SECTION 09 29 00
GYPSUM BOARD

PART 1 - GENERAL

1.1 SUMMARY

A. Furnish and install:
   1. Taped, compounded and sanded gypsum board finishes.
   2. All trim and accessory components related to gypsum board work. Acoustical joint sealant and backing at perimeter of gypsum board partitions.
   3. Shaftwall system(s), including framing, liner panels, and gypsum board finish components.

B. Install access panels occurring in gypsum board work furnished by Section 08 31 00 - ACCESS DOORS AND PANELS, and by trades requiring the same.

1.2 RELATED REQUIREMENTS

A. Section 06 10 00 - ROUGH CARPENTRY:
   1. Wood blocking supporting gypsum board.
   2. Installation of metal door frames in gypsum board work.

B. Section 06 20 00 - FINISH CARPENTRY: Interior wood trim.

C. Section 08 11 13 - HOLLOW METAL DOORS AND FRAMES: Furnishing steel door frames.

D. Section 08 31 00 - ACCESS DOORS AND PANELS: Shop primed access panels, occurring in partitions and walls.

E. Section 09 22 16 - NON-STRUCTURAL METAL FRAMING: Non-load bearing partition and ceiling framing and furring.

F. Section 09 51 00 - ACOUSTICAL CEILINGS: Suspended acoustical tile ceilings.

G. Section 09 81 00 – ACOUSTICAL INSULATION: Acoustical batt insulation.

H. Section 09 91 00 - PAINTING: Applied finish coatings.

I. Section 10 40 00 - SAFETY SPECIALTIES.

J. Division 21 - FIRE SUPPRESSION: Sprinkler heads in ceiling system.

K. Division 23 - HEATING, VENTILATING AND AIR CONDITIONING: Supply and return air registers.

L. Division 26 - ELECTRICAL: Independent hangers for suspended lighting fixtures.

1.3 REFERENCES

A. Reference Standards: Comply with applicable requirements of the following standards and those others referenced in this Section, under the provisions of Section 01 42 00 -

REFERENCES. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern.

1. ASTM C 475 - Joint Treatment Materials for Gypsum Wallboard Construction.
2. ASTM C 630 - Water Resistant Gypsum Backing Board.
3. ASTM C 754 - Installation of Steel Framing Members to Receive Screw-Attached Gypsum Board.
4. ASTM C 919 - Use of Sealants in Acoustical Applications.
5. ASTM C 1002 - Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
6. ASTM C 1047 - Accessories for Gypsum wall board and veneer base.
7. ASTM C 1396 - Gypsum Wallboard.
8. ASTM D 3678 - Polyvinyl chloride material for indoor exposure.
9. ASTM D 1784 - Polyvinyl chloride material for outdoor exposure.
10. ASTM E 90 - Method of Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions.
11. ASTM E 119 - Fire Tests of Building Construction and Materials.
12. GA 201 - Gypsum Board for Walls and Ceilings.
13. GA 214 - Recommended Specifications for Levels of Gypsum Board Finish.
14. GA 216 - Recommended Specifications for the Application and Finishing of Gypsum Board.
15. GA 220 - Recommended Specifications for Gypsum Board Winter Related Job Problems.
16. UL - Fire Resistance Directory.
17. UL 723 - Tests for Surface Burning Characteristics of Building Materials.
18. All applicable federal, state and municipal codes, laws and regulations for fire rated assemblies.

1.4 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. General: Coordinate the work of this Section with the respective trades responsible for installing interfacing and adjoining work for proper sequence of installation, and ensure that the work performed hereunder is acceptable to such trades for the installation of their work.
2. Work of this Section shall be closely coordinated with the work of Section 09 22 16 - NON-STRUCTURAL METAL FRAMING, to assure the steady progress of the Contract.

B. Sequencing:

1. Do not install gypsum board until all pipes, ducts, conduits, and other such items which are to be enclosed thereby, have been permanently installed, inspected and approved.

