

SECTION 09250
GYPSUM BOARD

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes gypsum board work, metal studs and channels, fasteners, accessories, and finishing.
- B. Provide gypsum board work as scheduled, noted or detailed, using materials and construction methods as described in the referenced specifications and standards, except as modified by the requirements of this Section. The work includes gypsum board as a finished plane ready for decorative field painting, and as substrate to receive applied finishes such as vinyl fabric wallcovering, ceramic tile, etc.
- C. Provide fire-resistance rated metal stud and gypsum board partitions as scheduled or noted using materials and construction methods as described for each particular rating in the UL “Fire Resistance Directory” for the UL Design Number selected.
- D. Provide fire-resistance rated gypsum board shaftwall systems as an alternate system for erection from outside the stair shaft at each floor, using materials and construction methods as described for each particular rating in the UL “Fire Resistance Directory” for the UL Design Number selected.
- E. Provide moisture resistant gypsum board partitions as scheduled or noted using methods as specified in the manufacturer’s specification when tested in accordance with each particular system.
- F. Cement Backer Board Work:
 - 1. Provide cement backer board as specified or noted in lieu of gypsum board for partitions and ceilings to receive ceramic tile. Joint taping and filling is in Section 09300.
- G. Related Work Specified in Other Sections
 - 1. Wood framing, furring and permanent wood grounds - Division 6.
 - 2. Sound-attenuating blanket insulation and thermal insulation in conjunction with gypsum board work - Division 7.
 - 3. Calking of expansion, control and perimeter area joints - Division 7.
 - 4. Fire Safing and Firestopping – Division 7.
 - 5. Gypsum plaster work, complete – Division 9.
 - 6. Ceramic tile work, including setting beds – Division 9.
 - a. Also including taping and filling of joints in cement backer board.
 - 7. Acoustical ceilings, except gypsum backer board substrate for adhesive-applied acoustical ceiling tile – Division 9.

H. Products Installed But Not Furnished Under This Section

1. Steel door and glazing frames in metal stud framed gypsum board partitions - furnished in Division 8.
2. Access panels required in gypsum board work but not shown on the Drawings - furnished in DIVISIONS 15 and 16.
3. Access panels in gypsum board work shown on the Drawings - furnished in Division 8.

1.2 PERFORMANCE REQUIREMENTS

A. Reference Standards

1. New York State Building Code, Current Edition.
2. ASTM C36 – Gypsum Wallboard.
3. ASTM C645 – Non-Load Bearing Steel Studs.
4. ASTM C475 – Joint Treatment Materials.
5. ASTM C1002 – Steel Drill Screws for Application of Gypsum Sheet Materials.
6. Underwriters Laboratories (UL) Fire Resistance Directory.

B. Design Criteria

1. The ceiling support system shall limit deflection of the finished ceiling to not more than 1/360 of the span.
2. The finished ceiling shall be at the correct elevation and flat within 1/8 inch in 10 ft., tested in any direction.

C. Pre-Installation Meeting

1. Prior to start of each type of gypsum drywall system, and at the direction of the Owner's Representative, meet at the site and review the installation procedures and coordination with other work. Meeting shall include Contractor, Owner's Representative, and major material manufacturers as well as the Installer and other subcontractors whose work must be coordinated with the gypsum drywall work.

1.3 SUBMITTALS

- A. Furnish product data for items that are identified in this Section by a different typeface and a bracketed code (e.g., *Item [P]*). Refer to Division 1, General Requirements for definition of codes for types of submittals and the administrative requirements governing submittal procedure.

1.4 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Wrap, carton, and crate as required to provide physical and climatic protection during loading, shipping and job site storage and handling.
- B. Deliver packaged materials to the project site in the manufacturer's original, unopened containers which bear intact, legible and visible labels that identify the manufacturer's name and brand name, the contents, grade and type.

