SECTION 092900 - GYPSUM BOARD

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Gypsum board wall and ceiling systems.
2. Trim accessories, Joint compound, control joints, fasteners, reveal moldings, and sealants.
3. Schedule - Level of Finish for gypsum board surfaces.

B. Related Sections:
1. Section 05 40 00 - Cold Formed Metal Framing
2. Section 06 10 00 - Rough Carpentry
3. Section 07 21 16 - Blanket Insulation
4. Section 07 84 00 - Firestopping
5. Section 07 90 00 - Joint Protection
6. Section 09 91 00 - Painting
7. Division 22 - Plumbing
8. Division 23 - Heating, Ventilating, and Air Conditioning (HVAC)
9. Division 26 – Electrical

1.2 REFERENCES

A. Reference Standards: Current edition at date of Bid.

B. ASTM International (ASTM):
1. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board.
2. ASTM C919 - Standard Practice for Use of Sealants in Acoustical Applications.
3. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
4. ASTM C1047 - Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.
5. ASTM C1177 - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing.
6. ASTM C1396 - Standard Specification for Gypsum Board.
7. ASTM C1629 - Standard Classification for Abuse-Resistant Non-decorated Interior Gypsum Panel Products and Fiber-Reinforced Cement Panels.
8. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
9. ASTM D4977 - Standard Test Method for Granule Adhesion to Mineral Surfaced Roofing by Abrasion.
10. ASTM D5420 - Standard Test Method for Impact Resistance of Flat, Rigid Plastic Specimen by Means of a Striker Impacted by a Falling Weight (Gardner Impact).
11. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and

Elements.

12. ASTM E695 - Standard Method for Measuring Relative Resistance of Wall, Floor, and Roof Construction to Impact Loading.
13. ASTM G21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.
14. ASTM C 1658 - Standard Specification for Glass Mat Gypsum Panels

C. Gypsum Association (GA): Web Site http://www.gypsum.org/
1. GA-201 - Gypsum Board for Walls and Ceilings.
2. GA-214 - Recommended Levels of Levels of Gypsum Board Finish.
3. GA-216 - Specifications for the Application and Finishing of Gypsum Board.
4. GA-226 - Application of Gypsum Board to Curved Surfaces.
5. GA-235 - Gypsum Board Typical Mechanical and Physical Properties.
6. GA-236 - Joint Treatment under Extreme Weather Conditions.
7. GA-238 - Guidelines for Prevention of Mold Growth on Gypsum Board.
8. GA-600 - Fire Resistance Design Manual.
9. GA-801 - Handling and Storage of Gypsum Panel Products: A Guide for Distributors, Retailers, and Contractors.

D. Wall and Ceiling Bureau (WCB); Website http://wallandceilingbureau.org

1. TB-52010 - Control Joints for Gypsum Board

E. UL Fire Resistance Directory (UL): Fire Resistance Volume 1 – with

F. Hourly Ratings for Beams, Floors, Roofs, Columns, Walls and Partitions.

1.3 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
1. Conform to Section 01 31 00 for coordination with work of other Sections.
2. Coordinate with Wall Type Schedule.

B. Pre-installation Conference: Arrange, in accordance with Section 01 31 00 two weeks prior to beginning work of this Section.
1. Walk job and determine full extent level of quality for work.

1.4 SUBMITTALS

A. Submit under provisions of Section 01 33 00.

B. Product Data: Manufacturer's published descriptive literature for gypsum board types, trim accessories, and control joints pertinent to this Section.
1. Recycled Content: Indicate recycled content; indicate percentage of pre- consumer and postconsumer recycled content per unit of product.
2. Indicate location of manufacturing facility; indicate distance between manufacturing facility and the project site.

C. Test Data: ASTM E 119 Certified testing lab Design for each proprietary fire- resistive wall and ceiling assembly listing manufacturers and products. Unlisted manufacturers and products not accepted.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications:
   1. Company with minimum 5 years documented experience.
   2. Able to supply complete and tested systems conforming to code.

B. Installer Qualifications:
   1. Company specializing in work of this section with documented experience in commercial quality work of comparable scope.
   2. Recommended as qualified installer by WCB prior to Bid, or accepted by Architect.

