

SECTION 09 21 16
GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.1 STIPULATIONS

- A. The specifications sections "General Conditions to the Construction Contract", "Special Conditions" and "Division 01 - General Requirements" form a part of this Section by this reference thereto, and shall have the same force and effect as if printed herewith in full.

1.2 SECTION INCLUDES

- A. Performance criteria for gypsum board assemblies.
- B. Metal stud wall framing.
- C. Cementitious backing board.
- D. Gypsum wallboard.
- E. Joint treatment and accessories.

1.3 RELATED REQUIREMENTS

- A. Section 06 10 00 - Rough Carpentry: Wood blocking product and execution requirements.
- B. Section 07 21 00 - Thermal Insulation: Acoustic insulation.
- C. Section 07 92 00 - Joint Sealants: Sealing acoustical gaps in construction other than gypsum board or plaster work.

1.4 REFERENCE STANDARDS

- A. ANSI A108.11 - American National Standard Specifications for Interior Installation of Cementitious Backer Units 2018.
- B. ANSI A118.9 - American National Standard Specifications for Test Methods and Specifications for Cementitious Backer Units 2019.
- C. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board 2017 (Reapproved 2022).
- D. ASTM C557 - Standard Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing 2003 (Reapproved 2017).
- E. ASTM C645 - Standard Specification for Nonstructural Steel Framing Members 2018.
- F. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products 2020.
- G. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board 2020.
- H. ASTM C954 - Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness 2022.

- I. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs 2022.
- J. ASTM C1047 - Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base 2019.
- K. ASTM C1325 - Standard Specification for Fiber-Mat Reinforced Cementitious Backer Units 2022.
- L. ASTM C1396/C1396M - Standard Specification for Gypsum Board 2017.
- M. ASTM C1658/C1658M - Standard Specification for Glass Mat Gypsum Panels 2019, with Editorial Revision (2020).
- N. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber 2021.
- O. ASTM E1190 - Standard Test Methods for Strength of Power-Actuated Fasteners Installed in Structural Members 2011.
- P. ASTM E488/E488M - Standard Test Methods for Strength of Anchors in Concrete Elements 2022.
- Q. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements 2009 (Reapproved 2016).
- R. ASTM E413 - Classification for Rating Sound Insulation 2022.
- S. GA-216 - Application and Finishing of Gypsum Panel Products 2021.
- T. GA-600 - Fire Resistance and Sound Control Design Manual 2021.
- U. UL (FRD) - Fire Resistance Directory Current Edition.

1.5 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements for submittal procedures.
- B. Product Data: Provide data on metal framing, gypsum board, accessories, and joint finishing system.
- C. Product Data: Provide manufacturer's data on partition head to structure connectors, showing compliance with requirements.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Member of Steel Stud Manufacturers Association (SSMA): www.ssma.com/#sle.

PART 2 PRODUCTS

2.1 GYPSUM BOARD ASSEMBLIES

- A. Provide completed assemblies complying with ASTM C840 and GA-216.
 - 1. See PART 3 for finishing requirements.

- B. Interior Partitions, Indicated as Acoustic: Provide completed assemblies with the following characteristics:
 - 1. Acoustic Attenuation: STC of 45-49 calculated in accordance with ASTM E413, based on tests conducted in accordance with ASTM E90.
- C. Shaft Walls at HVAC Shafts: Provide completed assemblies with the following characteristics:
 - 1. Air Pressure Within Shaft: Sustained loads of 5 lbf/sq ft with maximum mid-span deflection of L/240.
 - 2. Acoustic Attenuation: STC of 35-39 calculated in accordance with ASTM E413, based on tests conducted in accordance with ASTM E90.
- D. Fire-Resistance-Rated Assemblies: Provide completed assemblies with the following characteristics:
 - 1. Gypsum Association File Numbers: Comply with requirements of GA-600 for the particular assembly.
 - 2. UL Assembly Numbers: Provide construction equivalent to that listed for the particular assembly in the current UL (FRD).

