

DUROCK EXTERIOR CEMENT BOARD SYSTEMS SECTION 07480

Use this guide specification to specify exterior cement board wall systems by U.S. Gypsum Co., for construction of load bearing and non-load bearing, non-rated and fire-rated assemblies and other elements. Review a copy of USG publication SA-700 before editing this specification.

Use the following for ALL Systems. Re-number and re-letter after making all selections. Delete all bolded instructions.

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Steel framed and wood framed exterior wall assemblies utilizing exterior cement board mechanically attached to the framing as a substrate for exterior finish systems.

Select Systems paragraphs from Article 1.05. In this Article use the paragraphs under the bolded [Systems selected in 1.05] shown below. Delete bolded [Systems] and paragraphs not used.

1.02 SECTION DOES NOT INCLUDE

[System A], [System L], [System M], [System N], [System O]

- A. Wood Framing; see Division 6 Sections.

[System I], [System M]

- A. EIFS Including Trim; see Division 7 Sections.

[System A], [System C], [System J], [System N]

- A. Ceramic Tile; see Division 9 Sections.

[System K], [System O]

- A. Thin Brick Tile; see Division 9 Sections.

*****Use the following for ALL Systems.*****

1.03 REFERENCES

A. See Section 01091-Reference Standards.

1.04 DEFINITIONS

- A. Exterior Cement Board System Wall: An assembly of steel or wood framing, cement boards, gypsum boards, and other materials used as load bearing and non-load bearing exterior walls.
1. Rated exterior cement board system wall assemblies must have passed successfully fire and sound tests performed by recognized testing laboratories.
 2. When utilizing additional layers of the same gypsum boards or mineral fiber insulation or resilient metal channels, or combinations of the preceding, used in the fire and sound tests, an exterior cement board system wall assembly may be estimated to have a better fire-resistance rating or better sound rating, or both, than that of the basic test.
- B. Adhere: Fasten with adhesive.
- C. Attach: Fasten with steel screws, power-driven or non-power-driven.
- D. Horizontal: Long dimension of board or insulation perpendicular to studs.
- E. Inside: That space between studs and between inside faces of inner board faces.
- F. Position: Place without attaching or adhering.
- G. Vertical: Long dimension of board or insulation parallel with studs.
- H. Abbreviations: See Section 01092-Abbreviations.

1.05 SYSTEM DESCRIPTION

Select one or more of the following System paragraphs. Delete those not selected.

- A. Exterior Wall; System A:
1. UL Design U329, 1 hr; load bearing. Framing - 2x4 (min) wood studs @ 16 in. o.c. Single layer construction. Exterior - vertical cement boards attached through water/air barrier membrane to studs, 1/4 in. ceramic tile adhered to cement board; interior - vertical gypsum boards attached to studs; inside - insulation friction-fit between studs.

A. Exterior Wall; System B:

1. UL Design U473, 1 hr; load bearing. Framing - Steel studs @ 16 in. o.c. Single layer construction. Exterior - vertical gypsum baseboards attached through water/air barrier membrane to studs, vertical cement boards attached through baseboards to studs; interior - vertical gypsum boards attached to studs; inside - insulation friction-fit between studs.

A. Exterior Wall; System C:

1. UL Design U442, 1 hr; non-load bearing. Framing - Steel studs @ 16 in. o.c. Single layer construction. Exterior - vertical cement boards attached through water/air barrier membrane to studs, 1/4 in. ceramic tile adhered to cement board; interior - vertical gypsum boards attached to studs; inside - insulation friction-fit between studs.

A. Exterior Wall; System D:

1. UL Design U457, 1 hr; non-load bearing. Framing - Steel studs @ 16 in. o.c. Single layer construction. Exterior - vertical cement boards attached through water/air barrier membrane to studs; interior - vertical gypsum boards attached to studs; inside - insulation friction-fit between studs.

A. Exterior Wall; System G:

1. UL Design U474, 2 hr; non-load bearing. Framing - Steel studs @ 16 in. o.c. Double layer construction. Exterior - vertical gypsum baseboards attached through water/air barrier membrane to studs, vertical cement boards attached through baseboards to studs; interior - vertical gypsum baseboards attached to studs, vertical face gypsum boards attached to studs through baseboards; inside - insulation friction-fit between studs.

A. Exterior Wall; System H:

1. Non-rated, non-load bearing. Framing - Steel studs @ 16 in. o.c. Single layer construction. Exterior - vertical cement boards attached through water/air barrier membrane to studs, exterior finish system adhered to cement board; interior - vertical gypsum boards attached to studs; inside - insulation friction-fit between studs.