C. Mock-Up: Conform to provisions of Section 01 45 00.
   1. Install 8 square foot minimum mock-ups of gypsum board finish and control joints.
   2. Approved mock-ups may be incorporated into Work and become standard for approved workmanship and finishes.

D. Sustainability Standards Certifications: Conform to Section 01 81 13 for documentation of LEED Credits contributing to Certification of Project under USGBC LEED-NC 3.0 Green Building Rating System California Green Building Standards Code.
   1. Recycled Content: Indicate recycled content; indicate percentage of pre- consumer and postconsumer recycled content per unit of product.
   2. Indicate location of manufacturing facility; indicate distance between manufacturing facility and the project site.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Conform to Section 01 60 00, GA-238, GA-801, and manufacturer's instructions.

B. Deliver materials in original unbroken containers or bundles bearing name of manufacturer and brand.

C. Verify products undamaged before acceptance at Project Site. Do not use products with visible signs of mold growth and damage.

1.7 FIELD CONDITIONS

A. Temperature, Ventilation and Moisture: Conform to GA - 216 and manufacturer’s instructions. Maintain temporary controls to regulate heating, ventilating, moisture, and humidity levels. Do not begin taping and finishing until following conditions are achieved.
   1. Building: Fully enclosed and free of standing water. Watertight roofing and wall envelope systems in place, except where Architect accepts water and mold resistant gypsum board.
   2. Temperature: Between 50 and 95 degrees F for minimum 48 hours.
   3. Gypsum Board Moisture Content: 0.4 percent on gypsum scale (12 percent on wood scale).
   4. Wood Substrate Moisture Content: Maximum 16 percent.

B. Lighting: Sufficient temporary lighting to perform work to achieve specified finishes.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Georgia Pacific Corp. (GP)
   1. Web Site http://www.gpgypsum.com).
B. United States Gypsum Corp. (USG)
   1. Web Site http://www.usg.com
C. CertainTeed Gypsum, Inc.
   1. Web Site http://www.certainteed.com
D. Temple-Inland Gypsum Products
   1. Web Site http://www.templeinland.com/BuildingProducts/Gypsum
E. National Gypsum
   1. Website http://www.nationalgypsum.com
F. Pabco Gypsum
   1. Website http://www.pabcogypsum.org
G. Substitution Requests: Submit for approval under provisions of Section 01 60 00.

2.2 REGULATORY REQUIREMENTS

A. Conform to requirements for tested fire rated assemblies.
   1. GA 600, Fire Resistance Design Manual.
   2. UL, Fire Resistance Directory, or Intertek Testing Services (WHi).
   3. IBC Chapter 25, including Section 2506, 2508, 2509 and related tables.
   4. ICC Evaluation Reports and Standards.

2.3 PERFORMANCE / DESIGN CRITERIA

A. Gypsum Board Products: Conform to general provisions of ASTM C1396.
   1. Ends square cut and edges tapered.
   2. Gypsum Board at Non-Rated Assemblies: 1/2 inch thick.
   3. Gypsum Board at Fire-Resistive Rated Assemblies: 5/8 inch thick, UL labeled, and conforming to ICC ES Report for Type X or Type C.
   4. Mold-Resistant Interior Panels: Conform to general provisions of ASTM C1658 or ASTM C1396. Test to ASTM D3273 with Rating of 10 or Test to ASTM G21 with Score of 0.
B. Abuse-Resistant and Impact Resistant Interior Panels:
   1. Surface Abrasion Resistance: Test to ASTM C1629 and ASTM D4977 for maximum surface damage:
      a. Level 1: 0.126 inch (3.2mm).
      b. Level 2: 0.059 inch (1.5mm).
      c. Level 3: 0.010 inch (0.3mm).
   2. Surface Indentation: Test to ASTM C1629 and ASTM D5420 for indentation resistance.
      a. Level 1: 0.150 inch (3.8mm).
      b. Level 2: 0.100 inch (2.5mm).
      c. Level 3: 0.50 inch (1.3mm).
   3. Soft Body Impact: Test to ASTM C1629 and ASTM E695 until failure.
      a. Level 1: 90 ft-lbs (122 J).
      b. Level 2: 195 ft-lbs (265 J).

c. Level 3: 300 ft-lbs (408 J).

