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NASA-09250S (December 2005)
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UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated 18 July 2006

Revised throughout - changes not indicated by CHG tags

SECTION TABLE OF CONTENTS

DIVISION 09 - FINISHES

SECTION 09 29 00.00 40

GYPSUM BOARD

04/06

PART 1 GENERAL

- 1.1 REFERENCES
- 1.2 SUBMITTALS
- 1.3 DELIVERY, STORAGE, AND HANDLING
 - 1.3.1 Delivery
 - 1.3.2 Storage
 - 1.3.3 Handling
- 1.4 ENVIRONMENTAL CONDITIONS
 - 1.4.1 Temperature
 - 1.4.2 Exposure to Weather
- 1.5 QUALIFICATIONS

PART 2 PRODUCTS

- 2.1 MATERIALS
 - 2.1.1 Gypsum Board
 - 2.1.1.1 Regular
 - 2.1.1.2 Foil-Backed
 - 2.1.1.3 Type X (Special Fire-Resistant)
 - 2.1.2 Gypsum Backing Board
 - 2.1.2.1 Regular
 - 2.1.2.2 Foil-Backed
 - 2.1.2.3 Type X (Special Fire-Resistant)
 - 2.1.3 Regular Water-Resistant Gypsum Backing Board
 - 2.1.3.1 Regular
 - 2.1.3.2 Type X (Special Fire-Resistant)
 - 2.1.4 Glass Mat Water-Resistant Gypsum Tile Backing Board
 - 2.1.4.1 Regular
 - 2.1.4.2 Type X (Special Fire-Resistant)
 - 2.1.5 Glass Mat Covered or Reinforced Gypsum Sheathing
 - 2.1.5.1 Glass Mat Covered or Reinforced Gypsum Sheathing Sealant
 - 2.1.6 Impact Resistant Gypsum Board

- 2.1.6.1 Structural Failure Test
- 2.1.6.2 Indentation Test
- 2.1.7 Predecorated Gypsum Board
- 2.1.8 Cementitious Backer Units
- 2.1.9 Joint Treatment Materials
 - 2.1.9.1 Embedding Compound
 - 2.1.9.2 Finishing or Topping Compound
 - 2.1.9.3 All-Purpose Compound
 - 2.1.9.4 Setting or Hardening Type Compound
 - 2.1.9.5 Joint Tape
- 2.1.10 Fasteners
 - 2.1.10.1 Nails
 - 2.1.10.2 Screws
 - 2.1.10.3 Staples
- 2.1.11 Adhesives
 - 2.1.11.1 Adhesive for Fastening Gypsum Board to Metal Framing
 - 2.1.11.2 Adhesive for Fastening Gypsum Board to Wood Framing
 - 2.1.11.3 Adhesive for Laminating
- 2.1.12 Gypsum Studs
- 2.1.13 Shaftwall Liner Panel
- 2.1.14 Accessories
- 2.1.15 Asphalt Impregnated Building Felt
- 2.1.16 Water

PART 3 EXECUTION

- 3.1 EXAMINATION
 - 3.1.1 Framing and Furring
 - 3.1.2 [Gypsum Board] [and] [Framing]
 - 3.1.3 [Masonry] [and] [Concrete] Walls
- 3.2 APPLICATION OF GYPSUM BOARD
 - 3.2.1 Application of Single-Ply Gypsum Board to Wood Framing
 - 3.2.2 Application of Two-Ply Gypsum Board to Wood Framing
 - 3.2.3 Adhesive Nail-On Application to Wood Framing
 - 3.2.4 Semi-Solid Gypsum Board Partitions
 - 3.2.5 Solid Gypsum Board Partitions
 - 3.2.6 Adhesive Application to Interior Masonry or Concrete Walls
 - 3.2.7 Application of Gypsum Board to Steel Framing and Furring
 - 3.2.8 Arches and Bending Radii
 - 3.2.9 Gypsum Board for Wall Tile or Tile Base Applied with Adhesive
 - 3.2.10 Exterior Application
 - 3.2.11 Glass Mat Covered or Fiber Reinforced Gypsum Sheathing
 - 3.2.12 Floating Interior Angles
 - 3.2.13 Control Joints
 - 3.2.14 Application of Foil-Backed Gypsum Board
 - 3.2.15 Application of Predecorated Gypsum Board
 - 3.2.16 Application of Impact Resistant Gypsum Board
- 3.3 APPLICATION OF CEMENTITIOUS BACKER UNITS
 - 3.3.1 Application
 - 3.3.2 Joint Treatment
- 3.4 FINISHING OF GYPSUM BOARD
 - 3.4.1 Uniform Surface
 - 3.4.2 Metal Trim for Predecorated Gypsum Board
- 3.5 SEALING
 - 3.5.1 Sealing for Glass Mat or Reinforced Gypsum Board Sheathing
- 3.6 FIRE-RESISTANT ASSEMBLIES
- 3.7 PATCHING
- 3.8 SHAFTWALL FRAMING

-- End of Section Table of Contents --

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SECTION 09 29 00.00 40

GYPSUM BOARD 04/06

NOTE: This guide specification includes the requirements for gypsum board, cementitious backer units, and accessories intended for use in drywall construction.