A. Exterior Wall; System I:

1. Non-rated, non-load bearing. Framing - Steel studs @ 16 in. o.c.

Single layer construction. Exterior - vertical cement boards attached through water/air barrier membrane to studs, EIFS adhered to cement board; interior - vertical gypsum boards attached to studs; inside - insulation friction-fit between studs.

A. Exterior Wall; System J:

1. Non-rated, non-load bearing. Framing - Steel studs @ 16 in. o.c. Single layer construction. Exterior - vertical cement boards attached through water/air barrier membrane to studs, ceramic tile adhered to cement board; interior - vertical gypsum boards attached to studs; inside - insulation friction-fit between studs.

A. Exterior Wall; System K:

1. Non-rated, non-load bearing. Framing - Steel studs @ 16 in. o.c. Single layer construction. Exterior - vertical cement boards attached through water/air barrier membrane to studs, thin brick tile adhered to cement board; interior - vertical gypsum boards attached to studs; inside - insulation friction-fit between studs.

A. Exterior Wall; System L:

1. Non-rated, non-load bearing. Framing - 2x4 (min) wood studs @ 16 in. o.c. Single layer construction. Exterior - vertical cement boards attached through water/air barrier membrane to studs, exterior finish system adhered to cement board; interior - vertical gypsum boards attached to studs; inside - insulation friction-fit between studs.

A. Exterior Wall; System M:

1. Non-rated, non-load bearing. Framing - 2x4 (min) wood studs @ 16 in. o.c. Single layer construction. Exterior - vertical cement boards attached through water/air barrier membrane to studs, EIFS adhered to cement board; interior - vertical gypsum boards attached to studs; inside - insulation friction-fit between studs.

A. Exterior Wall; System N:

1. Non-rated, non-load bearing. Framing - 2x4 (min) wood studs @ 16 in. o.c. Single layer construction. Exterior - vertical cement boards attached through water/air barrier membrane to studs, ceramic tile adhered to cement board; interior - vertical gypsum boards attached to studs; inside - insulation friction-fit between studs.

A. Exterior Wall; System O:

1. Non-rated, non-load bearing. Framing - 2x4 (min) wood studs @ 16 in. o.c. Single layer construction. Exterior - vertical cement boards attached through water/air barrier membrane to studs, thin brick tile adhered to cement board; interior - vertical gypsum boards attached to studs; inside - insulation friction-fit between studs.

*****Use the following for ALL Systems.*****

1.06 SUBMITTALS

- A. Follow Section 01340-Product Data, Shop Drawings, and Samples.
- B. Product Data: Submit manufacturer's product specifications and installation instructions for systems shown.
- C. Certificates: Submit manufacturer's certification of compliance with fire requirements for each fire-rated system shown.
- D. NESC Report: Submit National Evaluation Service Committee of the Council of American Building Officials Report No. NER-396 as evidence of compliance of systems shown with codes of council members.

1.07 QUALITY ASSURANCE

- A. Single Source Responsibility: Provide steel framing, gypsum boards, insulation, fasteners, joint treatments, and other materials in the assembly or assemblies from the single manufacturer which has utilized these materials in recognized fire containment tests.

1.08 PROJECT CONDITIONS

- A. Do no gypsum board joint finishing when temperature in space being finished is less than 55°F (13°C). Ventilation must be adequate to carry off excess moisture.
- B. Do not install exterior finishes, leveling/skim coats, basecoats, reinforcing mesh at temperatures below 45°F (7°C), or to wet or frozen substrates. After application and for at least 24 hours, protect materials from moisture at temperatures below 45°F (7°C).

PART 2 PRODUCTS

2.01 MATERIALS

Select one or more of the following System paragraphs. Delete remaining [Systems] and System paragraphs.

A. Runners:

1. CR-runners; [System B], [System C], [System D], [System G], [System H], [System I], [System J], [System K]: Galvanized steel; width and metal thickness (20 ga. minimum) to accommodate adequately loads imposed from studs selected from stud manufacturer's published limiting height table, lengths as required; ASTM C645; as supplied by USG.

A. Runner fasteners; [System B], [System C], [System D], [System G], [System H], [System I], [System J], [System K]:

1. Power-driven type; must withstand 193 lb. single shear and 200 lb. bearing force when driven into sill without exceeding allowable design stress in runner, fastener, or structural support.

