SECTION 092116 - GYPSUM BOARD ASSEMBLIES

1. GENERAL
	* + 1. RELATED WORK SPECIFIED ELSEWHERE
				1. Cold Formed (Load Bearing) Metal Framing: Section 054000.
			2. DEFINITIONS
				1. Sheet Steel Gages: US Standard.
				2. Gypsum Board Terminology: ASTM C 11 - Standard Terminology Relating to Gypsum and Related Building Materials and Systems.
			3. SUBMITTALS
				1. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.
				2. Manufacturer’s installation instructions shall be provided along with product data.
				3. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).
				4. Product Data: Catalog sheets, specifications, and installation instructions for each item specified.
				5. Samples:

Steel Framing: 12 inches long, each component specified.

Gypsum Board: 12 inches square, each type specified.

Shaft-Wall Gypsum Liner Panels: 12 inches square.

Fasteners: 10 each type specified.

Adhesive: 1 pint.

* + - 1. QUALITY ASSURANCE
				1. Fire Resistance Rated Applications: Provide UL listed or ASTM E 119 tested materials, accessories, and application procedures to comply with the rating, UL Design Number, or Gypsum Association File Number indicated.
				2. Sound Transmission Class (STC) Rated Applications: Provide materials and installation procedures identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413.
				3. Single Source Responsibility: Obtain components for gypsum board shaft-wall assemblies from a single manufacturer for each type of assembly required.
			2. DELIVERY, STORAGE AND HANDLING
				1. Deliver materials in original packages, containers, or bundles bearing brand name and identification of manufacturer.
				2. Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, and other causes. Stack gypsum panels flat to prevent sagging.
			3. PROJECT CONDITIONS
				1. Environmental Requirements: Comply with gypsum board manufacturer’s printed temperature and ventilation requirements during application and finishing. Ventilate installation areas to relieve excess moisture.
1. PRODUCTS
	* + 1. FRAMING
				1. Studs, Tracks, and Furring: ASTM C 645; 25 gage (minimum base metal thickness 0.0179 inch) galvanized steel, with additional framing members, reinforcing, accessories, and anchors necessary for the complete framing system.

Deep-Leg Deflection Track: ASTM C 645 top runner with 2 inch deep flanges.

Hat-Shaped, Rigid Furring Channels: ASTM C 645; 25 gage (minimum base metal thickness 0.0179 inch) galvanized steel.

Resilient Furring Channels: Steel furring members designed to reduce sound transmission.

* + - 1. GYPSUM BOARD
				1. Standard Gypsum Board: ASTM C 1396; long edges as follows:

Long Edges: Tapered.

Long Edges: Tapered with beveled or rounded edges.

* + - * 1. Fire Resistant Gypsum Board: ASTM C 1396; Type X, UL listed and bearing listing marking; long edges as follows:

Long Edges: Tapered.

Long Edges: Tapered with beveled or rounded edges.

* + - * 1. Moisture Resistant Gypsum Board: ASTM C 1396; long edges tapered.
				2. Moisture and Fire Resistant Gypsum Board: ASTM C 1396; Type X, UL listed and bearing listing mark; long edges tapered.
				3. Foil-Backed Gypsum Board: ASTM C 1396; back surface with aluminum foil, long edges tapered.
				4. Gypsum Backing Board: ASTM C 1396; long edges square.
				5. Gypsum Sheathing Board: ASTM C 1396; long edges square.
				6. Exterior Gypsum Soffit Board: ASTM C 1396; long edges beveled or eased.
				7. Polycarbonate Laminated Gypsum Board: Type X 5/8 inch Fire Resistant Gypsum Board laminated to .080 inch thick polycarbonate. Laminated product shall meet “Class A” interior wall and finish classification. Long edges of gypsum board tapered with beveled or rounded edges.

Acceptable Products:

CoreGuard by Pinnacle Armor, 5425 E. Home Ave. #104, Fresno, CA 93727, (800) 200-0915, [www.pinnaclearmor.com](http://www.pinnaclearmor.com).

NuGuard Security Wall Panels, Nudo Products, Inc., 1500 Taylor Ave., Springfield, IL 62703, (800) 826-4132, [www.nudo.com](http://www.nudo.com).

Approved equivalent.

* + - * 1. Polycarbonate Laminated Gypsum Board: Type X nominal 5/8 inch fire resistant gypsum board laminated to .030 inch thick polycarbonate. Laminated product shall meet “Class A” interior wall and finish classification. Long edges of gypsum board tapered with beveled or rounded edges.