4. Hard Body Impact: Test to ASTM C1629 until failure.
   a. Level 1: 50 ft-lbs (68 J).
   b. Level 2: 100 ft-lbs (136 J).
   c. Level 3: 150 ft-lbs (204 J).

2.4 MATERIALS

A. Paper Faced Gypsum Board: Conform to ASTM C1396.
   1. GP ToughRock.
   2. USG Sheetrock.
   3. CertainTeed Gypsum, Inc, ProRoc Gypsum Board.
   4. Temple-Inland, Inc. Gypsum Board
   5. Pabco Gypsum Flame Curb

B. Moisture and Mold-Resistant Gypsum Board:
   1. GP Dens-Armor Plus, glass mat facings on front and back and moisture- resistant core.
   2. GP ToughRock Mold-Guard<moisture-resistant paper face>
   3. USG Fiberock Aqua Tough, unfaced, solid moisture-resistant core.
   4. USG Sheetrock Mold Tough<moisture-resistant core and paper face>
   5. CertainTeed Gypsum, Inc.: ProRoc Moisture and Mold Resistant with M2Tech.
   6. Temple-Inland GreenGlass Interior Board, glass mat facings on front and back and moisture-resistant core.
   7. Pabco Gypsum Mold Curb

C. Moisture, Mold, and Abuse-Resistant Gypsum Board: Tested for mold resistance in conformance to ASTM D3273 (Rating of 10) or ASTM G21 (Score of 0), and conforming to ASTM C1629 Classifications for abuse-resistance (Levels I, II, or III).
   1. GP Dens-Armor Plus AbuseGuard.
      a. Surface Abrasion: Level 3.
      b. Indentation Resistance: Level 1.
      c. oft-Body Impact: Level 1.
   2. USG Sheetrock Mold Tough AR
      a. Surface Abrasion: Level 2
      b. Indentation Resistance: Level 2
      c. Soft-Body Impact: Level 1
   3. USG Fiberock Aqua Tough Interior Panel.
      a. Surface Abrasion: Level 2.
      b. Surface Indentation: Level 2.
      c. Soft Body Impact Test: Level 2.
   4. CertainTeed Gypsum, Inc.: ProRoc Extra Abuse Type X Gypsum Board with M2Tech.
      a. Surface Abrasion: Level 2.
      b. Indentation Resistance: Level 1.
      c. Soft Body Impact: Level 3.
      d. Hard Body Impact: Level 1
   5. Temple-Inland, Inc.: ComfortGuard Abuse-Resistant Mold-Resistant board.
      a. Surface Abrasion: Level 2.
      b. Indentation Resistance: Level 1
      c. Soft Body Impact: Level 1

d. Hard Body impact: Level 1

D. Moisture, Mold, and Impact-Resistant/Mold-Resistant Enhanced Gypsum Board: ASTM C1629 and ASTM D3273 level 10.
1. GP Dens-Armor Plus Impact-Resistant.
a. Surface Abrasion: Level 3 (0.126 inch abraded depth)
b. Surface Indentation: Level 1 (0.150 inch indentation)
c. Soft Body Impact: Level 3 (300 ft-lbs)
d. Hard Body Impact: Level 2 (100 ft-lbs)
2. USG Fiberock Aqua Tough with Tuff Hide Primer Sealer
a. Surface Abrasion: Level 3
b. Surface Indentation: Level 2
c. Soft Body Impact: Level 3
d. Hard Body Impact: Level 2
3. Temple-Inland, Inc.: ComfortGuard Impact-Resistant Mold-Resistant board.
a. Surface Abrasion: Level 2
b. Surface Indentation: Level 1
c. Soft Body Impact: Level 3
d. Hard Body Impact: Level 3

E. High Impact Hard Body Impact Gypsum Board Panel: ASTM C1278. <consider as replacement for veneer plaster using surfacer, as instructed by manufacturer>
1. USG Fiberock Very High Impact (VHI)
a. Surface Abrasion: Level 2
b. Surface Indentation: Level 2
c. Soft Body Impact: Level 3
d. Hard Body Impact: Level 3

2.5 ACCESSORIES

A. Joint Materials: As recommended by gypsum board manufacturer for intended purpose.
1. Tape: Manufacturer's standard paper tape. Fiberglass tape not accepted.
2. Compound: Manufacturer's standard.
3. Conform to GA-201 and GA-216 for reinforcing tape, joint compound, adhesive, and water.
4. Do not use topping compounds for embedding tape or as first coat over trims and fasteners.