1.5 SUBMITTALS

A. Information and Review Submittals: Submit the following under provisions of Section 01 33 00 - SUBMITTAL PROCEDURES:

1. Product Data: Manufacturer's product data sheets, specifications, performance data, physical properties for each item furnished hereunder.
2. Shop Drawings:
   a. Details of any special conditions associated with fireproofing.
   b. Mark-up a set of blackline interior elevations indicate corrections to grid layout and provide dimensioning showing locations of all proposed control joints and expansion joints.
      1) Provide interior elevation drawings for interior elevations which are not included as part of the Contract Drawing set.

1.6 QUALITY ASSURANCE

A. General: Notify the Architect where conflicts apply between referenced standards and existing materials, and existing methods of construction.

B. Sole Source: Obtain products required for the Work of this Section from a single manufacturer, or from manufacturers recommended by the prime manufacturer of gypsum board.

C. Qualifications: Installer/Applicator: Minimum of 3 years documented experience demonstrating previously successful work of the type specified herein.

1.7 DELIVERY, STORAGE AND HANDLING

A. Delivery and Acceptance Requirements:
   1. Do not deliver items to the site, until all specified submittals have been submitted to, and approved by, the Architect.
   2. Deliver materials in original packages, containers or bundles bearing brand name and identification of manufacturer or supplier.

B. Storage and Handling Requirements:
   1. Store materials inside, under cover and in manner to keep them dry, protected from weather, direct sunlight, surface contamination, corrosion and damage from construction traffic and other causes.
      a. Neatly stack board materials flat to prevent sagging.
   2. Handle board materials so to prevent damage to edges, ends and surfaces.
   3. Protect trim, accessories and corner beads from being bent or damaged.

1.8 SITE CONDITIONS

A. Environmental Conditions: In accordance with GA 216, maintain minimum ambient temperature of 50 degrees Fahrenheit 48 hours before, during taping and compounding, and until completely dry thereafter.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering similar products include the following:
   1. Gypsum board products:

a. United States Gypsum Company, Chicago, IL. (USG).
b. National Gypsum Company, Gold Bond Products Division, Charlotte, NC. (Gold Bond).
c. G-P Gypsum Corporation, Atlanta, GA.
d. Lafarge Corporation, Hendron, VA.

2. Polyvinyl chloride trim and accessories:
   a. Plastic Components, Inc., Miami, FL.
   b. Vinyl Corporation, Miami, FL.
   c. Alabama Metal Industries Corporation, (AMICO) Birmingham, AL.
3. Integrated functional reveal with 2 inch chart-rail insert as manufactured by Fry Reglet Corporation, Norcross, GA.
4. Joint Sealants:
   a. Tremco, Beachwood, OH.
   b. United States Gypsum Company, Chicago, IL.
   c. Pecora Corporation, Harleysville, PA.
5. Shaft wall system components:
   a. United States Gypsum Company, Chicago IL. (USG).
   b. National Gypsum Company, Gold Bond Products Division, Charlotte NC. (Gold Bond).
   c. G-P Gypsum Corporation, Atlanta GA.

B. The design and details as shown on the Drawings and the model numbers specified herein are to establish the standards of design and quality and not to limit competition.

2.2 DESCRIPTION

A. Regulatory Requirements:
1. Fire resistance ratings: Where gypsum board systems with fire-resistance ratings are indicated, provide materials and assemblies of the rating required, tested per ASTM E 119, which are identical to those indicated by reference to Gypsum Association file numbers in "Fire Resistance Design Manual" or to design designation in the Underwriters Laboratories "Fire Resistance Directory" or in listing of other testing agencies acceptable to authorities having jurisdiction and to the Owners' insurance underwriters.

2.3 BOARD MATERIALS

A. Non-rated and fire rated gypsum board (for wall fire resistant ratings 120 minutes and less): UL fire resistance rated, ASTM C 1396 'Type X' board, 5/8 inch thick and ¾ inch thick, 48 inch width, of lengths to minimize end joints, with tapered edges.
1. Acceptable products include the following:
   a. USG Sheetrock brand "Firecode Core"
   b. National Gypsum Company, Gold Bond brand product "Fireshield Gypsum Board".
   c. G-P Gypsum Corporation product, "Toughrock Fireguard".

B. Sag-resistant gypsum board ceiling panels: Non-rated 1/2 inch thick, 48 inch width, of lengths to minimize end joints, with tapered edges, conforming to ASTM C1396,

ASTM C1395 and ASTM C1396.