Comments and suggestion on this specification are welcome and should be directed to the technical proponent of the specification. A listing of the technical proponents, including their organization designation and telephone number, is on the Internet.

Recommended changes to a UFGS should be submitted as a Criteria Change Request (CCR).

Use of electronic communication is encouraged.

Brackets are used in the text to indicate designer choices or locations where text must be supplied by the designer.

This guide specification includes tailoring options for Fire-rated construction. Selection or deselection of a tailoring option will include or exclude that option in the section, but editing the resulting section to fit the project is still required.

Reference Section 05 40 00 COLD-FORMED METAL FRAMING for load bearing studwork. Reference 09100 "Metal Support Assemblies" for non-loadbearing studs, furring and ceiling suspension systems.

NOTE: On the drawings, show:

1. Locations of each type of gypsum board, backing board and cementitious backer units, using same

terminology as in the specification.

2. Locations and UL or GA design numbers for fire rated gypsum board and cementitious backer unit assemblies.

3. Locations of asphalt impregnated building felt if gypsum sheathing is used or if cementitious backer units are used in wet areas.

PART 1 GENERAL

1.1 REFERENCES

NOTE: This paragraph is used to list the publications cited in the text of the guide specification. The publications are referred to in the text by basic designation only and listed in this paragraph by organization, designation, date, and title.

Use the Reference Wizard's Check Reference feature when you add a RID outside of the Section's Reference Article to automatically place the reference in the Reference Article. Also use the Reference Wizard's Check Reference feature to update the issue dates.

References not used in the text will automatically be deleted from this section of the project specification when you choose to reconcile references in the publish print process.

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI A108.1 (2005) Installation of Ceramic Tile

ANSI A108.11 (1992) Interior Installation of Cementitious Backer Units

ASTM INTERNATIONAL (ASTM)

ASTM C 1002 (2001) Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs

ASTM C 1047 (1999) Accessories for Gypsum Wallboard and Gypsum Veneer Base

ASTM C 1177/C 1177M (2004e1) Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing

ASTM C 1178/C 1178M	(2004) Glass Mat Water-Resistant Gypsum Backing Panel
ASTM C 1396/C 1396M	(2003a) Standard Specification for Gypsum Board
ASTM C 36/C 36M	(2003) Standard Specification for Gypsum Wallboard
ASTM C 442/C 442M	(2004) Gypsum Backing Board, Gypsum Coreboard, and Gypsum Shaftliner Board
ASTM C 475/C 475M	(2002) Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum
ASTM C 514	(2004) Standard Specification for Nails for the Application of Gypsum Board
ASTM C 557	(2003) Standard Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing
ASTM C 630/C 630M	(2003) Standard Specification for Water-Resistant Gypsum Backing Board
ASTM C 79/C 79M	(2003) Standard Specification for Treated Core and Nontreated Core Gypsum Sheathing Board
ASTM C 840	(2003) Application and Finishing of Gypsum Board
ASTM C 954	(2000) Steel Drill Screws for the Application of Gypsum Board or Metal Plaster Bases to Steel Studs from 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness
ASTM C 960/C 960M	(2004) Predecorated Gypsum Board
ASTM D 1037	(1999) Standard Test Methods for Evaluating Properties of Wood-Base Fiber and Particle Panel Materials
ASTM D 1149	(1999) Standard Test Method for Rubber Deterioration - Surface Ozone Cracking in a Chamber
ASTM D 226	(2005) Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing
ASTM D 2394	(1999) Standard Method for Simulated Service Testing of Wood and Wood-Base Finish Flooring
ASTM D 412	(1998a; R 2002e1) Standard Test Methods

for Vulcanized Rubber and Thermoplastic
Elastomers - Tension

ASTM D 5420

(1998a) Standard Test Method for Impact
Resistance of Flat, Rigid Plastic Specimen
by Means of a Striker Impacted by a
Falling Weight (Gardner Impact)

ASTM D 624

(2000e2) Tear Strength of Conventional
Vulcanized Rubber and Thermoplastic
Elastomers

ASTM E 695

(2003) Standard Method for Measure
Relative Resistance of Wall, Floor and
Roof Construction to Impact Loads

