

GYPSUM BOARD Guide Specification

National Gypsum Company

(Specifier Note: The purpose of this guide specification language is to assist the specifier in correctly specifying gypsum board products and their installation. The specifier needs to edit these guide specifications to fit the needs of each specific project. Contact National Gypsum Company to assist in appropriate product selections.

Specifier Notes included in (italicized red text) are included to provide assistance in selecting appropriate text for inclusion in a Specification. [Bold text] indicates a selection is required. Text in the brackets may not be the only options available, but are recommended or common selections.)

SECTION 09 29 00 GYPSUM BOARD

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Standard Gypsum Board (Gold Bond® BRAND Gypsum Board)
- B. Fire-Resistance Rated Gypsum Board (Gold Bond® BRAND Fire-Shield® Gypsum Board, and Gold Bond® BRAND Fire-Shield® C Gypsum Board)
- C. Lightweight Gypsum Board (Gold Bond® BRAND High Strength LITE™ Gypsum Board, and Gold Bond® BRAND High Strength Fire-Shield® LITE™ Gypsum Board)
- D. Mold and Moisture Resistant Gypsum Board (Gold Bond® BRAND XP® Gypsum Board)
- E. Fire-Resistance Rated Gypsum Board with Enhanced Mold and Mildew Resistance (Gold Bond® BRAND XP® Fire-Shield® Gypsum Board, and Gold Bond® BRAND XP® Fire-Shield® C Gypsum Board)
- F. Exterior Gypsum Ceiling Board (Gold Bond® BRAND Exterior Soffit Board, and Gold Bond® BRAND Fire-Shield® Exterior Soffit Board)
- G. Gypsum Shaftliner Panel (Gold Bond® BRAND 1" Fire-Shield® Shaftliner)
- H. Mold and Moisture Resistant Gypsum Shaftliner Panel (Gold Bond® BRAND 1" Fire-Shield® Shaftliner XP®)
- I. Extended Exposure Shaftliner Panel (Gold Bond® BRAND e²XP® Extended Exposure Shaftliner)
- J. Abuse Resistant Gypsum Board (Gold Bond® Hi-Abuse® BRAND XP® Gypsum Board)
- K. High Impact Gypsum Board (Gold Bond® Hi-Impact® BRAND XP® Gypsum Board)
- L. Flexible Gypsum Board (Gold Bond® BRAND High Flex® Gypsum Board)
- M. Acoustically Enhanced Gypsum Board (Gold Bond® BRAND SoundBreak® XP® Gypsum Board)
- N. Interior Extended Exposure Gypsum Panel (Gold Bond® BRAND e²XP® Interior Extreme™ Gypsum Panel, and Gold Bond® BRAND e²XP® Fire-Shield® Interior Extreme™ Gypsum Panel)

- O. Mold and Mildew Resistant Tile Backer (Gold Bond® BRAND e²XP® Tile Backer)
- P. Cement Board (PermaBase® BRAND Cement Board)
- Q. Flexible Cement Board (PermaBase Flex® BRAND Cement Board)
- R. Gypsum Sheathing (Gold Bond® BRAND Gypsum Sheathing)
- S. Fire-Resistance Rated Gypsum Sheathing (Gold Bond® BRAND Fire-Shield® Jumbo Gypsum Sheathing)
- T. Extended Exposure Sheathing (Gold Bond® BRAND e²XP® Extended Exposure Gypsum Sheathing)
- U. Fire-Resistance Rated Extended Exposure Gypsum Sheathing (Gold Bond® BRAND e²XP® Fire-Shield® Extended Exposure Gypsum Sheathing)

1.2 PERFORMANCE CRITERIA

A. Extended Exposure Shaft Wall Assemblies

(Specifier Note: INCLUDE Fire-Resistance Rating statement when shaftliner is to be a component of a rated assembly. Extended Exposure Shaftliner can be utilized in other assemblies than those listed, Contact National Gypsum for assistance with additional assemblies.)

- 1. Wall Assembly Fire-Resistance Rating: **[1-Hour, UL Assembly U499] [2-Hour, UL Assembly U497] [U498]] [4-Hour, UL Assembly V451]**
- 2. Wall Assembly STC: **[37] [40] [42] [45] [47] [50] [51]**

B. Abuse Resistant Gypsum Board

(Specifier Note: Classifications levels are identified in ASTM C 1629. Hi-Abuse BRAND XP Gypsum Board and Hi-Impact BRAND XP Gypsum Board as manufactured by National Gypsum Company meet or exceed the performance criteria for Abuse Resistant Gypsum Board.)

- 1. Classification:
 - a. Surface Abrasion: Level 1-3
 - b. Surface Indention: Level 1
 - c. Soft Body Impact: Level 1-2
- 2. Wall Assembly Fire-Resistance Rating: **[Non-rated] [1-Hour] [1-1/2-Hour] [2-Hour] [3-Hour] [4-Hour]**

(Specifier Note: STC rating may not be of importance for specific project and may be omitted from specification in which case there the default required by the building code will dictate.)

- 3. Wall Assembly STC: **[40] [44] [47] [52]**

C. High-Impact Gypsum Board

(Specifier Note: Classifications levels are identified in ASTM C 1629. Hi-Abuse BRAND XP Gypsum Board and Hi-Impact BRAND XP Gypsum Board as manufactured by National Gypsum Company meet or exceed the performance criteria for Abuse Resistant Gypsum Board.)

- 1. Classification:
 - a. Surface Abrasion: Level 1-3

- b. Surface Indention: Level 1
 - c. Soft Body Impact: Level 2-3
 - d. Hard Body Impact: Level 2-3
2. Wall Assembly Fire-Resistance Rating: **[Non-rated] [1-Hour] [1-1/2-Hour] [2-Hour] [3-Hour] [4-Hour]**

(Specifier Note: STC rating may not be of importance for specific project and may be omitted from specification in which case there the default required by the building code will dictate.)

3. Wall Assembly STC: **[40] [44] [47] [52]**

D. Acoustically Enhanced Gypsum Board

(Specifier Note: STC is dependent on the construction of the wall assembly, COORDINATE with drawings. Refer to National Gypsum Co. product information for wall assembly and Acoustical Selector Guide for assistance in correctly selecting, drawing and specifying.)

- 1. Wall Assembly STC: (wood stud construction) **[52] [67]** (metal stud construction) **[55] [57] [59] [61]**
- 2. Wall Assembly Fire-Resistance Rating: **[Non-rated] [1-Hour] [2-Hour]**

E. Joint Treatment

- 1. VOC content less than 2 g/L

1.3 SUBMITTALS

(Specifier Note: GREENGUARD certification is optional, visit www.greenguard.org for program information. DELETE paragraph and sub-paragraphs below if not project specific.)

A. GREENGUARD Submittal:

(Specifier Note: Products that have achieved GREENGUARD Children and Schools Certification meet stricter emission guidelines than those with GREENGUARD Indoor Air Quality Certification. GREENGUARD Children and Schools Certification also meet CHPS Low-Emitting Materials.)

