SECTION 09250 - GYPSUM BOARD

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Interior nonload-bearing steel stud partition framing 20 (30 mil) gage and lighter (designed for 5 pounds per square foot uniform load perpendicular to partition).
2. Gypsum board.
3. Backer materials: Backer panels for wall tile and plastic wall panels.

B. Related Requirements:
1. Section 05400 - Cold Formed Metal Framing: Load-bearing steel stud ceiling joists. Metal stud header wall framing and bracing supported from roof structure.
2. Section 06100 - Rough Carpentry: Wood furring strips, plywood, blocking, and fasteners attached to partition framing.
3. Section 07210 - Building Insulation: Thermal and acoustical insulation.
4. Section 07840 - Firestopping: Installation of firestopping at penetrations of fire-rated partitions.
5. Section 09900 - Paints and Coatings: Paint finish applied to gypsum board.

1.2 REFERENCES

A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the test by these basic designations only.

B. ASTM International (ASTM):
1. ASTM A 653 - Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
2. ASTM C 475 - Joint Compound and Joint Tape for Finishing Gypsum Board.
3. ASTM C 557 - Adhesives for Fastening Gypsum Wallboard to Wood Framing.
4. ASTM C 645 - Nonstructural Steel Framing Members.
5. ASTM C 754 - Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
6. ASTM C 840 - Application And Finishing Of Gypsum Board.
7. ASTM C 954 - Steel Drill Screws for the Application of Gypsum Board or Metal Plaster Bases to Steel Studs From 0.033 inches to 0.112 inches in Thickness.
8. 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.
9. ASTM C 1177 - Glass Mat Gypsum Substrate for Use as Sheathing.
10. ASTM C 1178 - Coated Glass Mat Water-Resistant Gypsum Backing Panel.
11. ASTM C 1396 - Gypsum Board
12. ASTM C 1629 - Standard Classification for Abuse-Resistant Nondecorated Interior Gypsum Panel Products and Fiber-Reinforced Cement Panels.
13. ASTM C 1658 - Glass Mat Gypsum Panels.
14. ASTM D 3273 - Standard Test Method for Resistance to Growth of Mold on the Surfaces of Interior Coatings in an Environmental Chamber.
15. ASTM D 3274 - Standard Test Method for Evaluating Degree of Surface Disfigurement of Paint Films by Microbial (Fungal or Algal) Growth or Soil and Dirt Accumulation.

C. Gypsum Association (GA):
1. GA-214 - Levels of Gypsum Board Finish.
2. GA-216 - Application and Finishing of Gypsum Board.
3. GA-234 - Control Joints For Fire-Resistance Rated Systems.
4. GA-600 - Fire Resistance and Sound Control Design Manual.

D. Steel Stud Manufacturer's Association (SSMA)
   1. Member listing

E. Steel Framing Industry Association (SFIA)
   1. Member listing

F. Certified Steel Stud Association (CSSA)
   1. Member listing

1.3 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in the installation of light gage metal framing components and gypsum wallboard with minimum 5 years documented experience.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Section 01600 - Product Requirements: Transport, handle, store, and protect products.

B. Protect metal framing from corrosion, deformation, and other damage during delivery, storage, and handling.

C. Store and protect metal framing with weatherproof covering, and ventilate to avoid condensation.

D. Deliver materials in original packages, containers, or bundles bearing brand name and identification of manufacturer or supplier.

E. Stack gypsum board flat to prevent sagging.

1.5 PROJECT CONDITIONS OR SITE CONDITIONS

A. Environmental Requirements:
   1. Establish and maintain environmental conditions for applying and finishing gypsum board in conformance with GA-216.

PART 2 - PRODUCTS

2.1 GENERAL

A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency. Products used in the assembly shall carry a classification label from a testing laboratory acceptable to Authority Having Jurisdiction.

2.2 FRAMING MATERIALS

A. Manufacturer: Subject to compliance with requirements, provide products of one of the following:
   1. ClarkDietrich Building Systems, West Chester, OH (513) 870-1100.
   2. The Steel Network, Raleigh, NC (888) 474-4876.
   3. Cemco Steel, Ft. Worth, TX (817) 568-1525.
   4. Telling Industries, LLC Willoughby, OH (866) 372-6384.
   5. Marino/WARE, South Plainfield, NJ (800) 627-4661.
   6. Other manufacturers listed as a member of CSSA, SSMA or SFIA.