ASTM E 84

(2005e1) Standard Test Method for Surface
Burning Characteristics of Building
Materials

GYPSUM ASSOCIATION (GA)

GA 214

(1996) Recommended Levels of Gypsum Board
Finish

GA 216

(2000) Application and Finishing of Gypsum
Board

GA 224

(1997) Installation of Predecorated Gypsum
Board

GA 253

(1999) Application of Gypsum Sheathing

GA 600

(2003) Fire Resistance and Sound Control
Design Manual

UNDERWRITERS LABORATORIES (UL)

UL Fire Resist Dir

(2005) Fire Resistance Directory

1.2 SUBMITTALS

NOTE: Review Submittal Description (SD) definitions
in Section 01 33 00 SUBMITTAL PROCEDURES and edit
the following list to reflect only the submittals
required for the project. Submittals should be kept
to the minimum required for adequate quality control.

A "G" following a submittal item indicates that the
submittal requires Government approval. Some
submittals are already marked with a "G". Only
delete an existing "G" if the submittal item is not
complex and can be reviewed through the Contractor's
Quality Control system. Only add a "G" if the
submittal is sufficiently important or complex in
context of the project.

For submittals requiring Government approval on Army

projects, a code of up to three characters within the submittal tags may be used following the "G" designation to indicate the approving authority. Codes for Army projects using the Resident Management System (RMS) are: "AE" for Architect-Engineer; "DO" for District Office (Engineering Division or other organization in the District Office); "AO" for Area Office; "RO" for Resident Office; and "PO" for Project Office. Codes following the "G" typically are not used for Navy, Air Force, and NASA projects.

Choose the first bracketed item for Navy, Air Force and NASA projects, or choose the second bracketed item for Army projects.

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are [for Contractor Quality Control approval.] [for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government.] Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data

Cementitious backer units

Glass Mat Water-Resistant Gypsum Tile Backing Board

Water-Resistant Gypsum Backing Board

Glass Mat Covered or Reinforced Gypsum Sheathing

Glass Mat Covered or Reinforced Gypsum Sheathing Sealant

Impact Resistant Gypsum Board

Accessories

Submit for each type of gypsum board and for cementitious backer units.

SD-04 Samples

Predecorated gypsum board[; G][; G, [____]]

Submit for each color and pattern of predecorated gypsum board. Where colors are not indicated, submit color selection samples of not less than eight of the manufacturer's standard colors.

SD-07 Certificates

Asbestos Free Materials[; G][; G, [____]]

Certify that gypsum board types, gypsum backing board types, cementitious backer units, and joint treating materials do not contain asbestos.

1.3 DELIVERY, STORAGE, AND HANDLING

1.3.1 Delivery

Deliver materials in the original packages, containers, or bundles with each bearing the brand name, applicable standard designation, and name of manufacturer, or supplier.

1.3.2 Storage

Keep materials dry by storing inside a sheltered building. Where necessary to store gypsum board and cementitious backer units outside, store off the ground, properly supported on a level platform, and protected from direct exposure to rain, snow, sunlight, and other extreme weather conditions. Provide adequate ventilation to prevent condensation.

1.3.3 Handling

Neatly stack gypsum board and cementitious backer units flat to prevent sagging or damage to the edges, ends, and surfaces.

1.4 ENVIRONMENTAL CONDITIONS

1.4.1 Temperature

Maintain a uniform temperature of not less than 10 degrees C 50 degrees F in the structure for at least 48 hours prior to, during, and following the application of gypsum board, cementitious backer units, and joint treatment materials, or the bonding of adhesives.

1.4.2 Exposure to Weather

Protect gypsum board and cementitious backer unit products from direct exposure to rain, snow, sunlight, and other extreme weather conditions.

1.5 QUALIFICATIONS

Furnish type of gypsum board work specialized by the installer with a minimum of [3] [_____] years of documented successful experience.

PART 2 PRODUCTS

2.1 MATERIALS

NOTE: Check ASTM C 840, GA 216 and ANSI A108.11 for
details of materials, fasteners, and application.

Conform to specifications, standards and requirements specified. Provide gypsum board types, gypsum backing board types, cementitious backing units, and joint treating materials manufactured from asbestos free materials only.

2.1.1 Gypsum Board

ASTM C 36/C 36M and ASTM C 1396/C 1396M.

2.1.1.1 Regular

NOTE: Use tapered and featured edge gypsum board with embedding and finishing compounds when a very flat surface is required, such as long walls with lighting at the end of the wall and down or up lighted walls.

1200 mm 48 inch wide, [12.7] [15.9] mm [1/2] [5/8] inch thick, [tapered] [, tapered and featured] edges. [Provide tapered and featured edge gypsum board [in Rooms _____] [as indicated].]