A. Studs:

1. ST-studs; [System B], [System C], [System D], [System G], [System H], [System I], [System J], [System K]: Galvanized steel; width and metal thickness (20 ga. minimum) as selected from stud manufacturer's published limiting height table; unspliced lengths, as required; ASTM C645; as supplied by USG.

*****Use this for Systems B, G, H, I, J, K, L, M, N, and O.*****

A. Gypsum Boards:

1. Baseboards; System B: Gypsum boards; 5/8 in. thick x 48 in. wide x lengths as required; square or tapered edges; with UL Classification Label affixed; ASTM C36; Water-Resistant, FIRECODE Core, SHEETROCK Brand.
1. Baseboards; System G: Gypsum boards; 1/2 in. thick x 48 in. wide x lengths as required; square or tapered edges; with UL Classification Label affixed; ASTM C36; Water-Resistant, FIRECODE C Core, SHEETROCK Brand.
1. Face boards; [System A], [System B], [System C], [System D]: Gypsum boards; 5/8 in. thick x 48 in. wide x lengths as required; tapered edges; ASTM C36; FIRECODE Core, SHEETROCK Brand.
1. Face boards; [System G]: Gypsum boards; 1/2 in. thick x 48 in. wide x lengths as required; tapered edges; ASTM C36; FIRECODE C Core, SHEETROCK Brand.
1. Face boards; [System H], [System I], [System J], [System K], [System L], [System M], [System N], System O: Gypsum boards; 1/2 in. thick x 48 in. wide x lengths as required; tapered edges; ASTM C36; regular, SHEETROCK Brand.

*****Use this for ALL Systems.*****

A. Cement Boards:

1. Cement boards; aggregated portland cement board with polymer-coated, glass-fiber mesh embedded in front and back surfaces; 1/2 in. thick x 48 in. wide x 4' to 10' lengths as required; formed, smooth, reinforced edges; Exterior Cement Board, DUROCK Brand.

*****Continue selections.*****

A. Insulation:

1. Blankets; [System A], [System H], [System I], [System J], [System K], [System L], [System M], [System N], System O]: Paperless, semi-rigid spun mineral fiber mat, 3-1/2 in. thick; ASTM C665, Type I; THERMAFIBER Fire Safety FS-15 Insulating Blankets.
1. Blankets; [System B], [System C], [System D], [System G]: Paperless, semi-rigid spun mineral fiber mat, 3 in. thick; ASTM C665, Type I; THERMAFIBER Sound Attenuation Fire Blankets (SAFB).

*****Use this for ALL Systems.*****

A. Joint/Corner Reinforcement, Exterior:

1. Polymer-coated open glass-fiber mesh tape; 4 in. x 150 ft.; DUROCK Exterior Tape.

*****Continue selections.*****

A. Skim Coat For Ceramic Tile; [System A], [System C], [System J], [System N]:

1. Ready-to-mix portland cement mortar containing dry latex polymers and polymeric fibers; ANSI A118.4; DUROCK Latex Fortified Mortar.

A. Skim Coat For Thin Brick Tile; [System K], [System O]:

1. Ready-to-mix portland cement mortar containing dry latex polymers and polymeric fibers; ANSI A118.4; DUROCK Latex Fortified Mortar.

A. Bond Coat For Ceramic Tile; [System A], [System C], [System J], [System N]:

1. Ready-to-mix portland cement mortar containing dry latex

polymers and polymeric fibers; ANSI A118.4; DUROCK Latex Fortified Mortar.

A. Bond Coat For Thin Brick Tile; [System K], [System O]:

1. Ready-to-mix portland cement mortar containing dry latex polymers and polymeric fibers; ANSI A118.4; DUROCK Latex Fortified Mortar.

*****Use the following for ALL Systems.*****

2.02 OTHER MATERIALS

A. Water/Air Barrier Membrane, Under Cement Board:

*****Select 1 of the following.*****

1. Tyvek; by Dupont.
2. No. 15 asphalt felt; ASTM D226.
3. Grade D, 60 minute building paper.

A. Corner Reinforcement, Interior:

1. External corner reinforcement: Galvanized steel; 1-1/4 x 1-1/4 in. No. 103], lengths as required; ASTM A446/A446M, A525; DUR-A-BEAD Brand.

