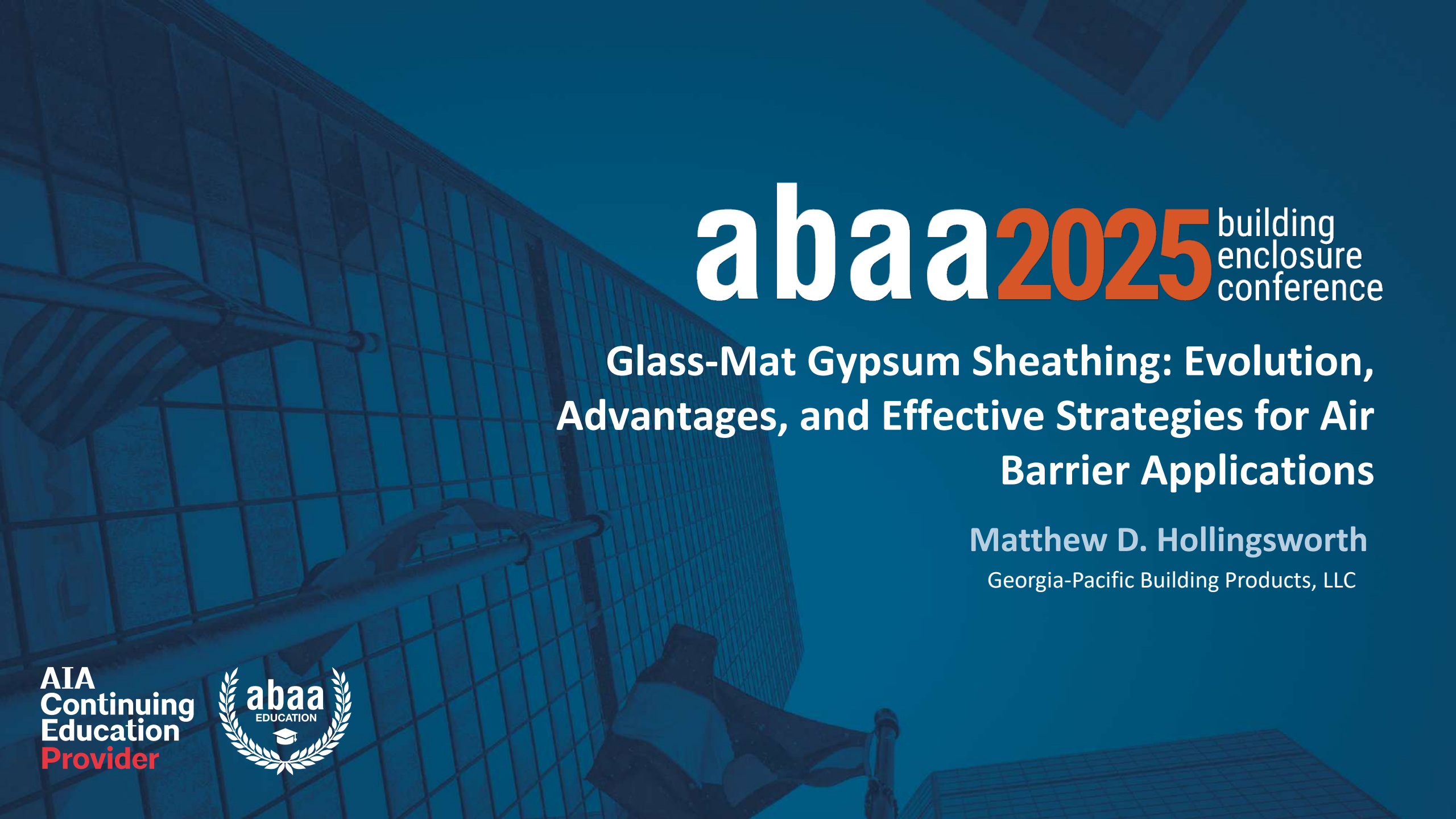

abaa2025 building enclosure conference

Glass-Mat Gypsum Sheathing: Evolution, Advantages, and Effective Strategies for Air Barrier Applications

Matthew D. Hollingsworth

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AIA Continuing Education Provider

abaa EDUCATION

Glass-Mat Gypsum Sheathing: Evolution, Advantages, and Effective Strategies for Air Barrier Applications

Matthew Hollingsworth
Georgia-Pacific Building Products, LLC.

Learning Objectives

1. Explain why Glass-Mat Sheathing is commonly used as a substrate.
2. Explore the Manufacturing and Installation Process of Glass-Mat Sheathing.
3. Identify common gotchas, watchouts, and workarounds when installing an AB-WRB over glass-mat sheathing.
4. Compare ASTM D4541 and ABAA T0002 and investigate test results.

Glass-Mat Gypsum Sheathing

What is Gypsum?

Common Name: Gypsum

Chemical name: Calcium Sulfate Dihydrate

Chemical formula: $CaSO_4.2H_2O$

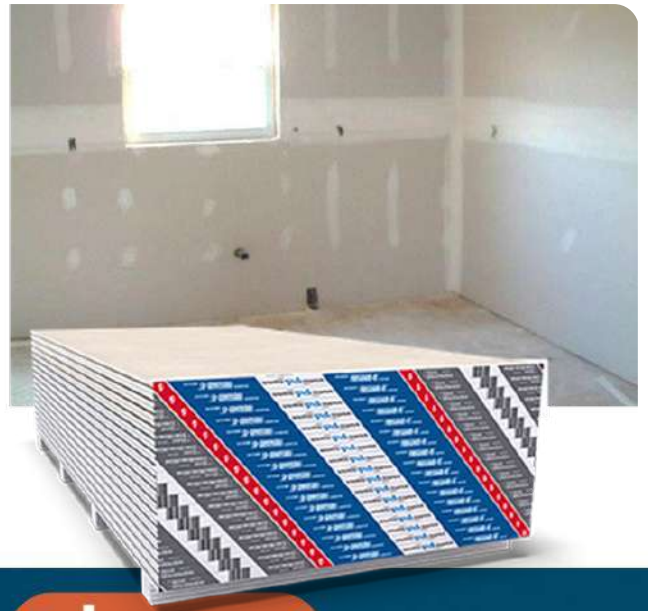
Form: Soft, brittle, non-metallic mineral

Non-construction uses:

- Fertilizer / Soil supplement
- Ingredient in food processing
- Toothpaste
- Dental molds

History of gypsum in construction.

- Used for thousands of years as a building material and architectural detailing element
- Egyptians used gypsum blocks and plaster in the building of the pyramid of Cheops
- In the late 1700s, the French chemist Lavoisier analyzed the chemical make-up of gypsum which help with the development "Plaster of Paris" as a building material.
- In 1888 original gypsum wall boards were made by layering plaster within four plies of wool felt paper- board with had open untaped edges.



History of gypsum in construction.

- 1916 - Paper-faced was introduced.
  - ready-to-finish panel with wrapped edges
- 30 and 40s – Introduction of fire-resistance tests and Type-X board
- Late '60s through the early 1970s, growth of the modern skyscraper
  - Buildings grew taller and lighter faster to install materials gained in popularity- gypsum panels
- Late 70’s and early 80s Paper-faced Exterior Gypsum Sheathing is introduced

Paper-faced exterior gypsum sheathing

Low-cost light-weight alternative

Ideal substrate for a variety facades

Non-Combustible but…..

- Paper can promote biological growth
- Can be vulnerable to moisture damage and potential delamination

