

HISTORIC AND DESIGN REVIEW COMMISSION

December 06, 2023

HDRC CASE NO: 2023-462
ADDRESS: 620 S PRESA ST
LEGAL DESCRIPTION: NCB 923 BLK 1 LOT 1
ZONING: C-2, H
CITY COUNCIL DIST.: 1
DISTRICT: Lavaca Historic District
APPLICANT: Pablo Rios/Barrio Dogg
OWNER: 620 S PRESA REALTY LTD
TYPE OF WORK: Consideration of a waiver to accept and review a subsequent application under 35-608(g)
APPLICATION RECEIVED: November 17, 2023
60-DAY REVIEW: January 16, 2024
CASE MANAGER: Rachel Rettaliata

REQUEST:

The applicant is requesting consideration and approval of a waiver pursuant to City Code Section 35-608(g) to accept the application submitted for the request to install rigid foam insulation on the existing stucco cladding and apply new stucco on the foam.

The approval of the cladding treatment is not a request item at this time.

APPLICABLE CITATIONS:

Unified Development Code Chapter 35, Article VI, Section 35-608

- (g) Subsequent Applications. In the case of disapproval of an application, a new application for the same work shall not be resubmitted for consideration until one (1) year has elapsed from the date of disapproval. The commission, by a majority of its membership, may waive the aforementioned time limitation if the application presents substantial new evidence that was not considered in the previous action, or incorporates changes based on the previous recommendations of the commission. Until such waiver is granted, a new application shall not be considered complete and is not subject to the review periods outlined in subsection f. If a motion to approve such a waiver fails to receive the requisite number of votes, the application shall be considered disapproved; a revised application may be submitted in accordance with this section.

FINDINGS:

- a. The primary structure located at 620 S Presa is a 1-story commercial structure that was originally constructed as a residence circa 1910 and first appears on the 1912 Sanborn Map. By 1931, the 1-story residential structure had been modified to feature a street-facing filling station and the rear of the dwelling unit was converted into Beals Battery Shop per the 1931 Sanborn Map. The structure features a flat roof with a character defining parapet and pilasters with decorative coursing and triangular caps set above the parapet, stucco cladding, decorative stucco insets, and storefront windows and doors. The property is contributing to the Lavaca Historic District.
- b. CASE HISTORY – The request to install rigid foam installation over the existing stucco cladding on the entire structure was denied by the Historic and Design Review Commission on December 6, 2023. The request was denied by the HDRC after the work was completed in violation of three (3) Stop Work Orders issued by staff. Following the September 6th hearing, the applicant has expressed that the rigid foam was not installed over the existing stucco cladding.
- c. CONSIDERATION AND APPROVAL OF A WAIVER: According to UDC 35-608(g), in the case of disapproval of an application, a new application for the same work shall not be resubmitted for consideration until one (1) year has elapsed from the date of disapproval. The commission, by a majority of its membership, may waive the aforementioned time limitation if the application presents substantial new evidence that was not considered in the previous action, or incorporates changes based on the previous recommendations of the

commission. Until such waiver is granted, a new application shall not be considered complete and is not subject to the review periods outlined in subsection f. If a motion to approve such a waiver fails to receive the requisite number of votes, the application shall be considered disapproved; a revised application may be submitted in accordance with this section. In preparation for this hearing, the applicant has submitted material specifications for the materials used in their scope of work and has provided additional photos of the interior and exterior of the property during work. Should the HDRC approve the waiver request, the applicant has requested a Design Review Committee (DRC) site visit prior to the subsequent HDRC review of the proposed cladding treatment. Staff finds that the applicant has not presented sufficient new evidence nor incorporated changes based on the previous recommendations of the commission and that a waiver should not be granted.

RECOMMENDATION:

Staff does not recommend approval a waiver pursuant to City Code Section 35-608(g), based on finding c.

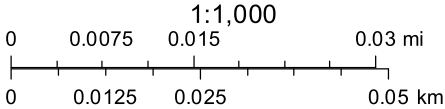
Should the HDRC approve the waiver to reconsider the original application, the COA request would first be referred to a Design Review Committee (DRC) site visit per the applicant's request.

City of San Antonio One Stop



July 13, 2023

— User drawn lines



Barrio Restaurant Group LLC
620 S Presa St.
San Antonio, TX 78210

November 15, 2023

To The Honorable Office of Historic Preservation,

I would like to thank you for the opportunity to have our case reconsidered for review. I would also like to start with an apology. Our intent from the very beginning of this project has always been to restore our building with the highest quality standards and a focus on preservation of the architectural character. We feel that if we would have had the opportunity to communicate the steps being taken in the process we could have avoided many of the obstacles that were presented during the renovation. On behalf of our entire team I would like to ask the OHP and HDRC to accept our apology and allow us to present the material facts of our case.

By granting us the ability to present the material facts we are confident that both the OHP and HDRC will have more clarity as to why we chose the renovation systems that were best suited for the condition of the building.

Our request for a Certificate of Appropriateness is for the use of an Exterior Insulation Finish System. The denial of our COA in September was based on information that was incomplete as to our particular project. The most important fact to our case is that there was definitely a misunderstanding as to what EIFS actually is and how it was used in our project. The HDRC Recommendation Letter received on September 6th brings clarity to the misunderstanding.

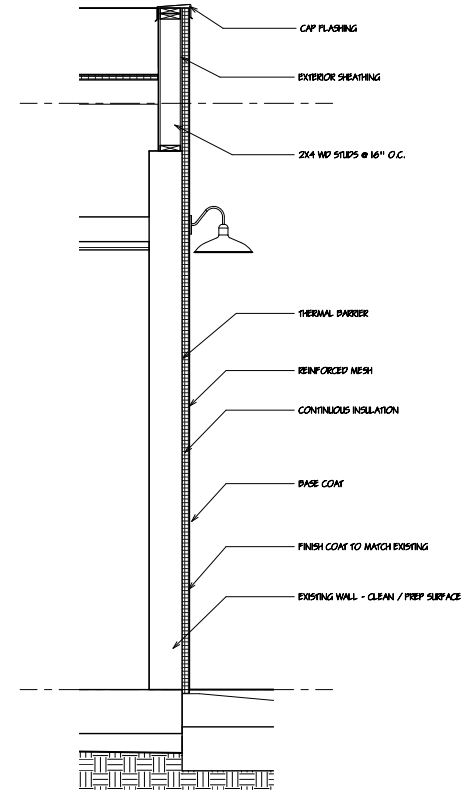
In section 2B of the recommendation letter it reads, Repair masonry or stucco with in kind material whenever possible. Utilize similar materials that are compatible with the original in terms of composition, texture, application technique, color and detail when in kind replacement is not possible. In our case all of the steps of preservation were taken as in-kind replacement was not possible due to substandard unpermitted existing building materials (Particle Board Storefront, Single Pane Glass, Aluminum Parapet Walls). As per the Approval issued by HDRC for our Certificate of Appropriateness in April the composition, texture, and application technique were followed in accordance to preservation standards. We were able to carefully maintain the architectural details as well as match the stucco texture. In section 2B it goes on to read, EIFS is not an appropriate patching or replacement material for stucco. This is where we feel the big disconnect has occurred. In our case EIFS is an Exterior Insulation Finish System and not a material used to patch or replace stucco. The exterior insulation finish system was used in conjunction with stucco and is not a material used in lieu of stucco. All of the existing stucco was removed as a part of the process and the EIFS was applied to the masonry. The exterior finish of the building is in fact stucco that matches our approved plan.