*****Use this for Systems H, I, L, and M.*****

A. Plastic Trim, Exterior:

1. Corner bead: Vinyl; 1-1/2 in. x 1-1/2 in. perforated and grooved flanges; No. 2209, lengths as required; as supplied by USG.
2. "L" bead: Vinyl; 1-1/2 in. wide perforated and grooved flange; No. 2221-50, 2221-58, lengths as required; as supplied by USG.
3. "J" bead: Vinyl; 1-1/2 in. wide perforated and grooved flanges; No. 2201-50, 2201-58, lengths as required; as supplied by USG.
4. Expansion joint: Vinyl; 7/8 in. wide perforated flanges; No. PL093, lengths as required; as supplied by USG.

*****Use this for ALL Systems.*****

A. Metal Trim, Interior:

1. L-shaped: Galvanized steel; 1/2 in., lengths as required; No. 200-B; ASTM A446/A446M, A525; SHEETROCK Brand.

A. Fasteners:

*****Use this for Systems B, C, D, G, H, I, J, and K.*****

1. Steel framing: Steel screws; lengths as recommended by gypsum board products manufacturer; Type S, pan head; ASTM C1002.
1. Steel framing: Steel screws; lengths as recommended by gypsum board products manufacturer; Type S-12, pan head and low-profile head ASTM C954.

*****Use this for Systems B, C, D, G, H, I, J, and K.*****

1. Gypsum board to steel framing: Steel screws; lengths as recommended by gypsum board products manufacturer, Type S-12 bugle head and pancake head; ASTM C954.

*****Use this for Systems A, L, M, N, and O.*****

1. Gypsum board to wood framing: Steel screws; lengths as recommended by gypsum board products manufacturer, Type W bugle head; ASTM C1002; optional -- SUPER-TITE, supplied by USG.

*****Use this for Systems B, C, D, G, H, I, J, and K.*****

1. Cement board to steel framing: Steel screws; lengths as recommended by cement board products manufacturer; DUROCK Steel Screws.

*****Use this for Systems A, L, M, N, and O.*****

1. Cement board to wood framing: Steel screws; lengths as recommended by cement board products manufacturer; DUROCK Wood Screws.

*****Use this for ALL Systems.*****

1. Water/air barrier membrane to wood; control joint and trim to exterior cement board: Stainless steel staples for attaching control joints and trim accessories, galvanized steel for attaching water barrier membrane; 1/2 in. crown x 1/4 in. divergent point as recommended by cement board products manufacturer.

*****Use this for Systems H and L.*****

- A. Basecoat For Exterior Finish Systems: 100% acrylic copolymer coating; DUROCK Exterior Ready-Mixed Basecoat; USG.

*****Use this for Systems H and L.*****

- A. Finish Coat For Exterior Finish Systems: Ready-mixed acrylic coating; colors and textures to be selected; DUROCK Exterior Finish.

*****Use the following for ALL Systems.*****

A. Joint Treatment, Interior:

1. Tape: High-strength fiber, 1-31/32 in. wide; ASTM C 475; SHEETROCK Brand Joint Tape.
2. Taping compound: Vinyl-based, without asbestos; ASTM C 475; SHEETROCK Brand Taping Joint Compound Ready-Mixed (ready-mixed drying type).
3. Finishing compound: Vinyl based, without asbestos; ASTM C 475; SHEETROCK Brand All Purpose Joint Compound (powder-mixed drying type).
4. Optional joint treatment materials: Other tapes, taping compounds, and finishing compounds may be used pursuant to gypsum board manufacturer's published recommendations.

A. Interior Caulk: Latex type; ASTM C 919; SHEETROCK Brand Acoustical Sealant.

A. Exterior Backer Rod and Sealant: Type indicated in exterior cement board manufacturer's published recommendations.

2.03 MANUFACTURER:

A. United States Gypsum Company.

2.04 SUBSTITUTIONS:

A. Products of other manufacturers will not be considered.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine locations to receive materials for conditions which will adversely affect installation. Do not start materials installation until unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Field Dimensions: Verify location and dimensions where materials are to be installed.

B. Coordinate work of other Sections which is integral with partition installation.

*****If you wish a brief Part 3, use Articles 3.03 through 3.09. If you wish a comprehensive Part 3, delete Articles 3.03 through 3.09 and continue with

Article 3.10. Re-number and re-letter Articles and Paragraphs.*****

3.03 FRAMING INSTALLATION

A. Comply with gypsum products manufacturer's published instructions.

3.04 GYPSUM BOARD APPLICATION

A. Comply with gypsum products manufacturer's published instructions.

3.05 CEMENT BOARD APPLICATION

A. Comply with gypsum products manufacturer's published instructions.

3.06 CEMENT BOARD FINISHING

A. Comply with gypsum products manufacturer's published instructions.

3.07 GYPSUM BOARD FINISHING

Select Level; insert System Number. Delete the remaining System Paragraphs.