The following National Gypsum products are GREENGUARD Indoor Air Quality Certified®:

- ProForm Brand All Purpose Ready Mix Joint Compound
- ProForm Brand All Purpose Machine Grade Ready Mix Joint Compound
- ProForm Brand Multi-Use Ready Mix Joint Compound
- ProForm Brand Taping Ready Mix Joint Compound
- ProForm Brand Topping Ready Mix Joint Compound
- ProForm Brand Lite Ready Mix Joint Compound
- ProForm Brand Lite Blue Ready Mix Joint Compound
- ProForm Brand Lite Ready Mix Joint Compound with Dust-Tech

The following National Gypsum products bear the GREENGUARD Children & SchoolsSM Certified mark:

- Gold Bond Brand Gypsum Board
- Gold Bond Brand Fire-Shield Gypsum Board
- Gold Bond Brand High Strength LITE Gypsum Board
- Gold Bond Brand High Strength Fire-Shield LITE Gypsum Board
- Gold Bond Brand Hi-Abuse XP Gypsum Board
- Gold Bond Brand Hi-Impact XP Gypsum Board
- Gold Bond Brand SoundBreak XP Gypsum Board
- Gold Bond Brand XP Gypsum Board
- Gold Bond Brand e²XP Interior Extreme Gypsum Board

- Gold Bond Brand e²XP Tile Backer
- PermaBase Brand Cement Board
- PermaBase Brand Flex Cement Board
- ProForm Brand Quick Set Setting Joint Compound
- ProForm Brand Quick Set Lite Setting Joint Compound
- ProForm Brand XP Ready Mix Joint Compound

1. Product Certificate for GREENGUARD **[Indoor Air Quality] [Children & Schools]**: For products and materials required to comply with requirements for minimum chemical emissions

PART 2 - PRODUCTS

2.1 MANUFACTURER / PRODUCTS

(Specifier Note: Throughout Part-2 maintain brand names when proprietary specification is acceptable. Use generic term when project must be competitively bid. CONFIRM product requirements and characteristics prior to listing products of other manufacturers.)

- A. Basis of Design: Products of National Gypsum Company

2.2 STANDARD GYPSUM BOARD

- A. Basis of Design: Gold Bond® BRAND Gypsum Board

- B. Panel Physical Characteristics

1. Core: Regular
2. Surface Paper: 100% recycled content paper on front, back and long edges
3. Long Edges: **[Square] [Tapered]**
4. Overall thickness: **[1/4 inch] [3/8 inch] [1/2 inch]**
5. Panel complies with requirements of ASTM C 1396 Standard Specification for Gypsum Board

2.3 FIRE-RESISTANCE RATED GYPSUM BOARD

- A. Basis of Design: Gold Bond® BRAND Fire-Shield® Gypsum Board

1. Type X, Panel Physical Characteristics

- a. Core: Fire-resistant rated gypsum core
- b. Surface paper: 100% recycled content paper on front, back and long edges
- c. Long Edges: **[Square] [Tapered]**
- d. Overall thickness: 5/8 inch
- e. Panel complies with Type X requirements of ASTM C 1396 Standard Specification for Gypsum Board

(Specifier Note: National Gypsum Co, Gold Bond BRAND Fire-Shield C Gypsum Board has enhanced fire-resistance characteristics from the Gold Bond BRAND Fire-Shield X Gypsum Board. In non-proprietary rated designs, Type C may be used to replace Type X. Type X cannot be used to replace Type C fire-resistance rated gypsum board. Assembly design should be used to determine use of Type C fire-resistance rated gypsum board.)

- B. Basis of Design: Gold Bond® BRAND Fire-Shield C™ Gypsum Board

1. Type C, Panel Physical Characteristics

- a. Core: Enhanced fire-resistance rated gypsum core
- b. Surface paper: 100% recycled content paper on front, back and long edges
- c. Long Edges: **[Square] [Tapered]**
- d. Overall thickness: **[1/2 inch] [5/8 inch]**
- e. Panel complies with Type X requirements of ASTM C 1396 Standard Specification for Gypsum Board

2.4 LIGHTWEIGHT GYPSUM BOARD

A. Basis of Design: Gold Bond® BRAND High Strength LITE™ Gypsum Board

1. Panel Physical Characteristics

- a. Core: Regular gypsum core
- b. Surface paper: 100% recycled content paper on front, back and long edges
- c. Long Edges: Tapered
- d. Overall thickness: 1/2 inch
- e. Panel complies with requirements of ASTM C 1396 Standard Specification for Gypsum Board

B. Basis of Design: Gold Bond® BRAND High Strength Fire-Shield LITE™ Gypsum Board

1. Panel Physical Characteristics

- a. Core: Fire-resistance rated (Type X) gypsum core
- b. Surface paper: 100% recycled content paper on front, back and long edges
- c. Long Edges: Square or Tapered
- d. Overall thickness: 5/8 inch
- e. Panel complies with requirements of ASTM C 1396 Standard Specification for Gypsum Board

2.5 MOLD AND MOISTURE RESISTANT GYPSUM BOARD

A. Basis of Design: Gold Bond® BRAND XP Gypsum Board

B. Panel Physical Characteristics

- 1. Core: Mold and moisture resistant gypsum core
- 2. Surface paper: 100% recycled content moisture/mold/mildew resistant paper on front, back, and long edges
- 3. Long Edges: **[Square] [Tapered]**
- 4. Overall thickness: 1/2 inch
- 5. Panel complies with requirements of ASTM C 1396 Standard Specification for Gypsum Board

(Specifier Note: National Gypsum Co, Gold Bond BRAND XP Gypsum Board has the following mold/mildew resistance characteristics. VERIFY conformance of this requirement when specification section must provide products of equivalent design or DELETE when characteristic is not critical.)

- 6. Mold/Mildew Resistance: 10 when tested in accordance with ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber

(Specifier Note: DELETE paragraph below if environmental requirement is not project specific)

- 7. Environmental Requirements: Provide products that comply with testing and product requirements for low emitting materials

2.6 FIRE-RESISTANCE RATED GYPSUM BOARD WITH ENHANCED MOLD AND MILDEW RESISTANCE

A. Basis of Design: Gold Bond® BRAND XP® Fire-Shield® Gypsum Board

1. Type X, Panel Physical Characteristics

- a. Core: Mold and moisture resistant, fire-resistance rated gypsum core
- b. Surface paper: 100% recycled content moisture/mold/mildew resistant paper on front, back and long edges
- c. Long Edges: **[Square] [Tapered]**
- d. Overall thickness: 5/8 inch
- e. Panel complies with Type X requirements of ASTM C 1396 Standard Specification for Gypsum Board

(Specifier Note: National Gypsum Co, Gold Bond BRAND XP Fire-Shield Gypsum Board has the following mold/mildew resistance characteristics. VERIFY conformance of this requirement when specification section must provide products of equivalent design or DELETE when characteristic is not critical.)

- f. Mold/Mildew Resistance: 10 when tested in accordance with ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber

(Specifier Note: National Gypsum Co, Gold Bond BRAND XP Fire-Shield C Gypsum Board has enhanced fire-resistance characteristics from the Gold Bond BRAND Fire-Shield X Gypsum Board. In non-proprietary rated designs, Type C may be used to replace Type X. Type X cannot be used to replace Type C fire-resistance rated gypsum board. Assembly design should be used to determine use of Type C fire-resistance rated gypsum board.)

B. Basis of Design: Gold Bond® BRAND XP® Fire-Shield® C Gypsum Board

1. Type C, Panel Physical Characteristics

- a. Core: Mold and moisture resistant, with enhanced fire-resistance rated gypsum core
- b. Surface paper: 100% recycled content moisture/mold/mildew paper on front, back and long edges
- c. Long Edges: **[Square] [Tapered]**
- d. Overall thickness: **[5/8 inch] [1/2 inch]**
- e. Panel complies with requirements Type X of ASTM C 1396 Standard Specification for Gypsum Board

(Specifier Note: National Gypsum Co, Gold Bond BRAND XP Fire-Shield C Gypsum Board has the following mold/mildew resistance characteristics. VERIFY conformance of this requirement when specification section must provide products of equivalent design or DELETE when characteristic is not critical ASTM D 3273 is on a 10 point scale.)