- C. Upon delivery, immediately inspect shipments to assure their compliance with the requirements of the Contract Documents and approved submittals, and that products are complete, undamaged and adequately protected. Immediately report damaged, missing, or defective items. Remove broken, damaged or unlabeled items from the site immediately.
- D. Store products in accordance with manufacturer's instructions with seals and labels intact, legible, and visible. Store products in a manner to prevent damage, soiling, theft, deterioration and contamination. Marred surfaces, cracked, checked split or warped materials will be rejected. Store materials subject to damage by climatic conditions in weather tight enclosures. Maintain temperature and humidity within the ranges required or recommended by the manufacturer.
- E. Repair or clean items that have been damaged or soiled that can be restored to an "as new" condition at no cost to the Owner. The Owner's Representative shall be the judge of the effectiveness of remedial measures. Additional time or expenses required to secure replacements and to make repairs will not be considered by the Owner's Representative to justify an extension in the Contract time of completion or an increase in the Contract amount.

1.5 PROJECT SITE CONDITIONS

- A. Environmental Conditions
 - 1. Apply adhesives and joint finishing compounds only under conditions conducive to a fault-free installation and only when the ambient temperature is above 55 degF.
 - 2. After adhesives and compounds have been installed, provide a circulation of air with exhaust to the exterior, while the adhesives and compounds are drying, including areas above the suspended ceilings.
- B. Protection
 - 1. Protect other adjacent in-place finished construction during the execution of this work to prevent damage to such finished construction; repair all damage.
 - 2. Immediately remove adhesive and joint finishing compound droppings from in-place finished construction, so as not to mar or damage such finished construction.
- C. Sequencing, Scheduling
 - 1. Cooperate in the sequence of thermal and acoustic insulation installation and setting of mechanical, electrical and other items in or behind gypsum board surfaces.
 - 2. Do not commence work that would conceal items or materials in-place that require inspection until such has been inspected and approved.
- D. Verification of Work by Others
 - 1. Examine all surfaces affected by this specification section before starting work. Notify the Owner's Representative, in writing, of any surfaces that are not square, plumb, level and true, or that are not secure and firm. Do not proceed with work on any portions so reported until necessary corrections have been made. Any subsequent claim of the inability to carry out the contract, due to the negligence of other Contractors in the execution of their work or their failure to properly execute their work, shall be held invalid.

PART 2 PRODUCTS

2.1 MATERIALS

A. *Ceiling Carrying Channels [P]*

1. Carrying Channels: Per ASTM C754; cold rolled steel shapes, shop painted with rust-inhibitive primer or galvanized.
 - a. Galvanize for exterior soffits.

B. *Furring Channels [P]*

1. Screw-Type Rigid Furring: Per ASTM C645; galvanized sheet steel, hat shaped, minimum 25 gage, nominal 2-5/8 inches wide x 7/8 inch deep with 1/2 inch wide flanges.
 - a. National Gypsum "Gold Bond Screw Furring Channel"
 - b. Unimast "DWC Metal Furring Channel"
 - c. United States Gypsum "Metal Furring Channel"
2. Screw-Type Resilient Furring: Per ASTM C645; galvanized sheet steel, minimum 25 gage, offset flange profile with minimum 1-1/2 inch wide screw-receiving face.
 - a. National Gypsum "Resilient Furring Channel"
 - b. Unimast "RC-1 Resilient Channel"
 - c. United States Gypsum "Resilient Channel"
3. Z-Shaped Furring: Per ASTM C645; galvanized sheet steel, minimum 24 gage, with nominal 3/4 inch wide back flange and 1-1/4 inch wide face flange and of same depth as the insulation.
 - a. National Gypsum "Gold Bond Z Furring Channel".
 - b. Unimast "Z-Furring Channel"
 - c. United States Gypsum "Z-Furring Channel"

C. *Metal Studs [P]*

1. Metal Studs: Steel studs per ASTM C645, minimum No. 25 gage cold-rolled steel with galvanized finish, of sizes required to produce overall partition thicknesses shown or scheduled, suitable for screw attachment of gypsum board and with punchouts to accommodate horizontal utility service runs.
 - a. Use 20 gage studs adjacent to door frame jambs.
 - b. Use 20 gage studs for cementitious backer board.
2. Accessories: Furnish manufacturer's standard galvanized mating floor and ceiling tracks, and all other accessories necessary for installation of studs and tracks.

D. *Gypsum Board [P]*

1. Gypsum Board of type listed, 5/8 inch thick unless indicated otherwise, 48 inches wide, with tapered edges; furnish in as long lengths as practical to minimize end joints. Use the following types where indicated or specified:
 - a. Type X: Per ASTM C36, special fire-retardant; use for fire-rated partitions and ceilings, and gypsum board fire-proofing work as defined in the UL "Fire Resistance Directory".
 - b. Moisture-Resistant Type: Per ASTM C630.
 - c. Exterior Soffit Board Type: Per ASTM C931.