A. System __:

1. No finishing. Comply with gypsum products manufacturer's published instructions.

A. System __:

1. No finishing. Comply with gypsum products manufacturer's published instructions.

A. System __:

1. Level 1. Comply with gypsum products manufacturer's published instructions.

A. System __:

1. Level 2. Comply with gypsum products manufacturer's published instructions.

A. System __:

1. Level 3. Comply with gypsum products manufacturer's published instructions.

A. System __:

1. Level 4. Comply with gypsum products manufacturer's published instructions.

A. System __:

1. Level 5. Comply with gypsum products manufacturer's published instructions.

3.08 CLEANING

A. Follow Section 01710-Final Cleaning.

3.09 PROTECTION

A. Protect the work from damage; repair to Architect's satisfaction or replace damaged materials.

END OF SECTION

*****END for brief Part 3*****

*****Continue here for a comprehensive Part 3.*****

*****Use this for Systems B, C, D, G, H, I, J, and K.*****

3.10 STEEL FRAMING INSTALLATION

A. Substrate Preparation:

1. Verify the following:
 - a. Exterior wall and environmental conditions are acceptable for furring system application.
 - b. Substrates are suitable to receive steel framing.

B. General Requirements:

1. Comply with manufacturer's published instructions.
2. Provide steel studs with suitable structural properties for installation conditions.
 - a. For loadbearing walls, verify allowable stud axial loads.
3. Provide properly sized fasteners suitably designed for attachment substrates, for resultant maximum holding power and pull-through resistance in steel framing components.
4. Limit cutting of holes in studs for piping, conduit, and similar penetrations, to maximum 75 percent of stud width and not less

than 12 in. o.c.

5. Fire-rated systems: Provide steel framing fasteners, including size, spacing, and attachment, pursuant to fire test reports.

C. Wall Framing:

1. Attach bottom and top runners to supporting substrates. Locate fasteners 2 in. from each end, and 24 in. o.c. maximum.
 - a. Attach runner ends at door frames with two fasteners.
 - b. At wall corners, extend one runner to end or corner and butt or overlap intersecting runner, allowing proper clearance for board. Do not miter corners.
2. Insert studs between bottom and top runners. Position studs vertically with open sides facing in same direction and web punch-outs properly aligned. Attach studs to runners at wall intersections and corners.
 - a. Space studs pursuant to system description.
 - b. Place studs in direct contact with door frame jambs, abutting walls, wall corners, and existing construction elements.
 - c. Provide 8 in. long box section nested overlap for stud splices. Locate fasteners no further than 1 in. from splice ends.
3. Framing for wall openings:
 - a. Frame door openings and borrowed light openings with runners and studs. Vertically position full height strut-studs adjacent to frames and attach to bottom and top runners. Provide additional strut-studs at jambs for heavy or oversize doors.
 - b. Fabricate sill and header sections from runners and attach to strut-studs pursuant to manufacturer's published instructions. Install over less-than-ceiling height door frames, and above and below borrowed light frames.
4. Framing for tall walls:
 - a. For walls over 30 ft. in height.
 - b. Position double studs back-to-back, and space 24 in. o.c. Attach back-to-back with screws spaced 48 in. o.c. Attach each stud flange to bottom and top runners. Attach heavy gage v-profile metal bracing on each side of stud flanges to align studs and provide suitable lateral bracing; space bracing 12 ft. o.c.
 - c. For walls exceeding 30 ft. in height, provide studs and runners pursuant to manufacturer's published instructions.

*****Use the following for ALL Systems.*****

3.11 EXTERIOR CEMENT BOARD APPLICATION

A. Water Barrier Membrane:

1. Adhere water barrier membrane to steel framing; attach to wood framing with staples.

B. Exterior Cement Board Application:

1. Attach vertical exterior cement boards with ends centered on framing members with minimum 5.8 in. bearing and staggered in successive courses. Butt ends closely with maximum 1/8 in. gap.
2. Drive fasteners in field first, working towards edges and ends; maximum spacing 8 in. o.c. Locate fasteners at least 3/8 in. and less than 5/8 in. from edges and ends. Do not drive fastener heads below board surface.