2.1.1.2 Foil-Backed

1200 mm 48 inch wide, [12.7] [15.9] mm [1/2] [5/8] inch thick, [tapered] [tapered and featured] edges.

2.1.1.3 Type X (Special Fire-Resistant)

1200 mm 48 inch wide, [12.7] [15.9] mm [1/2] [5/8] inch thick, [tapered] [tapered and featured] edges.

2.1.2 Gypsum Backing Board

NOTE: When thicker board is needed, replace the term "backing board" with "coreboard", and change dimension to 19.05-25.4 mm 3/4"-1", depending on system used.

ASTM C 442/C 442M, gypsum backing board shall be used as a base in a multilayer system.

2.1.2.1 Regular

1200 mm 48 inch wide, [12.7] [15.9] mm [1/2] [5/8] inch thick, square edges.

2.1.2.2 Foil-Backed

1200 mm 48 inch wide, [12.7] [15.9] mm [1/2] [5/8] inch thick, square edges.

2.1.2.3 Type X (Special Fire-Resistant)

1200 mm 48 inch wide, [12.7] [15.9] mm [1/2] [5/8] inch thick, square edges.

2.1.3 Regular Water-Resistant Gypsum Backing Board

NOTE: For adhesive applied ceramic tile in wet areas (tubs, shower enclosures, saunas, steam rooms, gang shower rooms, etc.), use cementitious backer units (ANSI A108.1) as a substrate. Specify ASTM C 630/C 630M or ASTM C 1178/C 1178M for all other tiled areas including areas where only ceramic or quarry tile base is to be installed, and for ceilings in humid areas. When using water-resistant

gypsum backing board at tile applications, the metal studs should not be spaced more than 406 mm 16 inches o.c. Specify moisture resistant gypsum board ASTM C 630/C 630M for humid areas that are not exposed to direct moisture.

When using moisture resistant board on ceilings, spacing of supports should be no more than 305 mm 12 inch on center.

ASTM C 630/C 630M

2.1.3.1 Regular

1200 mm 48 inch wide, [12.7] [15.9] mm [1/2] [5/8] inch thick, tapered edges.

2.1.3.2 Type X (Special Fire-Resistant)

1200 mm 48 inch wide, [12.7] [15.9] mm [1/2] [5/8] inch thick, tapered edges.

2.1.4 Glass Mat Water-Resistant Gypsum Tile Backing Board

ASTM C 1178/C 1178M

2.1.4.1 Regular

1200 mm 48 inch wide, [12.7] [15.9] mm [1/2] [5/8] inch thick, square edges.

2.1.4.2 Type X (Special Fire-Resistant)

1200 mm 48 inch wide, [12.7] [15.9] mm [1/2] [5/8] inch thick, square edges.

[2.1.5 Glass Mat Covered or Reinforced Gypsum Sheathing

NOTE: This section should be used where exterior gypsum sheathing with water resistance is required (i.e. cavity sheathing over metal studs with brick veneer or as substrate for EIFS systems). Always use asphalt impregnated felt paper for sheathing protection. For additional protection or if recommended by the manufacturer, choose the paragraph for sheathing sealant.

Exceeds physical properties of ASTM C 79/C 79M and ASTM C 1177/C 1177M. Provide [12.7] [15.9] mm [1/2] [5/8] inch, gypsum sheathing. Provide gypsum board of with a noncombustible water-resistant core, with glass mat surfaces embedded to the gypsum core or reinforcing embedded throughout the gypsum core. Warrant gypsum sheathing board for at least six months against delamination due to direct weather exposure. Provide continuous, asphalt impregnated, building felt to cover exterior face of sheathing. Seal [all joints, seams, and penetrations with compatible sealant.]

[2.1.5.1 Glass Mat Covered or Reinforced Gypsum Sheathing Sealant

Provide sealant compatible with gypsum sheathing, rubber washers for masonry veneer anchors, and other associated cavity wall components such as anchors and through wall flashing. Provide sealants for gypsum sheathing board edge seams and veneer anchor penetrations recommended by the gypsum sheathing manufacturer and have the following performance requirements:

- a. ASTM D 412: Tensile Strength - 551 kilopascals 80 psi
- b. ASTM D 412: Ultimate Tensile Strength (maximum elongation) - 1172 kilopascals 170 psi
- c. ASTM D 624: Tear Strength, dieB, - 4.7 kN/m 27 ppi
- d. ASTM D 1149: Joint Movement Capability after 14 Days cure - plus or minus 50 percent.