B. Recycled Content of Steel Products: Provide steel framing products with an average recycled content of steel products such that the postconsumer recycled content plus 1/2 of preconsumer recycled content is not less than 25 percent.

C. Interior Nonload-Bearing Partition Framing: ASTM C 645; galvanized sheet steel, channel shaped, punched for utility access, depth and gages as indicated below unless otherwise indicated on Drawings.
   1. Partition having an unbraced length of 12 feet or Less: Minimum 25 gage (18 mil).
   2. Partition having an unbraced length greater than 12 Feet: Minimum 20 gage (30 mil).
   3. Partition (bulkheads) suspended from overhead having an unbraced length of 10 Feet or Less: Minimum 25 gage (18 mil).
   4. Partition height 8 feet and less: Minimum 25 gage (18 mil).
   5. Partition height 8 - 16 feet: Minimum 22 gage (27 mil).
   6. Partition height 16 feet and higher: Minimum 20 gage (30 mil).

D. Contractor's Option: In lieu of traditional framing members, Contractor may use modified framing members of equivalent thickness for 20 and 25 gage metal such as ProSTUD Drywall Framing System by ClarkDietrich or comparable framing members by other manufacturers listed as members of CSSA, SSMA, or SFIA.

E. Partition Floor Tracks and Runners: ASTM C 645; galvanized sheet steel, channel shaped, same depth and gage as studs, tight fit; solid web.

F. Capture (Deflection) Track: Deep leg track at roof deck or structure to provide vertical travel as indicated.
   1. Contractor's Option: Manufacturer's standard double or single deflection track as follows:
      a. VertiClip or VertiTrack by The Steel Network. If this option is used, track may be 20 gage (30 mil) for all stud sizes.
      b. FastTop Clip by ClarkDietrich.
      c. SLP-TRK by Brady Innovations as distributed by ClarkDietrich.
      d. Comparable modified deflection tracks by other manufacturers listed as members of CSSA, SSMA, or SFIA.

G. Furring and Bracing: ASTM C 645; galvanized sheet steel.
   1. Studs: ST25 - 2-1/2 inch deep, 25 gage (18 mil).
   2. Studs: ST25 - 3-5/8 inch deep, 25 gage (18 mil).
   3. Resilient Furring Channels: 1/2 inch deep x 2-1/2 inch wide, 25 gage (18 mil)
   4. Hat-Shaped Channels: 7/8 inch deep x 1-1/2 inch wide, 25 gage (18 mil).
   5. Cold-Formed Channels: 3/4 x 1/2 inch and 1-1/2 x 17/32 inch, 16 gage (54 mil).
   6. Z Furring Channel: 1-1/2 inch deep, 25 gage (18 mil).
   7. Clip Angles: 2 inches x 2 inches x 16 gage (54 mil) x 1/4 inch less than stud width.
   8. Contractor's Option: In lieu of cold-formedchannels and clip angles for horizontal wall bridging, Contractor may provide one of the following:
      a. Bridge Bar by the Steel Network.
      b. TradeReady Spazzer 9200 Bridging and Bracing Bar by ClarkDietrich.
      c. Comparable products by other manufacturers listed as members of CSSA, SSMA, or SFIA.

H. Ceiling Joists, Headers at Partition Openings, Framing Attachment Angles, and Fasteners: Specified in Section 05400.

I. Partition Framing Fasteners: Corrosion-resistant self-drilling self-tapping steel screws.
   1. 22 (27 mil) Gage Framing: ASTM C 1002; 3/8 inch Type S pan head.
   2. 20 (30 mil) Gage and Heavier Framing: ASTM C 954; 5/8 inch Type S-12 low-profile head.