C. Control Joints:

1. Locate surface control joints centered on framing members; 20 ft. o.c., maximum in both directions, for exterior finish systems; 50 ft. o.c., maximum in both directions, for exterior insulation and finish systems; 16 ft. o.c., maximum in both directions for ceramic tile; leave continuous 1/2 in. gap between cement boards.
2. Install backer rod and sealant in gap. Attach control joints centered on gaps to cement boards with fasteners 16 in. o.c. and staples between fasteners sufficient to hold flanges tight to cement boards. Butt horizontal control joints to vertical control joints.
3. Cover flanges with exterior basecoat. Feather from grounds out onto board field at least 4 in.; allow to cure at least 4 hours.

D. Trim Accessories:

1. Attach using steel screws, hot-dipped galvanized roofing nails, or stainless steel staples. Space fasteners 6 in. to 9 in. o.c. in each flange.
2. Cover flanges with exterior basecoat. Feather from grounds out onto board field at least 4 in.; allow to cure at least 4 hours.

E. Joint Treatment:

1. Fill board joints with exterior basecoat. Immediately embed exterior tape into basecoat and level basecoat as flush to board edges as tape will allow. Feather basecoat from edges of tape out onto board field at least 4 in.; allow to cure at least 4 hours.

3.12 GYPSUM BOARD APPLICATION

A. Substrate Preparation:

1. Verify the following:
 - a. Location of water/air barriers.
 - b. Throat openings for hollow metal frames to receive boards.
 - c. Proper size and spacing for wood furring to receive boards.
 - d. Wood framing members are straight, true, dimensionally

uniform, properly sized and graded for intended use, and bearing grade mark of recognized inspection agency. Moisture content 19 percent maximum at time of board application.

B. General Requirements:

1. Vertical board installations: Long edges of board parallel to framing members.
2. Install ceiling boards before installing wall boards in the same space.
3. Use maximum practicable board lengths.
4. Loosely butt board joints. Do not force boards into position.
5. Fully support board ends and edges on support framing, except edges for horizontal board installations and ends for vertical board installations.
6. Install screws in board field first, working toward board edges and ends. Hold boards in firm contact with framing while installing screws.
 - a. Locate screws minimum 3/8 in. from board ends and edges.
 - b. Install screws perpendicular to board substrates. Drive screw heads slightly below board face to create a shallow dimple without breaking paper facer.
 - c. For attachment to resilient channels, do not locate screws directly over studs.
7. Cut boards to fit neatly around electrical outlets, switches, piping, and similar penetrations in wall substrates.
8. Spot grout door frame jamb anchors just prior to inserting boards into frame. Do not terminate boards against trim returns.
9. Install trim at inside and outside corners formed by board intersections or intersection of board with another surface.
 - a. Sequence corner reinforcement and trim application with board application around edges and wall openings, including doors and windows.
 - b. Nail or staple corner reinforcement and metal trim to boards.
10. Provide suitable anchorages and reinforcements for attachment of fixtures, cabinetry, and similar heavy affixed items.
11. Install water/air barriers on warm side of construction; verify exact placement and location within board system.
 - a. Coordinate insulation installation with water/air barrier installation pursuant to manufacturer's published instructions.

*****Use this for Systems A, B, C, D, H, I, J, K, L, M, N, and O.*****

C. Vertical Single Layer Board Application:

1. Position boards to locate abutting edges in center of stud flanges.
2. Orient direction of board installation to assure lead edge attachment to open end of stud flange.
3. Stagger joints on opposite sides of wall.

4. Attach boards with properly sized Type S screws spaced 16 in. o.c. maximum, for board field and abutting edge joints. Securely seat screws with full penetration through stud flange face. Stagger screws on abutting edges.
 - a. Use Type W screws for wood substrates.
 - b. Cement board application: Screw spacing, pattern, and attachment pursuant to manufacturer's published instructions.
 - c. Fire-rated systems: Screw spacing, pattern, and attachment pursuant to fire test report.