]] [2.1.6 Impact Resistant Gypsum Board

Note: Impact Resistant Gypsum Board Should Be Used When Abuse Or Vandalism Of Walls Is Anticipated And Gypsum Board Is The Only Wall Material Alternative Feasible. Consult Manufacture For Use Restrictions Of Impact Resistant Gypsum Board On Exterior Walls. This Product Requires A Minimum Of 20 Gauge Metal Framing As Support, Coordinate with Section 09 22 00 METAL SUPPORT ASSEMBLIES.

Some products rely on lexan backing for penetration resistance. The impervious layer will act as a vapor barrier which may not be desirable in certain wall systems and climates.

None of the paper faced gypsum products have high resistance to abrasion. Designer should consider high strength veneer plaster on wall systems using impact resistant gypsum wallboard, coordinate with Section 09 26 00 VENEER PLASTER.

1200 mm 48 inch wide, 15.9 mm 5/8 inch thick, tapered edges. Reinforced gypsum panel with imbedded fiber mesh or lexan backing testing in accordance with the following tests. Provide fasteners that meet manufacturer requirements and specifications stated within this section. Impact resistant gypsum board, when tested in accordance with ASTM E 84, have [a flame spread rating of 25 or less and a smoke developed rating of 50 or less for [____]] [and] [a flame spread rating of 75 or less and a smoke developed rating of 100 or less for [____]].

2.1.6.1 Structural Failure Test

ASTM E 695 or ASTM D 2394 for structural failure (drop penetration). ASTM E 695 using a 27.2 kg 60 lb sand filled leather bag, resisting no less than 407 N-m 300 ft. lb. cumulative impact energy before failure or ASTM D 2394 using 139.7 mm 5.5 inch hemispherical projectile resisting no less than 357 N-m 264 ft. lb. before failure. Provide test specimen stud spacing a minimum 406 mm 16 inch on center.

2.1.6.2 Indentation Test

ASTM D 5420 or ASTM D 1037 for indentation resistance. ASTM D 5420 using a .907 kg 32 oz weight with a 16 mm 5/8 inch hemispherical impacting head dropped once 915 mm 3 feet creating not more than 3.5 mm 0.137 inch indentation or ASTM D 1037 using no less than 213 kg 470 lb weight applied to the 11.13 mm 0.438 inch diameter ball to create not more than a 0.5 mm 0.0197 inch indentation depth.

]2.1.7 Predecorated Gypsum Board

NOTE: Predecorated gypsum board is available only in 1200 mm 48 inch wide panels. Interior finish materials for exits, hospitals, individual rooms with capacity for 5 or more persons must have a flame spread rating of 25 or less and smoked developed rating of 50 or less. Interior finish materials for other locations must have flame spread rating of 75 or less and smoke developed rating of 100 or less. Flame spread rating greater than 75 and smoke developed rating greater than 100 are not permitted. Refer to MIL-HDBK-1008, "Fire Protection for Facilities Engineering, Design and Construction," for further guidance on specifying flame spread and smoke developed ratings.

NOTE: If the optional phrase "as selected" is not used to designate a color (and pattern), insert a manufacturer's name and color (and pattern) designation in the blank and add the following to the end of this paragraph "The manufacturer's name and catalog designation are provided in order to describe the color (and pattern) desired. Other manufacturer's products having a similar color (and pattern) will be acceptable."

NOTE: Insert designations of rooms or areas in which different flame spread and smoke developed ratings are required.

ASTM C 960/C 960M, [regular] [Type X] gypsum board, 1200 mm 48 inch wide, [12.7] [15.9] mm [1/2] [5/8] inch thick, with a decorative wall covering (Class I) [or coating (Class II)] applied in-plant by the gypsum board manufacturer. The color [and pattern] of wall covering shall be [_____] [as selected]. Provide [_____] color [and pattern] wall covering selected. [Furnish gypsum board with square edges, and a slight bevel to produce a shallow vee joint. Wrap all coverings around edges.] Furnish a predecorated gypsum board with [a flame spread rating of 25 or less and a smoke developed rating of 50 or less for [_____] [and] [a flame spread rating of 75 or less and a smoke developed rating of 100 or less for [_____]].

2.1.1.8 Cementitious Backer Units

NOTE: For adhesive applied ceramic tile in wet areas
(tubs, shower enclosures, saunas, steam rooms, gang
shower rooms), specify only cementitious backer
units.

ANSI A108.1.

2.1.1.9 Joint Treatment Materials

ASTM C 475/C 475M.

2.1.1.9.1 Embedding Compound

Specifically formulated and manufactured for use in embedding tape at
gypsum board joints and compatible with tape, substrate and fasteners.

2.1.1.9.2 Finishing or Topping Compound

Specifically formulated and manufactured for use as a finishing compound.

2.1.1.9.3 All-Purpose Compound

Specifically formulated and manufactured to serve as both a taping and a
finishing compound and compatible with tape, substrate and fasteners.