Glass-Mat Gypsum Sheathing

Unique characteristics/capabilities

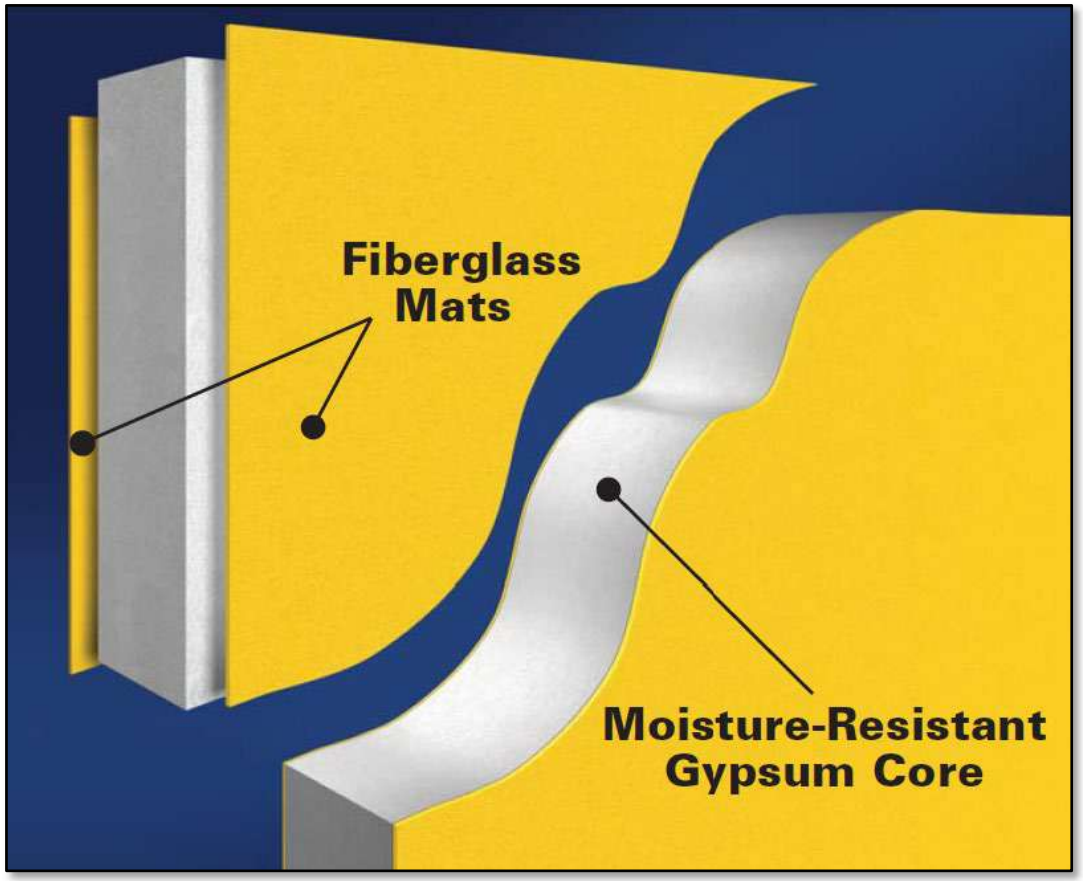
Introduced in 1986

Glass Mat Embedded into Core

- Superior Strength to Resist Warping, Buckling

Inorganic Glass Mats

- Resists Mold & Mildew



Glass-mat technology provides superior moisture and mold resistance.

Can function as an Air Barrier and or provides a rigid substrate for a wide variety of air and water-restive barrier systems

Next Generation? Glass-Mat as an Air and Water-Restive Barrier

Factory-applied or integrated AB-WRB and Glass-Mat Sheathing

Board-to-Board seams, transitions, and fastener heads are treated on-site

after installation

Reduces the need for a secondary application in the field of the board

Advantages and Benefits of Glass-Mat Sheathing

o **Weather Protection** – Enhanced moisture-resistant core and glass mat facers to provide a structure extended protection against water and air infiltration from the external environment.

- helps protect the product when exposed to weather during a project's construction process.

o **Mold Resistance** – Gypsum Sheathing's naturally mold-resistant glass mat facers and anti-microbial core treatment help prevent mold growth and decay.

- Products in this category score extremely well in laboratory mold tests in accordance to ASTM D3273

o **Fire Resistance** – 5/8" (15.9 mm) Gypsum Sheathing is produced with a Type X core and is UL-classified for use in fire-rated assemblies. Its

- Noncombustible gypsum core and glass mat facers not only provide tested resistance to burning,
- Extremely low flame spread and smoke-generated values as well.

Advantages and Benefits of Glass-Mat Sheathing

o **Exterior Systems Compatibility** – Accepted application surface for weather-resistive barriers and coatings and cladding types.

- Brick or Stone Veneers
- Stucco Systems
- Exterior Insulation and Finishing Systems (EIFS)
- Metal Panel Systems
- Wood, Vinyl and Composite Siding Products
- Wood Shakes and Shingles

o **Construction Efficiency** – Versatile, practical, easy, and installed quickly.

o **Noise Attenuation** – Gypsum Sheathing can be a component material in several sound control assemblies

How’s It Made

Supplying Gypsum

Natural Gypsum Rock

Found in 85+ countries

Gypsum rock is extracted at quarries and mines near plants or transported by cargo ship, rail, or truck and consolidated into large piles near the plant.

Synthetic Gypsum (aka “FGD Gypsum”)

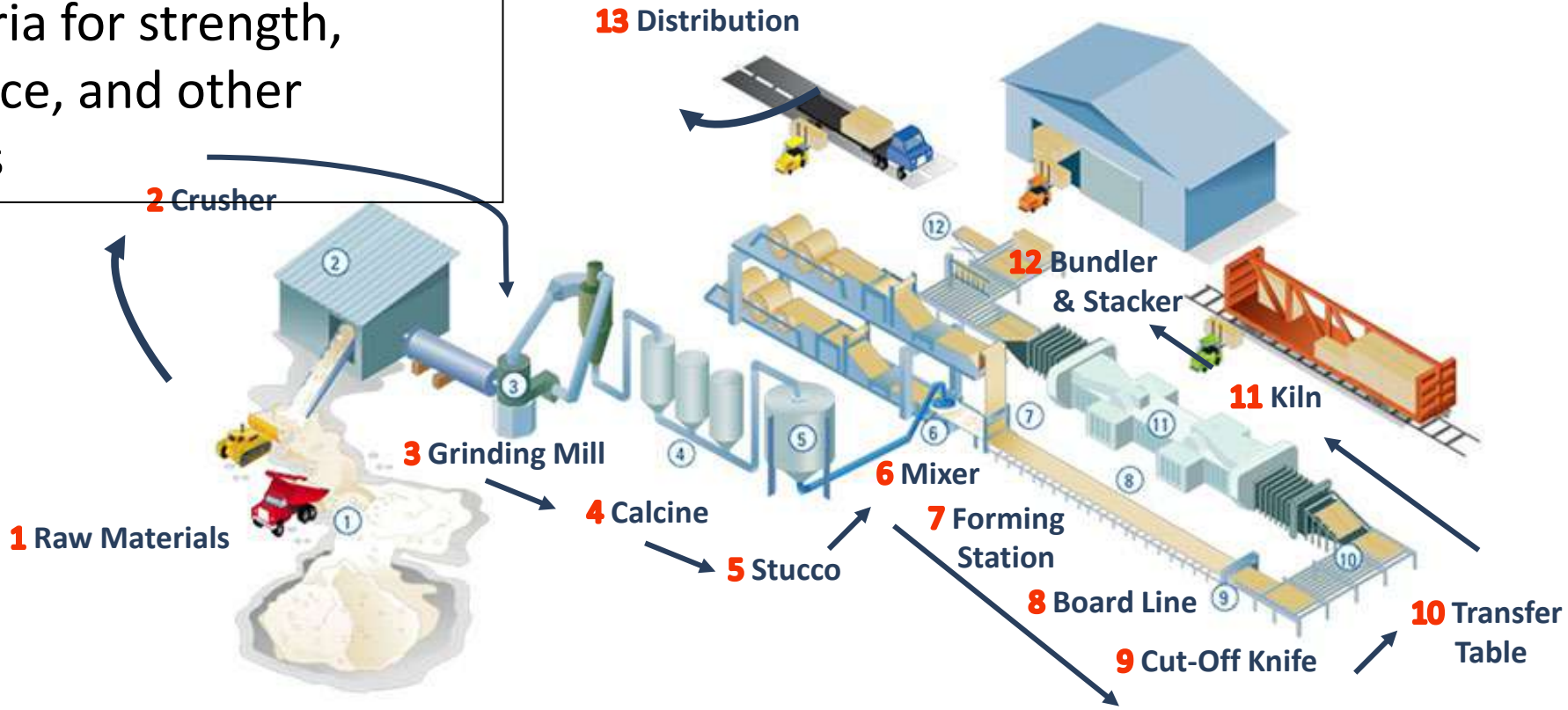
FGD stands for *Flue Gas Desulfurization*,.

Synthetic gypsum is a by-product-where sulfur dioxide is removed from the coal fired power plant’s waste gases

Same chemical composition of natural gypsum rock

How is Gypsum Board Made?

NOTE: ASTM standards govern the manufacture of gypsum board and set strict criteria for strength, water resistance, and other characteristics



ASTM C1177 *Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing*

Standard	ASTM C1177
Scope	• This specification covers glass-mat gypsum substrate, which is designed to be used as an exterior substrate for a weather barrier. • The glass-mat gypsum sheathing consisting of a noncombustible water-resistant gypsum core, surfaced with glass-mat that is partially or completely embedded in the core
Referenced Standards	**C11** Terminology Relating to Gypsum and Related Building Materials and
	C1264 Specification for Sampling, Inspection, Rejection, Certification, Packaging, Marking, Shipping, Handling, and Storage of Gypsum Panel Products
	D3273 Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber
	E119 Test Methods for Fire Tests of Building Construction and Material

Note: Mat to core strength/bond is not a component of these standards and depending on manufacturer this might not even be a value that is tested for and or recorded

Making Class-mat Gypsum Sheathing

The “slurry”

Incorporating the Glass-Mat (forming station)

- The board forming line starts with two large rolls (top and bottom) fiberglass mats.
- The slurry is poured and "sandwiched" between the mat
- The face mat wraps around the sides of the sandwich to enclose the edges of the board.

Success on a Project.