- d. Gypsum Coreboard Type: Per ASTM C442, Type X, 1 inch thick; use as liner for fire-rated gypsum board shaftwall systems.
- e. Plain Type: Per ASTM C36; use where other types are not specifically indicated.

E. Cement Backer Board [P]

1. Cement Backer Board: 1/2 inch thick, glass-mesh reinforced portland-cement based (not gypsum) cementitious tile backer board for application of ceramic tile in wet areas. Use where indicated. Joint taping and filling is by the ceramic tile trade of Section 09300.
 - a. Custom Building Products “Wonderboard Backerboard”.
 - b. FinPan “Util-A-Crete Concrete Backerboard”.
 - c. U.S. Gypsum “Durock Cement Board”.

F. Moisture Resistant Panels [P]

1. Moisture Resistant Panels: 5/8 inch thick, 40 inches wide with tapered edges.
 - a. National Gypsum “Gold Bond MR Board”
 - b. United States Gypsum “Sheetrock Water Resistant Panels”

G. Joint Treatment Materials [P]

1. Joint Compound and Joint Tape: Products of a single manufacturer, as manufactured or recommended by the gypsum board manufacturer for the particular type of gypsum board used, and per ASTM C475.

H. Adhesive [P]

1. For laminating gypsum board work, or for adhering to concrete or masonry substrate, provide adhesive or laminating compound as recommended by the gypsum board manufacturer.
2. For adhering gypsum board to rigid insulation, provide one of the following:
 - a. Low VOC type to meet LEED NC 2.2.

I. Hangers And Tie Wire [P]

1. Hangers: Per ASTM C754; soft-annealed, zinc coated steel wire of No. 8 gage minimum; or unperforated, galvanized mild steel flat hangers, 1 inch x 1/8 inch minimum.
2. Tie Wire: Per ASTM C754; annealed zinc coated steel, Monel or stainless steel wire, minimum No. 16 gage.

J. Metal Accessories [P]

1. Furnish all members per ASTM C1047, of proper depth required for total gypsum board thickness specified.
 - a. Gold Bond (National Gypsum Co.)
 - b. Unimast Inc.
 - c. United States Gypsum Co.
2. Casing Bead: Galvanized steel, minimum No. 26 gage, square angle or channel nose, with perforated wall flange requiring filling compound.
3. Corner Bead: Galvanized steel, minimum 26 gage, perforated wing type requiring filling compound.
4. Control Joint: Zinc V-type with perforated wings requiring filling compound.

K. Fasteners [P]

1. Screws: Per ASTM C1002; Type S for 25 gage steel studs and Type S-12 for 20 gage or heavier steel studs, bugle-head screws with self-drilling point, self-tapping thread; not less than 1 inch long for single layer application and not less than 1-5/8 inch long for double layer.
 - a. Use same length screws as used to achieve fire-resistant ratings, for such work.
 - b. Use corrosion-resistant treated screws for cement backer board.

L. Acoustical Sealant [P]

1. Acoustical Sealant: Per ASTM C919, nondrying, nonhardening, nonskinning acoustical sealant, such as:
 - a. Tremco "Acoustical Sealant"
 - b. U.S. Gypsum "Sheetrock Acoustical Sealant"
 - c. Pecora Corporation "AC-20 FTR Acoustical and Insulation Sealant"

