

PART 1 - GENERAL

1.01      SUMMARY

- A.      Non-ferrous metal fabrications and manufactured items not shown or specified under work of other Sections, including, but not limited to, the following.
  - 1.      Suspended aluminum slotted framing system at laboratory ceilings for support of service fixtures, equipment, etc.
  - 2.      Hardware, fittings, clamps, hangers, supports, accessories and fasteners required to complete the installation.
- B.      Related Sections:
  - 1.      Mechanical: See Drawings.
  - 3.      Electrical: See Drawings.

1.02      REFERENCES

- A.      The following standards are cited in, or may be relevant to this Section. The latest edition of each standard shall govern the Work of this Section only to the extent specified in each citation.
- B.      Aluminum Association (AA):
  - 1.      SAS-30 Specifications for Aluminum Structures.
  - 2.      WA-20 Welding Aluminum.
- C.      American Society for Testing and Materials (ASTM):
  - 1.      A36/A36M Specification for Structural Steel.
  - 2.      A570 (Grade 33) Specification for Steel, Sheet and Strip, Carbon, Hot-Rolled, Structural Quality.
  - 3.      A575 Specification for Steel Bars, Carbon, Merchant Quality, M-Grade.
  - 4.      A576 (Grade 1015) Standard Specification for Steel Bars, Carbon, Hot-Wrought, Special Quality.
  - 5.      A635 Specification for Steel, Sheet and Strip,, Heavy-Thickness Coils, Carbon, Hot-rolled.
  - 6.      B117 Method of Salt Spray (fog) Testing.
  - 7.      B209 Specification for Aluminum and Aluminum Alloy Sheet and Plate.
  - 8.      B221 Specification for Aluminum-Alloy Extruded Bars, Rods, Wires, Shapes, and Tubes.

- 9. B308 Specification for Aluminum-Alloy 6061-T6 Standard Structural Shapes, Rolled or Extruded.
- C. American Iron and Steel Institute (AISI) Specification for the Design of Cold-Formed Steel Structural Members.
- D. Federal Specifications (FS): FF-S-325 Shield, Expansion, and Nail, Drive Screw (Devices, Anchoring, Masonry).

#### 1.03 STRUCTURAL REQUIREMENTS

- A. Aluminum Slotted Framing: Comply with the following:
  - 1. Work shall remain rigid and free of vibration, sway, or excessive deflection under anticipated loads.
  - 2. Work shall safely support anticipated loads consisting of piping, service fixtures, and equipment (approximately 20 lbs./square foot).
- B. Anchoring Devices: Support dead load of framing system plus specified live loads with a safety factor of 2.5. Contractor shall be responsible for design of anchorage of Aluminum Slotted Framing System to existing concrete-filled metal deck and to partitions.

#### 1.04 SUBMITTALS

- A. Comply with Section 013300 requirements.
- B. Shop Drawings/Product Data:
  - 1. Aluminum Slotted Framing System member size, weight/wall thickness, shape; kinds and locations of shop and field connections; fittings and accessories; support and anchorage; relation to building frame, floors, and walls; and other data necessary to fabricate, erect and coordinate work of affected trades.
  - 2. Anchorage to existing construction: Contractor shall design and submit proposed anchorage of Aluminum Slotted Framing System to existing concrete-filled metal deck and to partitions.
- C. Structural calculations signed and sealed by a structural engineer licensed in the State of New Jersey. Calculations may include, but are not limited to:
  - 1. Description of design criteria.
  - 2. Stress and deflection analysis.
  - 3. Loads of Aluminum Slotted Framing System, including anticipated live loads described above, on existing building structure.
  - 4. Anchorage of Aluminum Slotted Framing System to concrete-filled metal deck and partitions.

#### 1.05 QUALITY ASSURANCE

A. Manufacturer's Qualifications:

1. Work shall be done by a manufacturer regularly engaged in producing assemblies of the required kind and quality. He shall have the equipment, skilled workers, and capacity to accomplish the work and meet the Construction Schedule. He shall employ the services of a Professional Engineer, registered in the State of New Jersey, to design work to meet specified structural requirements.
2. The manufacturer shall certify in writing that all components supplied have been produced in accordance with an established quality assurance program.