1. Acceptable products include the following or approved equal:
   a. USG Sheetrock brand product “Interior Ceiling Panel, Sag Resistant”.
   b. National Gypsum Company, Gold Bond brand product “High Strength Ceiling Board:
   c. G-P Gypsum Corporation product, “Toughrock” 1/2 CD Ceiling Board”
   d. Lafarge Corporation, product “Sagcheck”
2. At fire-resistant rated ceilings, provide 5/8 inch thick fire-rated gypsum board as specified herein.

C. Moisture resistant (MR) gypsum board, fire resistant: Conforming to ASTM C630 and C1396, with Type “X” core 5/8 inch thick, 48 inch width, of lengths to minimize end joints, with tapered edges.
   1. Acceptable products include the following or approved equal:
      a. USG Sheetrock brand “Mold Tough Firecode Panels”
      b. National Gypsum Company, Gold Bond brand product “XP Fireshield Gypsum Board”.
      c. G-P Gypsum Corporation product, “Toughrock Fireguard Moisture Guard

2.4 SHAFT WALL COMPONENTS

A. Studs for shaft wall assemblies: or, 20, gage, galvanized and complying with ASTM C 645, 2-1/2 inch size, or as indicated otherwise in the drawings. Acceptable products include the following or approved equal:
   1. Dietrich Metal Framing product, “CT” Studs
   2. Gold Bond product, “I-Studs”.
   3. USG product, “C-H Studs”.

B. Runners for studs in shaft wall assemblies: J-track, galvanized and complying with ASTM C 645, with 2-1/4 inch leg, in size, gage and manufacturer to match shaft wall studs.

C. Struts for jamb framing of door openings in shaft wall assemblies: J-type strut, galvanized and complying with ASTM C 645, 20 gauge, with minimum 3 inch return.

D. Shaftwall liner: UL fire resistance rated, ASTM C 442 - Type X board with beveled edges, 1 inch thick, 24 inches wide, of lengths to minimize end joints. Acceptable products include the following, or approved equal:
   1. USG Sheetrock Brand Gypsum Liner Panels
   2. National Gypsum Company, Gold Bond brand product “Fire-Shield Shaftliner”.
   3. G-P Gypsum Corporation product, “Toughrock Fireguard C”.

E. Standard gypsum board: UL fire resistance rated, ASTM C 1396 ‘Type X’ board, 5/8 inch thick, except where 1/2 inch thickness is indicated on Drawings, 48 inch width, of lengths to minimize end joints, with tapered edges. Acceptable products include the following, or approved equal:
   1. USG Sheetrock brand “Firecode C-Core”
   2. National Gypsum Company, Gold Bond brand product “Fireshield G, Enhanced Version”.

3. G-P Gypsum Corporation product, “Toughrock Fireguard C”.

2.5 ACCESSORIES

A. Gypsum board polyvinyl chloride trim accessories, conforming to ASTM D 1784 and C 1047.

1. J Bead: Edge trim with exposed 1/2 inch face cap, furnish trim model number corresponding to the board thickness where installed.
    a. Plastic Components model number: 200X-50 (for 1/2 inch thick board) or 200S-58 (for 5/8 inch thick board).
    b. Vinyl Corp. model number: JB50 (for 1/2 inch thick board) or JB58 (for 5/8 inch thick board).
2. L Bead: casing edge trim, furnish trim model number corresponding to the board thickness where installed
    a. Plastic Components model number: 221-50 (for 1/2 inch thick board) or 221-58 (for 5/8 inch thick board).
    b. Vinyl Corp. model number: SB50 (for 1/2 inch thick board) or SB58 (for 5/8 inch thick board).
3. L-Bead with removable leg: Casing edge trim for joints at ceilings doors and windows, with removable leg strip, furnish trim model number corresponding to the board thickness where installed
    a. Plastic Components model number: 224-50 (for 1/2 inch thick board) or 224-58 (for 5/8 inch thick board).
    b. Vinyl Corp. model number: CT-50(for 1/2 inch thick board) or CT-58 (for 5/8 inch thick board).
4. Corner beads, 90 degree with 1-1/4 inch flanges:
    a. Plastic Components model number: 209.
    b. Vinyl Corp. model number: CB125.
5. Arch corner beads with 1-1/4 inch flanges, one flange slotted
    a. Plastic Components model number: 209A.
    b. Vinyl Corp. model number: CB125A.
6. Control joints: “V” type joint with nominal 3/16 inch reveal and removable temporary tape:
    a. Gold bond model “EZ Strip Expansion Joint”.
    b. Plastic Components model number: 2027-16.
    c. Vinyl Corp. model number: CJV16.