2.1.1.9.4 Setting or Hardening Type Compound

Specifically formulated and manufactured for use with fiber glass mesh tape.

2.1.1.9.5 Joint Tape

Cross-laminated, tapered edge, reinforced paper, or fiber glass mesh tape
recommended by the manufacturer.

2.1.1.10 Fasteners

2.1.1.10.1 Nails

ASTM C 514. [For predecorated gypsum board provide special nails with
factory coated heads of color to match wall covering materials as
recommended by the predecorated gypsum board manufacturer.]

2.1.1.10.2 Screws

ASTM C 1002, Type "G", Type "S" or Type "W" steel drill screws for
fastening gypsum board to gypsum board, wood framing members and steel
framing members less than 0.84 mm 0.033 inch thick. ASTM C 954 steel drill
screws for fastening gypsum board to steel framing members 0.84 to 2.84 mm
0.033 to 0.112 inch thick. Provide cementitious backer unit screws with a
polymer coating.

2.1.1.10.3 Staples

1.5 mm thick No. 16 USS gage flattened galvanized wire staples with 11.1 mm
7/16 inch wide crown outside measurement and divergent point for base ply

of two-ply gypsum board application. Use as follows:

<u>Length of Legs (mm)</u>	<u>Thickness of Gypsum Board (mm)</u>
28.6	12.7
31.8	15.9

<u>Length of Legs (inch)</u>	<u>Thickness of Gypsum Board (inch)</u>
1 1/8	1/2
1 1/4	5/8

2.1.11 Adhesives

Do not use adhesive containing benzene, carbon tetrachloride, or trichloroethylene.

2.1.11.1 Adhesive for Fastening Gypsum Board to Metal Framing

Type recommended by gypsum board manufacturer.

2.1.11.2 Adhesive for Fastening Gypsum Board to Wood Framing

ASTM C 557.

2.1.11.3 Adhesive for Laminating

For laminating two-ply gypsum board systems [and] [gypsum studs to face panels], provide adhesive recommended by gypsum board manufacturer.

2.1.12 Gypsum Studs

Provide 25 mm one inch minimum thickness and 150 mm 6 inch minimum width. Studs may be of 25 mm one inch thick gypsum board or multilayers laminated to required thickness. Conform to ASTM C 36/C 36M or ASTM C 442/C 442M for material.

2.1.13 Shaftwall Liner Panel

NOTE: Shaftwall panels are typically used for elevators, stairwells and mechanical chases that penetrate rated floor systems. When using shaftwall system, edit Section 09 22 00 METAL SUPPORT ASSEMBLIES to include shaftwall liner panel metal studs.

ASTM C 442/C 442M. Conform to the UL Fire Resist Dir for the Design Numbers(s) indicated for shaftwall liner panels. Manufacture liner panel for cavity shaftwall system, with water-resistant paper faces, bevel edges, single lengths to fit required conditions, [25.4 mm] [19.05 mm] [1"] [3/4"] thick, by 610 mm 24" wide.

2.1.14 Accessories

ASTM C 1047. Fabricate from corrosion protected steel or plastic designed for intended use. Accessories manufactured with paper flanges are not acceptable. Flanges shall be free of dirt, grease, and other materials

that may adversely affect bond of joint treatment. Provide prefinished or job decorated materials. [For predecorated gypsum board provide prefinished metal or plastic trim to match predecorated gypsum board.]

2.1.15 Asphalt Impregnated Building Felt

Provide a 6.7 kg 15 lb asphalt moisture barrier over gypsum sheathing. Conforming to ASTM D 226 Type 1 (No. 15) for asphalt impregnated building felt.

2.1.16 Water

Provide clean, fresh, and potable water.

PART 3 EXECUTION

3.1 EXAMINATION

3.1.1 Framing and Furring

Verify that framing and furring are securely attached and of sizes and spacing to provide a suitable substrate to receive gypsum board and cementitious backer units. Verify that all blocking, headers and supports are in place to support plumbing fixtures and to receive soap dishes, grab bars, towel racks, and similar items. Do not proceed with work until framing and furring are acceptable for application of gypsum board and cementitious backer units.

3.1.2 [Gypsum Board] [and] [Framing]

Verify that surfaces of [gypsum board] [and] [framing] to be bonded with an adhesive are free of dust, dirt, grease, and any other foreign matter. Do not proceed with work until surfaces are acceptable for application of gypsum board with adhesive.

3.1.3 [Masonry] [and] [Concrete] Walls

Verify that surfaces of [masonry] [and] [concrete] walls to receive gypsum board applied with adhesive are dry, free of dust, oil, form release agents, protrusions and voids, and any other foreign matter. Do not proceed with work until surfaces are acceptable for application of gypsum board with adhesive.