Acceptable Products:

CoreGuard by Pinnacle Armor, 5425 E. Home Ave. #104, Fresno, CA 93727, (800) 200-0915, [www.pinnaclearmor.com](http://www.pinnaclearmor.com).

NuGuard Security Wall Panels by Nudo Products, Inc., 1500 Taylor Ave., Springfield, IL 62703, (800) 826-4132, [www.nudo.com](http://www.nudo.com).

Approved equivalent.

* + - 1. FASTENERS
				1. Steel Drill Screws: ASTM C 1002; gypsum board manufacturer’s recommended types and sizes for substrates involved.
				2. Laminating Adhesive: Gypsum board manufacturer’s recommended type for substrates involved.
				3. Expansion Anchors: Anchor bodies AISI 1018 or 12L14, of dimensions indicated; with nuts, ASTM A 563; and flat washers. Expansion sleeves AISI 1010, of dimensions indicated; with bolts, SAE Grade 5; and flat washers.
				4. Toggle Bolts: Tumble wing type.

Wing Body: AISI 1008-1010 or equivalent cold rolled steel.

Trunnion Nut: 1/4 inch thru 3/8 inch AISI 1010 steel; 1/2 inch Zamac alloy.

Screw: Carbon steel.

* + - * 1. Self Threading Masonry Screws: Zinc plated; Tapcon Fasteners by ITW Buildex 1349 West Bryn Mawr Ave. Itasca, IL 60143, (800) 284-5339.
			1. TRIM
				1. Interior Trim: ASTM C 1047.

Material: Galvanized steel or extruded vinyl.

Shapes:

Cornerbead: Use at outside corners.

Bullnose Bead: Use where indicated.

LC-Bead: J-Shaped, exposed long flange receives joint compound. Use at exposed panel edges.

L-Bead: L-shaped, exposed long leg receives joint compound with tear away bead. Use where gypsum board abuts or intersects dissimilar material.

U-Bead: J-shaped, exposed short flange does not receive joint compound. Use where indicated.

Expansion (Control) Joint: Use where indicated.

* + - * 1. Exterior Trim: ASTM C 1047.

Materials: Hot-dip galvanized steel.

Shapes:

Cornerbead: Use at outside corners.

LC-Bead: J-shaped, exposed long flange receives joint compound. Use at exposed panel edges.

Expansion (Control) Joint: One-piece, with V-shaped slot and removable strip covering slot opening.

* + - 1. ACCESSORIES
				1. Sound Attenuation Blankets: ASTM C 665, Type 1; semi-rigid, mineral fiber blankets without membrane covering. Furnish blankets of thickness, density, and type tested by the gypsum board manufacturer for the required rating.
				2. Acoustical Sealant for Exposed and Concealed Joints: Nonsag, paintable, nonstaining, latex sealant complying with ASTM C 834 that effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
				3. Acoustical Sealant for Concealed Joints: Non drying, nonhardening, nonskinning, nonstaining, gunnable, synthetic-rubber sealant recommended for sealing interior concealed joints to reduce airborne sound transmission.
				4. Flattened Expanded Metal Mesh: ASTM F 1267, Type II, Class 1, grade as selected by fabricator; 13 gage, 1/2 inch carbon sheet steel, diamond style.
			2. JOINT TREATMENT MATERIALS
				1. Joint Tapes: ASTM C 475; plain or perforated.
				2. Joint Compound: ASTM C 475; gypsum board manufacturer’s recommended dry powder or ready-mixed, either of the following:

One Compound Treatment: One compound for both bedding and finishing joints.

Two Compound Treatment: Compatible joint compounds; one compound for bedding and the other compound for finishing joints.

* + - * 1. Special Edged Gypsum Board: Gypsum board manufacturer’s special joint treatment materials.
1. EXECUTION
	* + 1. EXAMINATION
				1. Examine substrates to which gypsum board system attaches or abuts, preset steel door frames, cast in anchors, and structural framing, with installer present for compliance with requirements for installation tolerances and other conditions affecting performance of gypsum board system construction. Do not proceed with installation until unsatisfactory conditions have been corrected.
			2. CONSTRUCTION TOLERANCES
				1. Do not exceed 1/8 inch in 8 feet variation from plumb or level in any exposed line or surface, except at joints between boards do not exceed 1/16 inch variation between planes or abutting edges or ends. Shim as required to comply with specified tolerances.
			3. STEEL FRAMING INSTALLATION
				1. Installation Standards: ASTM C 754, and ASTM C 840 requirements that apply to framing installation.
				2. Install supplementary framing, blocking, and bracing at terminations in gypsum board system to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction. Comply with details indicated and with gypsum board manufacturer’s written recommendations.
				3. Isolate partitions from structural elements as indicated to prevent transfer of structural loads or movements to partitions.
				4. Isolate partitions from structural elements with slip or cushion-type joints between steel framing and structure as recommended by steel framing manufacturer to prevent transfer of structural loads or movements to partitions.
				5. Partition Framing Installation:

