



**BUILDSTRONG™**

SECTION 09110  
NON-LOAD-BEARING STEEL FRAMING

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**PART 1 GENERAL**

**1.1 SECTION INCLUDES**

- A. Steel Framing of the following types:
  - 1. Steel studs and runners.
  - 2. Slip-type head joints.
  - 3. Flat strap and backing plate.
  - 4. Cold-rolled channel bridging.
  - 5. Hat-shaped, rigid furring channels.
  - 6. Resilient furring channels.
  - 7. Cold-rolled furring channels.
  - 8. Z-shaped furring.
  - 9. CT studs.
  - 10. Tabbed track and jamb track.
  - 11. H-stud and C-runner.
  
- B. Suspension System Components of the following types:
  - 1. Tie wire.
  - 2. Hanger attachments to concrete.
  - 3. Wire hangers.
  - 4. Flat hangers.
  - 5. Carrying channels.
  - 6. Furring channels.
  - 7. Grid suspension system for ceilings.
  
- C. Accessories.

**1.2 RELATED SECTIONS**

- A. Section 05400 - Cold-Formed Metal Framing
- B. Section 09100 - Metal Support Assemblies.

**1.3 REFERENCES**

- A. American Iron and Steel Institute (AISI):
  - 1. COSP - Specification for the Design of Cold-Formed Steel Structural Members, Code of Standard Practice.

- B. ASTM International (ASTM):
  - 1. ASTM A641/A641M - Standard Specification for Zinc-Coated, Galvanized, Carbon Steel Wire.
  - 2. ASTM A653 - Standard Specification for Steel Sheet, Zinc-Coated, Galvanized, or Zinc-Iron Alloy-Coated, Galvannealed, by the Hot-Dip Process
  - 3. ASTM A1003 - Standard Specification for Steel Sheet, Carbon, Metallic and Nonmetallic-Coated for Cold-Formed Framing Members.
  - 4. ASTM C641 - Standard Test Method for Iron Staining Materials in Lightweight Concrete Aggregates
  - 5. ASTM C645 - Standard Specification for Nonstructural Steel Framing Members.
  - 6. ASTM C754 - Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
  - 7. ASTM C840 - Specification for Application and Finishing of Gypsum Board.
  - 8. ASTM D226 - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.
  - 9. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
  - 10. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
  - 11. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
  - 12. ASTM E413 - Classification for Rating Sound Insulation.
  - 13. ASTM E488 - Standard Test Methods for Strength of Anchors in Concrete Elements.
  - 14. ASTM E1190 - Standard Test Methods for Strength of Power Actuated Fasteners Installed in Structural Members.
- C. Gypsum Association (GA):
  - 1. GA-600 - Fire Resistance Design Manual.
- D. Steel Framing Alliance (SFA):
  - 1. Steel Framing Alliance Fire & Acoustic Guide.

#### 1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data:
  - 1. Manufacturer's product data, including manufacturer's technical data sheet.
  - 2. Catalog pages illustrating products to be incorporated into project.
  - 3. Material Safety Data Sheets.
- C. Shop Drawings: Include details of materials, construction and finish. Include relationship with adjacent construction.
- D. Informational Submittals:
  - 1. Manufacturer's Instructions: Manufacturer's storage and installation instructions.
  - 2. Source Quality Control: Documentation verifying that components and materials specified in this Section are from single manufacturer.
  - 3. Qualification Statements:
    - a. Letter of verification for manufacturer's qualifications.
    - b. Letter of verification for installer's qualifications.

#### 1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications:
  - 1. Company specializing in manufacturing products specified in this section with a minimum five years documented experience.