On November 6th 2023 we met in front of the Board of Adjustments and after a long deliberation the BOA decided that there were material facts to our case that merit a reconsideration of review by the HDRC.

In our reconsideration for review we would like to include detailed information about Exterior Insulation Finish Systems as per the International Code Council, NTA, as well EIMA (EFIS Industry Members Association). Our presentation will also include project information where EIFS has been used as part of historical renovation projects both nationally and locally. It is our goal to reach an agreement with OHP and HDRC in order to obtain our Certificate of Occupancy. Our restaurant was scheduled to open this fall however without a Certificate of Appropriateness we have experienced delays which have caused a financial burden on the project. The inability to operate has caused a financial hardship in excess of \$100,000. We are respectfully asking the board to reconsider their decision. We appreciate your time and look forward to the opportunity to present the facts to the HDRC on December 6th.

Thank you,

Pablo Rios
Chef/Owner



① Section 1 - Callout 1
3/4" = 1'-0"



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Barrio Dogg Remodel

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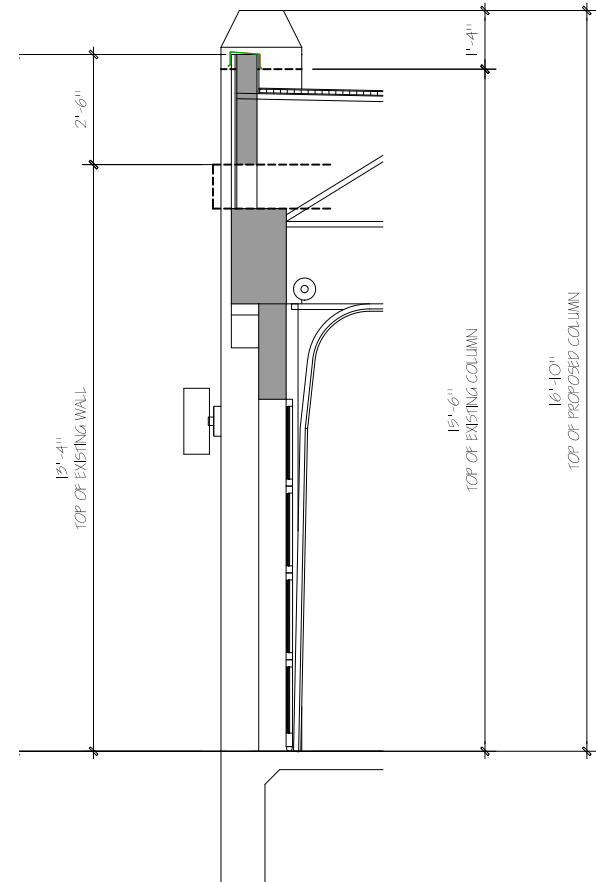
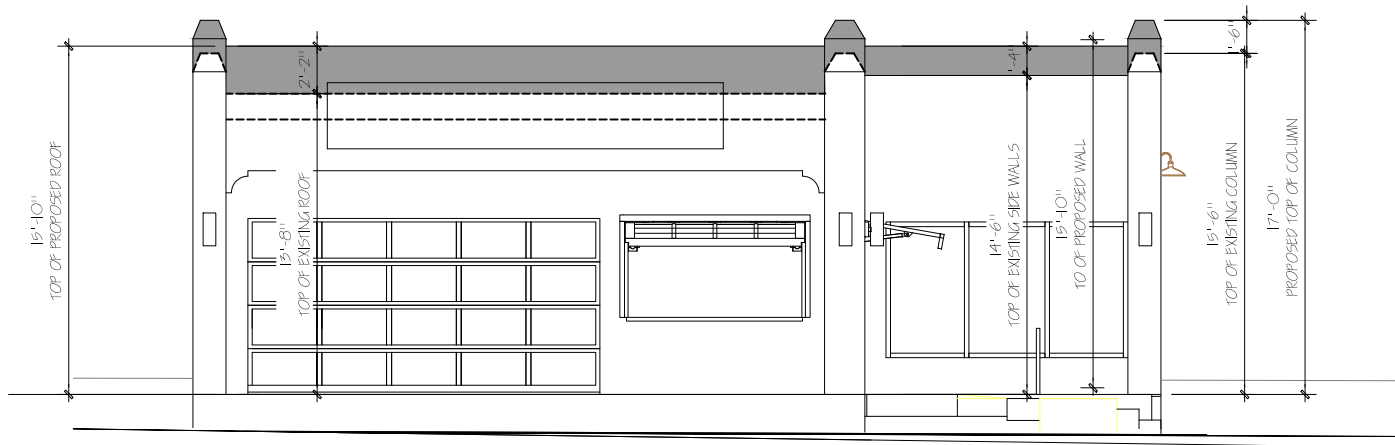
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03	11.04.22	Owner Review
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05	02.03.23	Permit
06	03.11.23	City Comments
07	03.22.23	City Comments
08	07.24.23	HDRC