J. Bracing to Framing Attachment Angle Fasteners: #12 diameter pan head corrosion-resistant self-drilling screws.

K. Partition Floor Track Anchorage Device: Low velocity powder-actuated drive pins; minimum 0.138 inch shank diameter x 1-1/2 inch shank length with 7/8 inch diameter washer.
   1. Hilti PAT System using X-C 37 P8S36 Pins, by Hilti, Tulsa, OK. (800) 879-8000.
   2. Ramset System using 1500SD Pins, by ITW Ramset, Wood Dale, IL (630) 350-0370.

L. Wall Furring to Concrete or Masonry Wall Fasteners: Hex head sleeve anchors; minimum 1/4 inch diameter x minimum 1-1/8 inch embedment.

1. Slv Anch HLC-HX 5/16 x 2-5/8, by Hilti, Tulsa, OK (800) 879-8000.
2. Dynabolt HN-1413, by ITW Ramset/Redhead, Wood Dale, IL (708) 350-1558.

M. Wall Furring to Concrete or Masonry Wall Fasteners: Hex head sleeve anchors; minimum 1/4 inch diameter x minimum 1-1/8 inch embedment.
1. Slv Anch HX 5/16 x 2-1/2, by Hilti, Tulsa, OK (800) 879-8000.
2. Dynabolt HN-1413, by ITW Redhead, Wood Dale, IL (708) 350-1558.

N. Furring Channel to Masonry or Concrete Surface Fasteners: Low velocity powder-actuated drive pins of size to suit application.

O. Flat Straps and Plates: ASTM A 653; galvanized sheet steel, gage, shape, and configuration as indicated on Drawings.
1. Contractor's Option: In lieu of 2-inch continuous metal strap at capture tracks, Contractor may provide one of the following:
   a. Bridge Bar by The Steel Network.
   b. TradeReady Spazzer 9200 Bridging and Bracing Bar by ClarkDietrich.
   c. Comparable products by other manufacturers listed as members of CSSA, SSMA, or SFIA.

2.3 GYPSUM BOARD MATERIALS

A. Manufacturer: United States Gypsum Company, Chicago, IL. (800) 874-4968.
1. CertainTeed Corp, Tampa, FL. (866) 427-2872.
2. Georgia-Pacific, Atlanta, GA. (800) 284-5347.
3. National Gypsum Company, Gold Bond Building Products, Charlotte, NC. (800) 628-4662.
4. Temple-Inland, Diboll, TX. (972) 235-4448.
5. United States Gypsum Company, Chicago, IL. (800) 874-4968.
6. The Steel Network, Raleigh, NC (888) 474-4876. (Accessories only)
7. ClarkDietrich Building Systems, West Chester, OH (513) 870-1100. (Accessories only).
8. Fry Reglet, (800) 237-9773. (Accessories only)

B. Standard Gypsum Board: Sheetrock, ASTM C 1396; 1/2 inch and 5/8 inch thick, maximum permissible length; ends square cut, tapered edges. Provide one of the following products:
1. ProRock by Certainteed.
2. ToughRock by Georia-Pacific.
3. Gold Bond Gypsum Board by National Gypsum.
4. Gypsum Board by Temple-Inland.
5. Sheetrock by United States Gypsum.

C. Water Resistant Gypsum Board: ASTM C 1396 or C 1658, 1/2 inch thick, maximum permissible lengths; ends square cut, tapered edges. Mold resistance of water resistant gypsum board shall score a rating of not less than 10 when tested in accordance with ASTM D 3273.
1. ProRoc M2Tech by Certainteed.
2. DensArmor Plus by Georgia-Pacific.
3. Gold Bond Brand XP Gypsum Board by National Gypsum.
4. ComfortGuard Mold Resistant by Temple Inland.
5. Sheetrock Brand Mold Tough by United States Gypsum.

D. Fire Resistant Gypsum Board: ASTM C 1396, Type X; 5/8 inch thick, maximum permissible lengths; ends square cut, tapered edges; core material as required to comply with Underwriters Laboratories (UL) assemblies indicated on Drawings.
1. ProRock Type X by Certainteed.
2. ToughRock Fireguard by Georgia-Pacific.
3. Gold Bond Fire Shield by National Gypsum.
4. Type X Gypsum Board by Temple-Inland.
5. Sheetrock Firecode X by United States Gypsum.