- f. Mold/Mildew Resistance: 10 when tested in accordance with ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber

2.7 EXTERIOR GYPSUM CEILING BOARD

A. Basis of Design: Gold Bond® BRAND Exterior Soffit Board

1. Panel Physical Characteristics

- a. Core: Regular gypsum core
- b. Surface paper: 100% recycled content extra resistance to moisture and sagging
- c. Long Edges: Beveled -Tapered

- d. Overall thickness: 1/2 inch
- e. Panel complies with requirements of ASTM C 1396 Standard Specification for Gypsum Board

B. Basis of Design: Gold Bond® BRAND Fire-Shield® Exterior Soffit Board

1. Panel Physical Characteristics

- a. Core: Fire-resistance rated (Type X) gypsum core
- b. Surface paper: 100% recycled content extra resistance to moisture and sagging
- c. Long Edges: Beveled -Tapered
- d. Overall thickness: 5/8 inch
- e. Panel complies with requirements of ASTM C 1396 Standard Specification for Gypsum Board

2.8 GYPSUM SHAFTLINER PANEL

A. Basis of Design: Gold Bond® BRAND 1" Fire-Shield® Shaftliner

B. Panel Physical Characteristics

- 1. Core: Fire-resistance rated gypsum core
- 2. Surface Paper: 100% recycled content moisture resistant paper on front, back, and long edges
- 3. Long Edges: Beveled
- 4. Overall Thickness: 1 inch
- 5. Panel complies with Type X requirements of ASTM C 1396 Standard Specification for Gypsum Board

2.9 MOLD AND MOISTURE RESISTANT GYPSUM SHAFTLINER PANEL

A. Basis of Design: Gold Bond® BRAND 1" Fire-Shield® Shaftliner XP®

B. Panel Physical Characteristics

- 1. Core: Fire resistance rated, mold resistant gypsum core
- 2. Surface Paper: 100% recycled content moisture and mold resistant paper on front, back, and long edges
- 3. Long Edges: Beveled
- 4. Overall Thickness: 1 inch
- 5. Panel complies with Type X requirements of ASTM C 1396 Standard Specification for Gypsum Board

(Specifier Note: National Gypsum Co, Gold Bond BRAND Fire-Shield Shaftliner XP has the following mold/mildew resistance characteristics. VERIFY conformance of this requirement when specification section must provide products of equivalent design or DELETE when characteristic is not critical.)

- 6. Mold/Mildew Resistance: 10 when tested in accordance with ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber

2.10 EXTENDED EXPOSURE GYPUSM SHAFTLINER

A. Basis of Design: Gold Bond® BRAND e²XP® Extended Exposure Shaftliner

B. Panel Physical Characteristics:

1. Core: Type X, gypsum core, with additives to enhance fire-resistance, moisture and mold resistant
2. Facing: Water-resistant glass mat on front, back, and long edges
3. Long Edges: Double Beveled
4. Overall Thickness: 1 inch
5. Complies with requirements of ASTM C 1396 – Standard Specification for Gypsum Board and ASTM C 1658 – Standard Specification for Glass Mat Gypsum Panels

(Specifier Note: National Gypsum Co, Gold Bond BRAND Extended Exposure Shaftliner has the following mold/mildew resistance characteristics. VERIFY conformance of this requirement when specification section must provide products of equivalent design or DELETE when characteristic is not critical.)

6. Mold/Mildew Resistance: 10 when tested in accordance with ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber

2.11 ABUSE RESISTANT GYPSUM BOARD

(Specifier Note: Abuse Resistant gypsum board should be specified in applications where there is a need to provide additional surface protection from scuffs, scratches and dents. Impact resistant gypsum board should be specified for applications where impact damage is a concern. Both comply with the fire resistance requirements for Type X gypsum board.)

A. Basis of Design: Gold Bond Hi-Abuse® BRAND XP® Gypsum Board

B. Panel Physical Characteristics

1. Core: Fire resistance rated gypsum core, with additives to enhance, surface indentation resistance and impact resistance
2. Surface paper: Abrasion resistant, 100% recycled content moisture/mold/mildew resistant paper on front, back and long edges
3. Long Edges: **[Tapered] [Square]**
4. Overall thickness: 5/8 inch
5. Panel complies with Type X requirements ASTM C 1396 Standard Specification for Gypsum Board

(Specifier Note: First option in [] provides the minimum/maximum requirements in accordance with the ASTM test methods for Classification Level 1. Second option indicates the propriety characteristics of National Gypsum Co. Hi-Abuse brand XP Gypsum Board. SELECT appropriate values for inclusion in Specification.)

6. Surface Abrasion Resistance: **[0.126 inch, maximum] [0.009 inch]** when tested in accordance with ASTM D 4977 Standard Test Method for Granule Adhesion to Mineral Surfaced Roofing by Abrasion
7. Indentation Resistance: **[0.150 inch, maximum] [0.132 inch]** when tested in accordance with ASTM D 5420 Standard Test Method for Impact Resistance of Flat, Rigid Plastic Specimen by Means of a Striker Impacted by a Falling Weight (Gardner Impact)
8. Soft Body Impact: **[90 ft-lbf, minimum] [210 ft-lbf]** when tested in accordance with ASTM E 695 Standard Method for Measuring Relative Resistance of Wall, Floor, and Roof Construction to Impact Loading

(Specifier Note: National Gypsum Co, Hi-Abuse BRAND XP Gypsum Board has mold/mildew resistance characteristics. VERIFY conformance of this requirement when specification section must provide products of equivalent design or DELETE when characteristic is not critical.)

9. Mold/Mildew Resistance: score of 10 when tested in accordance with ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber

(Specifier Note: DELETE environmental requirement if not project specific.)

10. Environmental Requirements: Provide products that comply with testing and product requirements for low emitting materials

2.12 HIGH IMPACT GYPSUM BOARD

A. Basis of Design: Gold Bond Hi-Impact® BRAND XP® Gypsum Board

B. Panel Physical Characteristics

1. Core: Type X, fire resistance rated gypsum core, with additives to enhance mold/mildew resistance, surface indentation resistance and impact resistance, moisture and mold resistant
2. Surface paper: Abrasion resistant, 100% recycled content moisture/mold/mildew resistant paper on front, back and long edges
3. Embedded fiberglass mesh
4. Long Edges: Tapered
5. Overall thickness: 5/8 inch

(Specifier Note: First option in [] provide the minimum requirements in accordance with the ASTM test methods for Classification Level 1 or 2. Second option indicates the propriety characteristics of National Gypsum Co, Hi-Impact XP Gypsum Board. SELECT appropriate values for inclusion in Specification.)

6. Panel complies with requirements of both ASTM C 1396 Standard Specification for Gypsum Board, Type X
7. Surface Abrasion Resistance: **[0.126 inch, maximum] [0.009 inch]** when tested in accordance with ASTM D 4977 Standard Test Method for Granule Adhesion to Mineral Surfaced Roofing by Abrasion
8. Indentation Resistance: **[0.150 inch, maximum] [0.114 inch]** when tested in accordance with ASTM D 5420 Standard Test Method for Impact Resistance of Flat, Rigid Plastic Specimen by Means of a Striker Impacted by a Falling Weight (Gardner Impact)
9. Soft Body Impact: **[195 ft-lbf, minimum] [540 ft-lbf]** when tested in accordance with ASTM E 695 Standard Method for Measuring Relative Resistance of Wall, Floor, and Roof Construction to Impact Loading
10. Hard Body Impact: **[100 ft-lbf, minimum] [160 ft-lbf]** in accordance with ASTM C 1629 Standard Classification for Abuse-Resistant Non-decorated Interior Gypsum Panel Products and Fiber-Reinforced Cement Panels

(Specifier Note: National Gypsum Co, Hi-Impact XP Gypsum Board has the following mold/mildew resistance characteristics. VERIFY conformance of this requirement when specification section must provide products of equivalent design or DELETE when characteristic is not critical.)

11. Mold/Mildew Resistance: 10 when tested in accordance with ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber

(Specifier Note: DELETE if environmental requirement is not project specific.)