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WALL SECTIONS

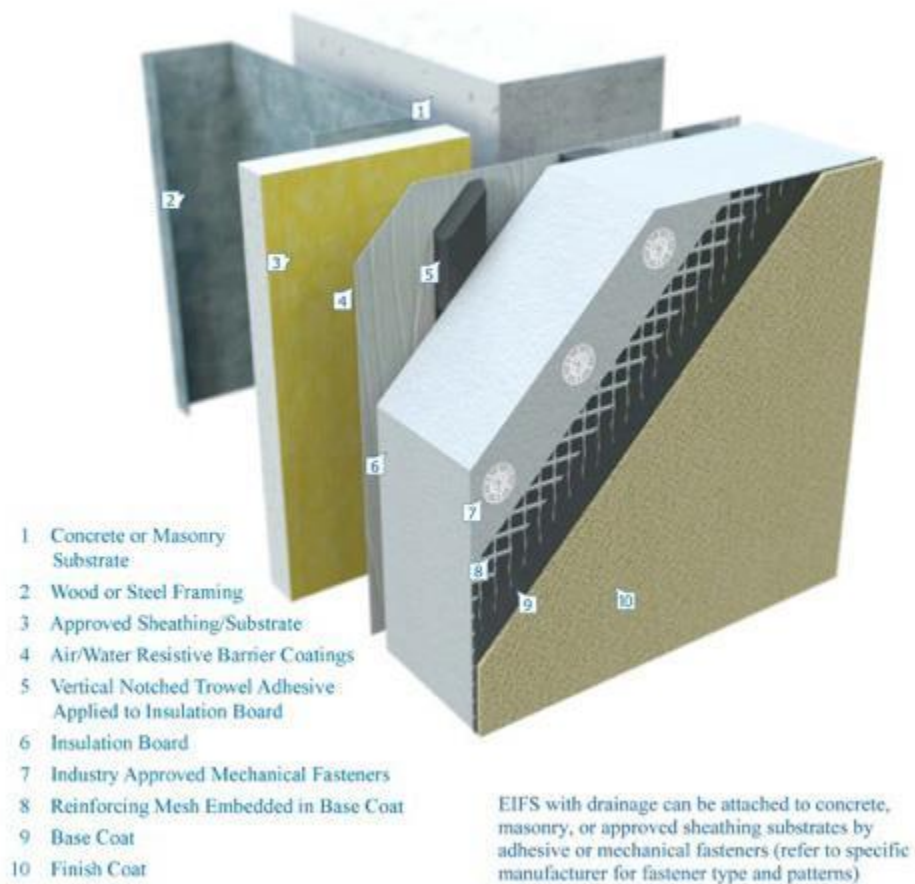
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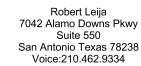
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TYPICAL EIFS CONFIGURATION

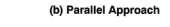
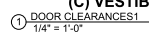
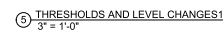




General Building Summary							
Height and Area							
Building	Occupancy Group(s)	Type of Construction	Sprinkler System	Building Area (sq ft)		Building HT (ft/# of FLR)	
				Actual	Allowable	Actual	Allowable
Restaurant	A-2	V-B	NO	2,644	9,000	1 STORY	2 STORY

TABS
TABS2023011022

⑥ MATERIAL SYMBOL LEGEND
1/4" = 1'-0"



Drinking Fountain Spout Location

Fig. 504.5.1
Side Wall Grab Bar for Water Closet

16. 0.02 INCH SPACE BETWEEN CELLS.

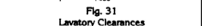
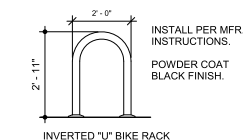


Fig. 31
Lavatory Clearances

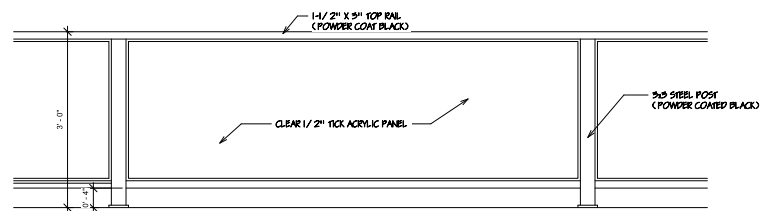
Fig. 604.5.1
Side Wall Grab Bar for Water Closet



PARKING CALCULATIONS			
NAME	AREA	FACTOR	REQUIRED
DISPLAY KITCHEN	182 SF		
KITCHEN	725 SF		
WOMENS	44 SF		
MENS	46 SF		
DINING	877 SF	100	9
EXISTING PATIO	421 SF		
PATIO	248 SF		
COOLER	93 SF		
BBQ AREA	197 SF		
CASHIER	313 SF		
BAR	150 SF		
TOTAL PARKING			9
TOTAL PARKING PROVIDED			11



② BICYCLE RACK
1/2" = 1'-0"



③ Fence Detail
1" = 1'-0"

Barrio Dogg
Remodel

620 S. Presa St.
San Antonio TX 78210

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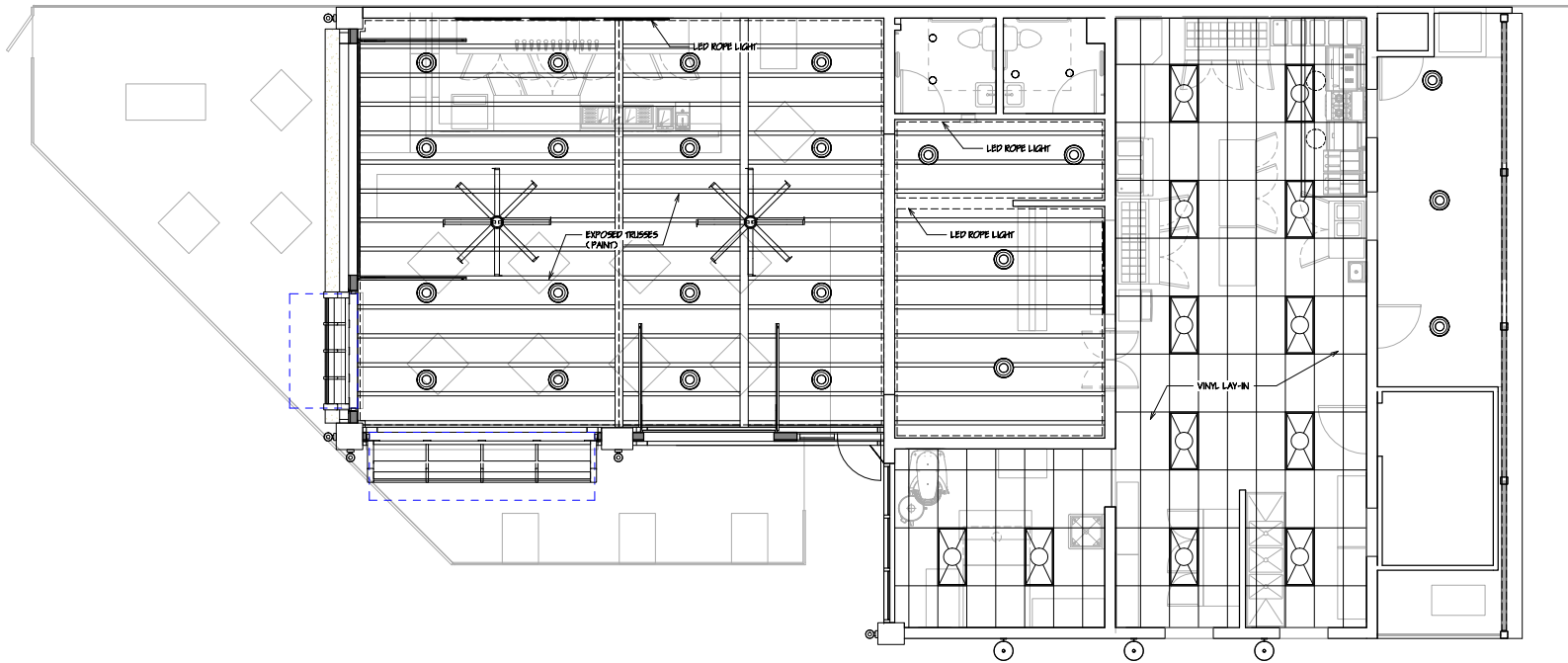
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SITE PLAN