Storing Onsite

- Material delivered just prior to installation time.
- Placed under cover immediately - fully protected from weather, direct sunlight exposure, and condensation.
- Stacked flat
- Gypsum panel supported on risers and level platform
- Gypsum panels stocked in unenclosed buildings shall be placed far enough inside to prevent exposure to inclement weather, such as blowing rain or snow.

Preconstruction

- Meeting to set expectations
- Review project documentation
- Make sure the WRB and sheathing contractors are on the same page
- Critical connections
- Mock-up

Framing

- All Framing members (wood or steel) should be
  - straight and true. Stud
  - spacing shall be not greater than 24 in. (610 mm) o.c.
  - Not vary more than 1/8 in. (3 mm)
- Nonstructural steel framing members shall conform to ASTM C645 Standard Specification for Nonstructural Steel Framing Members (light gauge), or AISI S220 North American Standard for Cold-Formed Steel Framing – Nonstructural Members.
- Structural steel framing members shall conform to ASTM C955 Standard Specification for Cold-Formed Steel Structural Framing Members or AISI S240 – North American Standard for Cold-Formed Steel Structural Members

Fasteners Types

Fastener — nails, screws or staples used for the mechanical application of gypsum sheathing.

Fastener*	Length 1/2" (12.7 mm) Thick Sheathing	Length 5/8" (15.9 mm) Thick Sheathing	Description	Application
	1" (25 mm)	1-1/4" (32 mm)	Bugle head fine thread, corrosion-resistant drill point drywall screw	DensGlass Sheathing to heavy-gauge metal framing (18 gauge or thicker)
	1" (25 mm)	1-1/4" (32 mm)	Bugle head fine thread, corrosion-resistant sharp point drywall screw	DensGlass Sheathing to light-gauge metal framing furring (20-25 gauge)
	1-1/4" (32 mm)	1-5/8" (41 mm)	Bugle head, rust-resistant, coarse thread sharp point screw	DensGlass Sheathing to wood framing
	1-1/4" (32 mm)	1-1/4" (32 mm) metal 1-5/8" (41 mm) wood	Wafer head, corrosion-resistant screws, drill or sharp point	DensGlass Sheathing to heavy-gauge or light-gauge, metal or wood framing
	1-1/2" (38 mm)	1-3/4" (45 mm)	11-gauge, galvanized nail	DensGlass Sheathing to wood framing

For screws, meet or exceed ASTM C1002 or C954. Contact fastener manufacturer for correct amount of corrosion resistance.

Nails — 12-gauge galvanized steel roofing nail.

Staples — 16-gauge galvanized steel , 7/16 in. (11 mm) crown, with divergent points

Screws - Comply with ASTM C1002 Standard Specification for Steel Self Piercing Tapping Screws for Application of Gypsum Panel Products or ASTM C954 Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs

Fastener Spacing and Negative Uniform Wind Loads

Fastening and Framing

Thickness	Framing Spacing	Panel Orientation	Fastener Spacing – Wood Framing[4]	Fastener Spacing – Metal Framing[4]
1/2 inch (12.7 mm)	24 inches (610 mm) o.c. max[1,3]	Parallel[3] or Perpendicular	8 inches (203 mm) o.c. along framing	8 inches (203 mm) o.c. along framing
5/8 inch (15.9 mm)	24 inches (610 mm) o.c. max[3]	Parallel[3] or Perpendicular	8 inches (203 mm) o.c. along framing	8 inches (203 mm) o.c. along framing

- Fasteners shall be located not less than 3/8 in. (10 mm) from the ends and edges of the gypsum sheathing

- Screws shall be driven so that the screw heads are at or slightly below the gypsum sheathing facer without breaking the facer or stripping the framing member

Stud Spacing, In./O.C. (mm)	Screws, In./O.C. (mm)	Ultimate load, PSF* (kPa)
16 (406)	8 (203)	132 (6.32)
16 (406)	6 (152)	178 (8.52)
16 (406)	4 (102)	198 (9.48)
12 (305)	8 (203)	165 (7.90)
12 (305)	6 (152)	192 (9.19)
12 (305)	4 (102)	236 (11.30)
8 (203)	8 (203)	227 (10.87)
8 (203)	6 (152)	213 (10.2)
8 (203)	4 (102)	318 (15.23)

Shear Wall — a wall designed and constructed to resist lateral wind or seismic loads.

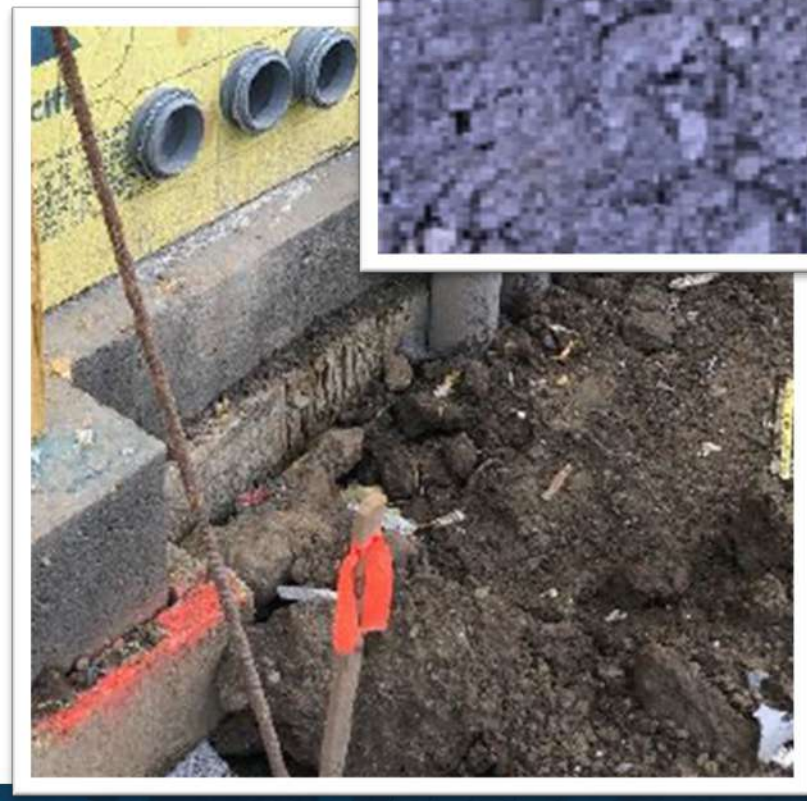
Installation

- Ends and edges of the sheathing should fit tightly.
- Perpendicular or Parallel to the framing members
- Gypsum sheathing shall not span across building construction joints.
- All cut edges and ends shall be trimmed to obtain neatly fitting joints when installed.
- Vertical joints shall be staggered.
- Glass-mat sheathing is not suitable as a nail base.

Installation-Last items

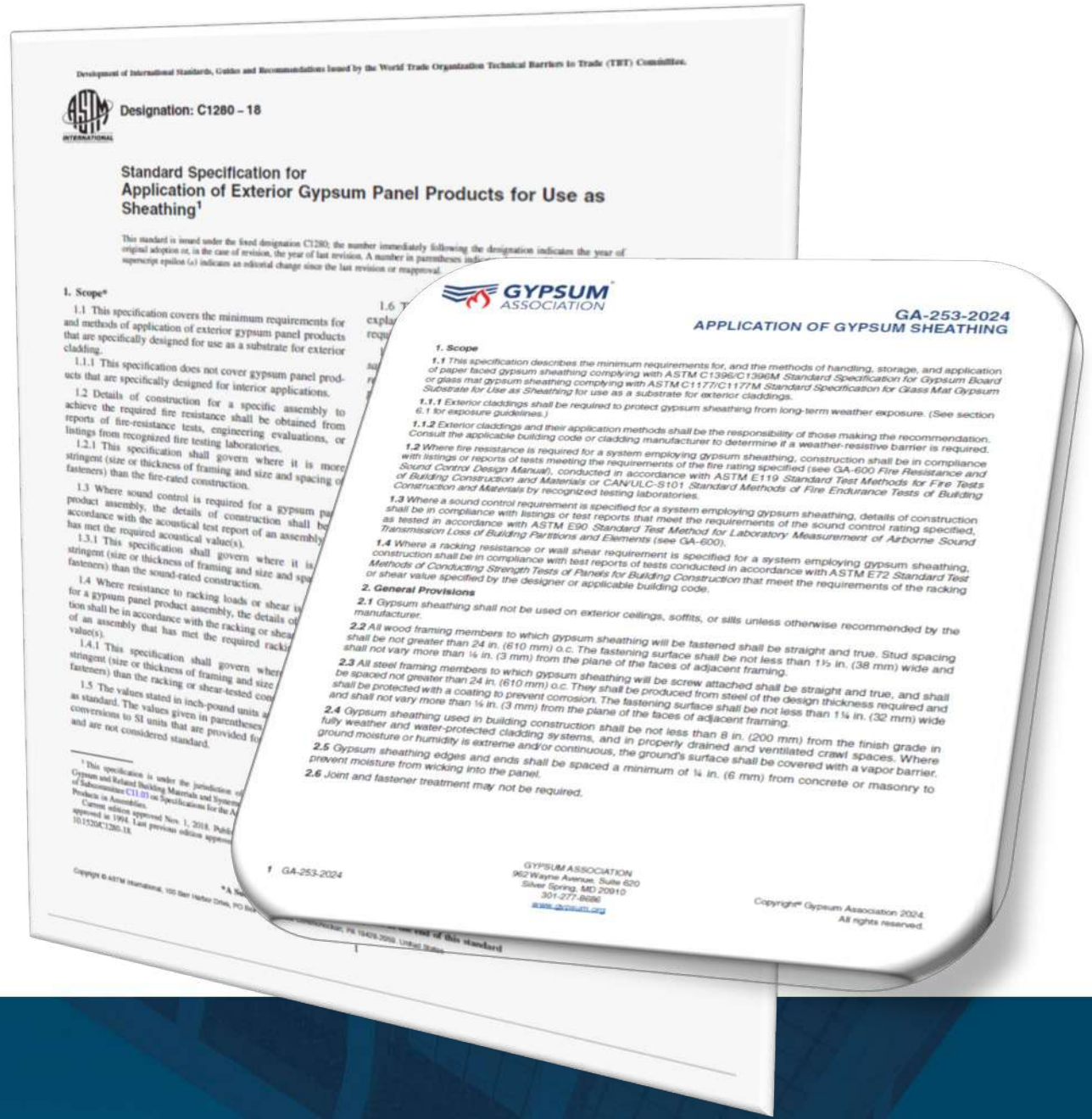
- Minimum of ¼ in. (6 mm) from concrete or masonry to prevent moisture from wicking into the panel