12. Environmental Requirements: Provide products that comply with testing and product requirements for low emitting materials

2.13 FLEXIBLE GYPSUM BOARD

A. Basis of Design: Gold Bond® BRAND High Flex Gypsum Board

B. Panel Physical Characteristics

1. Core: Regular

2. Surface paper: 100% recycled content moisture resistant paper on front, back, and long edges
3. Long Edges: Eased
4. Overall thickness: 1/4 inch
5. Panel complies with requirements of ASTM C 1396 Standard Specification for Gypsum Board

2.14 ACOUSTICALLY ENHANCED GYPSUM BOARD

A. Basis of Design: Gold Bond® BRAND SoundBreak® XP® Gypsum Board

B. Panel Physical Characteristics

1. Overall thickness: **[1/2 inch] [5/8 inch, Type X]**
 - a. Inner layer: Viscoelastic damping polymer
 - b. Outer layer: Enhanced, high density mold-resistant gypsum board
2. Long Edges: Tapered
3. Mold Resistance:
 - a. ASTM D 3273, score of 10
 - b. ASTM G21, score of 0

(Specifier Note: DELETE paragraph below if environmental requirement is not project specific.)

4. Environmental Requirements: Provide products that comply with testing and product requirements for low emitting materials

2.15 INTERIOR EXTENDED EXPOSURE GYPSUM PANELS

A. Basis of Design: Gold Bond® BRAND e²XP® Interior Extreme™ Gypsum Panel

1. Core: 1/2 inch, regular type
2. Long Edges: Tapered. Wrapped with coated fiberglass mat
3. Mold Resistance: ASTM D 3273, score of 10
4. Panel Physical Characteristics:
 - a. Flexural Strength - Parallel: 80 lbs, when tested in accordance with ASTM C473
 - b. Humidified Deflection: less than 1/4 inch when tested in accordance with ASTM C473
 - c. Nail pull resistance: 80 lbs, when tested in accordance with ASTM C473
 - d. Water Absorption: less than 5% when tested in accordance with ASTM C473
 - e. Permeance: greater than 10 perms, when tested in accordance with ASTM E96
 - f. Combustibility: Noncombustible when tested in accordance with ASTM E136
 - g. Flame spreads/Smoke Developed: 0/0 when tested in accordance with ASTM E84
 - h. Environmental Requirements: Provide products that comply with testing and product requirements for low emitting materials

B. Basis of Design: Gold Bond® BRAND e²XP® Fire-Shield® Interior Extreme™ Gypsum Panel

1. Core: 5/8 inch, Type X
2. Long Edges: Tapered. Wrapped with coated fiberglass mat
3. Mold Resistance: ASTM D 3273, score of 10
4. Panel Physical Characteristics
 - a. Flexural Strength - Parallel: 100 lbs, when tested in accordance with ASTM C473

- b. Humidified Deflection: less than 1/8 inch when tested in accordance with ASTM C473
- c. Nail pull resistance: 90 lbs, when tested in accordance with ASTM C473
- d. Water Absorption: less than 5% when tested in accordance with ASTM E96
- e. Permeance: greater than 10 perms, when tested in accordance with ASTM E136
- f. Combustibility: Noncombustible when tested in accordance with ASTM E136
- g. Flame spreads/Smoke Developed: 0/0 when tested in accordance with ASTM E84
- h. Environmental Requirements: Provide products that comply with testing and product requirements for low emitting materials

2.16 MOLD AND MILDEW RESISTANT TILE BACKER

A. Basis of Design: Gold Bond® BRAND e²XP® Tile Backer

B. Panel Physical Characteristics

1. Thickness: **[1/2 inch][5/8 inch, Type X]**
 - a. Core: Mold and moisture resistant, **[[fire-resistance rated,] [Fire-Shield Type X,]]** gypsum core
 - b. Surface: Fiberglass Mat; moisture resistant, acrylic coated water barrier on front
2. Long Edges: Square

(Specifier Note: National Gypsum Co, Gold Bond BRAND e²XP Tile Backer has the following characteristics. VERIFY conformance of this requirement when specification section must provide products of equivalent design or DELETE when characteristic is not critical.)

3. Physical Properties:

- a. Water Absorption: less than 5% when tested in accordance with ASTM C473
- b. Combustibility: Noncombustible when tested in accordance with ASTM E136
- c. Flame spreads/Smoke Developed: 0/0 when tested in accordance with ASTM E84
- d. Mold/Mildew Resistance: 10 when tested in accordance with ASTM D 3273

(Specifier Note: DELETE paragraph below if environmental requirement is not project specific.)

4. Environmental Requirements: Provide products that comply with testing and product requirements for low emitting materials
5. Panel complies with requirements of ASTM C 1178.

2.17 CEMENT BOARD

A. Cement Backerboard

1. Basis of Design: PermaBase® BRAND Cement Board
2. Panel Physical Characteristics
 - a. Core: Cementitious, water-durable
 - b. Surface: Fiberglass mesh on front and back
 - c. Long Edges: Tapered
 - d. Overall Thickness: **[1/2 inch] [5/8 inch]**
 - e. Panel complies with requirements of ASTM C 1325 Standard Specification for Non-Asbestos Fiber-Mat Reinforced Cementitious Backer Units and ANSI A118.9
 - f. Density: 72 lbs. per cu. ft.
 - g. Water Absorption: Not greater than 8% when tested for 24 hours in accordance with ASTM C 473 Standard Test Methods for Physical Testing of Gypsum Panel Products

B. Cement Board Underlayment

1. Basis of Design: PermaBase® BRAND Cement Board
2. Panel Physical Characteristics
 - a. Core: Cementitious, water-durable
 - b. Surface: Fiberglass mesh on front and back
 - c. Long Edges: Tapered
 - d. Overall Thickness: 1/4 inch
 - e. Panel complies with requirements of ASTM C 1325 and ANSI A118.9
 - f. Density: 72 lbs per cu. ft.
 - g. Water Absorption: Not greater than 8% when tested for 24 hours in accordance with ASTM C 473 Standard Test Methods for Physical Testing of Gypsum Panel Products

2.18 FLEXIBLE CEMENT BOARD

A. Basis of Design: PermaBase Flex® BRAND Cement Board

B. Panel Physical Characteristics

1. Core: Cementitious, water-durable
2. Surface: Fiberglass mesh on front and back
3. Long Edges: Tapered
4. Overall Thickness: 1/2 inch
5. Panel complies with requirements of ASTM C 1325 Standard Specification for Non-Asbestos Fiber-Mat Reinforced Cementitious Backer Units and ANSI A118.9
6. Density: 72 lbs per cu. ft.
7. Water Absorption: Not greater than 8% when tested for 24 hours in accordance with ASTM C 473 Standard Test Methods for Physical Testing of Gypsum Panel Products

2.19 GYPSUM SHEATHING

A. Basis of Design: Gold Bond® BRAND Gypsum Sheathing

B. Panel Physical Characteristics

1. Core: Regular
2. Surface paper: 100% recycled content moisture resistant paper on front, back, and long edges
3. Long Edges: Square
4. Overall thickness: 1/2 inch
5. Panel complies with requirements of ASTM C 1396 Standard Specification for Gypsum Board

2.20 FIRE-RESISTANCE RATED GYPSUM SHEATHING

A. Basis of Design: Gold Bond® BRAND Fire-Shield™ Jumbo Gypsum Sheathing

B. Panel Physical Characteristics

1. Core: Fire-Resistant Rated, Type X gypsum core
2. Surface paper: 100% recycled content moisture resistant paper on front, back, and long edges
3. Long Edges: Square
4. Overall thickness: 5/8 inch

5. Panel complies with requirements of ASTM C 1396 Standard Specification for Gypsum Board, Type X

2.21 EXTENDED EXPOSURE SHEATHING

- A. Basis of Design: Gold Bond® BRAND e²XP® Extended Exposure Gypsum Sheathing
- B. Panel Physical Characteristics
 1. Core: Regular gypsum core, with additives to enhance moisture and mold resistance
 2. Facing: Water-resistant glass mat on both face and back surfaces.
 3. Long Edges: Wrapped with water-repellant glass mat.
 4. Overall thickness: 1/2 inch
 5. Panel complies with requirements of both ASTM C 1177/C1177M and C1396/C1396M
 6. Racking Strength - Ultimate: 617 lbs/lin ft. when tested in accordance with ASTM E72
 7. Flexural Strength - Parallel: 80 lbs, when tested in accordance with ASTM C473
 8. Humidified Deflection: less than 1/8 inch when tested in accordance with ASTM C473
 9. Nail pull resistance: 80 lbs, when tested in accordance with ASTM C473
 10. Water Absorption: less than 10% when tested in accordance with ASTM C473
 11. Surface Water Absorption: less than 1% when tested in accordance with ASTM C473
 12. Permeance: greater than 10 perms, when tested in accordance with ASTM E96
 13. Combustibility: Noncombustible when tested in accordance with ASTM E136
 14. Flame spreads/Smoke Developed: 5/0 when tested in accordance with ASTM E84
 15. Mold/Mildew Resistance: 10 when tested in accordance with ASTM D 3273