B. Tapes and compound:

1. Joint tape: Nominal 2 inch wide, high strength, cross-fibered paper drywall tape.
2. Joint Compound for setting paper joint tape: ‘Speed-setting type compound’, field mixed.
    a. Acceptable products, or approved equal:
        1) USG product “Durabond 20”.
        2) Gold bond product “Stay Smooth 30”.
        3) Georgia Pacific Gypsum LCC, product “ToughRock All-Purpose Dry Mix”
3. Joint Compound for finishing: field mixed joint compound or factory pre-

mixed compound.

a. Field-mixed compounds: acceptable products, or approved equal:
   1) USG product “Durabond 90”.
   2) Gold bond product “Stay Smooth 90”.
   3) Georgia Pacific Gypsum LCC, product “ToughRock Setting Compound 90”.

b. Factory pre-mixed compounds: acceptable products, or approved equal:
   1) USG product “Ready-Mixed Joint Compound”.
   2) Gold bond product “All Purpose Compound”.
   3) Georgia Pacific Gypsum LCC, product “ToughRock Ready Mix All-Purpose Compound”

C. Fasteners (shaft wall framing):

1. Expansion-type fasteners for securing vertical concrete and masonry surfaces.
2. Concrete stub nails for securing runners to concrete.
3. Nº.7 by 7/16 inch Pan head self-drilling screw to attach metal framing components.

D. Fasteners (interior board systems):

1. Type S, bugle head screws complying with ASTM C 1002, for applying gypsum board to metal framing, ceiling grid system, and furring channels.
   a. Not less than 1 inch long for single layer gypsum board.
   b. Not less than 1-5/8 inch [41mm] long for double-layer gypsum board.
2. Type S-12, fine thread self-drilling screws complying with ASTM C 1002,for applying gypsum board to light gage metal framing.
   a. Not less than 1 inch [25 mm] long for 1/2 inch thick single layer gypsum board.
   b. Not less than 1-1/4 inch [31mm] long for 5/8 inch thick single layer gypsum board.
   c. Not less than 1-5/8 inch [41mm] long for double-layer gypsum board,

E. Ceiling buttons, perforated type, 1 inch diameter, for use at multiple layered gypsum board ceiling systems.

F. Laminating adhesive: Ready mix joint compounds as specified herein above.

G. Joint Sealers (interior acoustical sealant type): One component acrylic latex, permanently elastic, non-staining, non-shrinking, non-migrating and paintable. Acceptable products include the following, or approved equal.

1. Tremco, Beachwood OH.; product, “Acoustical Sealant”.
2. United States Gypsum Company, Chicago IL.; product “USG Acoustical Sealant”.
3. Pecora Corporation, Harleysville PA.; product “ AC-20 FTR”.

H. Liquid sealer for cuts, holes and ends of moisture resistant board; provide one of the following or acceptable equal.

1. Shellac type sealer: mix 4 pounds of orange or bleached shellac dissolved in 1 gallon of denatured ethyl-alcohol.
2. Varnish type sealer: Fast setting marine varnish.

2.6 SOURCE QUALITY CONTROL

A. Obtain gypsum board and shaft wall products from a single manufacturer, or from manufacturers recommended by the prime manufacturer of gypsum boards.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that all items which are to be enclosed by Work of this Section, have been permanently installed, inspected and approved.

B. Inspect framing and other substrates; verify that they are in proper condition to receive the work of this Section.

C. Beginning of installation means acceptance of existing substrate and site conditions.

3.2 PREPARATION

A. During the operation of gypsum board work, protect all wood, metal, glass, flooring, and other finished materials against undue soilage and damage by the exercise of reasonable care and precautions. Repair or replace any work so damaged and soiled.