*****Use this for System G.*****

E. Vertical Double Layer Board Application:

1. Position baseboards to result in abutting edges located in center of stud flanges.
2. Orient direction of baseboard installation to assure lead edge attachment to open end of stud flange first.
3. Stagger joints on opposite sides of wall, and between baseboard and face board, a minimum of one stud spacing.
4. Attach boards with Type S screws for board field and abutting edge joints. Securely seat screws with full penetration through stud flange face. Stagger screws on abutting edges, and between boards.
 - a. Baseboard: Space screws 24 in. o.c. maximum. Provide minimum 1 in. length screws for 1/2 in. and 5/8 in. thick board.
 - 1) Laminated board application: Space screws 16 in. o.c.
 - b. Face board: Space screws 16 in. o.c. Provide minimum 1-5/8 in. length screws for 1/2 in. and 5/8 in. thick boards.
 - 1) Cement board application: Screw spacing, pattern, and attachment pursuant to manufacturer's published instructions.
 - c. Use Type W screws for wood substrates.
 - d. Fire-rated systems: Screw spacing, pattern, and attachment pursuant to fire test report.

*****Use this for Systems H and L.*****

3.12 EXTERIOR CEMENT BOARD FINISHING

- #### A. Basecoat Application:
1. Hand Trowel Method: Apply a uniform layer of exterior basecoat at least 1/16 in. thick over cement board surfaces. Allow to cure at least 24 hours.
 2. Spray Method: Use spray equipment listed in exterior cement panel manufacturer's published recommendations. Mix and apply basecoat according to cement panel manufacturer's published recommendations to achieve recommended coverage.
 - a. Application: Tape control joints. Protect adjacent work not

receiving exterior finish. Spray apply basecoat to clean substrates.

- B. Finish Application:
1. Hand Trowel Method: Apply a uniform layer of exterior finish coat at least 1/16 in. thick over entire basecoated surfaces. Do not add sand or other additives to create heavier textures. Texture as required using plastic or wood floats.
 2. Spray Method: Use spray equipment listed in exterior cement panel manufacturer's published recommendations. Correct imperfections and defects in basecoat. Mix and apply finish coat according to cement panel manufacturer's published recommendations to achieve recommended coverage.
 - a. Application: Tape control joints. Protect adjacent work not receiving exterior finish. Spray apply finish coat to clean basecoated substrates.

Use the following for ALL Systems.

3.13 GYPSUM BOARD JOINT TREATMENT APPLICATION

- A. First Coat: Mix joint compound according to manufacturer's recommendations. Apply joint compound in a thin, uniform layer to joints and angles. Immediately apply joint tape centered over joint and seat into compound. Sufficient compound, approximately 1/64 to 1/32 in., must remain under tape for proper bond. To embed tape, immediately apply a thin skim coat, which is not to function as a second coat. Fold and embed tape smooth, true angle. Allow embedding coat to dry thoroughly prior to application of second coat.
- B. Second Coat: Apply second coat of joint compound to fill board taper flush with board surface; cover tape and feather out both sides at least 2 in. beyond first coat edge. For joints at boards with no tapered edge, cover the tape with joint compound and feather out at least 4 in. on both sides of tape. Allow second coat to dry thoroughly prior to application of finish coat.
- C. Third (finish) Coat: Spread finish coat evenly over second coat; extend at least 2 in. beyond second coat edge; feather to a smooth, uniform finish. Apply finish coat to cover tape and tapered angles to provide a continuous, smooth, true angle. Sand lightly between coats and sand finish coat lightly to provide a smooth surface.
- D. Finishing Fasteners: Apply joint compound to fastener depressions as the first coat. Follow with at least 2 additional coats of joint compound to leave all depressions level with the surface.
- E. Finishing Beads and Trim:

1. First coat: Apply to beads and trim and feather out from ground to plane of surface. Allow joint compound to dry thoroughly prior to application of second coat.
2. Second coat: Apply in same manner as first coat; extent compound slightly beyond onto board face. Allow joint compound to dry thoroughly prior to application of finish coat.
3. Third (finish) Coat: Apply in same manner as second coat; extend compound slightly beyond second coat and feather properly from ground to board surface. Sand as necessary to provide a flat smooth surface.

3.14 GYPSUM BOARD FINISHING

- A. Substrate Preparation:
 1. Verify the following:
 - a. Gypsum board properly attached without core fracture or cut paper facers.
 - b. Board joint aligned.
 2. Properly prepare substrates to receive finishing pursuant to manufacturer's published instructions.
- B. General Requirements For Finishing:
 1. Pursuant to manufacturer's published instructions.
 2. Finish level designations:
 - a. Level 1: For plenum areas above ceilings and other generally concealed areas.
 - b. Level 2: For water-resistant gypsum backing board substrates to receive tile.
 - c. Level 3: For gypsum board substrates to receive heavy or medium texture finished or heavyweight wallcoverings.
 - d. Level 4: For gypsum board substrates to receive light texture finish, light to medium weight wallcoverings or flat sheen paints.
 - e. Level 5: For gypsum board substrates to receive paint finishes.
 3. Let each coat thoroughly dry before applying subsequent coats.
 4. Provide control joints in locations pursuant to manufacturer's published instructions.
 5. Fire rated systems: Pursuant to fire test reports.