2.22 FIRE-RESISTANCE RATED EXTENDED EXPOSURE GYPSUM SHEATHING

- A. Basis of Design: Gold Bond® BRAND e²XP® Fire-Shield® Extended Exposure Gypsum Sheathing
- B. Panel Physical Characteristics
 1. Core: Type X gypsum core, with additives to enhance fire resistance, moisture and mold resistant
 2. Facing: Water-resistant glass mat on both face and back surfaces
 3. Long Edges: Wrapped with water-repellant glass mat
 4. Overall thickness: 5/8 inch
 5. Panel complies with requirements of both ASTM C 1177/C1177M and C1396/C1396M
 6. Classification: Type X, when tested in accordance with ASTM E 119
 7. Racking Strength - Ultimate: 711 lbs/lin ft. when tested in accordance with ASTM E72
 8. Flexural Strength - Parallel: 90 lbs, when tested in accordance with ASTM C473
 9. Humidified Deflection: less than 1/8 inch when tested in accordance with ASTM C473
 10. Nail pull resistance: 90 lbs, when tested in accordance with ASTM C473
 11. Water Absorption: less than 10% when tested in accordance with ASTM C473
 12. Surface Water Absorption: less than 1% when tested in accordance with ASTM C473
 13. Permeance: greater than 10 perms, when tested in accordance with ASTM E96
 14. Combustibility: Noncombustible when tested in accordance with ASTM E136
 15. Flame spreads/Smoke Developed: 5/0 when tested in accordance with ASTM E84
 16. Mold/Mildew Resistance: 10 when tested in accordance with ASTM D 3273

2.23 ACCESSORY PRODUCTS

(Specifier Note: Acoustical sealant and firestopping putty packs may be specified in other Sections, COORDINATE location of information so that it is not duplicated. National Gypsum Co. recommends the products indicated, other products that conform to the reference standards may be acceptable.)

- A. Acoustical sealant

1. Conform to ASTM C 919 Standard Practice for Use of Sealants in Acoustical Applications
2. Products/Manufacturer
 - a. Grabber Acoustical Sealant GSC
 - b. STI SpecSeal Smoke N Sound Caulk
 - c. BOSS 824 Acoustical Sound Sealant

B. Firestopping

1. Conform to ASTM E 90 Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements
2. Products/Manufacturer
 - a. STI SpecSeal SSP Putty Pads
 - b. BOSS 818 Fire Rated Putty Pads

C. Fasteners for use with tile backer

(Specifier Note: EDIT fasteners to correspond with rated and non-rated assemblies. Do not use nails with a Fire-rated assembly, only screws.)

1. Fasteners for ½ inch thick panels:
 - a. Wood Framing: **[1-1/2 inch minimum galvanized roofing nail] [1-1/4 inch minimum corrosion resistant course thread bugle head]**.
 - b. Metal Framing: 1inch minimum corrosion resistant sharp point or drill point bugle head screw.
2. Fasteners for 5/8 inch thick panels:
 - a. Wood Framing: **[1-3/4 inch minimum galvanized roofing nail] [1-1/4 inch minimum corrosion resistant course thread bugle head] [As required in specified fire-rated assembly]**.
 - b. Metal Framing: **[1-1/4 inch minimum corrosion resistant sharp point or drill point bugle head screw] [As required in specified fire-rated assembly]**.

D. Fasteners for use with cement board

1. PermaBase Cement Board Hi-Lo thread screws (No. 8)
 - a. Wafer head, corrosion-resistant
 - b. Overall Thickness: **[1-1/4 inch] [1-5/8 inch]**
 - c. For use with wood framing and complying with ASTM C 1002 Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs
2. PermaBase Cement Board drill point screws (No. 8)
 - a. Wafer head, corrosion-resistant
 - b. Overall Thickness: **[1-1/4 inch] [1-5/8 inch]**
 - c. For use with 20 to 14 ga. Steel framing and complying with ASTM C 1002 Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs

E. Joint Treatment

1. Tape:

- a. Paper Tape: 2-1/16 inches wide (ProForm BRAND Joint Tape)
- b. Paper Tape: 2 inches wide with metal strips laminated along the center crease to form inside and outside corners (ProForm BRAND Multi-Flex Tape Bead)
- c. Fiberglass Tape: Nominal 2 inches wide self adhering tape (ProForm BRAND Fiberglass Mesh Tape)

(Specifier Note: PermaBase BRAND Tape is alkali-resistant and should be used with e²XP® Tile Backer in both wet and non-wet applications.)

- d. Alkali-resistant Fiberglass Tape: Nominal 2 inches wide polymer coated alkali-resistant mesh tape (PermaBase BRAND Tape)

2. Drying Type Compound:

- a. Ready Mix vinyl base compound (ProForm BRAND All Purpose Ready Mix Joint Compound; ProForm Lite-Blue Ready Mix Joint Compound; ProForm BRAND Lite Ready Mix Joint Compound; ProForm BRAND Multi-Use Ready Mix Joint Compound)
- b. Ready Mix vinyl base compound formulated for enhanced mold and mildew resistance (ProForm BRAND XP Ready Mix Joint Compound)
- c. Ready Mix vinyl base compound formulated to reduce airborne dust during sanding (ProForm BRAND Lite Ready Mix Joint Compound with Dust-Tech)
- d. Ready Mix vinyl base topping compound for finish coating (ProForm BRAND Topping Compound)
- e. Ready Mix vinyl base compound for embedding joint tape, cornerbeads or other accessories (ProForm BRAND Taping Joint Compound)
- f. Field Mix vinyl base compound (ProForm BRAND Triple-T Compound)

3. Setting Compound:

(Specifier Note: Use ProForm BRAND Quick Set Setting Compound in conjunction with e²XP® Tile Backer in non-tile applications.)

- a. Field mixed hardening compound (ProForm BRAND Quick Set Setting Compound; ProForm BRAND Quick Set Lite Setting Compound)
- b. Field mixed hardening compound for fire resistance rated construction and penetrations ProForm BRAND Fire Shield 90)

4. Joint Sealant:

- a. Conform to ASTM C920 Standard Specification for Elastomeric Joint Sealants.

PART 3 - EXECUTION

(Specifier Note: COORDINATE Preparation and Installation requirements with the desired partition, ceiling or floor assembly.)

3.1 INSTALLATION, ABUSE RESISTANT GYPSUM BOARD

- A. Install in accordance with manufacturer recommendations

(Specifier Note: EDIT installation requirements dependent on wall construction assembly. INCORPORATE only specification language that is project specific.)

- 1. Single Layer - 3-5/8 inch metal stud construction (1-hr rated; STC 40 or 44)

(Specifier Note: To achieve fire-resistance and STC ratings, metal framing must be minimum 20 ga. steel, spaced 16 inches on center. To obtain the STC 44, requires installation of 2-1/2 inch glass fiber acoustic blanket insulation in the stud cavity. COORDINATE spacing of framing, and inclusion of glass-fiber insulation with the related drawings and specification sections. Wall assembly based on UL Design number U465 or V438.)