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A1.0

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① Reflected Ceiling Plan
1/4" = 1'-0"



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03.11.23	City Comments
03.22.23	City Comments
07.24.23	HDRC

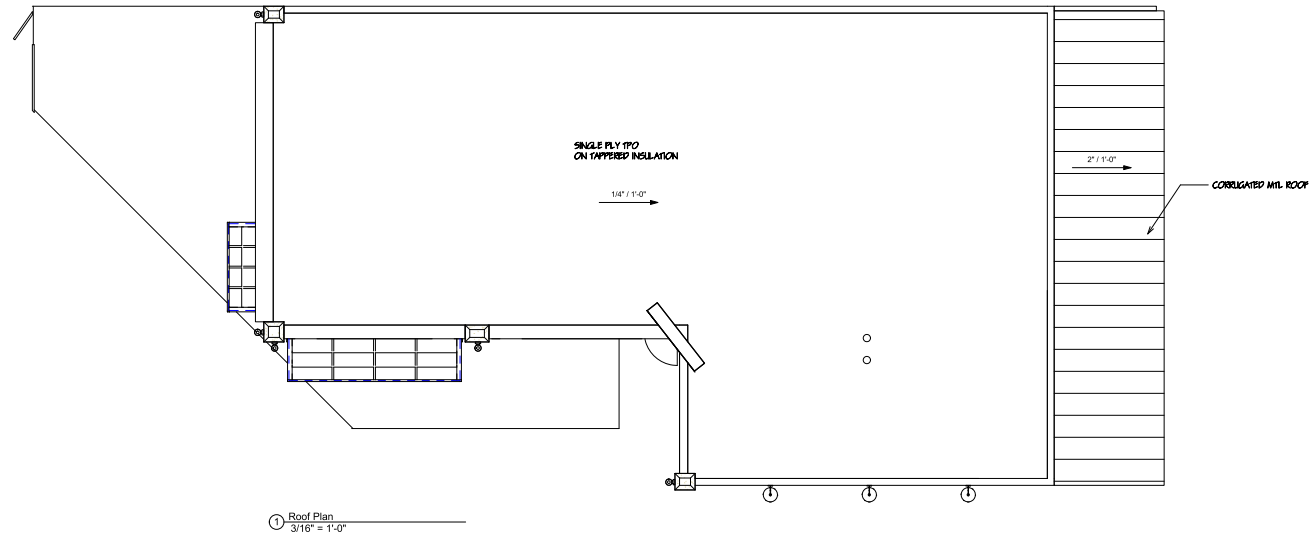
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REFLECTED CEILING
PLAN

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OF



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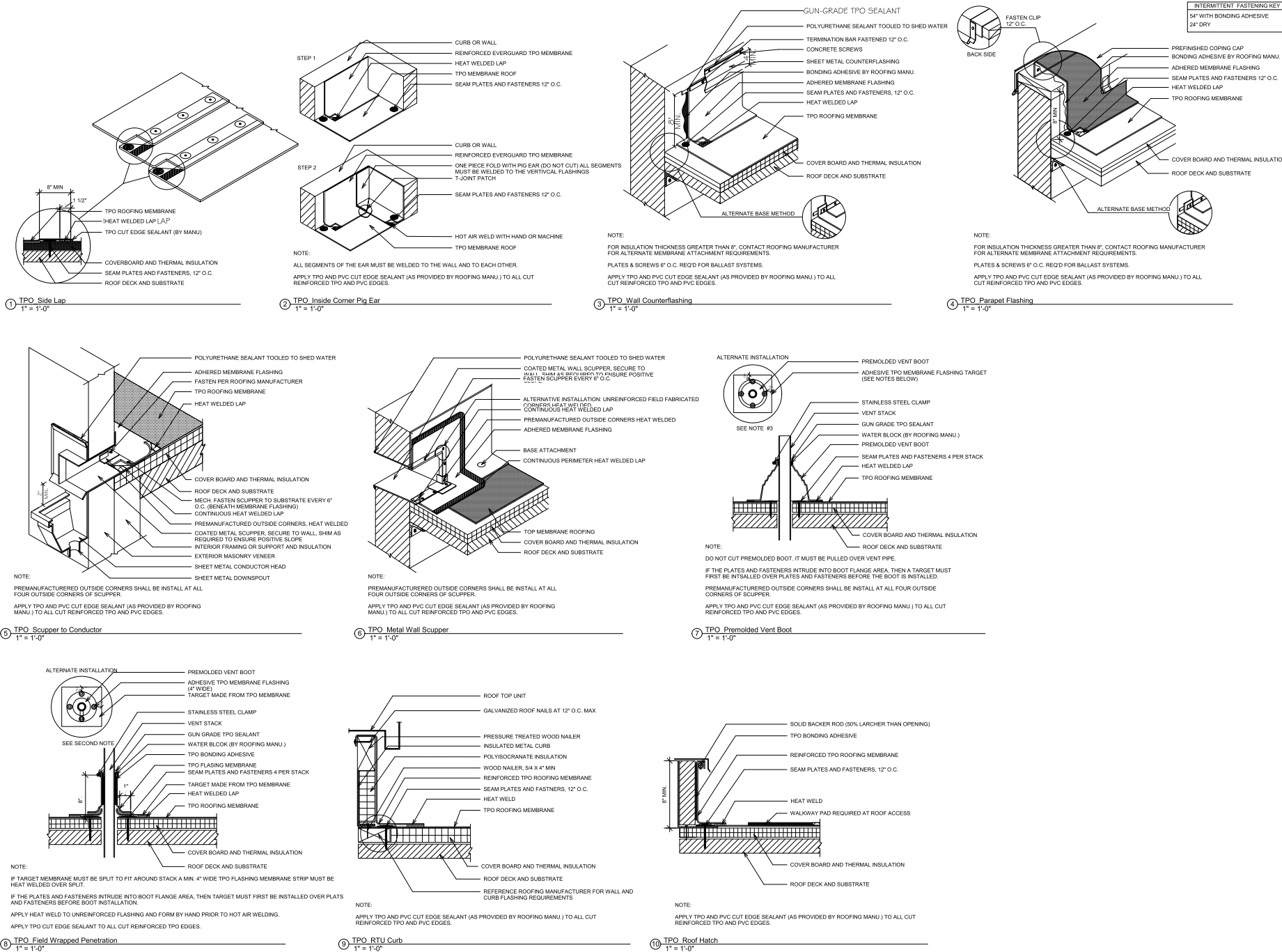
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05	02.03.23	Permit
06	03.11.23	City Comments
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SHEET TITLE:

ROOF PLAN

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620 S. Press St.
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NO.	DATE	DESCRIPTION
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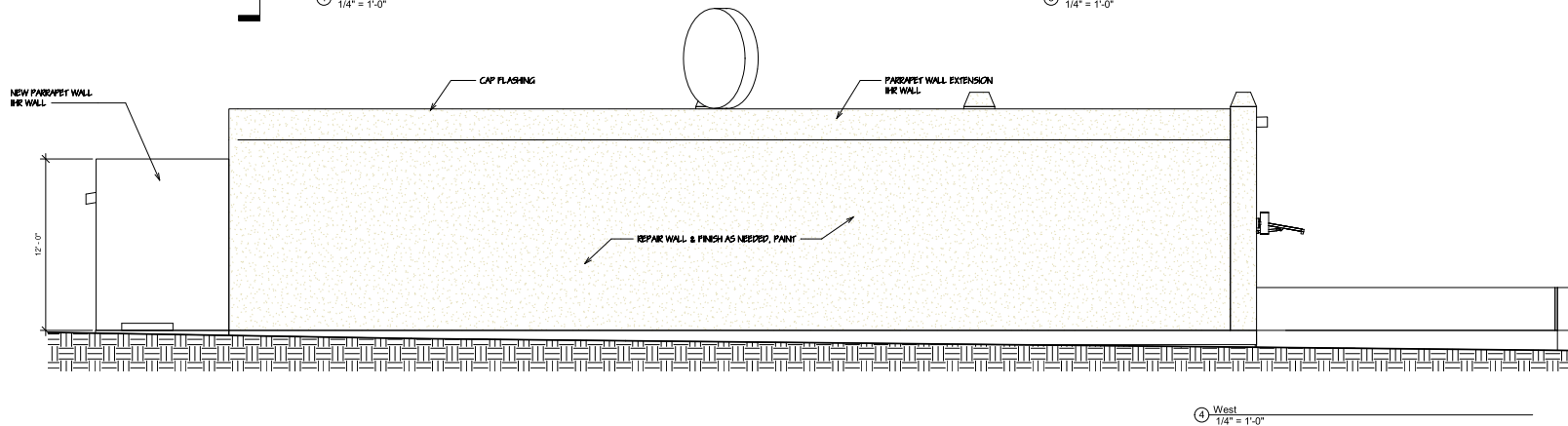
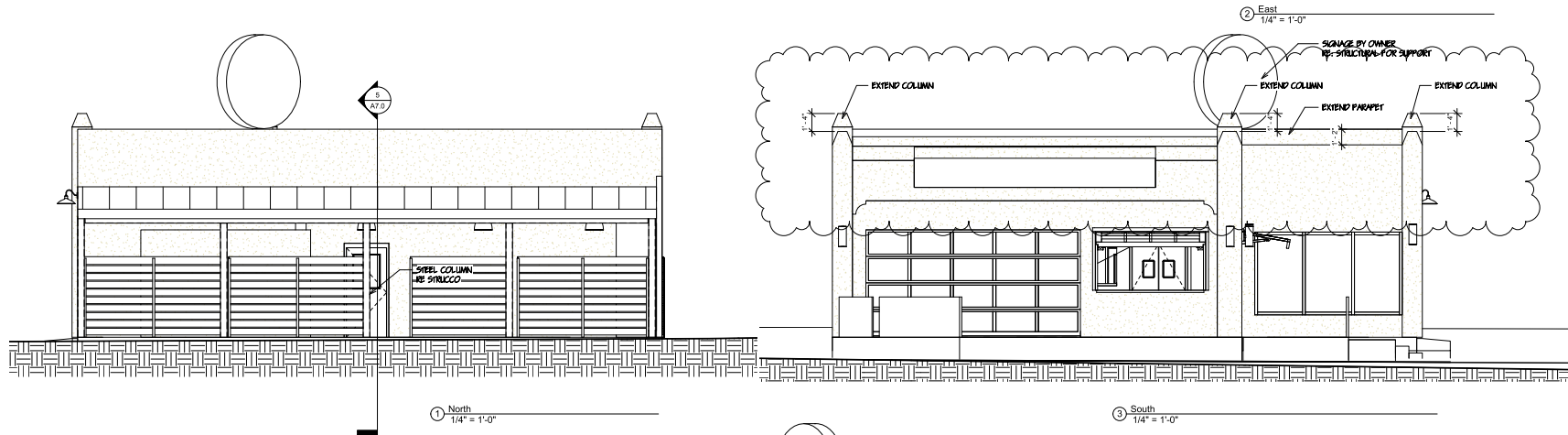
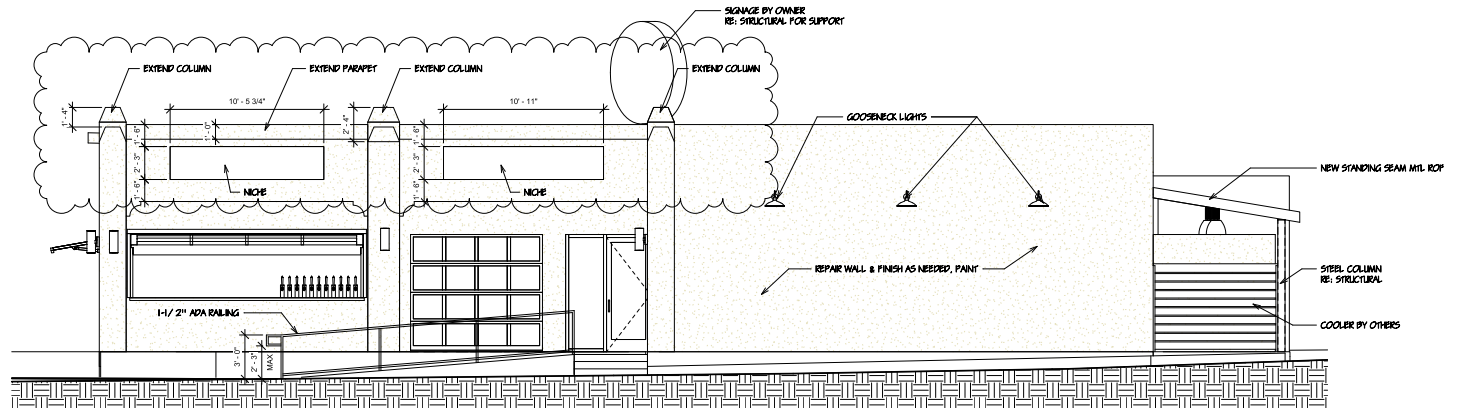
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ROOF DETAILS