Select Level; insert System Number. Delete the remaining System paragraphs.

- A. System __:
 1. No finishing. Comply with gypsum products manufacturer's published instructions.
- A. Level 1 Finish; System__:
 1. First coat: Full joint tape embedment in joint compound for joints. Embedment in topping compound not acceptable.

2. Inside corners: Finish pursuant to manufacturer's published instructions.
- A. Level 2 Finish; System __:
1. First coat: Full joint tape embedment in joint compound for joints. Embedment in topping compound not acceptable.
 - a. Spot joint fastener heads with same joint compound immediately before or after embedding tape. Spot other board fastener heads.
 2. Second coat: Joint compound fill coat for joints, corner reinforcement, and trim.
 - a. Spot joint fastener heads and other board fastener heads with same joint compound until level with adjacent board surfaces.
 3. Inside corners and end (butt) joints: Finish pursuant to manufacturer's published instructions.
- A. Level 3 Finish; System __:
1. First coat: Full joint tape embedment in joint compound for joints. Embedment in topping compound not acceptable.
- A. Spot joint fastener heads with same joint compound immediately before or after embedding tape. Spot other board fastener heads.
2. Second coat: Joint compound fill coat for joints, corner reinforcement, and trim.
 - a. Spot joint fastener heads and other board fastener heads with same joint compound.
 3. Third coat: Joint compound finish coat for joints, corner reinforcement, and trim.
 - a. Spot joint fastener heads and other board fastener heads with same joint compound until level with adjacent board surfaces. Tough up scratches, craters, nicks, and other surface imperfections after third coat has fully dried. Sand as necessary to provide suitable substrates for subsequent decorative finish application.
 4. Inside corners and end (butt) joints: Finish pursuant to manufacturer's published instructions.
 5. Apply manufacturer's flat latex base prime coat over entire board surface, using manufacturer's recommended applicators.
- A. Level 4 Finish; System __:
1. First coat: Full joint tape embedment in joint compound for joints. Embedment in topping compound not acceptable.
 - a. Spot joint fastener heads with same joint compound immediately before or after embedding tape. Spot other board fastener heads.
 2. Second coat: Joint compound fill coat for joints, corner reinforcement, and trim.
 - a. Spot joint fastener heads and other board fastener heads with same joint compound.
 3. Third coat: Joint compound finish coat for joints, corner

reinforcement, and trim.

- a. Spot joint fastener heads and other board fastener heads with same joint compound until level with adjacent board surfaces. Touch up scratches, craters, nicks, and other surface imperfections after third coat has fully dried. Sand as necessary to provide suitable substrates for subsequent decorative finish application.
 4. Inside corners and end (butt) joints: Finish pursuant to manufacturer's published instructions.
 5. Apply manufacturer's flat latex base prime coat over entire board surface, using manufacturer's recommended applicators.
- A. Level 5 Finish; System __:
1. First coat: Full joint tape embedment in joint compound for joints. Embedment in topping compound not acceptable.
 - a. Spot joint fastener heads with same joint compound immediately before or after embedding tape. Spot other board fastener heads.
 2. Second coat: Joint compound fill coat for joints, corner reinforcement, and trim.
 - a. Spot joint fastener heads and other board fastener heads with same joint compound.
 3. Third coat: Joint compound finish coat for joints, corner reinforcement, and trim.
 - a. Spot joint fastener heads and other board fastener head with same joint compound until level with adjacent board surfaces. Touch up scratches, craters, nicks, and other surface imperfections after third coat has fully dried. Sand as necessary to provide suitable substrates for subsequent decorative finish application.
 4. Inside corners and end (butt) joints: Finish pursuant to manufacturer's published instruction.
 5. Apply joint compound skim coat over entire board surface after completing preceding finish work. Let skim coat thoroughly dry, then apply manufacturer's flat latex base prime coat over entire board surface, using manufacturer's recommended applicators.

3.15 CLEANING

- A. Follow Section 01710-Final Cleaning.

3.16 PROTECTION

- A. Protect the work from damage; repair to Architect's satisfaction or replace damaged materials.

END OF SECTION