3.3 INSTALLATION - GENERAL

A. General: Perform erection procedures for the various gypsum board system conditions, except as otherwise specified, as set forth in GA 201, GA 216,GA 220, the written instructions of gypsum board manufacturer, together with the additional requirements specified herein and as indicated on the Drawings.

B. Where fire-resistive rated assemblies are indicated, erect gypsum board systems in strict accordance with the manufacturers' UL listed test constructions for the required fire rating on each specific assembly.

C. Install specified control joints where indicated on Drawings and where run of partitions, or furred surfaces exceeds 30 feet. Show locations of all control joints on shop drawings.

1. Locate control joints at corners of head frames of doors.
2. Run vertical control joints continuously to top of partition, shaft wall or furred area, as applicable.

3.4 INSTALLATION OF GYPSUM BOARD

A. Screw fasten only, gypsum board to framing and furring, with ends and edges occurring over firm bearing. At all door jambs screw fasten gypsum panels 8 inches on center to both box studs

1. Erect single layer fire-resistance rated gypsum board vertically.
2. Erect standard and moisture resistant layer board in most economical direction.
3. Erect ceiling and soffit gypsum boards to meet UL requirements, where applicable, stagger end joints over supports. Secure gypsum board with fasteners inserted through ceiling buttons; anchor fasteners directly to framing or suspended support system.

B. Wherever items penetrate the gypsum board surfaces, use extra care in cutting the

gypsum board to ensure a uniformly-dimensioned joint between the penetrating item and the gypsum board, and fill joints with specified sealant material. Verify the expected deflection factor of the penetrating members, and cut the gypsum accordingly, to prevent damage thereto from the deflecting members.

C. Treat cut edges and holes in moisture resistant gypsum board with approved liquid sealer.

1. If shellac is used, apply in thin layers to dry quickly.

D. Installing Trim Accessories:

1. General: For trim with back flanges intended for fasteners, attach to framing with same screw fasteners used for gypsum board. Otherwise, attach trim according to manufacturer's written instructions.
   a. Nailing, stapling, or crimping methods to install trim components is prohibited.
2. Install corner beads at all exterior corners of gypsum boards.
3. Install casings (PVC trim) wherever gypsum board meets a dissimilar material, and in other locations indicated on the Drawings, except at floors where bottom of the board will be concealed by base, integral with flooring, resilient base, wood base or carpeted base.

3.5 INSTALLATION OF SHAFT WALL

A. General: Install shaft wall system in strict accordance with manufacturer's instructions to obtain the required fire rating.

1. Box all openings and penetrations through shaft wall system partitions and ceilings ready to receive firestopping.

B. Installation of framing:

1. Install J runners or E studs at floor and ceiling structural elements with suitable fasteners located 2 inches from each end. Space intermediate fasteners 24 inches on center.
   a. Install runners and studs prior to fireproofing.
   b. Do not splice studs, all studs shall extend from the floor to the underside of the structure above in one single length.
2. Install studs in direct contact with all door and window frame jambs, abutting partitions, partition corners and existing construction elements; screw fasten with one screw per flange.
   a. Where studs are installed directly to exterior masonry walls, install 15 pound asphalt felt between stud and wall.
3. Install C-H studs 3/8 inch to not more than 1/2 inch less than opening height and install between liner panels with liner inserted in the groove. Install full-length steel E- studs over shaft wall liner at T-intersections, corners, columns and both sides of closure panels. Frame openings cut within a liner panel with E-studs around perimeter. For openings, frame with vertical E-studs at edges, horizontal J-strut at head and sill, and reinforcing as recommended by the shaft wall manufacturer. Suitably frame all openings to maintain structural support for wall.
4. Furnish and install additional cross bracing and other framing elements, as required to assure a completely rigid assembly on metal stud partitions and furred areas, whether or not such bracing has been indicated on the Drawings, and for proper receipt of items which will be attached to partition surfaces.