3.2 APPLICATION OF GYPSUM BOARD

NOTE: Coordinate with the drawings to ensure that
all types of gypsum board specified are indicated.
Terminology on the drawings should be identical to
that in the specifications.

Apply gypsum board to framing and furring members in accordance with ASTM C 840 or GA 216 and the requirements specified. Apply gypsum board with separate panels in moderate contact; do not force in place. Stagger end joints of adjoining panels. Neatly fit abutting end and edge joints. Use gypsum board of maximum practical length. Cut out gypsum board to make neat, close, and tight joints around openings. In vertical application of gypsum board, provide panels in lengths required to reach full height of

vertical surfaces in one continuous piece. Surfaces of gypsum board and substrate members may be bonded together with an adhesive, except where prohibited by fire rating(s). Treat edges of cutouts for plumbing pipes, screwheads, and joints with water-resistant compound as recommended by the gypsum board manufacturer. Provide type of gypsum board for use in each system specified herein as indicated.

3.2.1 Application of Single-Ply Gypsum Board to Wood Framing

Apply in accordance with **ASTM C 840**, System I or **GA 216**.

3.2.2 Application of Two-Ply Gypsum Board to Wood Framing

Apply in accordance with **ASTM C 840**, System II or **GA 216**.

3.2.3 Adhesive Nail-On Application to Wood Framing

Apply in accordance with **ASTM C 840**, System III or **GA 216**. This method may be used in lieu of **ASTM C 840**, System I at the option of the Contractor.

3.2.4 Semi-Solid Gypsum Board Partitions

Provide in accordance with **ASTM C 840**, System IV or **GA 216**.

3.2.5 Solid Gypsum Board Partitions

Provide in accordance with **ASTM C 840**, System V or **GA 216**.

3.2.6 Adhesive Application to Interior Masonry or Concrete Walls

Apply in accordance with **ASTM C 840**, System VI or **GA 216**.

3.2.7 Application of Gypsum Board to Steel Framing and Furring

Apply in accordance with **ASTM C 840**, System VIII or **GA 216**.

3.2.8 Arches and Bending Radii

Apply gypsum board in accordance with **ASTM C 840**, System IX or **GA 216**.

3.2.9 Gypsum Board for Wall Tile or Tile Base Applied with Adhesive

NOTE: For adhesive applied ceramic tile in wet areas (tubs, shower enclosures, saunas, steam rooms, gang shower rooms), specify cementitious backer board (ANSI A108.1) as the substrate; specify ASTM C 1178/C 1178M glass mat water-resistant backing board or ASTM C 630/C 630M water-resistant gypsum backing board for other tiled areas including areas where only ceramic or quarry tile base is to be installed.

In dry areas (areas other than tubs, shower enclosures, saunas, steam rooms, gang shower rooms), apply glass mat water-resistant gypsum tile backing board [or water-resistant gypsum backing board] in accordance with **ASTM C 840**, System X or **GA 216**.

3.2.10 Exterior Application

Apply exterior gypsum board (such as at soffits) in accordance with [ASTM C 840](#), System XI or [GA 216](#).

3.2.11 Glass Mat Covered or Fiber Reinforced Gypsum Sheathing

**NOTE: Choose the bracketed option below if sealant
will be applied to sheathing joints and penetrations
in addition to the asphalt impregnated building felt.**

Apply gypsum sheathing in accordance to gypsum association publications [GA 253](#). Follow gypsum sheathing manufacturer's requirements of design details for joints and fasteners and be properly installed to protect the substrate from moisture intrusion. Do not leave exposed surfaces of the gypsum sheathing beyond the manufacturer's recommendation without a weather barrier cladding. Provide continuous asphalt impregnated building felt over sheathing surface in single fashion with edges and ends lapped a minimum of [150 mm 6 inch](#). Property flash the openings. [Seal all joints, seams, and penetrations with a compatible silicone sealant.]

3.2.12 Floating Interior Angles

Locate the attachment fasteners adjacent to ceiling and wall intersections in accordance with [ASTM C 840](#), System XII or [GA 216](#), for [single-ply] [and] [two-ply] applications of gypsum board to wood framing.

3.2.13 Control Joints

Install expansion and contraction joints in ceilings and walls in accordance with [ASTM C 840](#), System XIII or [GA 216](#). [Fill control joints between studs in fire-rated construction with firesafing insulation to match the fire-rating of construction.](#)

3.2.14 Application of Foil-Backed Gypsum Board

Apply foil-backed gypsum board in accordance with [ASTM C 840](#), System XIV or [GA 216](#).