- Gypsum sheathing used not less than 8 in. (200 mm) from the finish grade.



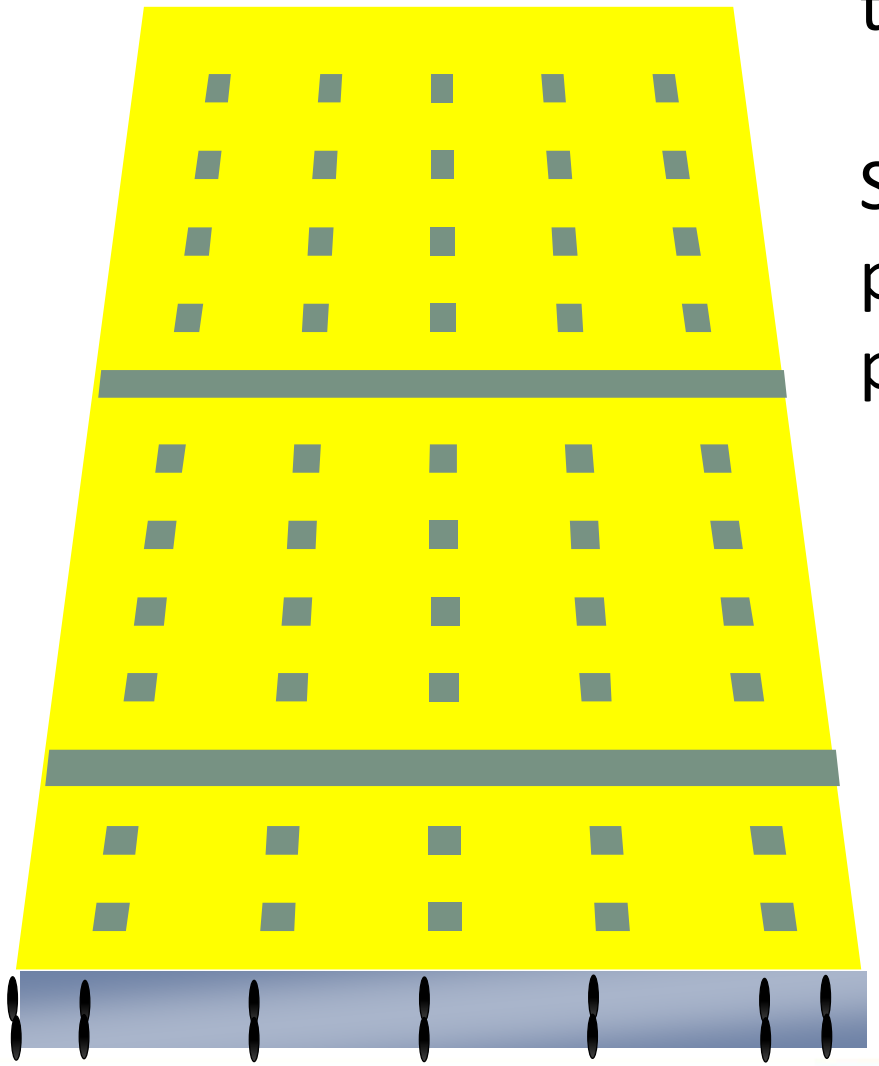
Installation: Documents

- GA-253 - APPLICATION OF GYPSUM SHEATHING
- ASTM C1280 - Standard Specification for Application of Exterior Gypsum Panel Products for Use as Sheathing
- Manufactured Supplied Instructions and Technical Guides



Panelization Best Practices

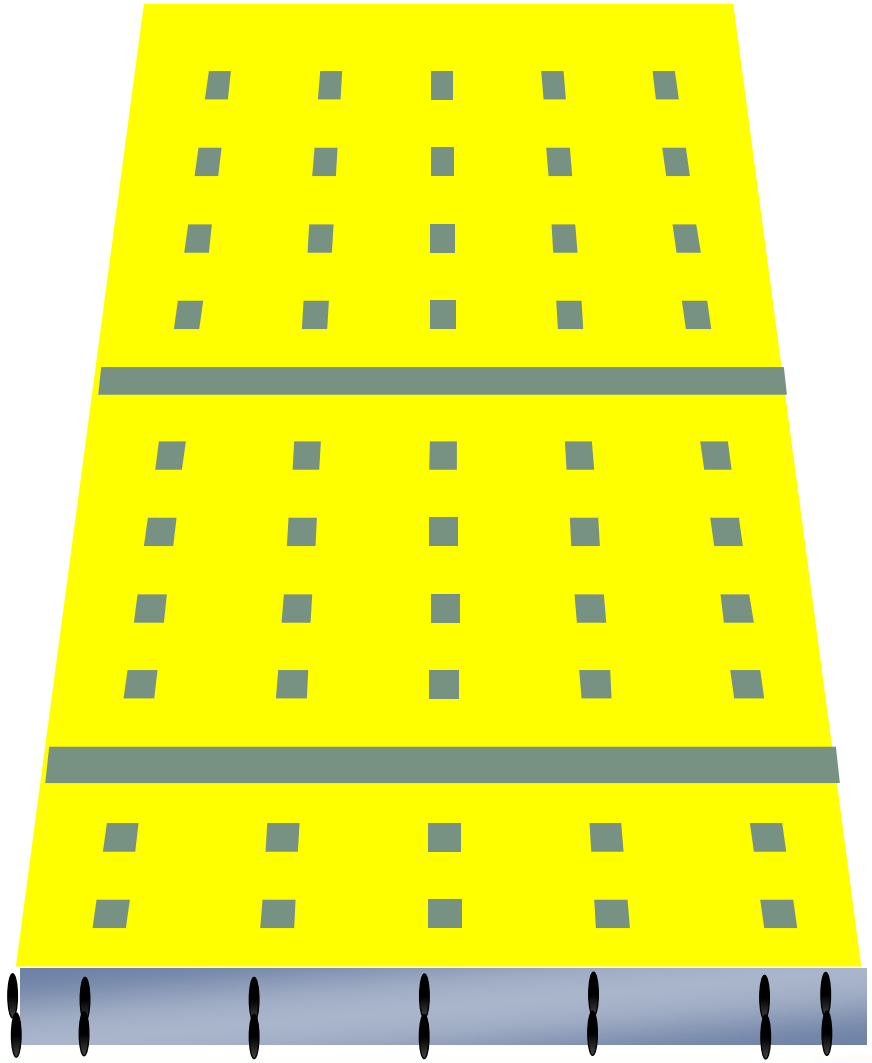
Panelized Sections



Protect edges from moisture during transportation and storage.

Store “finished” panels either in-plant or onsite using storage best practices.