Align tracks accurately at floor and ceiling. Secure tracks as recommended by the framing manufacturer for the floor and ceiling construction involved, except do not exceed 24 inches oc spacing for powder-driven fasteners, or 16 inches oc for other types of attachment. Provide fasteners approximately 2 inches from corners and ends of tracks.

Position studs vertically and engage both floor and ceiling tracks. Install studs so flanges point in the same direction and leading edge or end of each panel can be attached to open (unsupported) edge of stud flanges first. Space studs 16 inches on center, unless otherwise indicated on the Drawings. Fasten studs to track flanges with screws or by crimping.

Use full length studs between tracks wherever possible. If necessary, splice studs with a minimum 8 inch nested lap and fasten with two screws per stud flange.

Install additional studs to support inside corners at partition intersections and corners, and to support outside corners, terminations of partitions, and both sides of control joints (if any).

Extend partition framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing over frames for doors and openings and frame around ducts penetrating partitions above ceiling to provide support for gypsum board.

Brace chase wall framing horizontally to opposite studs with 12 inch wide gypsum board gussets or metal framing braces, spaced vertically not more than 4 feet on center.

Attach gypsum board gussets with a minimum 3 screws per stud flange.

Attach metal framing braces with a minimum 2 screws per stud flange.

Install rough framing at openings consisting of full-length studs adjacent to jambs and horizontal header and sill tracks. Cut horizontal tracks to length and split flanges and bend webs at ends for flange overlap and screw to jamb studs. Install intermediate studs between jamb studs at head and sill sections, at same spacing as full-length studs.

At door frames, install rough framing as specified above. Install jamb studs to comply with framing manufacturer’s recommendations for the types of frames and weights of doors required. Fasten jamb studs to metal frames with anchor clips using 2 self tapping screws or bolts per clip. Where wood frames are shown, fasten jamb studs to rough framing with screws.

Where solid core wood doors, double doors, or doors weighing more than 50 lb are indicated or scheduled, install two studs at each jamb and one additional stud not more than 6 inches from jamb studs.

Where vertical control joints are shown at jamb lines, install additional vertical studs located on opening side of jambs and not less than 1/2 inch from jamb studs. Do not fasten the additional studs to tracks or jamb studs.

Where wall mounted door bumpers are scheduled, provide horizontal reinforcement consisting of 2 pieces of framing installed back-to- back, flush with the face of adjacent stud flanges.

* + - * 1. Surface Mounted Rigid Steel Furring Installation:

Install rigid steel furring where gypsum board is to be installed over masonry or concrete wall substrates, unless otherwise shown.

Install steel furring at 24 inches oc maximum spacing and provide additional furring at openings, cutouts, and corners. Securely anchor with fasteners spaced 24 inches oc maximum and stagger on opposite flanges of hat-shaped channels.

* + - * 1. Resilient Furring Channel Installation: Where indicated as “resilient”, install resilient furring channels. Install furring at right angles to supports, spaced not more than 24 inches oc and not more than 6 inches from interior corners. Attach furring at each support and to corner framing with screws in accordance with manufacturer’s instructions.
			1. ACOUSTICAL ACCESSORIES INSTALLATION
				1. STC-Rated Assemblies: Comply with STC rating indicated.

Multi-layer application.

Balanced Partitions: Two or more layers applied to each sides of supports.

Unbalanced Partitions: One layer applied to one face and 2 layers applied to other face.

* + - * 1. Sound Attenuation Blankets: Install in partitions tight within spaces, around cut openings, behind and around electrical and mechanical items within or behind partitions, and tight to items passing through partitions.
				2. Acoustical Sealant: ASTM C 919; install continuous bead of acoustical sealant at gypsum board perimeter. Seal wherever gypsum board abuts dissimilar materials. Seal spaces between gypsum board and all penetrating items. Seal sides and backs of electrical and mechanical items.
			1. GYPSUM BOARD INSTALLATION
				1. Install flattened expanded metal mesh in accordance with the manufacturer’s printed instructions.