2.2 METAL FRAMING MATERIALS

- A. Manufacturers - Metal Framing, Connectors, and Accessories:
 - 1. Clarkwestern Dietrich Building Systems LLC: www.clarkdietrich.com.
 - 2. Marino: www.marinoware.com/#sle.
 - 3. SCAFCO Corporation: www.scafco.com/#sle.
 - 4. Substitutions: See Section 01 25 00 - Substitution Procedures.
- B. Non-structural Framing System Components: ASTM C645; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 for the spacing indicated, with maximum deflection of wall framing of L/120 at 5 psf.
 - 1. Studs: C-shaped with knurled or embossed faces.
 - 2. Runners: U shaped, sized to match studs.
 - 3. Ceiling Channels: C-shaped.
- C. Shaft Wall Studs and Accessories: ASTM C645; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 and specified performance requirements.
- D. Partition Head To Structure Connections: Provide track fastened to structure with legs of sufficient length to accommodate deflection, for friction fit of studs cut short and fastened as indicated on drawings.

2.3 BOARD MATERIALS

- A. Manufacturers - Gypsum-Based Board:

1. American Gypsum Company: www.americangypsum.com/#sle.
 2. Georgia-Pacific Gypsum: www.gpgypsum.com/#sle.
 3. National Gypsum Company: www.nationalgypsum.com/#sle.
 4. **Basis of Design:** USG Corporation: www.usg.com/#sle.
 5. Substitutions: See Section 01 25 00 - Substitution Procedures.
- B. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut, long edges tapered.
1. Application: Use for vertical surfaces and ceilings, unless otherwise indicated.
 2. Glass mat faced gypsum panels, as defined in ASTM C1658/C1658M, suitable for paint finish, of the same core type and thickness may be substituted for paper-faced board.
 3. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
 - a. Moisture- and mold-Resistant (MR) board is required in all bathrooms, janitor closets, restrooms, and for walls built in front of concrete or masonry basement walls.
 4. Use 5/8 inch Type X board on all vertical surfaces, regardless of rated or non-rated assembly.
 5. Use 5/8 inch Type X or Type C board on all ceilings, regardless of rated or non-rated assembly.
 6. At Assemblies Indicated with Fire-Resistance Rating: Use type required by indicated tested assembly; if no tested assembly is indicated, use Type X board on vertical surfaces and Type X or Type C board on horizontal surfaces, UL or WH listed.
 7. Thickness:
 - a. Vertical Surfaces: 5/8 inch.
 - b. Ceilings: 5/8 inch.
 - c. Multi-Layer Assemblies: Thicknesses as indicated on drawings.
- C. Abuse Resistant Wallboard:
1. Application: Use at all walls and ceilings, except interior of Resident Bedrooms, interior of ICR suite, all janitor closets/rooms, all restrooms, and Resident Shower Room.
 2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
 3. Type: Fire-resistance-rated Type X, UL or WH listed.
 4. Thickness: 5/8 inch.
 5. Edges: Tapered.
 6. Paper-Faced Products:

- a. USG Corporation; Sheetrock Brand AR Firecode X Panels 5/8 in. (15.9 mm):
www.usg.com/#sle.

D. Impact Resistant Wallboard:

1. Application: Use at walls and ceilings on interior of Resident Bedrooms and ICR suite.
2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
3. Type: Fire-resistance-rated Type X, UL or WH listed.
4. Thickness: 5/8 inch.
5. Edges: Tapered.
6. Paper-Faced Products:
 - a. USG Corporation; Sheetrock Brand Mold Tough VHI Firecode X Panels 5/8 in. (15.9 mm): www.usg.com/#sle.

E. Backing Board For Wet Areas:

1. Application: Surfaces in wet areas (Resident Shower Room) including ceilings and walls behind tile.
2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
3. ANSI Cement-Based Board: Non-gypsum-based; aggregated Portland cement panels with glass fiber mesh embedded in front and back surfaces complying with ANSI A118.9 or ASTM C1325.
 - a. Thickness: 5/8 inch.
 - b. Products:
 - 1) USG Corporation; Fiberock Brand Aqua-Tough AR Interior Panels Regular 5/8 in. (15.9 mm): www.usg.com/#sle.

F. Backing Board For Non-Wet Areas: Water-resistant gypsum backing board as defined in ASTM C1396/C1396M; sizes to minimum joints in place; ends square cut.

1. Application: Vertical surfaces behind thinset tile, except in wet areas, including janitor closets/rooms and all restrooms.
2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
3. Type X Thickness: 5/8 inch.
4. Edges: Tapered.
5. Products:
 - a. USG Corporation; Durock Brand Glass-Mat Tile Backerboard 5/8 in. (15.9 mm):
www.usg.com/#sle.