2. Having sufficient capacity to produce and deliver required materials without causing delay in work.
- B. Installer Qualifications: Acceptable to manufacturer and specializing in Work of this section. Two years documented experience with projects of similar scope and complexity.
  - C. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.
  - D. Sustainability Standards Certification: Certification for \_\_\_\_ materials certified by \_\_\_\_ in accordance with \_\_\_\_.
  - E. Mock-Up: Construct a mock-up with actual materials in sufficient time for Architect's review and to not delay construction progress. Locate mock-up as acceptable to Architect and provide temporary foundations and support.
    1. Dimensions and Process: Construct to \_\_\_\_ feet (\_\_\_\_ mm) using proposed procedures, colors, textures, finishes and quality of work.
    2. Purpose: To judge quality of work, substrate preparation, operation of equipment and material application.
    3. If mock-up is not acceptable, rebuild mock-up until satisfactory results are achieved.
    4. Do not proceed with work prior to receipt of written acceptance of mock-up.
    5. Retain mock-up during construction as a standard for comparing with completed work.
    6. Do not alter or remove mock-up until work is completed or removal is authorized.
    7. Approved mock-up may remain part of finished work.

#### 1.6 ADMINISTRATIVE REQUIREMENTS

- A. Coordination: Coordinate work of this Section with work of other trades for proper time and sequence to avoid construction delays.
- B. Preinstallation Conference: Convene a conference approximately two weeks before scheduled commencement of Work. Attendees shall include Architect, Contractor and trades involved. Agenda shall include schedule, responsibilities, critical path items and approvals.
- C. Sequencing: Sequence work of this section in accordance with manufacturer's written recommendations for sequencing construction operations.
- D. Scheduling: Schedule work of this Section in accordance with appropriate sections in Division 01.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Delivery and Acceptance Requirements:
  1. Deliver material in accordance with manufacturer's written instructions.
  2. Deliver materials in manufacturer's original packaging with identification labels intact and in sizes to suit project.
- B. Storage and Handling Requirements:
  1. Store materials protected from exposure to harmful weather conditions and at temperature conditions per the recommendations of AISI COSP Section F3.
- C. Packaging Waste Management:
  1. Separate waste materials for reuse and recycling in accordance with appropriate sections in Division 01.
  2. Remove packaging materials from site and dispose of at appropriate recycling facilities.
  3. Collect and separate for disposal packaging material of the following types in appropriate onsite bins for recycling:

- a. Paper.
- b. Plastic.
- c. Polystyrene.
- d. Corrugated cardboard.
4. Fold metal and plastic banding; flatten and place in designated area for recycling.
5. Remove from site:
  - a. Pallets.
  - b. \_\_\_\_\_.
6. Remove from site and return to supplier or manufacturer:
  - a. Pallets.
  - b. \_\_\_\_\_.

## 1.8 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Telling Industries, LLC, which is located at: Corporate Headquarters/Sales 4420 Sherwin Rd.; Willoughby, OH 44094; Toll Free Tel: 866-372-6384; Tel: 440-974-3370; Fax: 440-974-3408; Email: [request info \(sales.corp@tellingindustries.com\)](mailto:request info (sales.corp@tellingindustries.com)); Web: <http://www.BUILDSTRONG.com>
  1. 4420 Sherwin Road; Willoughby, OH 44094; ASD Toll Free: 866-372-6384; Phone: 440-974-3370; Fax: 440-974-3408; Email: [sales.corp@tellingindustries.com](mailto:sales.corp@tellingindustries.com); Web: [www.buildstrong.com](http://www.buildstrong.com) AND
  2. 2105 Larrick Road; Cambridge, OH 43725; ASD Phone: 740-435-8900; Fax: 740-435-8915 AND
  3. 1400 Southwire Drive; Osceola, AR 72370; ASD Phone: 870-563-6065; Fax: 870-563-2471 AND
  4. 1050 Kennedy Road; Windsor, CT 06095; ASD Phone: 860-731-7975; Fax: 860-731-7976.
- B. Substitutions: Not permitted.
- C. Requests for Substitutions: Considered in accordance with provisions of Section 01600.