E. Water and Fire Resistant Gypsum Board: ASTM C 1396, Type X; 5/8 inch thick, maximum permissible lengths; ends square cut, tapered edges, core material as required to comply with Underwriters Laboratories (UL) assemblies indicated on Drawings. Mold resistance of water and fire resistant gypsum board shall score a rating of not less than 10 when tested in accordance with ASTM D 3273.
1. Gold Bond Brand XP Fire-Shield C Gypsum Board, by National Gypsum.
2. ComfortGuard Type X by Temple Inland.
3. Sheetrock Mold Tough Firecode "C" Core, by United States Gypsum.

F. Impact Resistant Gypsum Board: ASTM C 1396 or C 1658; ASTM C 1629, thickness shown, manufactured to produce greater resistance to surface indentation and through-penetration than standard gypsum panels.
1. ProRoc Brand Abuse Resistant Gypsum Board by CertainTeed.
2. DensArmor Plus Abuse Resistant by Georgia-Pacific.
3. Hi-Abuse Brand XP Wallboard by National Gypsum.
4. ComfortGuard Abuse Resistant Gypsum Board by Temple Inland.
5. Sheetrock Brand Abuse-Resistant Gypsum Wallboard by United States Gypsum.

G. Impact and Water Resistant Gypsum Board: ASTM C 1396, thickness shown, manufactured to produce greater resistance to surface indentation and through-penetration than standard gypsum panels and providing water resistant gypsum core with paperless facing and mold resistance with a rating of not less than 10 when tested in accordance with ASTM D 3273.
1. DensArmor Plus Abuse Resistant by Georgia Pacific.

H. Gypsum Board Fasteners:
1. Metal Framing: ASTM C 954 and C 1002, Type S-12 bugle head, corrosion-resistant self-drilling self-tapping steel screws.
   a. One Layer 1/2 Inch: 1 inch.
   b. One Layer 5/8 Inch: 1-1/8 inch.
   c. Two Layers: 5/8 Inch: 1-7/8 inch.
2. Wood Furring: ASTM C 1002, 1-1/4 inch, Type W bugle head, corrosion-resistant self-drilling steel screws.

I. Gypsum Board Accessories:
1. Corner Beads: Sheetrock Brand No. 104 Dur-A-Bead galvanized steel corner bead by United States Gypsum.
2. Edge Trim: Galvanized steel casing.
   a. No. 200-B, L shape by United States Gypsum for tight abutment at edges.
   b. No. 200-A, J shape by United States Gypsum at other locations.
3. Control Joint Accessory Piece:
   a. No. 093 roll-formed zinc by ClarkDietrich.
4. Vertical Movement Joint Trim:
   a. No DRMZ-625-200 aluminum Z shape trim by Fry Reglet.
5. Adhesive:
   a. Commercial Adhesive complying with ASTM C 557.
6. Acoustical Insulation:
   a. Unfaced fiberglass batts specified in Section 07210.
7. Firestopping:
   a. Specified in Section 07840 for penetrations of fire-resistive rated gypsum board.

2.4 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C 475.

B. Joint Tape:
1. Interior Gypsum Wallboard: Paper tape.
2. Backer Panels:
   a. Glass-Mat Backer Material: 10/10 grid glass mesh tape.

C. Joint Compound
   1. Interior Gypsum Wallboard:
      a. Sheetrock Brand Ready-Mixed Lightweight All-Purpose Joint Compound with Dust Control, by United States Gypsum.
      b. ProForm Lite Ready Mix Joint Compound with Dust-Tech by National Gypsum.
   2. Backer Panels:
      a. Glass-Mat Backer Materials: Use setting-type taping compound as recommended by backer panel manufacturer and that is rated 10 when tested in accordance with ASTM D 3273 and evaluated in accordance with ASTM D 3274.

2.5 BACKER MATERIALS

A. Provide cementitious backing materials as follows where indicated to receive cement board, cement backer board, or cementitious backer board.
   1. Fiber Cement Backing Board: Hardibacker by James Hardie Building Products, Mission Viejo, CA (888) 542-7343.
   2. Thickness as indicated.
      a. Hardibacker 250, 1/4".
      b. Hardibacker 500, 1/2".
      c. Other as noted on Drawings.