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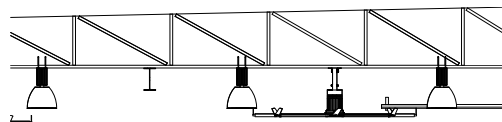
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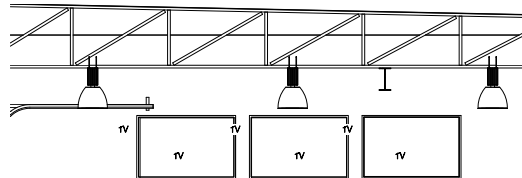
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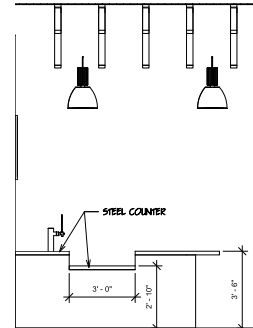
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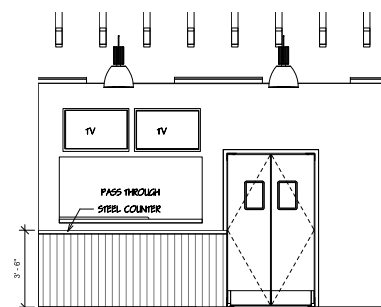
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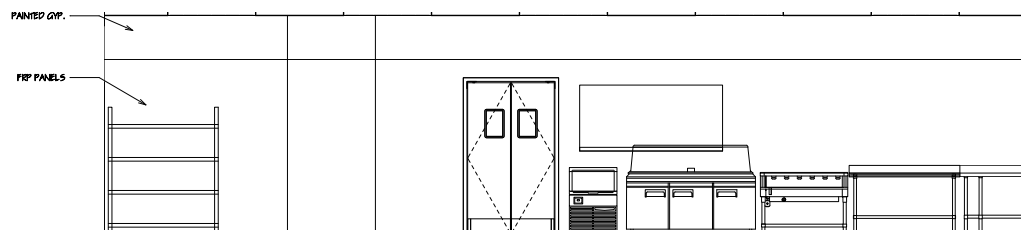
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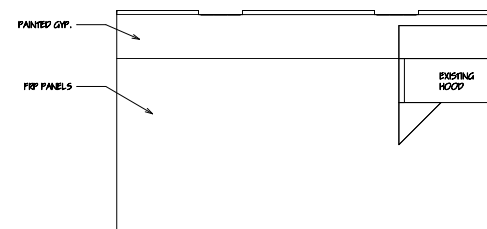
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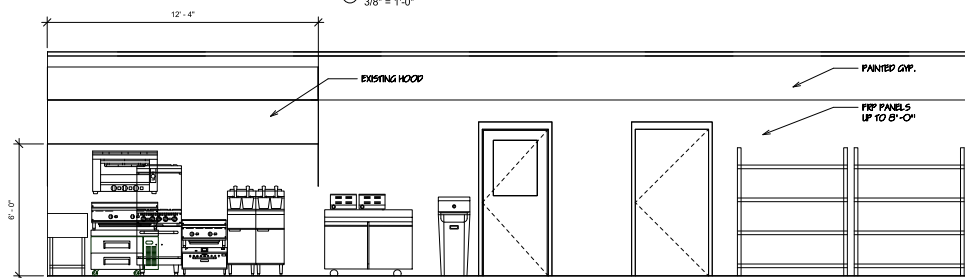
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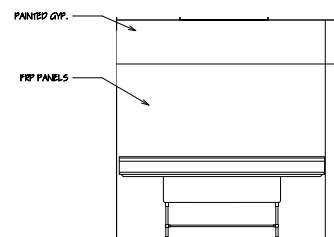
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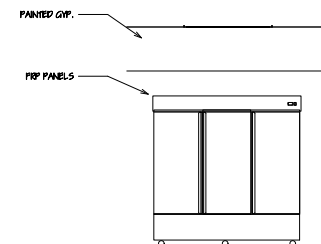
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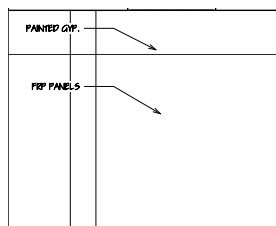
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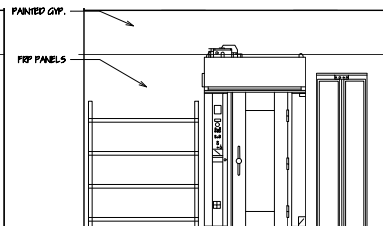
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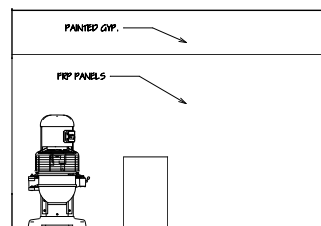
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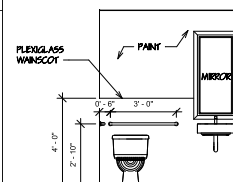
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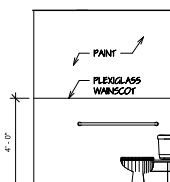
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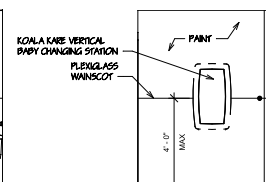
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3/8" = 1'-0"