### 2.2 PERFORMANCE AND DESIGN REQUIREMENTS

- A. Provide non-load bearing steel stud partitions with deflections conforming to L/360 at 15 PSF for veneer plaster walls and L/240 at 5 PSF typical for gypsum board walls.
- B. Fire-resistive Rating: Where indicated on Drawings, provide materials and construction that are identical to those assemblies whose fire resistance rating has been determined per ASTM E119 by a testing and inspecting organization acceptable to authorities having jurisdiction.
  1. Meet or exceed fire resistance requirements outlined under provisions of the GA-600 Fire Resistance Design Manual for wall and ceiling assemblies or design designations in the Underwriter's Laboratories Fire Resistance Directory or in the listing of other testing and inspecting agencies acceptable to authorities having jurisdiction.
  2. Meet or exceed flame/fuel/smoke requirements of ASTM E84 surface burning characteristics for finish materials.
- C. Sound Transmission Characteristics: For gypsum board assemblies with STC ratings,

provide materials and construction identical to those tested in assembly indicated according to ASTM E90 and classified according to ASTM E413 by a qualified independent testing agency.

## 2.3 STEEL FRAMING

- A. Steel Studs and Runners, Basis of Design: ViperStud; as manufactured by Telling Industries, LLC.
1. Description: Knurled studs. No dimpled studs allowed.
  2. Viper25 Stud, Minimum Base Metal Thickness: 25 gauge, 0.0147 inch (0.3734 mm).
  3. ViperTrack25 Track, Minimum Base Metal Thickness: 25 gauge, 0.0147 inch (0.3734 mm); approved for use on Viper25, Viper20.
  4. Viper20, Minimum Base Metal Thickness: 20 gauge, 0.0195 inch (0.495 mm).
  5. Viper20, Minimum Base Metal Thickness: 20 gauge, 0.0209 inch (0.531 mm).
  6. Viper20 Track, Minimum Base Metal Thickness: 20 gauge, 0.0195 inch (0.495 mm).
  7. Viper20 Track, Minimum Base Metal Thickness: 20 gauge, 0.0209 inch (0.531 mm).
  8. Minimum Base Metal Thickness: As indicated on Drawings.
  9. Web Size: 1-5/8 inch (42 mm).
  10. Web Size: 2-1/2 inch (64 mm).
  11. Web Size: 3-1/2 inch (89 mm).
  12. Web Size: 3-5/8 inch (92 mm).
  13. Web Size: 4 inch (102 mm).
  14. Web Size: 6 inch (152.4 mm).
  15. Web Depth: As indicated on Drawings.
  16. Flange: Equal lengths, 1-1/4 inches (32 mm).
- B. Slip-Type Head Joints:
1. Single Long-Leg Runner System: ASTM C645 top runner with 2 inch (50.8 mm) deep flanges in thickness not less than indicated for studs, installed with studs friction-fit into top runner and with continuous bridging located within 12 inches (305 mm) of the top of studs to provide lateral bracing.
  2. Double-Runner System: ASTM C645 top runners.
    - a. Inside Runner: 2 inch (50.8 mm) deep flanges in thickness not less than indicated for studs
    - b. Outside Runner: Sized to friction-fit inside runner.
  3. Deflection Track: Steel sheet top runner manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; in thickness not less than indicated for studs and in width to accommodate depth of studs.
- C. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.
1. Minimum Base Metal Thickness: 25 gauge, 0.0179 inch (0.455 mm).
  2. Minimum Base Metal Thickness: 22 gauge, 0.0269 inch (0.683 mm).
  3. Minimum Base Metal Thickness: 20 gauge, 0.0296 inch (0.752 mm).
  4. Minimum Base Metal Thickness: As indicated on Drawings.
- D. Cold-Rolled Channel Bridging: 0.0538 inch (1.37 mm) bare steel thickness, with minimum 1/2 inch (12.7 mm) wide flanges.
1. Depth: 3/4 inch (19 mm).
  2. Depth: 1-1/2 inches (38 mm).
  3. Depth: 2 inches (51 mm).
  4. Depth: As indicated on Drawings.
  5. Clip Angle: Not less than 1-1/2 x 1-1/2 inches (38.1 x 38.1 mm), 0.068 inch (1.73 mm) thick, galvanized steel.
- E. Hat-shaped, Rigid Furring Channels: ASTM C645.