B. Glass-Mat Backer Materials: Provide glass-mat moisture resistant gypsum core backer materials complying with ASTM C 1178. Glass-Mat Backer Material shall score a rating of 10 when tested according to ASTM D 3273. Thickness as shown on the Drawings. Provide Type X where required as shown on Drawings. Provide one of the following products:
   1. GlasRoc Tilebacker by Certainteed.
   2. DensShield Tile Backer by Georgia Pacific.
   3. GreenGlass Tile Backer by Temple-Inland.
   4. Gold Bond e^2XP Tile Backer by National Gypsum.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine existing conditions and adjacent areas where products will be installed and verify that conditions conform to product manufacturer's requirements. Verify that building framing components are ready to receive Work. Verify that rough-in utilities are in-place and located where required. Do not proceed until unsatisfactory conditions have been corrected.

B. Examine panels to assure they are dry and free of moisture and mold damage as evidenced by discoloration, sagging, irregular shape, fuzzy or splotchy surface contamination, and discoloration.

C. Beginning of erection and installation indicates acceptance of existing conditions.

3.2 INTERFACE WITH OTHER WORK

A. Coordinate erection of studs with hollow metal door and window frames, sliding window, and overhead coiling door frames.

B. Coordinate installation of anchors, supports, and blocking for mechanical, electrical, and building accessory items installed within framing.

3.3 INSTALLATION - STEEL FRAMING, GENERAL

A. Installation Standards: Comply with ASTM C 754, and ASTM C 840 requirements that apply to framing installation and with further details and instruction by gypsum board manufacturer's written construction

guidelines.

B. Install supplementary framing, blocking, and bracing at terminations in gypsum board assemblies to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction. Comply, if none available, with United States Gypsum's "Gypsum Construction Handbook."

3.4 INSTALLATION - PARTITION FRAMING

A. Install studs and fasteners in accordance with manufacturer's published instructions, ASTM C 754, GA-216, and GA-600.

B. Install bracing at terminations in assemblies.

C. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

D. Install studs so flanges within framing system point in same direction.

E. Metal Stud Spacing: Unless otherwise noted, provide interior framing at maximum 24 inches on center. Provide spacing of 16 inches on center maximum for walls to receive ceramic tile.

F. Align stud web openings horizontally.

G. Splice studs with minimum 8 inch nested lap, fasten each stud flange with minimum two screws.

H. Construct corners using minimum three studs.

I. Double stud at wall openings, door and window jambs, maximum 2 inches from each side of openings.

J. Place studs as indicated on Drawings, minimum 2 inches from abutting walls.

K. Install headers at partition openings using load-bearing C-shaped joists specified in Section 05400.

L. Install framing between studs for attachment of mechanical and electrical items.

M. Install intermediate studs above and below openings to match wall stud spacing.

N. Install tracks (runners) at floors and overhead supports. Refer to Drawings for indication of partitions extending to finished ceiling only and for partitions extending through ceiling to building structure above.

O. Maintain clearance under structural members to avoid deflection transfer to studs.
   1. Where indicated, construct partition to accommodate vertical deflection.
   2. Install optional products specified in Part 2 above in accordance with manufacturer's printed instruction.
      a. Install clip with step bushing in center of slotted hole.
      b. Use a minimum of two fasteners per clip leg to connect clip to structure and partition framing.
      c. Attach clip to each stud by screwing through the center of each step bushing.

P. Fasten studs adjacent to door and window frames, partition intersections, and corners to top and bottom runner flanges in double-stud fashion with metal lock fastener tools.
   1. Securely fasten studs to jamb and head anchor clips of door and borrowed-light frames.
   2. Place horizontally a cut-to-length section of runner with web-flange bend at each end, fasten with minimum one screw per flange.
   3. Position a cut-to-length stud (extending to top runner) at vertical panel joints over door frame header.

Q. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.