B. Primer/Surfacer for Level 5 Finish: USG Tuff-Hide Primer-Surfacer.

C. Thermal and sound-attenuation insulation: As specified Section 07 21 16.

D. Joint Sealant at Exposed Joints: Paintable, Non-setting, non-staining, and as specified Section 07 90 00.

E. Acoustical Sealant at Exposed Joints: Nonsag, paintable, nonstaining, latex sealant conforming to ASTM C834. Tested to ASTM E90 for reduction of airborne sound transmission through perimeter joints and openings in building construction at representative assemblies. Specified for type and quality:

F. Acoustical Sealant at Concealed Joints:
1. Synthetic Rubber Joint Sealant: Single component, non-skinning, non- hardening, 90 percent solids, acoustical properties conforming to ASTM C919 and to ASTM E90.

2. Water Based Siliconized Acrylic Latex:
3. Install 2 beads under steel stud framing channel and wood plates and into 1/2 inch space between top of floor and bottom of gypsum board and plaster systems.

G. Firestopping and Smoke Sealants: As specified Section 07 84 00.

2.6 TRIM

A. Provide trim shapes as required to cover and make neat edges.
B. Paper Faced Metal Bead and Trim: ASTM C1047, electro-galvanized steel with paper face and flanges, USG Beadex specified for type and quality.
1. Outside corner beads
2. Inside corners.
3. L-type edge trims.
4. J-shaped edge trim
5. 3/4 inch radius corner beads.

C. Metal Trim Shapes: ASTM C1047,
1. Galvanized steel Expanded Flange Corner Bead, L-Trim, and J-Trim
2. Galvanized one-piece L-Trim, and J-Stop.
3. Zinc Control Joint No. 093.

2.7 REVEAL MOLDINGS

A. Reveal Moldings: Aluminum 6063 T5 alloy with chemical conversion coating.
B. 1/2 Inch F Reveal Moldings: Fry Reglet, DRMF-625-50, 5/8 inch deep by 1/2 inch wide.
C. 3/4 Inch F Reveal Moldings: Fry Reglet, DRMF-625-75, 5/8 inch deep by 3/4 inch wide.

2.8 FASTENERS

A. Screws conforming to ASTM C1002. Bugle or pan head, and lengths as required for securing materials in place.
1. Wood Framing and Backing: Type W.
2. Light Gauge Metal Framing: Type S.
3. 18 Gauge or Heavier Metal Framing: Type S-12.

B. Pneumatic Fasteners:
1. Minimum 0.100 inch diameter.
2. Length to penetrate minimum 1/4 inch beyond steel stud framing.
3. Aericote 1000 corrosion-resistant coating.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify installation conditions as satisfactory to receive work of this Section before beginning.
B. Verify framing systems, including backing, insulation, vapor barriers, work of Division 15 and 16, and other systems ready for work of this Section.
C. Verify work of Section 05 40 00, Section 07 21 16 and Section 07 25 00 for

metal framing, insulation installation, and vapor barrier requirements prior to beginning work of this Section.

D. Building Envelope: Except where moisture and mold-resistant gypsum board panels are installed and accepted by Architect, conform to following:
   1. Do not begin work until building envelope is fully enclosed and temperature, ventilation, and humidity are controlled.
   2. Do not begin work under conditions that gypsum board installation may be exposed to contact with water.

3.2 PREPARATION

A. Protect surrounding areas and surfaces to preclude damage.
B. Avoid soiling, spatter, and damage to work of other trades. Use cover cloths, or other means of protection. Remove, clean, and repair soiled or damaged work.