1. Minimum Base Metal Thickness: 25 gauge, 0.0179 inch (0.455 mm).
  2. Minimum Base Metal Thickness: 22 gauge, 0.0269 inch (0.683 mm).
  3. Minimum Base Metal Thickness: 20 gauge, 0.0296 inch (0.752 mm).
  4. Minimum Base Metal Thickness: 18 gauge, 0.0428 inch (1.087 mm).
  5. Minimum Base Metal Thickness: As indicated on Drawings.
  6. Depth: 7/8 inch (22 mm).
  7. Depth: 1-1/2 inches (38 mm).
  8. Depth: As indicated on Drawings.
- F. Resilient Furring Channels: 1/2 inch (12.7 mm) deep, steel sheet members designed to reduce sound transmission.
1. Configuration: Asymmetrical or hat shaped.
  2. Configuration: Asymmetrical.
  3. Configuration: Hat shaped.
- G. Cold-Rolled Furring Channels: 0.0538 inch (1.37 mm) bare steel thickness, with minimum 1/2 inch (12.7 mm) wide flanges.
1. Depth: 3/4 inch (19 mm).
  2. Depth: As indicated on Drawings.
  3. Furring Brackets: Adjustable, corrugated-edge type of steel sheet with minimum bare steel thickness of 0.0296 inch (0.7518 mm).
  4. Tie Wire: ASTM A641/A641M, Class 1 zinc coating, soft temper, 0.0625 inch (1.59 mm) diameter wire, or double strand of 0.0475 inch (1.2065 mm) diameter wire.
- H. Z-Shaped Furring: With non-slotted web, face flange of 1-1/4 inches (31.8 mm), wall attachment flange of 3/4 inch (19 mm), minimum bare metal thickness of 0.0179 inch (0.4547 mm), and depth required to fit insulation thickness indicated.
- I. CT-Studs: Cold-formed galvanized steel C-studs, ASTM C645, 33 KSI steel.
1. Minimum Base Metal Thickness: 25 gauge, 0.0179 inch (0.455 mm).
  2. Minimum Base Metal Thickness: 20 gauge, 0.0329 inch (0.836 mm).
  3. Minimum Base Metal Thickness: As indicated on Drawings.
  4. Web Size: 2-1/2 inch (64 mm).
  5. Web Size: 4 inch (102 mm).
  6. Web Size: 6 inch (152.4 mm).
  7. Fasteners, 25 gauge Framing: Type S screws.
  8. Fasteners, 20 gauge Framing: Type S-12 screws.
- J. Tabbled Track and Jamb Track: Cold-formed galvanized steel track, ASTM C645, 33 KSI steel.
1. Minimum Base Metal Thickness: 25 gauge, 0.0179 inch (0.455 mm).
  2. Minimum Base Metal Thickness: 20 gauge, 0.0329 inch (0.836 mm).
  3. Minimum Base Metal Thickness: As indicated on Drawings.
  4. Web Size: 2-1/2 inch (64 mm).
  5. Web Size: 4 inch (102 mm).
  6. Web Size: 6 inch (152.4 mm).
  7. Fasteners, 25 gauge Framing: Type S screws.
  8. Fasteners, 20 gauge Framing: Type S-12 screws.
- K. H-Studs and C-Runners: Cold-formed galvanized steel, ASTM C645.
1. Minimum Base Metal Thickness: 25 gauge, 0.0179 inch (0.455 mm).
  2. Web Size: 2 inches (51 mm).
  3. Fasteners, 25 gauge Framing: Type S screws.
  4. Fasteners, 20 gauge Framing: Type S-12 screws.