Install flattened expanded metal mesh in the most economical direction, of maximum panel sizes to minimize joints and the use of small pieces.

Use minimum number of fasteners required to hold panels in place until the gypsum board is installed.

* + - * 1. Install gypsum board in the most economical direction, of maximum lengths to minimize end butt joints. Where unavoidable, locate end butt joints as far from center of walls or ceilings as possible.
				2. Install gypsum board with face side out. Butt boards together at edges and ends over firm bearing with not more than 1/16 inch of open space between boards. Do not force into place.
				3. Fasteners: Fasten gypsum board to supports and furring with steel drill screws of required size and spacing as recommended by the gypsum board manufacturer.

Multiple-layer Work:

Mechanically fasten both layers.

Multiple-layer Work: Laminate second layer to base layer with adhesive. Provide temporary nails for removal after drying or permanent screws for temporary support of second layer.

Stagger vertical joints in multiple layer Work. Offset joints not less than 10 inches.

* + - * 1. Provide additional framing and blocking required to support gypsum board at openings and cutouts.
				2. Form control joints in gypsum board where indicated. Allow 1/2 inch continuous opening between boards to allow for insertion of control joint trim.
				3. Wood Supports: Provide “floating” interior angle construction between gypsum board at interior corners.
				4. Reinforce joints formed by tapered edges, butt edges, and interior corners or angles with joint tape.
			1. TRIM INSTALLATION
				1. Coordinate installation of trim progressively with gypsum board installation where trim is of type required to be installed prior to, or progressively with installation of gypsum board.
				2. Securely fasten trim pieces in accordance with manufacturer’s printed instructions.
				3. Install cornerbeads at external corners. Install LC-Bead (J-Bead) beads at unprotected (exposed) edges and where gypsum board abuts dissimilar materials. Use single unjointed lengths unless otherwise approved by the Director.
				4. Miter corners of semi-finishing type casing and trim beads.
				5. Install control joint trim in accordance with ASTM C 840, where indicated.
				6. Comply with joint compound manufacturer’s recommended drying time for the relative humidity and temperature at time of application. Allow minimum of 24 hours drying time between applications of joint compound.
				7. Except Type X Gypsum Board: Joint compound treatment is not required on gypsum board surfaces installed above suspended ceiling lines.
				8. Type X Gypsum Board: Install joint and corner reinforcing and trim, and one coat of joint compound over joints, fastener heads, and metal flanges above suspended ceiling lines.
			2. LEVELS OF GYPSUM BOARD FINISH
				1. General: Finish panels to levels indicated below, in accordance with ASTM C 840, for locations indicated.

Level 1 Finish: Joints and angles, provide tape embedded in joint compound. Surface shall be free of excess joint compound. Tool marks and ridges will be acceptable.

Level 2 Finish: Joints and angles, provide tape embedded in joint compound and provide one separate coat of joint compound over the tape and fastener heads. Cover accessories with one coat of joint compound. Surface shall be free of excess joint compound. Tool marks and ridges will be acceptable. Joint compound applied over the body of the tape at the time of tape embedment will be considered a separate coat of joint compound and will satisfy the conditions of this level.

Level 3 Finish: Joints and angles, provide tape embedded in joint compound and provide two separate applications of joint compound over all joints, angles, and fastener heads. Accessories shall be covered with two separate coats of joint compound. Joint compound to be smooth and free of tool marks and ridges. Cover the prepared surface with a drywall primer prior to the application of the final decoration.

Level 4 Finish: Joints and angles, provide tape embedded in joint compound and provide three separate coats of joint compound over all joints, angles, and fastener heads. Accessories to be covered with three separate coats of joint compound. Joint compounds to be smooth and free of tool marks and ridges. Cover the prepared surface with a drywall primer prior to the application of the final decoration.

Level 5 Finish: Provide tape embedded in joint compound over joints and angles, and provide three separate coats of joint compound over all joints, angles, and fastener heads. Cover accessories with three separate coats of joint compound. Joint compounds to be smooth and free of tool marks and ridges. Apply a skim coat. Remove excess material; leave a film covering the paper. Cover the prepared surface with a drywall primer prior to application of the final decoration.

END OF SECTION 092116