- G. Shaftwall and Coreboard: Type X; 1 inch thick by 24 inches wide, beveled long edges, ends square cut.
1. Application: Mechanical shafts and Area separation walls.
 2. Glass Mat Faced Type: Glass mat shaftliner gypsum panel or glass mat coreboard gypsum panel as defined in ASTM C1658/C1658M.
 3. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
 4. Glass Mat Faced Products:
 - a. USG Corporation; Sheetrock Brand Glass-Mat Liner Panels Mold Tough 1 in. (25.4 mm): www.usg.com/#sle.

2.4 GYPSUM BOARD ACCESSORIES

- A. Acoustic Insulation: See Section 07 21 00.
- B. Acoustic Sealant: Acrylic emulsion latex or water-based elastomeric sealant; do not use solvent-based non-curing butyl sealant. Sealant must comply with GS 36 low VOC limits.
- C. Beads, Joint Accessories, and Other Trim: ASTM C1047, rigid plastic, galvanized steel, or rolled zinc, unless noted otherwise.
1. Rigid Corner Beads: Low profile, for 90 degree outside corners, galvanized steel, wings not less than 1-1/4 inches wide, perforated for nailing and joint treatment.
 - a. Products:
 - 1) CertainTeed Corporation; No-Coat Drywall Corner: www.certainteed.com/#sle.
 - 2) ClarkDietrich; Strait-Flex Big-Stick: www.clarkdietrich.com/#sle.
 - 3) Phillips Manufacturing Co; Everlast Corner Bead: www.phillipsmfg.com/#sle.
 - 4) Substitutions: See Section 01 25 00 - Substitution Procedures.
 2. Casing Beads: Channel-shaped with a concealed wing not less than 22 mm (7/8") wide, and an exposed wing. The exposed wing may be covered with paper cemented to metal and shall be suitable for joint treatment.
 3. Expansion Joints:
 - a. Description: Perforated for attachment and joint treatment, 1/4 inch wide opening.
 - b. Type: V-shaped PVC with tear away fins.
 - c. Type: V-shaped metal with factory-installed protective tape.
 - d. Products:
 - 1) Phillips Manufacturing Co; 093 Expansion Control Joint: www.phillipsmfg.com/#sle.

- 2) Trim-Tex, Inc: www.trim-tex.com/#sle.
 - 3) Substitutions: See Section 01 25 00 - Substitution Procedures.
- D. Joint Materials: ASTM C475/C475M and as recommended by gypsum board manufacturer for project conditions.
- 1. The jointing system shall include reinforcing tape and compound designed as a system to be used together. Jointing compound may be used for finishing if so recommended by the manufacturer.
 - 2. Tape: 2 inch wide, creased paper tape for joints and corners, except as otherwise indicated.
 - 3. Ready mixed vinyl based joint compound.
 - 4. Powder type vinyl based joint compound.
 - 5. Chemical hardening type compound.
- E. Screws for Fastening of Gypsum Panel Products to Cold-Formed Steel Studs Less than 0.033 inches in Thickness and Wood Members: ASTM C1002; self-piercing tapping screws, corrosion-resistant.
- 1. Type W, course-thread screw for fastening gypsum board to wood members, penetrate framing member a minimum of 5/8 inch.
 - 2. Type S, fine-thread screw for fastening gypsum board to cold formed steel members, penetrate framing member a minimum of 3/8 inch.
 - 3. Type and penetration into framing member as indicated, for rated assemblies.
- F. Screws for Fastening of Gypsum Panel Products to Steel Members from 0.033 to 0.112 inch in Thickness: ASTM C954; steel drill screws, corrosion-resistant.
- G. Adhesive for Attachment to Wood, ASTM C557:
- 1. Application: Low VOC sealant shall be used with screws where wall board is attached directly to wood.

2.5 SHAFTLINERS

- A. Shaftliner Metal Framing:
- 1. J Track: ASTM C645, galvanized steel, 20 gauge at elevator doors and masonry cavities, 25 gauge at all other locations.
 - 2. Steel H-Studs: ASTM C645, galvanized steel, minimum 25 gauge, lengths as required.
 - 3. C-Track: Galvanized steel, minimum 25 gauge, 10' lengths.
 - 4. Aluminum breakaway clips: 2" x 2-1/2" x 0.063".
 - 5. Firestop Tracks: Install to maintain continuity of fire-resistance-rated assembly indicated.
- B. Shaftliner Accessories:

1. Fasteners:
 - a. Screws: ASTM C1002, corrosion resistant.
 - b. Track Fasteners: Power-driven fasteners of size and material capable of withstanding loads imposed on shaftwall assemblies without exceeding allowable design stress of track, fasteners, of structural substrates in which anchors are embedded.
 - 1) Expansion Anchors: ASTM E488/E488M, fabricated from corrosion-resistant materials and capable of withstanding a load equal to 5 times design load.
 - 2) Power-Actuated Anchors: ASTM E1190, fabricated from corrosion-resistant materials and capable of withstanding a load equal to 10 times design load.
2. Trim: ASTM C1047.
3. Acoustical Sealant.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that project conditions are appropriate for work of this section to commence.
- B. Verify that gypsum drywall may be installed in strict accordance with all pertinent codes and regulations, the manufacturers' recommendations as approved by the Architect, and the original design.
- C. Do not install gypsum drywall until all unsatisfactory conditions have been corrected.

3.2 SHAFTLINER INSTALLATION

- A. Basement:
 1. Position 2 inch C-Track at floor and attach securely to basement concrete floor at ends and 24 inches o.c.
 2. Caulk under runner at basement concrete floor with minimum 1/4 inch bead of acoustical sealant.
- B. First Floor:
 1. Install H-Studs and insert shaftliner panels.
 2. Attach two thicknesses of shaftliner panels vertically in C-Track with long edges in H-Stud.
 3. Continue installing H-Studs and shaftliner alternately until wall is complete.
 4. Attach horizontal C-Track to top of shaftliner panels, fastening flanges of C-Track at all corners on both sides of shaftliner with minimum 3/8 inch drill point screws.
- C. Intermediate Floors:
 1. Attach C-Track to C-Track cap on wall below, staggering end joints at least 12 inches.

2. Fasten C-Tracks together using double minimum 3/8 inch screws at ends and 24 inches o.c.
3. Fasten H-Studs to adjacent framing with aluminum breakaway clips.
4. Attach breakaway clips to H-stud with one minimum 3/8 inch drill point screw and to adjacent wood framing with 1-1/4 inch drywall screw.
5. Install fire blocking between solid wall system and adjacent framing at floor lines, bottom of truss line, all penetrations and door opening and any other locations according to code requirements.

D. Miscellaneous:

1. Install supplementary framing in gypsum board shaft wall assemblies around openings and as required for blocking, bracing, and support of gravity and pullout loads of fixtures, equipment, services, heavy trim, furnishings, and similar items that cannot be supported directly by shaft wall assembly framing.
2. At door frames, provide jamb struts on each side of door frame.
3. At penetrations in shaft wall, maintain fire-resistance rating of shaft wall assembly by installing supplementary steel framing around perimeter of penetration and fire protection.
4. Isolate perimeter of gypsum panels from building structure to prevent cracking of panels, while maintaining continuity of fire-rated construction.
5. Firestop Tracks: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.
6. Control Joints: Install control joints while maintaining fire-resistance rating of gypsum board shaft-wall assemblies.

3.3 FRAMING INSTALLATION

- A. Metal Framing: Install in accordance with ASTM C754 and manufacturer's instructions.
- B. Studs: Space studs as indicated on drawings.
1. Extend partition framing to existing plaster ceiling in all locations.
 2. Partitions Terminating at Structure: Attach extended leg top runner to structure, maintain clearance between top of studs and structure, and brace both flanges of studs with continuous bridging.
- C. Openings: Reinforce openings as required for weight of doors or operable panels, using not less than double studs at jambs.
- D. Blocking: Install wood blocking for support of:
1. Framed openings.
 2. Wall-mounted cabinets.

3. Plumbing fixtures.
4. Toilet partitions.
5. Toilet accessories.
6. Wall-mounted door hardware.

3.4 ACOUSTIC ACCESSORIES INSTALLATION

- A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.
- B. Acoustic Sealant: Install in accordance with manufacturer's instructions.
 1. Place two beads continuously on substrate before installation of perimeter framing members.
 2. Place continuous bead at perimeter of each layer of gypsum board.
 3. Seal around all penetrations by conduit, pipe, ducts, and rough-in boxes, except where firestopping is provided.