- a. Apply **[abuse resistant Type X gypsum board] [Hi-Abuse BRAND XP Gypsum Board]** vertically to each side of metal framing with fasteners 8 inches on center at edges and 12 inches on center in the field of the board
 - b. Stagger vertical joint on each side of wall
2. Unbalanced - 3-5/8 inch metal stud construction *(1-1/2-Hour rated; STC 47)*

(Specifier Note: To achieve fire-resistance and STC ratings, metal framing must be minimum 20 ga. steel spaced 16 inches on center. To obtain the STC 47, requires installation of 2-1/2 inch glass-fiber acoustic blanket insulation in the stud cavity. COORDINATE spacing of framing, and inclusion of glass-fiber insulation with the related drawings and specification sections. Wall assembly based on Gypsum Association Design File No. WP1052.)

- a. Apply **[abuse resistant Type X gypsum board] [Hi-Abuse BRAND XP Gypsum Board]** vertically to one side of metal studs using 1 inch Type S screws, 12 inches on center. Apply face layer of **[Type X gypsum board] [XP Fire-Shield Gypsum Board]** vertically using 1-5/8 inch Type S screws, 12 inches on center
 - b. Opposite side: Apply **[Type X gypsum board] [XP Fire-Shield Gypsum Board]** vertically using 1 inch Type S screws, 12 inches on center
 - c. Stagger vertical joints 24 inches each layer and opposite sides
3. Double Layer - 3-5/8 inch metal stud construction *(2-Hour rated; STC 52)*

(Specifier Note: To achieve fire-resistance and STC ratings, metal framing must be minimum 20 ga steel, spaced 16 inches on center. To obtain the STC 52, requires installation of 2-1/2 inch glass-fiber acoustic blanket insulation in the stud cavity. COORDINATE spacing of framing, and inclusion of glass-fiber insulation with the related drawings and specification sections. Wall assembly based on on UL Design number U411 or V438. V438 is a National Gypsum Company proprietary assembly.)

- a. Apply **[Type X gypsum board] [Fire-Shield Gypsum Board] [XP Fire-Shield Gypsum Board]** vertically to each side of metal studs using 1 inch Type S screws, 16 inches on center. Apply face layer of **[impact resistant gypsum board] [Hi-Impact BRAND XP Gypsum Board]** vertically using 1-5/8 inch Type S screws, 16 inches on center, with screws offset 8 inches from the first layer
- b. Stagger vertical joints 16 inches each layer and opposite sides

3.2 INSTALLATION, HIGH IMPACT GYPSUM BOARD INSTALLATION

- A. Install in accordance with manufacturer recommendations

(Specifier Note: EDIT installation requirements dependent on wall construction assembly. INCORPORATE only specification language that is project specific.)

- B. Single Layer - 3-5/8 inch metal stud construction *(1-hr rated; STC 40 or 44)*

(Specifier Note: To achieve fire-resistance and STC ratings, metal framing must be minimum 20 ga. steel, spaced 16 inches on center. To obtain the STC 44, requires installation of 2-1/2 inch glass fiber acoustic blanket insulation in the stud cavity. COORDINATE spacing of framing, and inclusion of glass-fiber insulation with the related drawings and specification sections. Wall assembly based on UL Design number U465 or V438.)

1. Apply **[impact resistant Type X gypsum board] [Hi-Impact XP Gypsum Board]** vertically to each side of metal framing with fasteners 8 inches on center at edges and 12 inches on center in the field of the board.
2. Stagger vertical joint on each side of wall

C. Unbalanced - 3-5/8 inch metal stud construction *(1-1/2-Hour rated; STC 47)*

(Specifier Note: To achieve fire-resistance and STC ratings, metal framing must be minimum 20 ga, steel spaced 16 inches on center. To obtain the STC 47, requires installation of 2-1/2 inch glass-fiber acoustic blanket insulation in the stud cavity. COORDINATE spacing of framing, and inclusion of glass-fiber insulation with the related drawings and specification sections. Wall assembly based on Gypsum Association Design File No. WP1052.)

1. Apply **[impact resistant Type X gypsum board] [Hi-Impact XP Gypsum Board]** vertically to one side of metal studs using 1 inch Type S screws, 12 inches on center. Apply face layer of **[Type X gypsum board] [XP Fire-Shield Gypsum Board]** vertically using 1-5/8 inch Type S screws, 12 inches on center.
2. Opposite side: Apply **[Type X gypsum board] [XP Fire-Shield Gypsum Board]** gypsum board vertically using 1 inch Type S screws, 12 inches on center
3. Stagger vertical joints 24 inches each layer and opposite sides

D. Double Layer - 3-5/8 inch metal stud construction *(2-Hour rated; STC 52)*

(Specifier Note: To achieve fire-resistance and STC ratings, metal framing must be minimum 20 ga steel, spaced 16 inches on center. To obtain the STC 52, requires installation of 2-1/2 inch glass-fiber acoustic blanket insulation in the stud cavity. COORDINATE spacing of framing, and inclusion of glass-fiber insulation with the related drawings and specification sections. Wall assembly based on UL Design number U411 or V438. V438 is a National Gypsum Company proprietary assembly.)

1. Apply **[[Type X gypsum board] [Fire-Shield Wallboard]] [[impact resistant gypsum board] [Fires-Shield Hi-Impact Wallboard]]** vertically to one side of metal studs using 1 inch Type S screws, 16 inches on center. Apply face layer of **[impact resistant gypsum board] [Fires-Shield Hi-Impact Wallboard]** vertically using 1-5/8 inch Type S screws, 16 inches on center, with screws offset 8 inches from the first layer.
2. Stagger vertical joints 16 inches each layer and opposite sides

3.3 INSTALLATION, CEMENT BOARD

- A. Install in accordance w/manufacture recommendation and ANSI A108.11

3.4 INSTALLATION, ACOUSTICALLY ENHANCED GYPSUM BOARD

- A. General: Install in accordance with manufacturer recommendations and GA-214

(Specifier Note: EDIT installation requirements dependent on wall construction assembly. DELETE specification language that is not project specific.)

B. Single Layer - 2x4 wood stud construction *(non-rated, STC 53)*

(Specifier Note: To achieve indicated STC rating, studs must be installed at 24 inches on center maximum with 3-1/2 inch glass fiber insulation in the stud cavity. COORDINATE spacing of wood framing, and inclusion of glass-fiber insulation with the related drawings and specification sections.)

1. Apply one layer of acoustically enhanced gypsum board vertically to each side of wood studs, using 1-1/4 inch Type W screws, 12 inches on center
2. Provide 1/4 inch gap between acoustically enhanced gypsum board perimeter edge and dissimilar materials
3. Seal perimeter gap **[and penetrations]** with acoustical sealant

C. Single Layer - 2x4 wood stud construction *(1 hour-rated, Load Bearing; STC 53)*

(Specifier Note: To achieve indicated ratings, studs must be installed at 24 inches on center maximum with 3-1/2 inch glass fiber insulation in the stud cavity. COORDINATE spacing of wood framing, and inclusion of glass-fiber insulation with the related drawings and specification sections. Wall assembly is based on UL U309.)

1. Apply one layer of 5/8 inch acoustically enhanced gypsum board vertically to each side of wood studs, using 1-¼ inch Type W screws, 12 inches on center
2. Apply paper tape and joint compound at all joints
3. Cover all screw heads with compound

D. Unbalanced Staggered – 2x4 wood stud construction *(1 hour-rated; STC 60)*

(Specifier Note: To achieve indicated ratings, staggered studs must be installed at 16 inches on center with 2-1/2 inch glass fiber insulation in the stud cavity. Acoustically enhanced gypsum board can be used as either a face layer or a base layer without affecting the STC rating. COORDINATE spacing of wood framing, and inclusion of glass-fiber insulation if required, with the related drawings and specification sections. Wall assembly is based on GA WP3514.)

1. Apply base layer of 5/8 inch fire resistant rated gypsum board vertically to one side of staggered 2 x 4 wood studs, on 2x6 plates using 1-1/4 inch type W screws, 12 inches on center
2. Apply face layer of 5/8 inch acoustically enhanced gypsum board using 2 inch type W screws, 16 inches on center. Stagger vertical joints 16 inches on center each layer
3. Apply one layer of 5/8 inch fire resistant rated gypsum board vertically to opposite side of wood studs using 1-1/4 inch type W screws 12 inches on center. Stagger vertical joints 16 inches.