14 Mens - a
3/8" = 1'-0"



15 Mens - b
3/8" = 1'-0"



16 Mens - c
3/8" = 1'-0"



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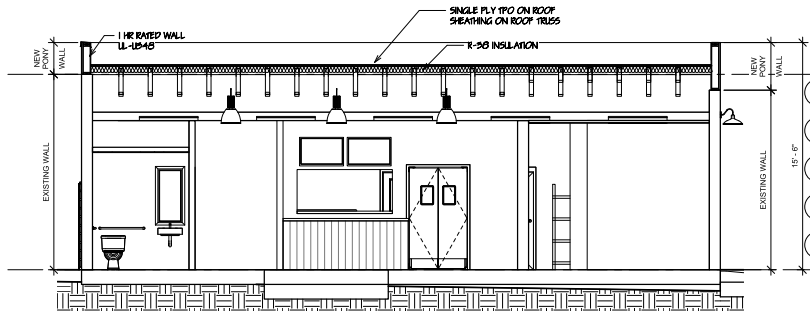
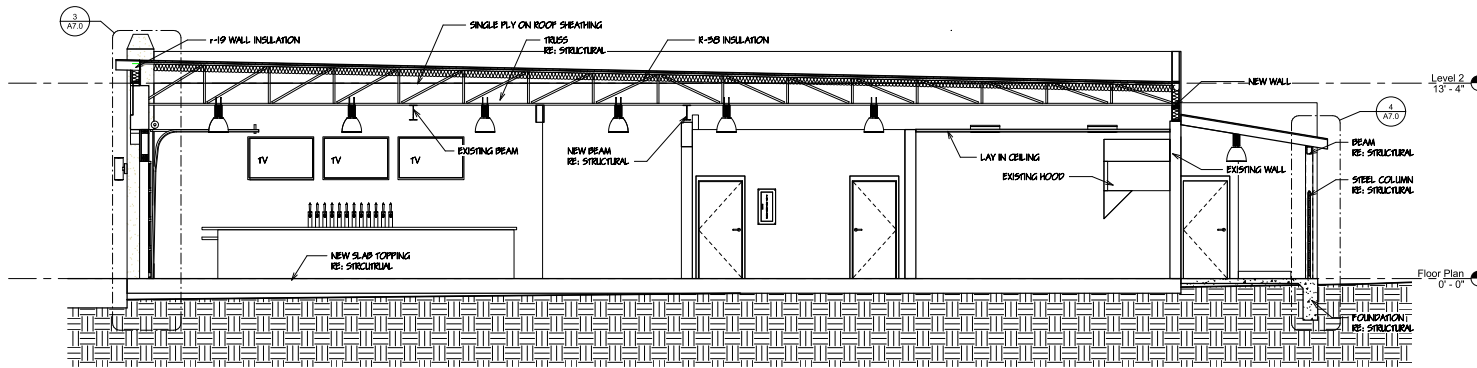
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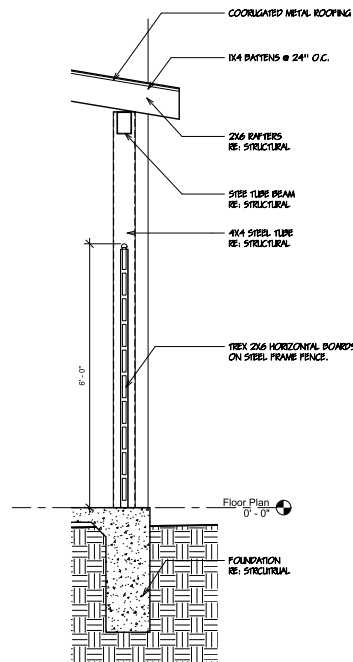
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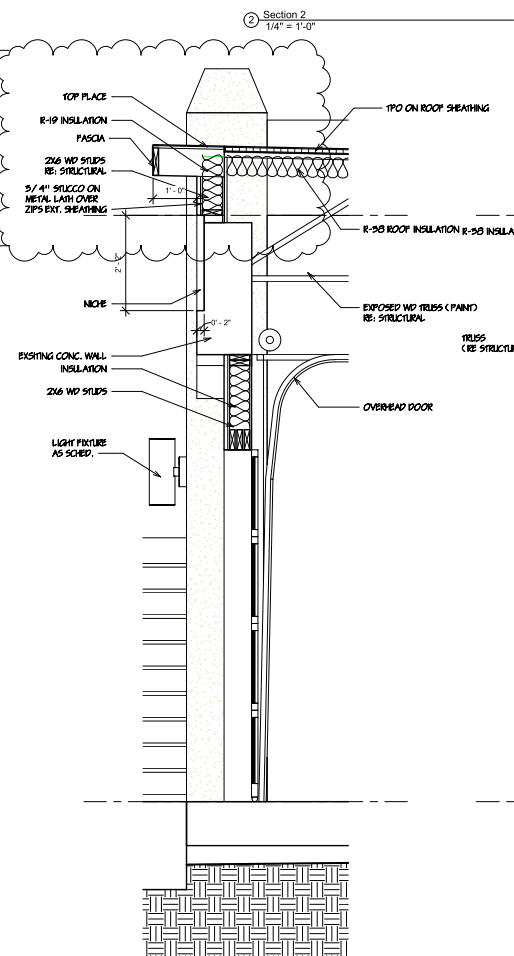
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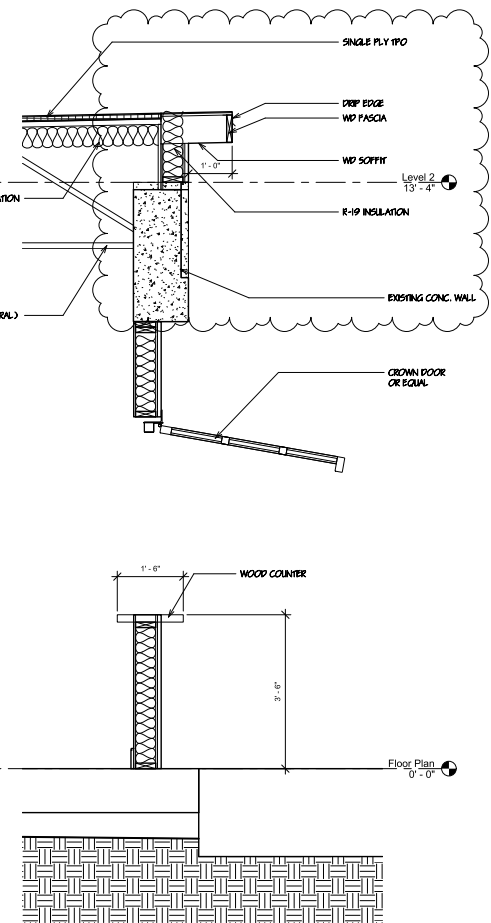
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3/4" = 1'-0"