3.2.15 Application of Predecorated Gypsum Board

Apply predecorated gypsum board in accordance with [GA 224](#). Attach predecorated gypsum board with adhesive and fasteners as recommended by the manufacturer. Conceal fasteners in the finished work.

3.2.16 Application of Impact Resistant Gypsum Board

Apply in accordance with applicable system of [ASTM C 840](#) as specified or [GA 216](#). Follow manufacturers written instructions on how to cut, drill and attach board.

3.3 APPLICATION OF CEMENTITIOUS BACKER UNITS

3.3.1 Application

In wet areas (tubs, shower enclosures, saunas, steam rooms, gang shower rooms), apply cementitious backer units in accordance with [ANSI A108.11](#).

Place a 7.6 kg 15 lb asphalt impregnated, continuous felt paper membrane behind cementitious backer units, between backer units and studs or base layer of gypsum board. Place membrane with a minimum 150 mm 6 inch overlap of sheets laid shingle style.

3.3.2 Joint Treatment

ANSI A108.11.

3.4 FINISHING OF GYPSUM BOARD

Tape and finish gypsum board in accordance with ASTM C 840, GA 214 and GA 216. Finish plenum areas above ceilings to Level 1 in accordance with GA 214. Finish water resistant gypsum backing board, ASTM C 630/C 630M, to receive ceramic tile to Level 2 in accordance with GA 214. Finish walls and ceilings to receive a heavy-grade wall covering or heave textured finish before painting to Level 3 in accordance with GA 214. Finish walls and ceilings without critical lighting to receive flat paints, light textures, or wall coverings to Level 4 in accordance with GA 214. Finish all gypsum board walls, partitions and ceilings to Level 5 in accordance with GA 214. Provide joint, fastener depression, and corner treatment. Do not use fiber glass mesh tape with conventional drying type joint compounds; use setting or hardening type compounds only. Provide treatment for water-resistant gypsum board as recommended by the gypsum board manufacturer.

3.4.1 Uniform Surface

Wherever gypsum board is to receive eggshell, semigloss or gloss paint finish, or where severe, up or down lighting conditions occur, finish gypsum wall surface in accordance to GA 214 Level 5. In accordance with GA 214 Level 5, apply a thin skim coat of joint compound to the entire gypsum board surface, after the two-coat joint and fastener treatment is complete and dry.

[3.4.2 Metal Trim for Predecorated Gypsum Board

Finish edges, ends, and joints of predecorated gypsum board, except prefinished vee joints and monolithic type joints, with metal or plastic trim selected to match the gypsum board finish.

] 3.5 SEALING

Seal openings around pipes, fixtures, and other items projecting through gypsum board and cementitious backer units as specified in Section 07 92 00.00 40 JOINT SEALANTS Apply material with exposed surface flush with gypsum board or cementitious backer units.

[3.5.1 Sealing for Glass Mat or Reinforced Gypsum Board Sheathing

Apply silicone sealant in a 9.5 mm 3/8 inch bead to all joints and trowel flat. Apply enough of the same sealant to all fasteners penetrating through the glass mat gypsum board surface to completely cover the penetration when troweled flat. Do not place [construction and materials behind sheathing until a visual inspection of sealed joints during daylight hours has been completed by Contracting Officer.]

] 3.6 FIRE-RESISTANT ASSEMBLIES

NOTE: Coordinate with the drawings to ensure that UL or GA design numbers are indicated for fire-resistant assemblies. If review of building code requires pressurized enclosures, include the following:

Pressurized fire-rated gypsum board enclosures shall allow the mechanical and electrical life-safety systems to operate in accordance with the design intent. Air pressure within elevator shaft shall be 360 Pa. 7.5 psf. Air pressure within stair shaft shall be 240 Pa. 5.0 psf. Maximum mid-span deflection shall be L/360.

Wherever fire-rated construction is indicated, provide materials and application methods, including types and spacing of fasteners, [wall[and ceiling] framing] in accordance with the specifications contained in [UL Fire Resist Dir for the Design Number(s) indicated], [or] [GA 600 for the File Number(s) indicated]. Joints of fire-rated gypsum board enclosures shall be closed and sealed in accordance with UL test requirements or GA requirements. Seal penetrations through rated partitions and ceilings tight in accordance with tested systems.

3.7 PATCHING

Patch surface defects in gypsum board to a smooth, uniform appearance, ready to receive finishes. [Remove predecorated gypsum board which cannot be restored to like-new condition. Provide new predecorated gypsum board.]

3.8 SHAFTWALL FRAMING

Install the shaftwall system in accordance with the system manufacturer's published instructions. Coordinate bucks, anchors, blocking and other items placed in or behind shaftwall framing with electrical and mechanical work. Patch or replace fireproofing materials which are damaged or removed during shaftwall construction.

-- End of Section --