PART 3 EXECUTION

3.1 METAL STUD FRAMING INSTALLATION

- A. Provide metal stud framing per ASTM C754 to frame all gypsum board partitions, walls and enclosures. Extend framing from top of slab to underside of construction above, except where indicated or specified otherwise. Where framing does not extend to construction above, terminate framing as indicated.
 1. Terminate framing at underside of ceilings and secure to ceiling framing at 4'-0" o.c. maximum, or as noted.
 2. Terminate framing 4 inches above finish ceiling plane where noted, and provide extension of framing to slab above, at not over 48 inches on center to effect a rigid installation.
- B. Use single length, unspliced studs, mounted vertically, spaced at not over 16 inches on center, and set into continuous channel tracks at bottom and top. Secure channel tracks to slabs with either approved screw type fastener or 1/4 inch diameter galvanized bolts, spaced 24 inches on center maximum and at each end of each piece of track. Where top track terminates at ceiling, secure track to metal ceiling suspension system at 48 inches on center maximum. Secure studs to tracks with sheet metal screws at jambs of openings, at corners, intersections, and ends of runs. Secure all other studs into tracks by friction, twisting studs into tracks.
- C. Frame intersections and corners with multiple studs per ASTM C754, arranged to support all vertical edges of wallboard. Where metal stud framing abuts concrete or masonry surface, secure abutting stud to surface at 24 inches on center. At expansion joints, provide stud at each side of joint to allow gypsum board to stop at each side of such joints. Reinforce partition framing scheduled or indicated to be surfaced one side only, with a continuous horizontal, 1-1/2 inch channel, in the stud space and located six feet above the floor, secured to each stud; do not extend horizontal reinforcement through the expansion joints.
- D. Frame each opening per ASTM C754 with studs at each side of opening; floor track at head, and at sill in opening terminating above the finished floor; jack studs above and below the

opening to complete and extend the stud spacing pattern. Frame for metal access doors in all locations shown, and in addition, for metal access doors in this work where required for access by other Trades.

1. Use 20 gage studs adjacent to door frame jambs.
 2. Use 20 gage studs for cementitious backer board.
- E. Erect the metal stud framing in true straight lines, with corners and intersections at right angles and with each surface forming true, plumb planes, unless shown otherwise. Frame openings in true rectangles, of sizes required or shown. Secure all parts together and to adjacent construction in a rigid manner.
- F. Receive, set and secure in place, all hollow steel frames occurring in metal stud framing. Secure each frame anchor plate to adjacent stud vertical by bolting or screwing. Expansion bolt the bottom of each frame jamb to the floor with 1/4 inch diameter galvanized bolts.
- G. Install all frames as defined with the Door and Hardware Institute Manual "Installation Guide for Doors and Hardware", Latest Edition, with the $\pm 1/16$ " tolerances for frames squareness, plumbness, alignment and twist.
1. Frames that do not meet the above stated tolerances shall be reinstalled, at no extra cost, to the satisfaction of the Owner's Representative.
- H. For items to be set into or on front of metal stud framing that requires reinforcing inside of the metal stud framing, provide minimum 25 gage steel insert (or other approved anchorage plate insert) minimum 10 inches high and spanning at least 2 studs, in locations where handrails, grab bars, toilet partitions, cabinets and other items are attached to gypsum board partitions. Secure insert to adjacent studs. Review location of insert with installers of items to be attached, to obtain correct insert location.
- I. Provide all cutting out, subframing with studs or furring channels or backer plates and finishing with metal accessory trim and joint treatment all openings required for recessed wall equipment.

3.2 CEILING FRAMING INSTALLATION

- A. General
1. Install ceiling construction to provide true, flat planes as shown, either vertical and plumb, horizontal and level, or sloping, ready for application of metal furring. The reference to ceiling construction applies as well to the construction of drops and soffits, as applicable.
- B. Suspended Ceiling Framing
1. Provide suspension systems for all gypsum board finished, and adhesive-applied acoustic tile on finished gypsum board, ceilings that are indicated as suspended, consisting of cold rolled steel carrying channels hung from concrete slab or steel structural framing above the ceiling plane per ASTM C754.
 - a. Use 1-1/2 inch carrying channels for hanger spacing up to 4 feet-1 inch.
 - b. Use 2 inch carrying channels for hanger spacing from 4 feet-2 inches up to 5 feet-1 inch.
 - c. Use doubled 2 inch carrying channels for hanger spacing over 5 feet-1 inch.