E. H-Stud Area Separation Wall - wood stud construction *(2 hour-rated; STC 67)*

(Specifier Note: To achieve indicated ratings, studs must be installed at 16 inches on center with 3-1/2 inch glass fiber insulation in the both of the stud cavities. Wall assembly is based on UL U347.)

1. Insert two layers of 1 inch fire resistant rated shaft liner into 2 inch H-studs spaced 24 inches on center
2. Provide a minimum ¾ inch air space between shaft liner and adjacent construction
3. Apply one layer of 5/8 inch of acoustically enhanced gypsum board vertically to each outside face of wood studs, using 1-¼ inch Type W screws, 12 inches on center

F. Single Layer - 3-5/8 inch metal stud construction *(1 hour-rated, Nonbearing; STC 54)*

(Specifier Note: To achieve indicated ratings, studs must be installed at 24 inches on center maximum, with 3-1/2 inch glass fiber insulation in the stud cavity. COORDINATE spacing of metal framing, and inclusion of glass-fiber insulation with the related drawings and specification sections. Wall assembly is based on UL U465.)

1. Apply one layer of 5/8 inch acoustically enhanced gypsum board vertically to one side of metal studs using 1 inch Type S screws, 8 inches on center at perimeter and 12 inches on center in the field
2. Apply one layer 5/8 inch fire resistant rated gypsum board vertically to opposite side of metal studs using 1 inch type S screws 8 inches on center at perimeter and 12 inches on center in the field. Stagger joints on opposite side of wall assembly.
3. Apply paper tape and joint compound at all tapered joints
4. Cover all screw heads with compound

G. Unbalanced - 3-5/8 inch metal stud construction *(1-hour-rated, Nonbearing; STC 57)*

(Specifier Note: To achieve indicated ratings, studs must be installed at 24 inches on center maximum, with 3-1/2 inch glass fiber insulation in the stud cavity. COORDINATE spacing of metal framing, and inclusion of glass-fiber insulation with the related drawings and specification sections. Wall assembly is based on UL U465.)

1. Apply base layer of 5/8 inch acoustically enhanced gypsum board vertically to one side of metal studs using 1 inch type S screws, 24 inches on center
2. Apply face layer of 5/8 inch fire resistant rated gypsum board vertically using 1-5/8 inch Type S screws, 12 inches on center
3. Apply one layer of 5/8 inch fire resistant rated gypsum board vertically to opposite side of metal studs using 1 inch Type S screws, 12 inches on center

4. Stagger all vertical joints 24 inches
5. Apply paper tape and joint compound at all tapered joints
6. Cover all screw heads with compound

H. Double Layer - **[3-5/8 inch metal stud construction (1 hour-rated; STC 60)] OR [6 inch metal stud construction (1 hour-rated; STC 61)].**

(Specifier Note: To achieve indicated ratings, studs must be installed at 24 inches on center with 3-1/2 inch or 6-inch glass fiber insulation in the stud cavity. COORDINATE spacing of metal framing, and inclusion of glass-fiber insulation with the related drawings and specification sections. Wall assembly is based on UL V484.)

1. Apply base layer of 5/8 inch acoustically enhanced gypsum board vertically to one side of metal studs using 1 inch Type S screws, 24 inches on center
2. Apply face layer of 5/8 inch fire resistant rated gypsum board vertically using 1-5/8 inch type S screws, 12 inches on center
3. Apply two layers of 5/8 inch fire resistant rated gypsum board vertically to opposite side, using 1 inch type S screws, 24 inches on center for base layer and 1-5/8 inch type S screws, 12 inches on center for face layer
4. Stagger all vertical joints 24 inches

(Specifier Note: SELECT single layer construction for a one hour-rating OR double layer construction for a 2 hour-rating. SELECT corresponding options in paragraph and sub-paragraphs below.)

I. Unbalanced Layer – 2-1/2 inch double metal stud construction (1 hour-rated, Nonbearing; STC59)

(Specifier Note: To achieve indicated ratings, studs must be installed at 24 inches on center maximum, with 3 inch glass fiber insulation in the stud cavity. Acoustically enhanced gypsum board can be used as either a face layer or a base layer without affecting the STC rating. COORDINATE spacing of metal framing, and inclusion of glass-fiber insulation with the related drawings and specification sections. Wall assembly is based on UL V488.)

1. Apply base layer of 5/8 inch acoustically enhanced gypsum board vertically to one side of metal studs, using 1 inch Type S screws, 8 inches on center at perimeter and 12 inches on center in the field
2. Apply face layer of 5/8 inch fire resistant rated gypsum board vertically using 1-5/8 inch Type S screws, 12 inches on center, offset 8 inches from first layer
3. Apply one layer of 5/8 inch fire resistant rated gypsum board vertically to opposite side of metal studs, using 1 inch Type S screws, 8 inches on center at perimeter and 12 inches on center in the field
4. Stagger vertical joints on opposite sides
5. Cover all screw heads with compound

3.5 INSTALLATION, INTERIOR EXTENDED EXPOSURE GYPSUM PANELS

A. General: Install in accordance with manufacturer recommendations, ASTM C840 and GA-21

(Specifier Note: e2XP Interior Extreme Gypsum Panels are ideally suited for extreme interior applications. These applications include installation of interior gypsum panels prior to the completion of the building envelope; installation of gypsum panels on the interior face of exterior walls; installation adjacent to wet areas; and installation in non-conditioned space. National Gypsum provides a 12 month exposure warranty against deterioration and delamination, when installed as recommended.)

B. Unenclosed Building Envelope:

1. To allow for installation of gypsum panels prior to fully enclosing the building envelope, install interior extended exposure gypsum panels in lieu of gypsum board in accordance with manufacturer recommendations

C. Interior Face of Exterior Wall:

1. To assist in moisture control within exterior building walls, install interior extended exposure gypsum panels in lieu of gypsum board on interior face, in accordance with manufacturer recommendations

D. Adjacent to Wet Walls:

1. To assist in the moisture and mold control on walls adjacent to wet walls or within 8 feet of a plumbing fixture, install interior extended exposure gypsum panels in lieu of gypsum board, as a tile backer or a substrate for other wall finish. **[Apply Level 5 finish in accordance with Gypsum Association GA-214 where panels will be located in critical lighting conditions or will receive a gloss, semi-gloss, or enamel paint finish.]**

E. Fire-Resistance Rated:

1. General: Install in accordance with manufacturer recommendations, ASTM C840 and GA-216

(Specifier Note: EDIT installation requirements dependent on wall construction assembly. DELETE specification language that is not project specific.)

2. Single Layer - 3-1/2 inch 20 ga. metal stud construction *(1 hour-rated, Load Bearing)*

(Specifier Note: Studs spaced at maximum 24 inches on center. COORDINATE spacing of metal framing, and inclusion of glass-fiber insulation if required, with the related drawings and specification sections. Wall assembly based on UL U425.)

- a. Apply 5/8 inch, Type X Interior Extended Exposure Gypsum Panels horizontally to each side of metal studs using 1-inch bugle head screws, 8 inches on center, with last 2 screws 3/4 inch and 4 inches from each edge of panel

3. Double Layer - 3-1/2 inch, 20 ga. metal stud construction *(2 hour-rated, Load Bearing)*

(Specifier Note: Studs spaced at maximum 24 inches on center. COORDINATE spacing of metal framing, and inclusion of glass-fiber insulation if required, with the related drawings and specification sections. Wall assembly based on UL U425.)

- a. Apply 2 layers of 5/8 inch, Type X Interior Extended Exposure Gypsum Panel horizontally to each side of metal studs using 1-inch bugle head screws, 8 inches on center, with last 2 screws 3/4 inch and 4 inches from each edge of panel. Stagger joints 12 inches on each layer and side of wall assembly.