R. Lateral Bracing for Metal Studs:
1. In metal stud partitions and bulkheads where length of metal studs is over 8 feet, install lateral bracing using one of the following methods:
a. Install 1-1/2 inch cold-formed channel through stud web holes and screw attach in place with clip angles. Lap channels by nesting one inside the other to a depth of at least 8 inches and wire tie together.
b. Install optional products specified in Part 2 above in accordance with the manufacturers printed instructions.
c. Install field-cut runner for solid bridging at each end of wall, adjacent to wall openings, and 10 feet on center maximum. Install 1-1/2 inch wide, 20 (30 mil) gage strap bracing on both sides of stud. Fasten strap bracing to each solid bridging runner section with four screws.
2. Gypsum Board Partitions: Space lateral bracing at the following intervals:
a. Provide bracing at ceiling line or at mid-span of studs at areas without ceilings.
3. Wire Mesh Partitions: Space lateral bracing at the following intervals:
a. Stud Length Greater Than 8 Feet and Up To 10 Feet: Provide bracing at midpoint.
b. Stud Length Greater Than 10 Feet and Up To 15 Feet: Provide bracing at third points.
c. Stud Length Greater Than 15 Feet and Up To 20 Feet: Provide bracing at quarter points.

S. Install braced framing of steel stud framing as indicated on Drawings. Use only screw attachments.

T. Blocking: Screw attach wood blocking between studs. Install blocking for support of plumbing fixtures, toilet partitions, wall cabinets, toilet accessories and hardware.

U. Framing Fastening: Fasten framing in accordance with manufacturer's published instructions and schedule below, unless indicated otherwise on Drawings.

CONNECTION	FASTENER
Floor Track to Concrete	1 - Pin at 32 inches on center.
Partition Stud to Floor Track	1 - Screw each side at each flange.
Stud Brace Web to Stud Web	2 - Screws.
Plates and Straps to Studs	2 - Screws.
Stud Web to Stud Web	2 - Screws.
Stud Brace Web to Attachment Angle	2 - Screws.
Lateral Bracing to Partition Stud Using clip Angles	2 - Screws to stud and 2 - Screws to cold formed channel.
Runner to Header	1 - Screw at 16 inches on center, maximum 6 inches from each end.

3.5 INSTALLATION - SUSPENDED CEILING

A. Unless otherwise shown, install suspended ceilings in accordance with the following requirements.

B. Suspend ceiling hangers from building structure as follows:
1. Install 1 1/2" cold formed channels 4 feet on center with 8 ga hanger wire spaced a max of 4 feet on center along carrying channels. Attach 7/8” screw furring channels spaced 16 inches on center perpendicular to the 1 1/2 inch channel with double strand of saddle tied # 16 ga galvanized tie wire or 1 1/2 inch furring channel clips. Apply 1/2 inch gypsum board with its long dimension at right angles to the furring channels. Attach gypsum board with 1 inch self drilling drywall screws 12 inches on center in the field of the board 8 or 12 inches on center at butt joints, located not more than 1/2 inches from edges.
2. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
3. Where width of ducts and other construction within ceiling plenum produces hanger spacing that interferes with the location of hangers required to support standard suspension system members, install supplemental

suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.

4. Secure wire hangers by looping and wire-tying, either directly to structures or to inserts, eyescrews, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause them to deteriorate or otherwise fail.
5. Do not attach hangers to steel deck tabs.
6. Do not attach hangers to steel roof deck. Attach hangers to structural members.
7. Do not connect or suspend steel framing from ducts, pipes, or conduit.

C. Installation Tolerances: Install steel framing components for suspended ceilings so members for panel attachment are level to within 1/8 inch in 12 feet measured lengthwise on each member and transversely between parallel members.

D. Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement.

3.6 INSTALLATION - FURRING

A. Furring Channels:
1. Attach vertically spaced at maximum 16 inches on center, to masonry and concrete surfaces with hammer set or powder driven fasteners staggered 24 inches on center on opposite flanges.
2. Nest channels 8 inches at splices and anchor with 2 fasteners in each wing.

B. Wall Furring:
1. Secure top and bottom runners to structure.
2. Space metal studs at maximum 16 inches on center.
3. Furring for Fire Rating: Install metal furring as required for fire resistance ratings indicated on Drawings, and to GA-600 requirements.