2. Erect carrying channels parallel to walls and to each other, spaced uniformly at not over 4 feet on center. Provide a carrying channel parallel to and within 6 inches of walls and stop channel ends 1/2 inch from walls. Provide carrying channel framing of all openings having dimension of 2 feet-0 inches and over. Furnish channels in as long lengths as practical to minimize joints. Splice the channels by lapping a minimum of 12 inches and double-tying together. Locate splices only at hangers.
 - a. At expansion joints parallel to carrying channels, provide separately hung channel at each side of expansion joint.
 - b. Where run of carrying channels is perpendicular to expansion joint, stop the channels at each side of expansion joint.
3. Support carrying channels with hangers along each run, spaced not to exceed the spacing specified above for the size of channel used. If ductwork or equipment located in the ceiling plenum area interferes with hanger spacing, provide a trapeze arrangement to support the channels at the proper spacing. Provide a hanger at each corner of each ceiling opening which is to receive a recessed light troffer, diffuser, or grille, and at other points of extra loading.
 - a. Do not secure hangers to metal roof deck, metal floor deck not concrete filled, ductwork, conduit, piping, equipment, or support system for any of these.
4. Secure hangers to construction above, in accordance with ASTM C 754 and the following requirements, as applicable, to develop the full strength of the hangers.
 - a. Exposed Concrete Slab or Concrete-Filled Metal Floor Deck: Use hanger anchors specifically designed for hanger use.
 - b. Steel Beams: Use beam clips.
 - c. Steel Trusses and Joists: Wrap around the lower chord member.
5. Secure hangers to carrying channels by wrapping hangers around the channels to develop the full strength of the hangers.
 - a. Wire Hangers: Wrap the wire around the steel joists, carrying channels and other fastening points twice and around itself three times.
 - b. Steel Band Hangers: Secure the band to the steel joists, carrying channels and other fastening points; wrap the band tightly around the fastening point and bolt to itself.
6. Frame vertical plane of ceiling drops with carrying channels spaced not over 4 feet on center, erected plumb and parallel. Secure channels to horizontal runs at top and bottom; shim as required to produce a true plumb plane.

C. Direct-Secured Ceiling Framing

1. Provide steel carrying channel framing for all gypsum board finished ceilings and adhesive-applied acoustic tile on finished gypsum board ceilings that are indicated as direct secured, consisting of cold rolled steel carrying channels uniformly spaced at not over 4 feet on center and secured directly to underside of structural framing at not over 4 feet on center. Install channels parallel to walls, and to each other. Provide a channel parallel to and within 6 inches of walls and stop channel ends 1/2 inch from walls. Secure channels to construction above by tying with two strands of tie wire around the channel and framing member above. Provide steel shims as required to erect carrying channels in a level, true plane.

3.3 METAL FURRING INSTALLATION

- A. Provide appropriate type metal furring per ASTM C754, on the following surfaces:
 - 1. Underside of suspended and direct-secured ceiling and soffit framing.
 - 2. On the underside of metal stair construction.
 - 3. On the room side of framed ceiling drops.
 - 4. To enclose steel framing of pipe, conduits, ductwork and similar items.
 - 5. On concrete, masonry and rigid insulation substrates where shown.
 - 6. For gypsum board finished and adhesive-applied acoustic tile finished gypsum board surfaces where other provisions are not made.
 - 7. Elsewhere as required to support gypsum board at the required lines; and for all surfaces so indicated.
- B. Erect metal furring to true lines and levels. Provide all additional metal framing, bracing and supports necessary to install the metal furring rigidly and securely in place.
- C. Erect furring in parallel lines, perpendicular to framing and uniformly spaced at not over 24 inches on center for vertical work and not over 16 inches on center for horizontal work. Secure furring to each support by saddle-tying with three strands of tie wire twisted tight, or with screws or clips, or by welding to structural framing. Secure furring to concrete or masonry substrates with fasteners at each end of furring and at 24 inches on center, maximum, between. Secure furring at stair soffits by welding, screwing, or bolting to stair framing. Furnish furring channels in as long lengths as practical to minimize the number of joints. Splice the channels by lapping and double-tying together. Use proper lengths so as to stagger splices in adjacent furring runs. Stop ends of ceiling furring 1/2 inch short of walls. Do not build any furring into masonry walls.
 - 1. At expansion joints parallel to furring run, provide furring channel at each side of expansion joint.
 - 2. Where run of furring is perpendicular to expansion joints, stop the furring channels at each side of expansion joint.
 - 3. Space furring at not over 12 inches on center for cementitious backer boards.