4. Single Layer - 3-5/8 inch metal stud construction *(1 hour-rated)*

(Specifier Note: Studs spaced at maximum 24 inches on center. COORDINATE spacing of metal framing, and inclusion of glass-fiber insulation if required, with the related drawings and specification sections. Wall assembly based on UL U465.)

- a. Apply 5/8 inch, Type X Interior Extended Exposure Gypsum Panel vertically to each side of metal studs using 1-inch Type S steel screws, 8 inches on center along edges of panel and 12 inches on center in the field of the panel. Stagger joints on each side of wall assembly.

5. Double Layer - 2-1/2 inch min .25 MSG galvanized steel metal stud construction *(2 hour-rated)*

(Specifier Note: Studs spaced at maximum 24 inches on center. COORDINATE spacing of metal framing, and inclusion of glass-fiber insulation if required, with the related drawings and specification sections. Wall assembly based on UL U411.)

- a. Apply 2 layers of 5/8 inch, Type X Interior Extended Exposure Gypsum Panel vertically to each side of metal studs using 1-inch Type S screws, 16 inches on center along vertical edges. Outer layer attached to the studs over the inner layer with 1 5/8 inch long type S steel screws spaces 16 inches on center in the field and along the vertical edges and 12 inches on center to the floor and ceiling runners. Stagger joints on each layer and side of wall assembly.
6. Single Layer - I Studs, C-H Studs, or C-T Studs - 2-1/2 inch stud construction **(1 hour-rated)**

(Specifier Note: Studs must be installed at 24 inches on center. COORDINATE spacing of metal framing, and inclusion of glass-fiber insulation if required, with the related drawings and specification sections. Wall assembly based on UL U499.)

- a. Apply 5/8 inch, Type X Interior Extended Exposure Gypsum Panel **[vertically][horizontally]** to one side of metal studs using 1-inch Type S steel screws, 12 inches on center along edges of panel and in the field of the panel. Apply 1 inch gypsum wallboard liner panels to the opposite side with vertical edges inserted in I-Studs, panels attached to "J" runners with 1 5/8 inch long type S self-drilling, self-tapping bugle head steel screws spaced not greater than 24 inches on center.
7. Double Layer - I Studs, C-H Studs, or C-T Studs - 2-1/2 inch stud construction **(2 hour-rated)**

(Specifier Note: Studs must be installed at 24 inches on center. COORDINATE spacing of metal framing, and inclusion of glass-fiber insulation if required, with the related drawings and specification sections. Wall assembly based on UL U497.)

- a. Apply two layers of 5/8 inch, Type X Interior Extended Exposure Gypsum Panel vertically to one side of metal studs using 1-inch Type S self-drilling, self-tapping bugle head steel screws, 24 inches on center along edges of panel and in the field of the panel. Outer or face layer attached to studs with 1 5/8 inch long type S, self-drilling, self-tapping bugle head steel screws spaced 12 inches along the edges and in the field of the boards. Stagger from screws in inner layer. Apply 1 inch gypsum wallboard liner panels to the opposite side with vertical edges inserted in I-Studs, panels attached to "J" runners with 1 5/8 inch long type S self-drilling, self-tapping bugle head steel screws spaced not greater than 24 inches on center.
8. Single Layer - 2x4 wood stud construction **(1 hour-rated, Load Bearing)**

(Specifier Note: Studs spaced at maximum 16 inches on center. COORDINATE spacing of wood framing, and inclusion of glass-fiber insulation if required, with the related drawings and specification sections. Wall assembly based on UL U305.)

- a. Apply 5/8 inch, Type X Interior Extended Exposure Gypsum Panel **[vertically][horizontally]** to each side of wood studs, using 1-7/8-inch long 6d cement coated nails, 0.0915 inch shank diameter and 15/64 inch diameter heads spaced 7 inches on center.
9. Single Layer - 2x4 wood stud construction **(1 hour-rated, Load Bearing)**

(Specifier Note: Studs spaced maximum 24 inches on center. COORDINATE spacing of wood framing, and inclusion of glass-fiber insulation if required, with the related drawings and specification sections. Wall assembly based on UL U309.)

- a. Apply 5/8 inch, Type X Interior Extended Exposure Gypsum Panel **[vertically][horizontally]** to each side of wood studs, using 1-7/8-inch long 6d cement coated nails, 0.0915 inch shank diameter and 1/4 inch diameter heads spaced 7 inches on center

10. Double Layer - 2x4 wood stud construction (2 hour-rated, Load Bearing)

(Specifier Note: Studs spaced maximum 16 inches on center. COORDINATE spacing of wood framing with the related drawings and specification sections. Wall assembly based on UL U301.)

- a. Apply 2 layers of 5/8 inch, Type X Interior Extended Exposure Gypsum Panel **[vertically][horizontally]** to each side of wood studs, using 1-7/8-inch long nails spaced 6 inches on center for interior layer, and 2-3/8 inch long nails for attaching outer layer 8 inches on center. Stagger joints on each layer and side of wall assembly.

3.6 INSTALLATION, TILE BACKER

A. General:

(Specifier Note: Gold Bond® brand e²XP® Tile Backer has acrylic coated fiberglass facers which provide an integral water barrier, eliminating the need for a separate water barrier. Do not install a vapor retarder directly behind e²XP® Tile Backer.)

1. Install in accordance with manufacturer recommendations, ASTM C840 and GA-216
2. Install with acrylic coated water barrier side facing away from the framing, so that finishes shall be applied to the coated side.
3. Caulk or seal penetrations and abutments to dissimilar materials.

B. Tile Backer Installation for ceilings:

1. Install panels perpendicular to supports spaced a maximum of 12 inches on center for 1/2 inch thick panels and 16 inches on center for 5/8 inch thick panels.
2. Space fasteners 8 inches on center along all support members. Drive fasteners flush with the panel surface, do not countersink.

C. Tile Backer Installation for countertops:

1. Apply backer over a minimum 23/32 inch exterior grade plywood sub-base using a bed of thin set mortar.
2. Fasten using 1 1/4 inch corrosion resistant roofing nails or coarse thread bugle head screws spaced no more than 8 inches on center in both directions. Drive fasteners flush with the panel surface, do not countersink.

D. Tile Backer Installation for walls:

1. Install panels horizontal or vertical to supports spaced a maximum of 16 inches on center without blocking or 24 inches on center with blocking at all joints for 1/2 inch thick panels and 24 inches on center for 5/8" inch thick panels.
2. Space fasteners 8 inches on center along all support members. Drive fasteners flush with the panel surface, do not countersink.
3. Dry Non-Tile Applications

- a. Tape joints with fiberglass mesh tape and embed with setting type joint compound.

- b. Skim the surface with a setting or ready-mix joint compound.

(Specifier Note: Wet non-tile applications have higher than normal humidity conditions such as swimming pools, process facilities, etc.)

4. Wet Non-Tile Applications

- a. Finish walls with a direct applied finish systems, or materials suitable for humid environments.
- b. Seal transitions and abutments to dissimilar materials with flexible joint sealant.

3.7 INSTALLATION, GYPSUM SHEATHING

A. General

1. Install in accordance with manufacturer recommendations and **[ASTM C1280] [GA-253]**

(Specifier Note: EDIT installation requirements dependent on wall construction assembly. INCORPORATE only specification language that is project specific.)

2. Apply **[Extended Exposure Gypsum Sheathing] [Type X Extended Exposure Gypsum Sheathing] [vertically] [horizontally]** to **[metal] [wood]** framing
3. Stagger end joints on horizontal applications

DISCLAIMER:

National Gypsum Company Guide Specifications have been written as an aid to the professionally qualified specifier and design professional. The use of this information requires the professional judgment and expertise of the qualified specifier and design professional to adapt the information to the specific needs of the building Owner and the project; to coordinate with the design professional's construction document process, and to meet the applicable building codes, regulations and laws. National Gypsum disclaims any warranty, expressed or implied, including the warranty of fitness for a particular purpose of the product for a project.

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