3.3 INSTALLATION

A. Conform to ASTM C840, GA-216, and manufacturer's instructions.
B. Corner Trim: Reinforce external corners with specified corner beads.
C. Edge Trim: Install square edged metal trim bead at exposed edges and boundaries of areas and where abutting dissimilar materials.
D. Reveal Trim:
   1. Install with screws at 12 inch on center in 10 foot lengths, except where shorter lengths are sufficient for dimension of wall plane.
   2. Make butt joints tight and in alignment.
   3. Miter corners.
   4. Promptly remove excess joint compound.
E. Control Joints: Conform to WCB Tech Bulletin Control Joints and GA-234, except as otherwise indicated. Verify that required double framing is in place before installing control joints.
   1. Door and Other Openings: Install control joints at each side of wall opening and at both sides of wall, except alcoves and similar wall configurations.
   2. Continuous Wall Planes: Install control joints floor to ceiling at each 30 lineal foot of wall.
   3. Ceilings: Install across ceiling at each 50 lineal foot distance and each 2500 square foot of ceiling area.
   4. Joints with Other Materials: Install where gypsum board meets masonry, concrete, and other materials, except where joints are concealed under horizontal chair rails or other trim.
F. Other Trim: Install as indicated or required for complete and finished installation.
G. Panel Joints:
   1. Layout: Design to reduce joints to minimum.
   2. Install board in maximum lengths to minimize horizontal and vertical joints.

3. Start installation of panels at exterior wall to position butt joints as far away from exterior wall as possible.
4. Place edges in contact and fit neatly, without forcing into place.
5. Stagger joints on opposite sides of partitions and on same side of wallsurface at adjacent joints.
6. Maintain 1/2 inch clearance from bottom of wall panel and top of floor. Seal with acoustical sealant.
7. In order to prevent wicking of moisture, do not let gypsum board rest on floor after installation.

H. Single Layer Systems: Install in accordance with ASTM C840. Where modified, amended, or required by fire resistive or sound isolation system, conform to the requirements of the manufacturer's tests, as approved.

I. Double Layer Systems: Install in accordance with ASTM C840, including System VIII for double layer gypsum wallboard installations applied with screws. Conform to required fire resistance standards.

J. Moisture and Mold Resistant Gypsum Board: Install at restrooms, kitchen, janitorial closets, and areas where moisture is present. Do not install as backer board for ceramic tile.

K. Tile Wall Backerboard: Install under provision of Section 09 30 00 behind tile wall installations. Moisture resistant (green board) gypsum board not accepted as backer for tile.

L. Joint Sealant and Acoustical Sealant: Install to completely fill void between wallboard edges and adjacent surface.

M. Firestopping and Smoke Sealants: Install in accordance with Section 07 84 00.

N. Plumbing, HVAC, and Electrical: Coordinate with Division 22, Division 23 and Division 26. Provide for installations and penetrations of ductwork, equipment, receptacles, and other work.

3.4 TRIM AND JOINT FINISHING

A. Joints and Interior Angles: Embed tape in joint compound and apply three separate coats of joint compound over joints, angles, fastener heads, and accessories. Tool joint compound smooth and free of tool marks and rides.
1. Center reinforcing tape over joint and coat into compound leaving approximately 1/64 inch to 1/32 inch under tape to provide proper bond.
2. Follow with skim coat to embed tape, but not to function as second coat.
3. Allow embedding coat to thoroughly dry prior to application of second coat.
4. Allow second coat to thoroughly dry.
5. Apply third coat evenly over and extending beyond second coat on joints, feathering to smooth uniform finish.

B. Beads, Trim, Fastener and Joint Depressions:
1. Cover with three coats of taping and joint compound. Apply in different directions making smooth transitions with adjacent surfaces.
2. Allow sufficient drying time between coats.

3. Leave depressions flush with surface plane.

3.5 TOLERANCES

A. Shim panels as necessary to conform to tolerances.
B. Between Board Faces: 1/16 inch offset.

3.6 ADJUSTING

A. Remove and replace following gypsum board installations:
1. Board in contact with water for over 18 hour time period.
2. Gypsum core exhibiting dampness or water intrusion.
3. Facing paper exhibiting delamination.
4. Facing or core exhibiting mold growth or turning black.
5. Board sagging or warped.
6. Board directly exposed to water determined to be contaminated.

3.7 CLEANING

A. Clean beads, screeds, metal base, metal trim, mechanical and electrical items, and other work.
B. Wipe clean, leaving work ready for finish specified under other Sections.
C. As work is completed in each space, clean all rubbish, utensils, and surplus materials from the space. Leave floors broom-clean.

3.8 SCHEDULE - LEVEL OF FINISH FOR GYPSUM BOARD SURFACES

A. Conform to GA-214, ASTM C840, manufactures instructions, and provisions of Contract Documents.

END OF SECTION 092900