3.4 GYPSUM BOARD INSTALLATION

- A. General
 - 1. Install gypsum board in accordance with ASTM C840, unless specified otherwise.
 - 2. Provide gypsum board on both sides of stud framed partitions and on one side of all furred areas and over interior concrete and masonry walls, where so indicated. Provide one layer of gypsum board in all locations, except where multiple layers are noted or are required for fire resistance ratings. Cover full height of stud framed partitions with gypsum board, including the portion above ceilings. In all wall and partition work, except where partitions terminate at underside of ceilings, extend wall and partition linings up past edge of ceiling linings, and cope edge of ceiling linings to such vertical surfaces.
 - 3. In wall and partition work, if gypsum board is not obtainable in length to span full height in a single piece, use longest length possible with butted end joints occurring above ceiling line and install gypsum board with long dimension vertical; otherwise install gypsum board

with long dimension horizontal; with vertical joints aligned over studs or furring in both cases. At fire-rated walls and partitions, install gypsum board with long dimension vertical and parallel to studs. At metal framed and furred areas, secure gypsum board to each stud, stud track and furring member with screws spaced not over 12 inches on center.

- a. In ceiling and soffit work, install gypsum board with long dimension at right angles to furring, with end joints aligned over furring.
 - b. In partition work, offset horizontal and vertical joints on opposite sides of partition. In all work, offset joints in adjacent rows of gypsum board.
4. Drive all screws so that the screw is driven in until the screw head provides a slight depression below the surface of the gypsum board, but no further; do not break the paper coverings on the board during installation of fasteners. Do not place fasteners closer than 3/8 inch from edges of boards. Pair, not stagger, fasteners at edge joints between adjacent sheets.
 5. Grout steel frames at jamb anchor points with setting-type joint compound.

B. Single-Layer Installation

1. Install single layer gypsum board in proper sequence so as not to delay this work. At corners and intersections, install gypsum board to abutted wall studs in time to allow securement of stud of abutting walls through gypsum board to studs of abutted walls.
2. At metal framed and furred areas, secure wallboard to each member with screws spaced at not over 12 inches on center.
3. At rigid insulation, install gypsum board in strict accordance with the directions of the rigid insulation manufacturer and the gypsum board manufacturer.
 - a. At unfurred insulated walls, secure gypsum board to insulation with adhesive.
 - b. At Z-furred insulated walls, secure gypsum board to each furring member with screws spaced at not over 12 inches on center.

3.5 CEMENT BACKER BOARD INSTALLATION

A. Install as specified for gypsum board except:

1. Use cement board manufacturer's recommended Type S-12 corrosion-resistant treated screws.
2. Space screws not over 8 inches on center for walls and partitions, and not over 6 inches on center for ceilings.
3. Joint taping and filling will be performed by the ceramic tile trade of Section 09300.

3.6 METAL JOINT AND EDGE TRIM

- #### A. Exterior Corner Reinforcement: Provide corner beads and joint compound for the full length of all external gypsum board corners, both vertically and horizontally, and elsewhere as required for the protection of gypsum board. Furnish single length members, without splicing, for each run up to change in direction. Miter or cope beads to fine-line joints at change in direction. Set beads plumb, level and true throughout. Secure beads through gypsum board to framing or furring with screws at maximum 12 inches on center.