Spacers/Slueters



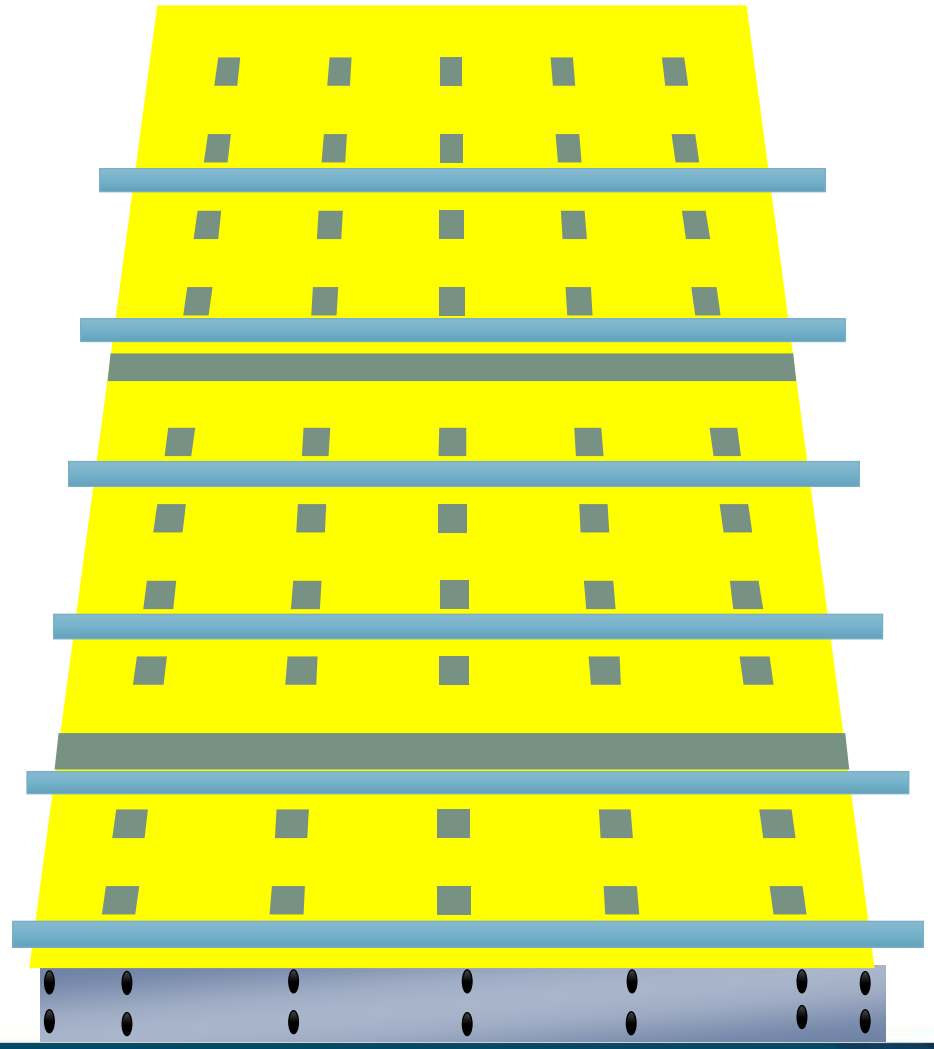
Load panelized sections either board facing board or if multiple panels are stacked;

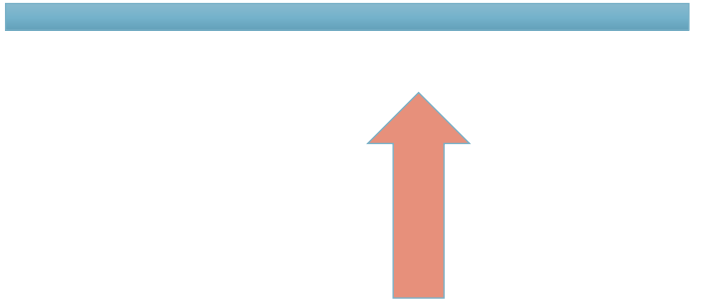
- Use spacers/slueters to help prevent damage to the face of the panel during shipment

Example of spacers/slueters types:

- Foam spacers
- Gypsum spacers

Spacers/Slueters

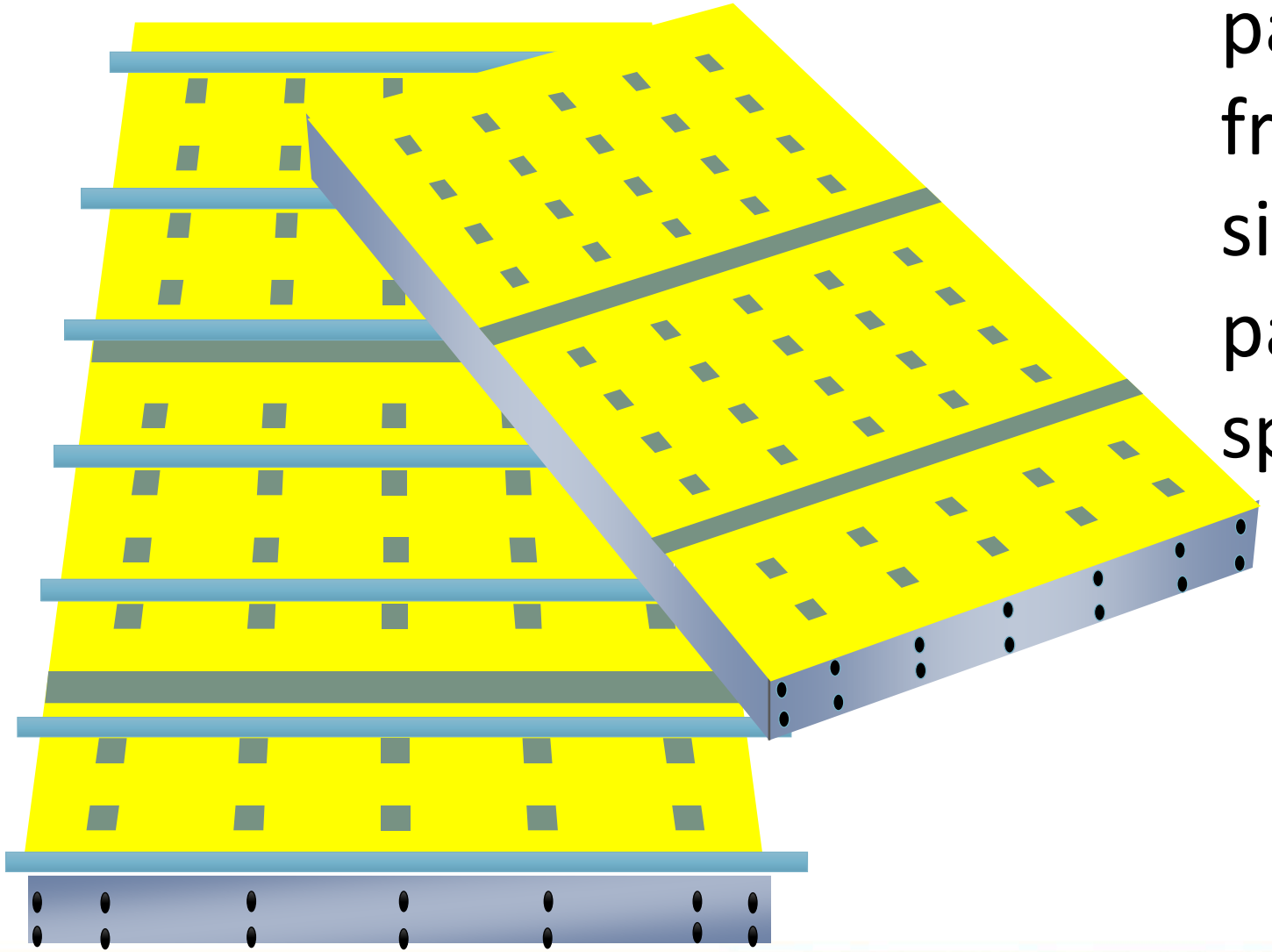




Foam spacers used for illustration purposes

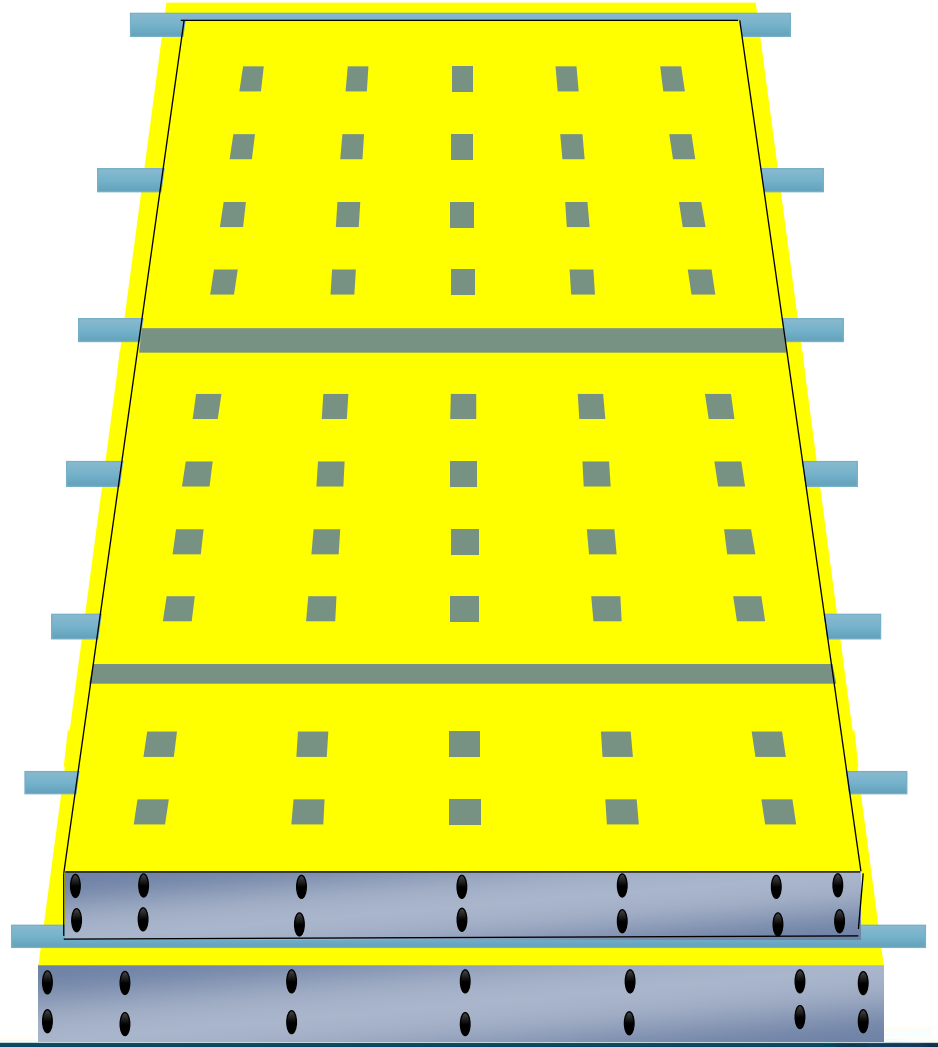
Spacers should extend across framing

Stacking Panels



If stacking panelized units framing member side down place panel on the spacers/slueters

Stacking Panels



Center panelized units over top of the bottom panels to displace weight evenly

Corner Protection

Use corner protection under strapping to minimize damage during shipping

Tighten strapping so that the panelized units do not slide back and forth and potentially damage the panels during transit

Fire-Rated Construction

BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States

BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States

Design Criteria and Allowable Variances

See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

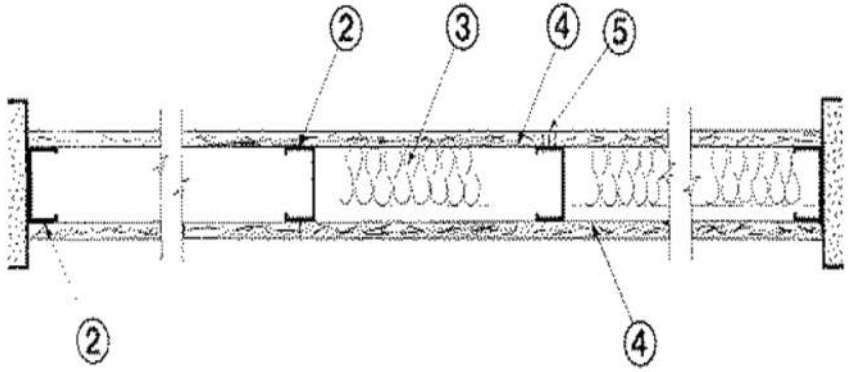
Design Criteria and Allowable Variances

Design No. **U465**

March 3rd, 2025

Nonbearing Wall Rating — 1 HR.

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**



1. **Floor and Ceiling Runners —** (Not Shown) — Channel shaped runners, 3-5/8 in. deep (min), 1-1/4 in. legs, formed from min No. 25 MSG galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

Gypsum Boards: Three primary types of noncombustible cores

Regular Gypsum Board

- Naturally occurring fire resistance from gypsum (21% water)
- ***Where to use*** unrated walls
- ½" in 45-min

Type X Gypsum Board

- Special core additives (glass fiber) increase natural fire resistance
- "X" for extra fire resistance
- ASTM C1396 (1-hour for 5/8" and 45-minutes for ½")
- ***Where to use:*** Assemblies where a 1-hour rating is required

Type C Gypsum Board

- Additional core additives for increased fire performance over Type X
- ***Where to use:*** Assemblies requiring a fire rating especially where panel thickness is a concern

Fire-Resistance

According to Gypsum Association FAQs

Fire Rated Assemblies

Details Matter

- ❑Panel Thickness
- ❑Panel Placement and Orientation
- ❑Framing and Framing Spacing
- ❑Fastener and Fastener Spacing
- ❑Accessories- Head of wall track
- ❑Joints
- ❑Allowable gaps? – generally ¼” gaps are acceptable

What about penetrations?

UL U305

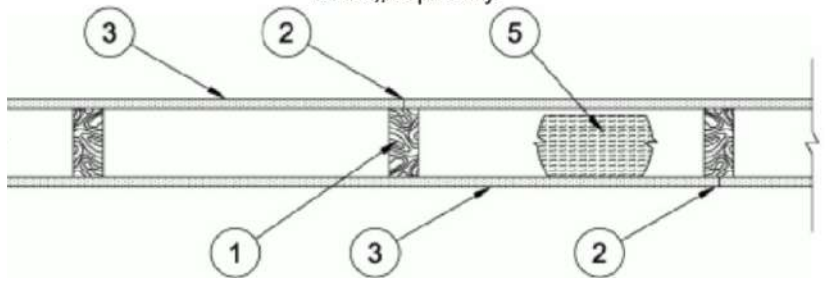
Design No. **U305**
March 3rd, 2025

Bearing Wall Rating — 1 Hr
Finish Rating — See Items 3, 3A, 3D, 3E, 3F, 3G, 3H, 3J and 3L.
STC Rating - 56 (See Item 9)
This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

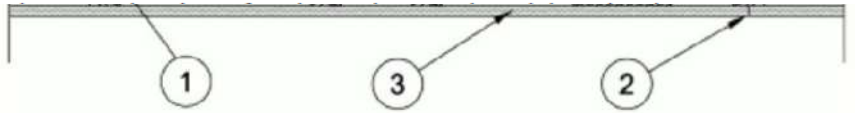
ducts shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

1. **Wood Studs —** Nom 2 by 4 in. spaced 16 in. OC max, effectively firestopped.

2. **Joints and Nail-Heads —** Joints covered with joint compound and paper tape. Joint compound and paper tape may be omitted when square edge boards are used. As an alternate, nom 3/32 in. thick gypsum veneer plaster may be applied to the entire surface of Classified veneer baseboard with the joints reinforced with paper tape. Nailheads exposed or covered with joint compound.



3. **Gypsum Board*** — 5/8 in. thick paper or vinyl surfaced, with beveled, square, or tapered edges, applied either horizontally or vertically. Gypsum panels nailed 7 in. OC with 6d cement coated nails 1-7/8 in. long, 0.0915 in. shank diam and 15/64 in. diam heads. When used in widths other than 48 in., gypsum panels are to be installed horizontally. For an alternate method of attachment of gypsum panels, refer to Items 6 through 6F, **Steel Framing Members***.



GA-600

GA-600- Fire Resistance and Sound Control Design Manual -

Assessing and “typical” repair

GA-225-REPAIR OF FIRE-RATED GYPSUM PANEL PRODUCT SYSTEMS and or Manufacture documentation

- Repair procedure should be done to maintain the intended fire resistance and structural integrity of the installed sheathing
- Fire-resistance repair may require AHJ “sign-off”
- Damage that leaves the fiberglass mat intact with the gypsum core with little to no gypsum exposure may be sealed
- Damage that results in the fiberglass mat being torn away, no longer intact with the gypsum core of the sheathing, or leaves the gypsum core exposed must be repaired.
- Damaged that results in <8” (size of a doorknob) patch with cripple brace/blocking
- >8” same as above but also back to the original framing members.

Watchouts When Installing WRB

Board-to-Board Seams

Transitions

Edges

FOR DETAILS
WARNING!
PRACTICES.
DOCTOR IF
MINUTES.
ATTENTION.
LOCAL AUTHOR
INFORMATION
PRACTICES.
DOCTOR IF YOU
MINUTES. REMOVE
ATTENTION. STOR
LOCAL AUTHORI
INFORMATION G
HYGIENE
CALL A
SEVERAL
MEDICAL
CE WITH
ND USE
225.6119.