## 2.4 SUSPENSION SYSTEM COMPONENTS

- A. Tie Wire: ASTM A641/A641M, Class 1 zinc coating, soft temper, 0.0625 inch (1.59 mm) diameter wire, or double strand of 0.0475 inch (1.21 mm) diameter wire.
- B. Hanger Attachments to Concrete:
  - 1. Anchors: Fabricated from corrosion-resistant materials with holes or loops for attaching wire hangers and capable of sustaining without failure a load equal to 5 times that imposed by construction as determined by testing according to ASTM E488.
    - a. Type: Cast-in-place anchor, designed for attachment to concrete forms.
    - b. Type: Post installed, chemical anchor.
    - c. Type: Post installed, expansion anchor.
  - 2. Powder-actuated Fasteners: Suitable for application indicated, fabricated from corrosion-resistant materials with clips or other devices for attaching hangers of type indicated, and capable of sustaining without failure a load equal to 10 times that imposed by construction as determined by testing according to ASTM E1190.
- C. Wire Hangers: ASTM A641/A641M, Class 1 zinc coating, soft temper, 0.162 inch (4.12 mm) diameter.
- D. Flat Hangers: Steel sheet, 1 x 3/16 inch (25.4 x 4.76 mm) by length indicated on drawings.
- E. Carrying Channels: Cold-rolled, commercial steel sheet with a base metal thickness of 0.0538 inch (1.37 mm) and minimum 1/2 inch (12.7 mm) wide flanges.
  - 1. Depth: 3/4 inch (19 mm).
  - 2. Depth: 1-1/2 inches (38 mm).
  - 3. Depth: 2 inches (51 mm).
  - 4. Depth: 2-1/2 inches (64 mm).
  - 5. Depth: As indicated on Drawings.
- F. Furring Channels:
  - 1. Cold-rolled Channels: 0.0538 inch (1.37 mm) bare steel thickness, with minimum 1/2 inch (12.7 mm) wide flanges, 3/4 inch (19.1 mm) deep.
  - 2. Steel Studs: ASTM C645. ViperStud listed below is knurled, not dimpled. No dimpled studs allowed.
    - a. Viper25 Stud, Minimum Base Metal Thickness: 25 gauge, 0.0147 inch (0.3734 mm).
    - b. ViperTrack25 Track, Minimum Base Metal Thickness: 25 gauge, 0.0147 inch (0.3734 mm); approved for use on Viper25, Viper20.
    - c. Viper20, Minimum Base Metal Thickness: 20 gauge, 0.0195 inch (0.495 mm).
    - d. Viper20, Minimum Base Metal Thickness: 20 gauge, 0.0209 inch (0.531 mm).
    - e. Viper20 Track, Minimum Base Metal Thickness: 20 gauge, 0.0195 inch (0.495 mm).
    - f. Viper20 Track, Minimum Base Metal Thickness: 20 gauge, 0.0209 inch (0.531 mm).
    - g. Minimum Base Metal Thickness: As indicated on Drawings.
    - h. Web Size: 1-5/8 inches (42 mm).
    - i. Web Size: 2-1/2 inches (64 mm).
    - j. Web Size: 3-1/2 inches (89 mm).
    - k. Web Size: 3-5/8 inches (92 mm).
    - l. Web Size: 4 inches (102 mm).
    - m. Web Size: 6 inches (152 mm).
    - n. Flanges: Equal lengths 1-1/4 inches (32 mm).
  - 3. Furring Channels: 1-1/2 inches (38 mm) deep.
    - a. Minimum Base Metal Thickness: 25 gauge, 0.0179 inch (0.45 mm).
    - b. Minimum Base Metal Thickness: 22 gauge, 0.0269 inch (0.68 mm).
    - c. Minimum Base Metal Thickness: 20 gauge, 0.0296 inch (0.75 mm).
    - d. Minimum Base Metal Thickness: As indicated on Drawings.

4. Resilient Furring Channels: 1/2 inch (12.7 mm) deep members designed to reduce sound transmission.
  - a. Configuration: Asymmetrical or hat shaped.
  - b. Configuration: Asymmetrical.
  - c. Configuration: Hat shaped.
- G. Grid Suspension System for Ceilings: ASTM C645, direct-hung system composed of main beams and cross-furring members that interlock.