- B. Casing Beads: Furnish single length members, without splicing, for each run where exposed to view in the finished work. Miter beads at corners and trim to fine line at all joints. Set beads plumb, level and true throughout. Install beads, prior to gypsum board installation, and secure to framing or furring. After gypsum board edge is inserted in bead, finish gypsum board at bead with joint compound to produce smooth, finish surface. Provide casing beads and joint compound at the junction of gypsum board surfaces with:
1. Finish masonry.
 2. Door frames and glazing frames not overlapping the gypsum board edges.
 3. Window openings.
 4. At perimeter of all gypsum board ceilings.
 5. At exposed edges of gypsum board.
 6. At perimeter of openings for light fixtures, diffusers, grilles, etc.
 7. At similar locations to provide a finished edge for the gypsum board.
 8. Also provide casing bead at intersection of gypsum board ceilings and walls, placed in the wall plane if walls terminate at ceiling and in the ceiling plane if ceiling terminates at the walls. Where walls and ceiling terminate together, provide casing bead at tops of walls.
- C. Internal Corners: Provide tape and joint compound reinforcement at all internal vertical corners and elsewhere as noted or detailed on the Drawings. Do not provide tape and joint compound reinforcement of corners formed by wall and ceiling intersections.
- D. Control Joints: Isolate gypsum board from all structural elements, except floors, by metal control joint members or metal trim. Locate control joints where indicated and as follows:
1. At all changes in type of substrate.
 2. At control or expansion joints occurring in building construction.
 3. In large ceiling areas, not over 50 feet in either direction and to divide ceiling into rectangular areas of not over 2500 square feet.
 4. In long walls at maximum spacing of 30 feet:
 - a. Locate vertical joints at center of door frame heads; extend vertically from head to top of wall.
 - b. Locate vertical joints at door frame jambs; extend joints from top of frame to top of wall at both jambs of door frames on both sides of partition to form a gypsum board transom panel above door.
 5. Where gypsum board abuts a wall or ceiling of dissimilar construction.
- E. Finish all other exposed joints between gypsum board sheets with tape and joint compound. Fill all screw holes and dimples and other depressions in gypsum board surfaces with joint compound.
- F. Apply joint compound in not less than three applications, the first two with joint compound and the last with finishing or topping compound. Apply compounds with trowel or wide knife using sufficient pressure to insure adhesion and to prevent any voids from forming. At joints, embed tape during first application of joint compound. Extend joint compound out a sufficient distance to allow feathering of compound to gypsum board surface. Allow each application to dry prior to applying succeeding layers. Joint compound finished areas shall be smooth and flat, flush

with gypsum board on both sides. Sand, with sandpaper, the finished areas as necessary to remove rough spots, bulges, high areas and other imperfections.

3.7 METAL ACCESS PANELS

- A. Receive and install metal access panels in gypsum board and ceramic and adhesive-applied acoustic tile finished gypsum board surfaces, in locations shown, as specified in Division 8.
- B. In addition, receive and install other metal access panels furnished by Mechanical and Electrical Trades as required for access to their installed items.

3.8 FIRE-RATED WORK

- A. Provide fire-rated gypsum board construction where indicated, including proper construction of framing and furring and proper type, thickness, layers and application of gypsum board, to produce the hourly fire-resistance ratings called for ceilings, walls and structural framing protection and to conform to the UL Design Numbers for each system. The requirements for materials, methods of erection and application specified under the appropriate headings of this Section shall apply, except where more stringent requirements are defined for the particular fire-resistance rating for the UL Design Number in the UL "Fire Resistance Directory".
 - 1. Provide a one-hour fire-rated gypsum shaftwall system as an alternate system where indicated, complete with Type X gypsum board or proprietary core type fire-resistant gypsum board as required for the UL Design number, 1 inch thick gypsum coreboard shaft liner, and steel C-H studs, constructed in conformance with the manufacturer's directions and UL fire tests to accomplish the fire rating required.

3.9 GYPSUM BOARD FINISH LEVELS

- A. Gypsum Board Finish Levels: Finish panels to levels indicated below according to ASTM C 840, for locations indicated.
 - 1. Level 1: Embed tape at joints in ceiling plenum areas, concealed areas, and where indicated, unless a higher level of finish is required for fire-resistance-rated assemblies and sound-rated assemblies.
 - 2. Level 2: Embed tape and apply separate first coat of joint compound to tape, fasteners, and trim flanges where panels are substrate for tile, acoustical tile or where indicated.
 - 3. Level 3: Embed tape and apply separate first and fill coats of joint compound to tape, fasteners, and trim flanges where indicated.
 - 4. Level 4: Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges at panel surfaces that will be exposed to view.

3.10 ADJUSTING AND PATCHING

- A. When other adjacent work is done, or when directed by the Owner's Representative, and in sufficient time to allow field painting to be done on schedule, point up around all trim and other set work, repair or replace damaged gypsum board as approved by the Owner's Representative and leave all of this work in condition to comply with the Contract requirements as approved by Owner's Representative, all at no extra cost to the Owner.

END OF SECTION

Revision History	
Date	Rev. No.
A	0
B	0
C	0
D	0
E	0
F	0
02-19-09	0

DS/djo

C:\d\timsdatasf\brookhaven_national_laboratory\sف070003\200-projexec\280-spec\09250.doc

THIS PAGE INTENTIONALLY LEFT BLANK