3.7 INSTALLATION - ACOUSTICAL INSULATION

A. Place acoustical insulation 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 as specified in Section 07210 where shown on Drawings.

3.8 INSTALLATION - GYPSUM BOARD

A. Install gypsum board in accordance with manufacturer's published instructions, ASTM C 840, GA-216, and GA-600.
1. Use water resistant gypsum board at wet areas including walls and ceiling in toilet rooms, janitor closets, and food prep areas as applicable and where shown.
2. Use fire resistant gypsum board at locations of fire-resistive rated assemblies indicated on Drawings.
3. Use water and fire resistant gypsum board at locations of fire-resistive rated assemblies where water resistant gypsum board is specified.
4. Use standard gypsum board at locations not indicated to be fire resistant or water resistant type.

B. Where applicable, install ceiling panels before the installation of wall panels.

C. Erect single layer gypsum board in most economical direction in accordance with ASTM C 840, with attachment to firm bearing surfaces over framing members. Do not align panel joints with edges of openings.

D. Double Layer Applications: Secure second layer to first with screws; apply second layer with screws, staggering joints with those of first layer. Use adhesive only to hold second layer until screwed in place. Use fire rated gypsum backing board for fire rated partitions.

E. Treat cut edges, holes, fastener heads, and joints, including those at angle intersections, in water resistant gypsum board with specified joint compound. Treat prior to installation.

F. Place gypsum panels over supporting framing members with panel ends aligning and parallel with framing members. Leave bottom edge spacing above floor in accordance with GA-216.

G. Install fasteners spaced and located in accordance with GA-216 or ASTM C840.

3.9 INSTALLATION - BACKER MATERIALS

A. Install glass-mat backer materials where indicated to receive glass-mat backer material. Install in accordance with manufacturer's instructions.

3.10 INSTALLATION - JOINT TREATMENT

A. Install joint treatment in accordance with GA-216.

B. Install corner bead, trim, and casing in accordance with GA-216.

C. Install control joints full height of partition with 1/2 inch gap between board edges and between studs. Control joints shall be installed in accordance with the gypsum manufacturer's recommended guidelines for control joints or the Gypsum Association GA-234 for control joint in fire rated systems. Apply sealant at base of joint and control joint accessory piece at face. Install control joints at the following locations:
1. Where a wall or partition runs in an uninterrupted straight plane exceeding 30 linear feet.
2. At pairs of doors, install vertical control joint at each jamb. At single doors, install control joint at latch side of jamb.

3.11 FINISH

A. Apply gypsum board finish in accordance with manufacturer's published instructions and GA-214 Finish Levels.

B. Provide gypsum board finish levels at locations as follows:
1. Level 0 (GA-214): No taping, finishing, or accessories necessary.
   a. Exposed surfaces above 12 ft high in Cart Storage Area.
2. Level 1 (GA-214): Joints and interior angles have tape embedment set in joint compound. Surface free of excess joint compound. Tool Marks and ridges are acceptable.
   a. Areas above ceilings where required by drawings.
   b. Concealed areas.
   c. Interior exposed gypsum surfaces not indicated to be painted.
3. Level 3 (GA-214): Joints and interior angles have tape embedded in joint compound and one additional coat of joint compound applied over all joints and interior angles and two separate coats of joint compound are applied over joints, angles, fastener heads, and accessories. Surface smooth and free of tool marks and ridges.
   a. Interior gypsum surfaces indicated to be painted.
   b. Exterior exposed gypsum surfaces.

3.12 FIELD QUALITY CONTROL

A. Inspect metal framing erection, placement, spacing, fasteners, and connections to building.

B. Inspect gypsum board installation, fastener type, spacing, and finish level.

C. Inspect installation of firestopping penetrations of fire-restive rated partitions and at voids between top of partition and building structure.

D. Correct deficiencies in Work which inspection indicates are not in compliance with Contract Documents.

3.13 PROTECTION

A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces.

B. Protect installed interior non load-bearing steel stud partition framing, gypsum board, backer materials, and gypsum sheathing from damage until Substantial Completion.

END OF SECTION