3.5 BOARD INSTALLATION

- A. Comply with ASTM C840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.
 1. Install boards in moderate contact but not forced into place.
 2. At internal and external corners, conceal the cut edges of the board by the overlapping covered edges of the abutting boards.
 3. Stagger boards so that corners of any four boards will not meet at a common point except in vertical corners.
 4. Locate joints at openings so that no end joint will align with edges of opening unless expansion joints will be installed at these points. End joints shall be staggered, and joints on opposite sides of a partition shall not occur on the same stud.
 5. Install the gypsum wallboard to studs with the long dimension of the wallboard at right angles to the furring & framing members. Make end joints where required, over furring or framing members.
- B. Fire-Resistance-Rated Construction: Install gypsum board in strict compliance with requirements of assembly listing.
- C. Exposed Gypsum Board in Interior Wet Areas: Seal joints, cut edges, and holes with water-resistant sealant.
- D. Cementitious Backing Board: Install over steel framing members and plywood substrate where indicated, in accordance with ANSI A108.11 and manufacturer's instructions.
- E. Installation on Metal Framing: Use screws for attachment of gypsum board except face layer of nonrated double-layer assemblies, which may be installed by means of adhesive lamination.

- F. Any board which is determined to be damaged by the Architect due to excessive broken corners, improper cutting of openings in wallboard, excessive gouges or excessive tearing of paper facing, shall have entire sheet of wallboard removed and replaced.
- G. Attaching: Drive the specified fasteners with slight indenture on surface of drywall, spacing the fasteners 12" on center on ceilings and 16" on center at walls, except that where framing members are spaced 24" apart on walls fasteners spacing shall be 12" on center along framing members. Care shall be taken to avoid breaking the face paper of the wallboard. Improperly driven fastener shall be removed. In addition to fasteners, adhesive may be used on wallboard that is attached directly to wood. Adhesive shall not be used with metal studs, resilient furring channels, or on exterior walls and ceilings containing a vapor barrier.

3.6 INSTALLATION OF TRIM AND ACCESSORIES

- A. General: The Drawings do not purport to show all locations and all requirements for metal trim in connection with the work of this Section. Carefully study the Drawings and the installation; provide in place all metal trim normally recommended by the manufacturer of the gypsum wallboard used.
- B. Installation: Install the metal trim in strict accordance with the manufacturer's recommended methods of installation, providing not less embedment and finishing than specified above for corner treatment.
- C. Control Joints: Place control joints consistent with lines of building spaces and as follows:
 - 1. In conformance with the manufacturer's instructions.
 - 2. Not more than 30 feet apart on walls over 50 feet long.
 - 3. At partitions, walls or ceilings that traverse a construction joint (expansion, seismic, or building control element) in the base building structure.
 - 4. Above all doors in corridors. Expansion joints shall be centered over door opening and shall be installed only on corridor side of opening.
 - 5. All control joints in a fire-rated assembly shall be constructed using a UL-approved method to ensure the fire-rated assembly is maintained.
- D. Internal Corners: Treat as specified for joints, except that the reinforcing tape shall be folded lengthwise through the middle and fitted neatly into the corner.
- E. Corner Beads: Install at external corners, using longest practical lengths. Fully crimp or secure with grooved drywall nails spaced 9" maximum on center along each wing of corner bead. Nail locations shall be staggered from one wing to the other, meaning there will be a 4.5" offset between spacing between nails from one wing to the other. Nails shall be of sufficient length to penetrate framing member a minimum of 7/8".
 - 1. Where two external corners meet, such as at the top corners of doorways and wall openings, wings of corner beads shall be mitered where they meet and secured with a nail.
 - 2. After the cornerpiece has been secured into position, treat the corner with joint compound, feathering the joint compound out from 20 cm to 25 cm (8" to 10") on each side of the corner.