B. Installer's Qualifications:

1. Installer shall be authorized by framing system manufacturer with not less than 5 years experience in the installation of systems of this size and complexity.
2. All system components shall be supplied by a single manufacturer.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Comply with Section 016000 requirements.
- B. All material is to be delivered to the work site in original factory packaging.

1.07 PROJECT CONDITIONS

- A. Field Measurements: Fabricate work to field dimensions where possible. Where field measurements cannot be made without delaying work, make proper allowances for trimming and fitting. This provision does not relieve the Contractor of his responsibility for accurately fabricating and installing his work and fitting it to adjoining work.
- B. Confirmation of Adjacent Construction: Contractor shall field verify site conditions and adjacent construction to which Aluminum Slotted Framing System will be anchored.

1.08 SEQUENCING/SCHEDULING

- A. Coordinate delivery and installation of items required for support of other trades.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. All Aluminum Slotted Framing System components shall be manufactured by a single manufacturer: 1.5 Series by Bosch Rexroth ([www.boschrexroth-us.com](http://www.boschrexroth-us.com)), or Aluminum Fractional T-Slotted Framing System, 80/20 Inc. Columbia City, IN 46725 (260-248-8030) or approved equal.

2.02 MATERIALS

- A. Standard 4-slot (one per side), 1-1/2" x 1-1/2" extrusions of 6105-T5 aluminum, with

a system of connectors, black polystyrene end-caps, black polystyrene slot covers, and zinc/steel fasteners. See drawings for size of assemblies, and lengths of extrusions required.

- B. Slotted Framing supports square black or non-reflective-coated welded wire mesh panels, attached with mesh panel retainers (47065T198).
- C. Wire Mesh: 1" x 1" wire mesh, square welded, by McNichols, New Brunswick, NJ (877-884-4653), or approved equal.
- D. Anchors:
  - 1. Expansion Shields: Fed. Spec. FF-S-325, Group I, Type I, Class 2, head-out multiple unit bolt expansion shield.
  - 2. Self-Threading Concrete Anchors: Buildex Tapcon Concrete Anchors or Ackerman Johnson Mascrus or approved equal, proof load 4x design load, suitable for driving into 4,000 psi concrete without concrete or anchor failure.

## 2.03 GENERAL FABRICATION REQUIREMENTS

- A. Make work neat, accurate, and free from defects that impair strength, function or appearance.
- B. Shear and punch work cleanly and accurately. Remove burrs. Ease sharp exposed edges.
- C. Make straight sections free of bow or camber. Make bends to constant radii.
- D. Make flush, tight, butt joints where not otherwise shown/specified. Locate joints where least conspicuous.
- E. Fit and trial assemble work in the shop. Permanently shop-assemble work into the largest section that meet shipping and field conditions. Use connections that maintain structural value of joined pieces.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Comply with Section 016000 requirements.

### 3.02 INSTALLATION REQUIREMENTS

- A. Install work per approved shop drawings; square, level, plumb, and true; free from distortion; and in proper relation to adjoining work. Provide all anchoring devices necessary to secure work to building structure.
- B. Carefully fit and true work before joining and anchoring it. Make field joints and connections to standards specified for fabrication.
- C. Anchorage: Where not otherwise specified, anchor work as follows:

1. To Structural Steel: Clamp, bolt or weld.
2. To Hardened Concrete: Use expansion bolts. Shim and grout base plates.
3. To Masonry: Use expansion shields and bolts or self-threading concrete anchors into solid masonry units/mortar filled cores and solid mortar joints, as required to carry loads.
5. To Drywall Construction: Use flat-head toggle bolts into steel framing and steel anchor plates. Do not anchor work to unreinforced gypsum board.

3.05 ADJUSTING, CLEANING, AND PROTECTION

- A. Correct nonconforming and damaged work. Replace work that cannot be repaired at the Project.
- B. Hand tool-clean field connections and coating abrasions per SSPC SP2.
- C. Protect work from damage and abuse.

END OF SECTION