## 2.5 ACCESSORIES

- A. General: Provide auxiliary materials that comply with referenced installation standards.
  1. Fasteners for Metal Framing: Type, material, size, corrosion resistance and holding power required to fasten steel members to substrates.
- B. Isolation Strip at Exterior Walls: Provide the following:
  1. Asphalt-saturated Organic Felt: ASTM D226, Type I, No. 15 asphalt felt, non-perforated.
  2. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch (3.2 mm) thick, in width to suit steel stud size.

## 2.6 MATERIALS

- A. Framing Members: Comply with ASTM C645 for conditions indicated.
  1. Steel Sheet Components: Comply with ASTM A1003 requirements for metal, unless otherwise indicated.
  2. Protective Coating: Comply with ASTM A1003.

## 2.7 SOURCE QUALITY CONTROL

- A. Tests and Inspections:
  1. Manufacturer services.
  2. \_\_\_\_\_.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verification of Conditions: Verify that conditions of substrates previously installed under other sections or contracts are acceptable for product installation in accordance with manufacturer's instructions prior to wall framing installation.
  1. Inform Architect of unacceptable conditions immediately upon discovery.
  2. Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval from Architect.
  3. Proceed with installation only after unacceptable conditions have been remedied.
- B. \_\_\_\_\_.

### 3.2 PREPARATION

- A. Ensure structure or substrate is adequate to support wall framing.
- B. Ceiling Anchorage: Coordinate installation of ceiling suspension with installation of overhead structural systems to ensure that insert anchorage provisions have been installed to receive ceiling anchors in a manner that will develop their full strength and at spacing required to support ceiling.
  1. Provide concrete inserts and steel deck devices to other trades for installation well in



advance of time needed for coordination with other construction.

- C. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- D. Demolition and Removal: \_\_\_\_\_.

### 3.3 INSTALLATION

- A. Metal Framing - General:
  - 1. Coordinate erection of system with appropriate sections in Division 01.
  - 2. Install steel framing to comply with ASTM C754 and with ASTM C840 requirements applicable to framing installation.
  - 3. Isolate steel framing from building structure to prevent transfer of loading imposed by structural movement at locations indicated below:
    - a. Where edges of suspended ceilings abut building structure horizontally at ceiling perimeters or penetrations of structural elements.
    - b. Where partitions and wall framing abuts overhead structure.
    - c. slip-type joint as detailed to attain lateral support and avoid axial loading.
  - 4. Do not bridge building expansion and control joints with steel framing or furring members. Independently frame both sides of joints with framing or furring members.
- B. Metal Framing - Walls and Partitions:
  - 1. Install runners or track, at floors, ceilings and structural walls and columns where gypsum board stud system abuts other construction. Where studs are installed directly against exterior walls, install asphalt felt strips between studs and wall.
  - 2. Stud Spacing: Maximum 16 inches (406 mm) on center unless noted otherwise.
  - 3. Installation Tolerances: Install each steel framing and furring member so that fastening surfaces do not vary more than 1/8 inch (3 mm) from plane of faces of adjacent framing.
  - 4. Blocking: Bolt or screw steel channels to metal studs. Install concealed wood blocking for support of plumbing fixtures, toilet partitions, wall cabinets, toilet accessories, hardware and other related items requiring backing support as indicated.
- C. Metal Framing - Suspended and Furred Ceilings:
  - 1. Secure hangers to structural support by connecting directly to structure where possible; otherwise connect to cast-in concrete inserts or other anchorage devices or fasteners as indicated.
    - a. Do not attach hangers to metal deck tabs.
    - b. Do not attach hangers to metal roof deck
    - c. Do not attach hangers to underside of concrete slabs with power actuated fasteners.
  - 2. Install metal ceiling framing per ASTM C754, and space main runners at 4 feet (1219 mm) on center, maximum.
  - 3. Do not connect or suspend steel framing from ducts, pipes or conduit.
  - 4. Keep hangers and braces 2 inches (51 mm) clear of ducts, pipes or conduits.
  - 5. Sway-brace suspended steel framing with hangers used for support.
- D. Metal Framing - Shaft Wall:
  - 1. Anchor tabbed track perimeter framing at abutting horizontal and vertical construction.
  - 2. Anchor with approved fasteners spaced maximum 24 inches on center.
  - 3. Apply indicated sealant in a continuous application at the perimeter.
  - 4. Space CT Studs at 24 inches on center. Adjust the spacing at ends of shaft wall construction so end studs are minimum 8 inches from the ends.
  - 5. Install the first liner board panel. The panel length shall be 3/4 inch less than the total height of the framed section. Plumb the panel against the web of the tabbed track and bend out tabs in tabbed track to secure the panel in place.

