systems specified by related sections and shown on Drawings and as required by applicable building code.
 - 3. Seismic Loads: Design and size components to withstand seismic loads and sway displacement.
 - 4. Design all components to deflect, perpendicular to the plane of the wall, no more than L/360 the span, under design wind loading.
- B. Thermal Expansion and Contraction: Design for movement due to cyclic day and night temperatures to not exceed safety factors for fasteners, joints, seals, and components.
- C. Rain Screen Design: Design ventilating system assembly to accommodate movement of air into and out of the assembly.
- D. Cladding Accommodation: Design framing support assembly to maintain dimensions to face of cladding materials indicated on Drawings. Design framing supports configuration, size, spacing, and make adjustments as needed to accommodate support for each cladding type, including:
- E. Stone: Coordinate with Section 044200 and/or Section 074200 for design of stone support system; stone fabrication requirements.

1.4 SUBMITTALS

- A. Make submittals in accordance with Section 013300.
- B. Product Data: Include the following.
 - 1. Descriptive product literature describing assembly design, performance, and characteristics.
 - 3. Metal finishes, accessories, and components.
- C. Shop Drawings:
 - 1. Plans, elevations, openings, details, fasteners, connectors and anchorage devices, and attachments as needed for project execution.
 - 2. Indicate clearances between cladding panels, finishes, weeping, provisions, and opening details.
 - 3. Interface of cladding assembly with adjacent construction.
 - 4. In accordance with stamped and signed engineering letter of compliance.
- D. Informational Submittals:
 - 1. Design Calculations:
 - a. Comprehensive analysis of design loads, including dead loads, live loads and wind loads
 - b. Design shall be sealed by the designing engineer.
 - c. Test Data: Independent test results or engineered analysis for performance signed by independent agency representative.
 - 2. Manufacturer's Instructions: Include installation instructions, clearances, special procedures.
- E. Warranty Draft: Concurrent with initial product data submittal, submit draft of manufacturer's warranty for Architect's review of terms. Draft shall include all specified exceptions and inclusions.

1.5 QUALITY ASSURANCE

- A. Work of this Section is subject to testing and inspection as specified in Section 014500.
- B. Manufacturer Qualifications:
 - 1. Maintain locally available technical product representation available to meet at project site as needed for meetings and inspections of work.
- C. Installer Qualifications:
 - 1. Employ full-time on-site superintendent or foreman to overseeing installation during work of this Section.
 - 2. Able to show successfully completed projects of equivalent scope and quality upon request by Architect.
- D. Structural Design:
 - 1. Support systems shall be designed by a professional structural engineer licensed in the state of the project
 - 2. Stone Veneer:
 - a. Comply with the applicable requirements of ASTM C1242 for design of masonry support system.
 - b. Seismic Requirements: Design the anchored masonry veneer system to conform to the seismic requirements of the local Building Code.

- E. Mock-ups:
 - 1. In locations as directed by the Architect, construct mock-up of complete support system for each proposed cladding material.
 - 2. Provide as required to illustrate substrate, air barrier, insulation, framing, flashing, and treatments at fenestrations, corners, and transitions.
 - 3. Verify mock-ups as conforming to manufacturer's instructions and provisions of Contract Documents.
 - 4. Do not begin work of this Section until after inspection by manufacturer's representative is complete and mock-up has been accepted in writing by Architect.
 - 5. Protect and maintain accepted mock-up as standard of quality for work of this Section.
 - 6. Accepted mock-ups may be incorporated into the work of this Section.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Ordering: Conform to manufacturer's ordering instructions and lead time requirements to avoid construction delays.
- B. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- C. Store and handle to keep clean, dry, and protected from damage due to weather and construction activities.

1.7 WARRANTY

- A. Manufacturer's Warranty: 20-year limited manufacturer materials warranty, terms available at request.

PART 2 PRODUCTS

2.1 MANUFACTURER

- A. Gridworx by Precision Wall Systems.
10980 Alder Circle, Dallas, TX 75239
214.774.4502

2.2 SUPPORT SYSTEMS

- A. Proprietary Design/Build panel, modified curtain wall cladding system for project use which includes all materials required to provide a completed system including, but not limited to the following
 - 1. Gridworx Discrete Girt, allows continuous insulation
 - 2. Gridworx Vertical Mullions
 - 3. Gridworx Cladding System

No alternates to be accepted.