3.7 JOINT TREATMENT

- A. Inspect all areas to be joint treated, ascertaining that the gypsum wallboard fits snugly against supporting framework.
- B. In areas where joint treatment and compound finishing will be performed, maintain a temperature of not less than 55 degrees F for 24 hours prior to commencing treatment, for the entire period of treatment, and until joint and finishing compounds have dried.
- C. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
 - 1. Level 5: NOT REQUIRED: Walls and ceilings to receive semi-gloss or gloss paint finish and other areas specifically indicated. The skim coat is a final leveling agent suitable to smooth out a surface to be used under the harshest lighting conditions that may otherwise highlight any imperfections under the finished surface. This finish is highly recommended for gloss and entirely non-textured surfaces.
 - a. All joints and interior angles shall have tape embedded in joint compound and two separate coats of joint compound applied over all flat joints and one separate coat of joint compound applied over interior angles. Fastener heads and accessories shall be covered with three separate coats of joint compound. A thin skim coat of joint compound or a material manufactured especially for this purpose, shall be applied to the entire surface. The surface shall be smooth and free of tool marks and ridges. It is recommended that the prepared surface be coated with a drywall primer prior to the application of finish paint.
 - 2. Level 4: MINIMUM LEVEL OF FINISH REQUIRED IN OCCUPIABLE SPACES: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated. Not suitable for harsh lighting conditions which may highlight minor imperfections.
 - a. All joints and interior angles shall have tape embedded in joint compound and two separate coats of joint compound applied over all flat joints and one separate coat of joint compound applied over interior angles. Fastener heads and accessories shall be covered with three separate coats of joint compound. All joint compound shall be smooth and free of tool marks and ridges. It is recommended that the prepared surface be coated with a drywall primer prior to the application of final finishes.
 - 3. Level 3: NOT USED: Walls to receive textured wall finish.
 - a. All joints and interior angles shall have tape embedded in joint compound and one additional coat of joint compound applied over all joints and interior angles. Fastener heads and accessories shall be covered with two separate coats of joint compound. All joint compound shall be smooth and free of tool marks and ridges. It is recommended that the prepared surface be coated with a drywall primer prior to the application of final finishes.
 - 4. Level 2: In mechanical rooms.
 - a. All joints and interior angles shall have tape embedded in joint compound and wiped with a joint knife leaving a thin coating of joint compound over all joints and interior angles. Fastener heads and accessories shall be covered with a coat of joint compound. Surface shall be free of excess joint compound. Tool marks and

ridges are acceptable. Joint compound applied over the body of the tape at the time of tape embedment shall be considered a separate coat of joint compound and shall satisfy the conditions of this level.

5. Level 1: Wall areas above finished ceilings, whether or not accessible in the completed construction, or other areas that are concealed behind other construction and that are out of public view where a degree of fire and/or noise resistance is required.
 - a. All joints and interior angles shall have tape set in joint compound. Surface shall be free of excess joint compound. Tool marks and ridges are acceptable.
 6. Level 0: Temporary partitions, when final decoration is undetermined, or surfaces indicated to be finished in later stage of project.
 - a. No taping, finishing, or accessories required.
- D. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
1. Apply the joint treatment and finishing compounds by machine or hand tool.
 2. Feather coats of joint compound so that camber is maximum 1/32 inch.
 3. Provide a minimum drying time of 24 hours between coats with additional drying time in poorly ventilated areas.
- E. Embedding compound: Apply to gypsum wallboard joints and fasteners heads in a thin uniform layer. Spread the compound not less than 75 mm (3") wide at joints, center the reinforcing tape in the joint, and embed the tape in the compound. Then spread a thin layer of compound over the tape. After this treatment has dried, apply a second coat of embedding compound to joints and fastener heads, spreading in a thin uniform coat to not less than 15 cm (6") wide at joints, and feather edges. When thoroughly dry, sandpaper to eliminate ridges and high points.
- F. Finishing compound: After embedding compound is thoroughly dry and has been completely sanded, apply a coat of finishing compound to all joints and fastener heads. Feather the finishing compound to not less than 25 cm (12") wide. When thoroughly dry, sandpaper to obtain uniformly smooth surfaces, taking all necessary care to not scuff the paper surface of the wallboard.

3.8 TOLERANCES

3.9 MARKING AND IDENTIFICATION

- A. Fire walls, fire barriers, fire partitions, smoke barriers and smoke partitions or any other wall required to have protected openings or penetrations shall be effectively and permanently identified with signs or stenciling. Such identification shall:
1. Be located in accessible concealed floor, floor-ceiling or attic spaces;
 2. Be located within 15 feet of the ends of each wall and at intervals not exceeding 30 feet measured horizontally along the wall or partition; and
 3. Include lettering not less than 3 inches high with a minimum 3/8 inch smoke in a contrasting color incorporating the suggested wording "FIRE AND/OR SMOKE"

BARRIER- PROTECT ALL OPENINGS”.

3.10 CLEANING UP

- A. Use all necessary care during execution of this portion of the Work to prevent scattering of gypsum wallboard scraps and dust and to prevent tracking of joint and finishing compound onto floor surfaces. At completion of each segment of installation in a room or space, promptly pick up and remove from the working area all scraps, debris and surplus material of this Section. Contractor to dust down all gypsum wall surfaces as preparation for paint application.

END OF SECTION