Corners

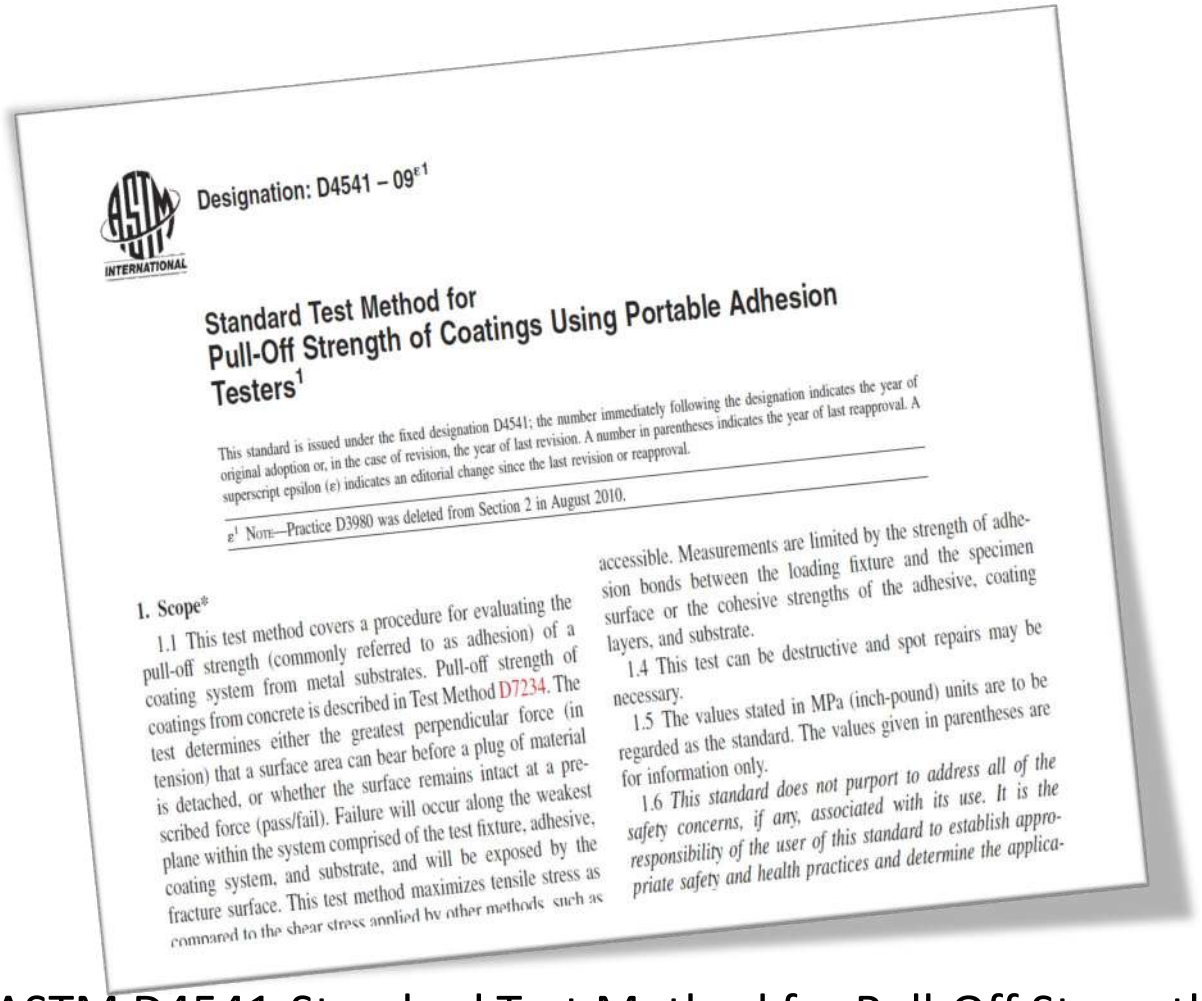
Penetrations

Nai

Managing Humidity and Bulk-Water

Adhesion Test

Adhesion Testing



Designation: D4541 – 09$^{\varepsilon 1}$

Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers[1]

This standard is issued under the fixed designation D4541; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

ε^1 NOTE—Practice D3980 was deleted from Section 2 in August 2010.

1. Scope*

1.1 This test method covers a procedure for evaluating the pull-off strength (commonly referred to as adhesion) of a coating system from metal substrates. Pull-off strength of coatings from concrete is described in Test Method D7234. The test determines either the greatest perpendicular force (in tension) that a surface area can bear before a plug of material is detached, or whether the surface remains intact at a prescribed force (pass/fail). Failure will occur along the weakest plane within the system comprised of the test fixture, adhesive, coating system, and substrate, and will be exposed by the fracture surface. This test method maximizes tensile stress as compared to the shear stress applied by other methods such as accessible. Measurements are limited by the strength of adhesion bonds between the loading fixture and the specimen surface or the cohesive strengths of the adhesive, coating layers, and substrate.

1.4 This test can be destructive and spot repairs may be necessary.

1.5 The values stated in MPa (inch-pound) units are to be regarded as the standard. The values given in parentheses are for information only.

1.6 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applica-*

ASTM D4541-Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers

abaa

ABAA T0002-2019

Standard Test Method for Pull-Off Strength of Adhered Air and Water Resistive Barriers Using an Adhesion Tester

1. Scope

1.1 This test method provides a method for evaluating the pull-off (adhesion) strength (may also be considered tensile stress) of adhered air and water resistive barriers on rigid substrates. The test determines the greatest perpendicular force (in tension) that the surface area of the material can bear. Failure will occur along the weakest plane within the system comprised of the disc, adhesive, air/water resistive barrier material, and substrate.

1.2 This test method determines tensile stress in contrast to other adhesion test methods (such as shear and peel tests) which measures other stress components and results are not comparable between test methods.

1.3 This test method uses a class of apparatus known as pull-off adhesion testers. They can apply a concentric load and counter load to a single surface so that material can be tested even though only one side is accessible. The maximum measured load is limited by the strength of the bond between the disc and the specimen surface, the cohesive strength of the adhesive, the cohesive strength of the air/water barrier composite, the adhesion between the air/water barrier composite and the adhesive (two-bond) and the adhesive bond between adhesive and substrate.

1.4 This test is destructive and when the test is conducted in the field, the area affected will need to be repaired.

1.5 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

1.6 This document does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

2. Referenced Documents

2.1 The document shown below is referenced in the text of this document. Unless otherwise stated elsewhere in this document such reference shall be considered to indicate the edition and/or revisions of the document available at the date on which the committee approved this document.

Documents published by the American Society for Testing and Materials (ASTM)
100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959 USA
Telephone: (610) 832-9585 Fax: (610) 832-9555
www.astm.org

ASTM E631 - 15: Standard Terminology of Building Constructions

3. Summary of Test Method

ABAA T0002-Standard Test Method for Pull-Off Strength of Adhered Air and Water Resistive Barriers Using an Adhesion Tester

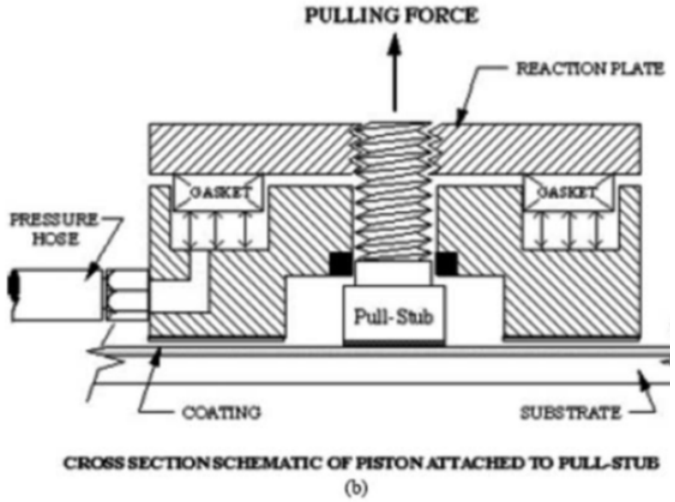
ASTM D4541

- It’s one of many tools
- This test method covers a procedure for evaluating the pull-off strength of a coating
  - Metal substrates but may be appropriate for other rigid substrates such as plastic and wood.
- Pull-off strength of coatings from concrete is described in Test Method D7234
- This test method describes a class of apparatus known as portable pull-off adhesion testers.
- The construction has adapted and modified this test method

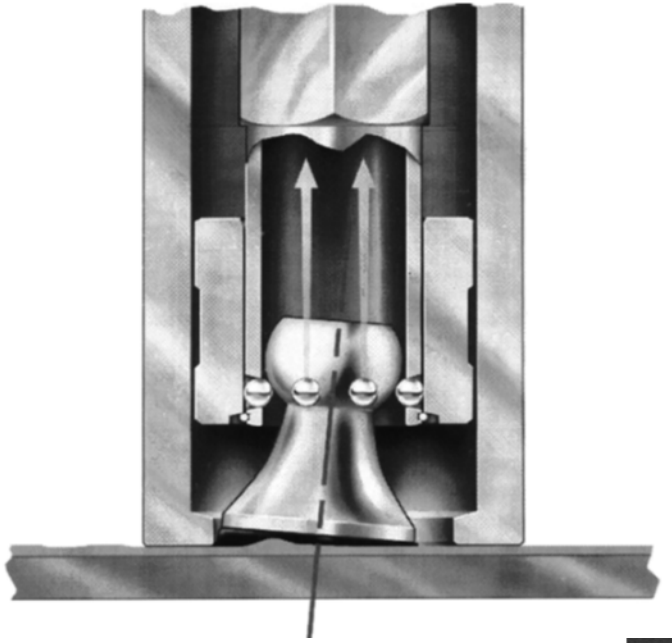
What is ASTM D4541?

- This test method describes a class of apparatus known as portable pull-off adhesion testers.