2.3 MATERIALS

- A. Gridworx Ultra Compact Surface material
 - a. Mesh backing is required for cladding application.
- 1. Color: N/A

B. Gridworx Furring Channels (if applicable)

1. Material: Roll Formed galvanized steel z-channel w/ G90 coating. Steel gage, flange width and web depth to accommodate wall cavity design and is subject to review by a curtain wall engineer.
 - a. Furring Channels are twelve-foot (12') in length and will be cut in the field as required.

C. Gridworx "PLANX" Extruded Aluminum Cladding System; Anchors L-Bracket and Saddle Clip:

1. Material: Alloy – 6005 T5; black anodized finish of AA M12C22A21 meeting the standard of AAMA 611-98
 - a. Gridworx Channels provided in J, L or T configurations as indicated and as required to support cladding. All channels are extruded in twelve-foot (12') lengths and cut to length in the field.
 - b. Gridworx L-Brackets are extruded in twelve-foot (12') lengths and cut in the field per the length of the panel.
 - c. Gridworx "PLANX" Saddle Clip are extruded in twelve-foot (12') lengths and cut in field to the length of the panel. Applied to panel using continuous bead of proprietary structural polyurethane adhesive aka: "Gridloc" in the field.
 - d. Subframe components (if applicable) - vertical mullions provided in twelve-foot (12') lengths. Thermally broken discrete clips are specified in length by the curtain wall engineer. Insulation is not provided by Precision Wall Systems and is the responsibility of others.

E. Screw Fasteners:

1. Steel Stud
 - a. Elco Drill-Flex or HILTI Kwik-Flex fasteners, 1/4-20 X 2 1/2" self drilling structural fasteners – SAE J 429 / Grade 5 with a Stalgard Coating. Installation to be on studs with a minimum of 18 gauge set on 16" centers.
2. Concrete or CMU
 - a. Elco Con-flex #14x2 1/4" Dual Hardened with Stalgard Coating, 1" Minimum thread engagement. Installation of fasteners for the "Intermediate T" to be on 24" centers with top and bottom screw to alternate so as to not have both invading the same cavity of the CMU block. "Top J" and "Starter J" to be installed on 24" centers.
3. Wood
 - a. SPAX Powerlag 1/4"x3" HWH Wood Fastener. 1 1/2" Minimum thread engagement, To be installed on minimum 2"x6" studs set on 16" centers.

F. Undercut anchors (if applicable):

1. 12mm and 20mm: KEIL M6x14.5 – part number 555 020 777. Spacing determined by curtainwall engineer.

2. 8mm: KEIL M6x10 – part number 555 020 742. Spacing determined by curtainwall engineer.

G. Shims

1. Full bearing hi-impact resistant plastic of 3" vertical or greater.

PART 3 EXECUTION

3.1 EXAMINATION

Prior to starting work, carefully inspect installed work of other trades and verify that such work is complete to the point where work of this Section may properly commence. Notify the Architect in writing of conditions detrimental to the proper and timely completion of the work.

- B. Do not begin installation until all unsatisfactory conditions are resolved. Beginning work constitutes acceptance of site conditions and responsibility for defective installation caused by prior observable conditions.

3.2 PREPARATION

- A. Review areas of potential interference and conflicts, and coordinate layout and support provisions for interfacing work.
- B. Adjust and perform work as necessary for plumb and true alignments.

3.3 INSTALLATION

- A. LIST INSTALLATION PROCEDURE

3.4 ERECTION TOLERANCES

- A. Maximum Framing Member Variation from True Position: ___ inch.
- B. Maximum Framing Member Variation from Plane:
 1. Individual Framing Members: Do not exceed ___ inch in 10 foot.
 2. Accumulative Over-all Variation for Wall and Floor System: Do not exceed ___ inch.

3.5 FIELD QUALITY CONTROL

- A. Manufacturer's Field Technical Service: Make intermittent and final inspection to verify installation in conformance to manufacturer instructions and suitable as framing assembly for subsequent metal panels, acrylic plastering, and other cladding installations.
 1. Confirm snug tight and fastener sizing.
 2. Confirm framing members installed in correct orientation.

3.6 ADJUSTING

- A. Inspect and adjust after installation. Replace or repair defective work.
- B. Adjust, and reconfigure as necessary to accommodate cladding systems for installations over work of this Section. Do not reuse pre-drilled holes unless fastener size is increased.

END OF SECTION