C. Walls surfaces:

1. Liner boards: Cut liner board panels 1 inch less than opening height and erect vertically between J-runners. Where shaft walls exceed 14 feet in height, position liner panel end joints within upper and lower third points of wall. Stagger joints top and bottom in adjacent panels.
2. Erect 1/2 inch fire rated gypsum panel base layer horizontally on one side of studs with end joints staggered. Fasten base layer to studs with 1 inch, Type S-12 screws. Caulk perimeter of base layer panels.
3. Apply 1/2 inch fire rated gypsum panels face layer vertically over base layer with joints staggered and attach with 1-5/8 inch Type S-12 screws staggered from those in base, spaced 12 inches on center, and driven into studs.

D. Horizontal ceiling installation, two hours:
1. Install gypsum panels to horizontally installed CH or E studs.
2. Install the base layer with edges parallel to the studs and attached with 1 inch Type S screws 24 inches on center
3. Install face layer perpendicular to the studs and attach with 1-5/8 inch type S screws 12 inches on center
4. Place face layer end joints between studs and secure with 1-1/2 inch Type G screws 12 inches on center

E. Finish face layer board materials as specified here-in below.

3.6 APPLICATION OF ACOUSTICAL SEALANT

A. General: Install sealant and backing in accordance with the recommendations of ASTM C-919 and sealant manufacturer's recommendations.
1. Perform preparation in accordance with C-790. Thoroughly clean all joints, removing all loose mortar, oil, grease, dust, frost, and other foreign materials that will prevent proper adhesion of primers and sealant materials.
2. If so recommended and furnished by the specific sealant manufacturer, apply primer to all joint surfaces, taking care not to stain adjacent surfaces.

B. Seal all partition perimeters prior to taping or compounding. Where perimeters are edged with metal trim, apply sealant and backing material between trim and dissimilar material.

C. Seal all penetrations in partition types designated for "acoustical" insulation. Penetrations to receive sealant include electrical boxes, plumbing, heating and air conditioning ducts, telephone, intercom hookups and similar items.
1. Install joint bead back-up in all joints in excess of 5/8-inch depth, and joints that have no back-up therein, placing the joint bead in the joint in a manner that will assure a constant depth 1/8 inch greater than the sealant and caulking material depth tolerances.
a. Set beads into joints continuously, by slightly stretching during placement, to permit compression against sides of joint, without surface wrinkles or buckles.
b. Do not stretch back-up material into joints.
c. Install bond breaker wherever recommended by the sealant manufacturer to prevent bond of the sealant to surfaces where such bond might impair the Work.
2. Apply sealant in continuous beads without open joints, voids or air pockets

a. The depth of sealant and caulking materials shall be in accordance with manufacturer's recommendations for the specific joint function, but in no case exceed 1/2-inch in depth, nor less than 1/4-inch, regardless of the joint width.

3. Remove the temporary masking tape immediately after tooling, and before the sealant or caulking material has taken initial set.

3.7 APPLICATION OF JOINT TREATMENT

A. Install joint tape at all joints where gypsum boards abut and where boards form internal corners, whether or not such joints will be concealed from view.

B. Apply compound to all joints, edges, corners, fastener head depressions and abrasions in the surfaces, whether or not such conditions will be concealed from view. Sand completely smooth all compound surfaces, which will be exposed to view, and leave ready to receive applied coatings or finish.

C. Provide the minimum levels of gypsum board finishes as defined by the Gypsum Association recommended specifications GA-214 and GA-216, per the following:

1. At areas hidden from view, except as otherwise specified: Level 1.
2. At areas hidden from view, requiring a fire resistance rating: Level 1.
3. At areas hidden from view, requiring smoke-resistance: Level 1.
4. At concealed plenum spaces above ceilings attic spaces: Level 1.
5. At non-occupied spaces: Level 1.
6. At surfaces scheduled to receive painted finishes: Level 4.

3.8 TOLERANCES

A. Maximum variation for gypsum board partitions and ceilings from true flatness: 1/8 inch per 10 feet, noncumulative.

3.9 CLEANING

A. Daily clean work areas by sweeping and disposing of debris, scraps, and deposits of compound and gypsum fill.

B. After completion of the work of this Section, remove equipment, and clean all wall, partition, and floor areas free from deposits of gypsum fill, and other materials installed under this Section.

END OF SECTION