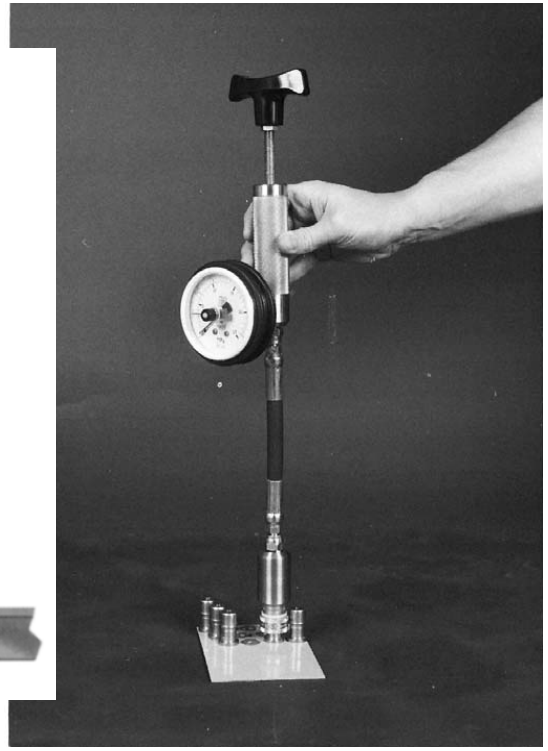
Fixed Alignment Pull-Off Tester



Self-Alignment Adhesion Tester



Self-Aligning Tester



Hydraulic Tester

Photo Credit ASTM D4541

What is ASTM D4541?

- Pull-off Adhesion tester that are typically

Credit ABAA

- Pull-off Adhesion tester should be capable of applying a concentric load and counter load to a single surface so that coatings can be tested even though only one side is accessible

What is ASTM D4541?

- Pull-

Items to consider

1. Test apparatus used and size of the “puck”?

2. How does one apply even, concentric load and counter load?

3. How do you read and pull at the same time?

4. How was the sample prepped (cutting or scoring the substrate.)?

5. 16 psi?

- Pull- nter load to a single surface so that coatings can be tested even though only one side is accessible

FEATURE ARTICLE

PULL ADHESION – THE ABAA TEST METHOD FOR THE AIR AND WATER RESISTIVE BARRIER INDUSTRY

The Air Barrier Association of America (ABAA) QAP requires that the installer tests the adhesion of the installed air and water resistive barrier (AWB) material daily. When an ABAA audit is conducted, an adhesion test is performed to confirm that the installer is conducting the test properly and that the results of the tests meet the installation requirements. If the installer is not onsite at the time of the audit, then the auditor would conduct the test themselves.

ABAA has established minimum pull-off value of 16 psi for air and water resistive barrier materials and as a part of the material evaluation process, the manufacturer provides a pull adhesion laboratory test report for reference. However, on the jobsite, if a project specification calls for a higher value, then the installer must meet the higher value in the project specification.

If the higher value (project specification or ABAA) is met, then automatically both requirements will have been met. ABAA's requirements do not undermine project specification requirements if they are more stringent. In other words, if the project specifications require a higher value than 16 psi, the installer must meet the higher value. When ABAA's QAP was introduced, the closest test method that was published by a standards development organization was ASTM D4541 Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers. ABAA adopted this method for evaluating pull adhesion, but through the audit process, became aware that results may not be repeatable or reproducible due to the various modifications incorporated by different installers, namely, the size of disks, variations in the rate of the pull and whether scoring around the disk occurred. For example, a simple thing like the rate of pull can produce a different pull-off value. If you use the rate of pull suggested in ASTM D4541, you will get a different number than when using a hand crank and turning it very slowly.

With air and water resistive barrier materials, it is also important to determine where the failure occurred. The installer needs to prove that the material installed stuck to the substrate or if a failure within the substrate occurred. If there was a substrate failure, for example the facing releasing from a gypsum board, that needs to be recorded, but it is not considered to be a failure of the installation of the air and water resistive barrier material.

As the industry evolved, it was apparent that there was a need to develop a test method that was specific for the air and water resistive barrier industry. The ABAA Research Committee worked on the development of a pull adhesion test method, which documented the current practice in the industry and standardized the process. Careful consideration was given to develop a test method that could be used both in the laboratory and in the field so that the manufacturer's test results could be compared to field results.

The test method was vetted by the ABAA Research Committee and approved. The document was then submitted to the ABAA Board for final approval as an ABAA document. The result of this work is the published document ABAA T0002-2019 Standard Test Method for Pull-Off Strength of Adhered Air and Water Resistive Barriers Using an Adhesion Tester. The document can be found **HERE**.

The differences between the ABAA T0002 test method and the ASTM D4541 and the ASTM D7234 test methods include;

a. Cutting the material – ABAA's requirement is to separate the material under the disk from the balance of the material so that the value obtained is for the size of the disk – other test methods, you do not separate the material. The values are completely different

b. Load rate – ABAA's requirement is one revolution per ten seconds (58 psi/m) – other materials require 150 psi/s or 30 psi/s. A quick sharp loading will produce very high results whereas a low loading rate will produce low results

c. Test duration - ABAA's requirement is test until failure – other test methods are 100 or 30 seconds

d. Termination of test - ABAA's requirement is to continue the test until there is a rupture in the layers. Other test methods are to a specific load

e. Number of pulls - ABAA's requirement is for three pulls in a 39 inch by 39 inch area to be considered one test – other test methods requires three pulls in a representative area

f. Size of disk - ABAA's requirement is for a 2.25 inch diameter disk – other test methods allows for any size of disk typically 0.75 to 3 inches

g. ABAA's requires a digital gauge whereas other test methods allow analog gauges.

ABAA requires that the installers and the auditors use ABAA T0002.

This test method is a step forward in the evolution of the air and water resistive barrier industry. As the test method reflects what is already being done on the construction site, there are not a lot of changes that need to be made.

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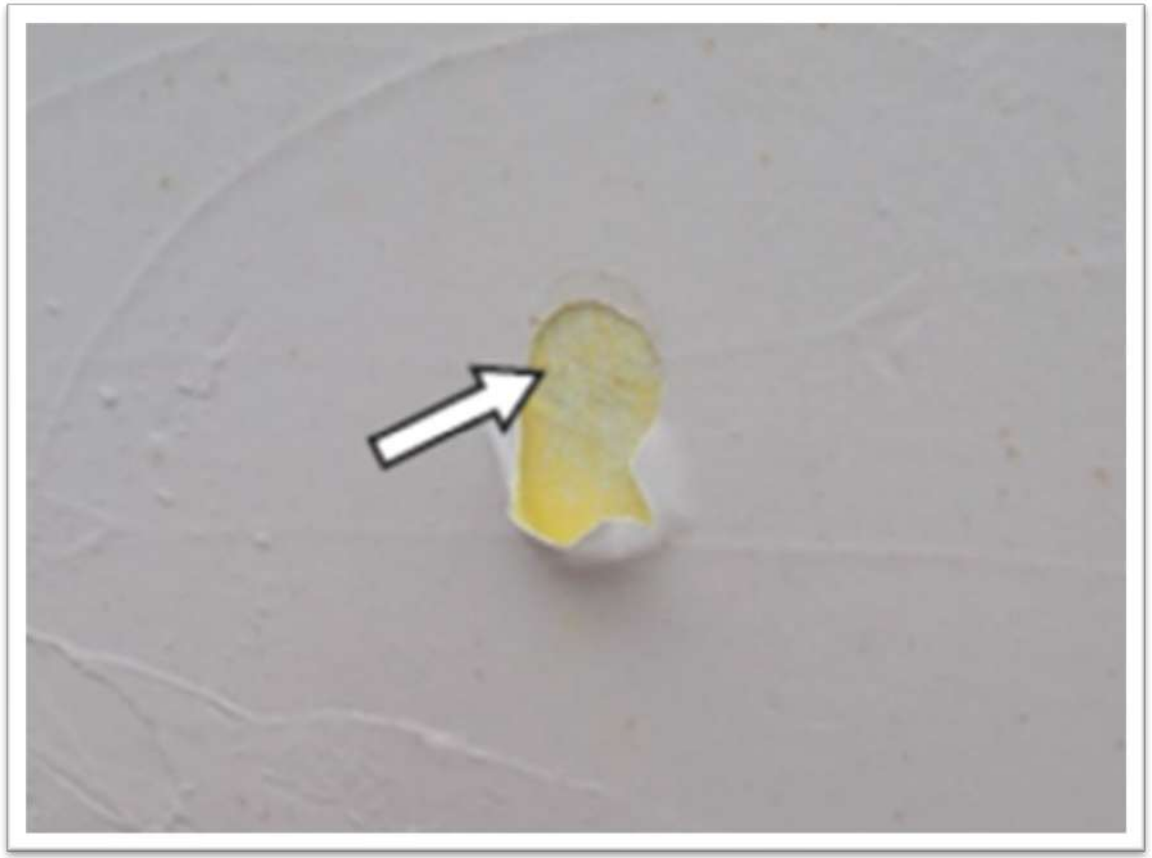
Repair After?




abaa2025
building
enclosure
conference