6. Insert a CT Stud into the top and bottom tabbed track and fit tightly over the previously installed 1 inch panel. Allow equal clearance between track and stud at top and bottom tabbed track. The stud length shall be 3/4 inch less than the total height of the framed section.
  7. Install the second 1 inch liner board panel inside the tabbed track and within the tabs of the CT studs.
  8. Install succeeding studs and panels in the same manner as described for the first and second panels until the wall section is complete.
  9. Anchor the final panel section at 12 inches on center with tabs from the tabbed track.
  10. Where wall heights exceed the standard or available length of the liner board panels, the panels shall be cut and stacked with joints occurring within the top or bottom third of the wall height. The shorter panels shall be minimum 24 inches long and of sufficient length to engage 2 studs.
  11. For doors, ducts or other large penetrations or openings, install jamb track as perimeter framing. Use 20 gauge track with a 3 inch back leg for elevator doors and block cavity. Install 12 inch wide gypsum filler strips for doors exceeding 7 ft 0 inches height.
- E. Metal Framing - Area Separation Wall:
1. Foundation: Position 2 inch C-runner at floor and attach securely to foundation at ends and 24 inches on center. Caulk under runner at foundation with minimum of 1/4 inch bead of acoustical sealant when specified to reduce noise transmission.
  2. First Floor: Install H-studs and insert liner board. Attach two thicknesses of 1 inch liner board vertically in C-runner with long edges in H-stud. Continue installing H-studs and liner board alternately until wall is complete. Attach horizontal C-runner to top of liner board, fastening flanges of C-runner at all corners on both sides of liner board with 3/8 inch drill point screws.
  3. Intermediate Floors: Attach C-runner to C-runner cap on wall below, staggering end joints at least 12 inches. Fasten C-runner together using double 3/8 inch screws at ends and 24 inches on center. Fasten H-studs to adjacent framing with aluminum breakaway clips. Attach breakaway clips to H-stud with one 3/8 inch drill point screw and to adjacent wood framing with 1-1/4 inch drywall screw. Install fire blocking between solid wall system and adjacent framing at floor lines, bottom of truss line and any other locations according to code requirements.
  4. Roof: Cut liner board and H-studs to follow roof pitch. Fasten H-studs to framing with an aluminum breakaway clip.
- F. Repair and Restoration:
1. Coordinate repair and restoration in accordance with appropriate sections in Division 01.
  2. \_\_\_\_\_.

### 3.4 FIELD QUALITY CONTROL

- A. Field Inspection: Coordinate field inspection in accordance with appropriate sections in Division 01.

### 3.5 CLEANING AND PROTECTION

- A. Clean products in accordance with the manufacturer's recommendations and appropriate sections in Division 01.
- B. Upon completion, remove surplus materials, rubbish, tools and equipment.
- C. Waste Management:
1. Coordinate recycling of waste materials with appropriate sections in Division 01.
  2. Collect recyclable waste and dispose of or recycle field generated construction waste

created during demolition, construction or final cleaning.

3. Remove recycling containers and bins from site.

4. \_\_\_\_\_.

D. Protect installed product from damage during construction.

E. Touch-up, repair or replace damaged products before Substantial Completion.

### 3.6 ATTACHMENTS

A. Schedules: \_\_\_\_\_.

END OF SECTION