3 Section 2 - Callout 1
3/4" = 1'-0"



5 Section 3
3/4" = 1'-0"



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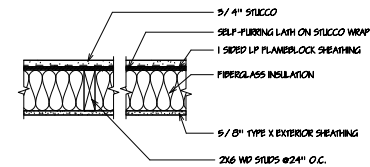
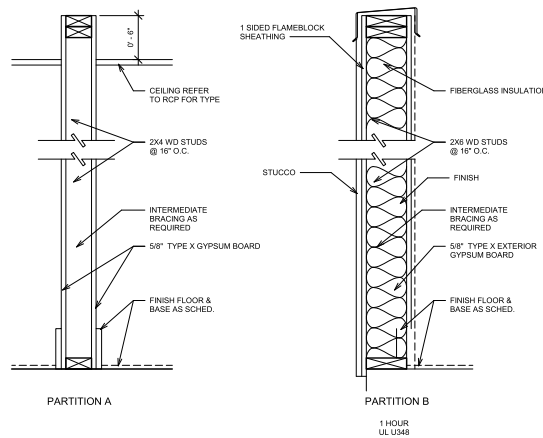
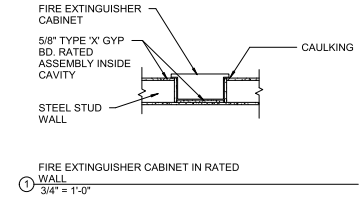
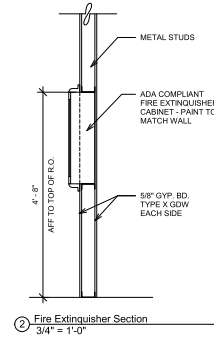
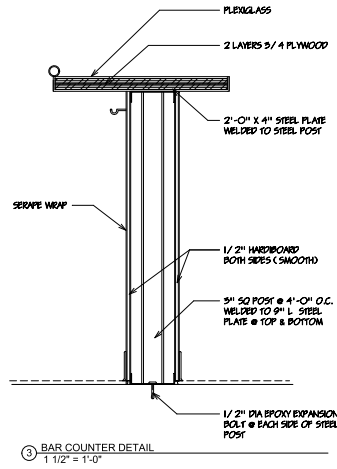
SHEET TITLE:

BUILDING SECTIONS

SHEET NO.

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architecture

Eladio Toranzo Jr. Architect T.X.L.C. 20510
6735 Indes St. | San Antonio | TX 78249 | 210.398.8334 | 210.691.2515

Barrio Dogg Remodel

620 S. Presa St.
San Antonio TX 78210

DATE:	
DRAWN BY:	
ISSUE/REVISION:	
NO.	DESCRIPTION
08.19.22	Owner Review
10.07.22	Owner Review
11.04.22	Owner Review
01.11.23	Lndlrld Review
02.03.23	Permit
03.11.23	City Comments
03.22.23	City Comments
07.24.23	HDRC

SHEET TITLE:

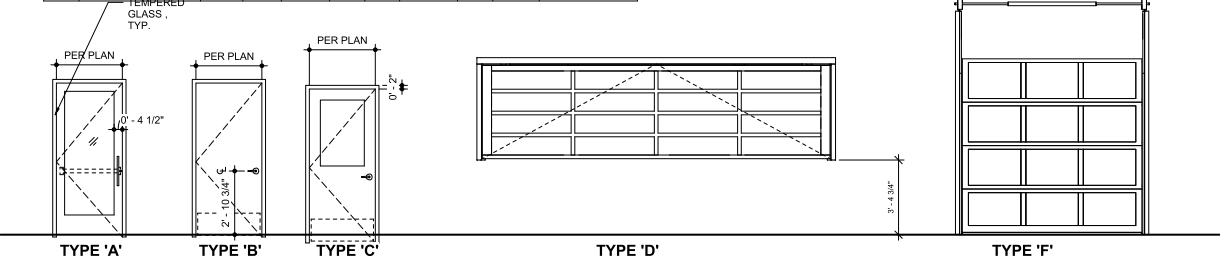
DETAILS

SHEET NO.

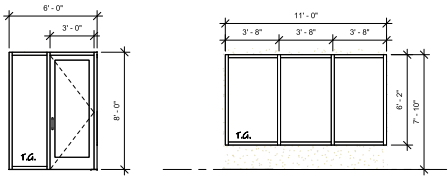
A8.0

OF

Door Schedule										
Mark	Location	Width	Height	Door				Frame		
				Material	Type	Glass	Thickness	Finish	Material	Notes
101		3' - 0"	7' - 9 1/2"	SF	A				SF	
101A		0' - 0"	0' - 0"		E		0' - 0"			
101B		15' - 9 3/4"	4' - 3 5/8"		D		0' - 2"			
101C		8' - 1 3/4"	4' - 3 5/8"		D		0' - 2"			
101D		0' - 0"	0' - 0"		E		0' - 0"			
102		4' - 0"	7' - 0"				0' - 1 1/2"			ELISON DOOR
103		3' - 0"	6' - 8"	WD	B		0' - 1 3/4"		WD	
104		3' - 0"	6' - 8"	WD	B		0' - 1 3/4"		WD	
105		3' - 0"	6' - 8"	HM	C		0' - 1 3/4"		HM	

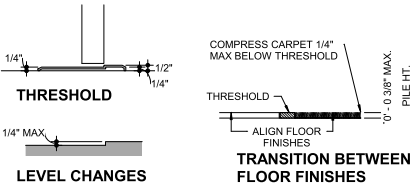


Door Types
3/8" = 1'-0"



Window A
1/4" = 1'-0"

Window B
1/4" = 1'-0"



ADA COMPLIANCE - DOOR NOTES

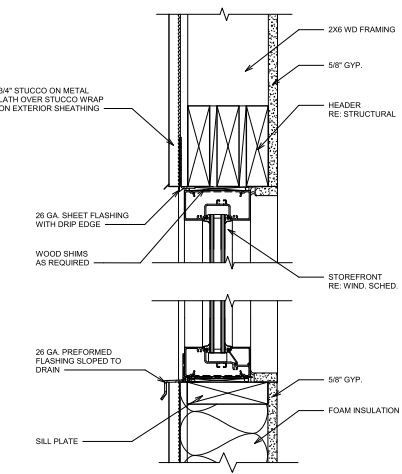
1. THIS PROJECT SHALL COMPLY WITH AL FEDERAL AMERICANS WITH DISABILITY ACT REGULATION AND ALL LOCAL ACCESSIBILITY REGULATIONS.
2. THRESHOLDS SHALL BE NO HIGHER THAN 1/2" ABOVE THE FLOOR. EDGE TO BE BEVELED WITH A SLOPE NO GREATER THAN 1 IN 2.
3. DOOR HARDWARE SHALL BE OF THE LEVER OR PUSH TYPE, MOUNTED 34" TO 44" ABOVE THE FLOOR AND BE OPERABLE WITH A MAXIMUM EFFORT OF 5 LBS. FOR INTERIOR DOORS.
4. ACCESSIBLE DOORS MUST BE MINIMUM 3'-0" X 6'-0". MODIFY IF REQUIRED.
5. PROVIDE 18" CLEAR SPACE AT STRIKE/PULL SIDE ON INTERIOR DOORS, AND 12" CLEAR AT STRIKE/PUSH SIDE OF DOORS W/ CLOSERS.
6. FLOOR SHALL BE LEVEL THROUGHOUT.
7. REGARDLESS OF THE OCCUPANT LOAD SERVED, EXIT DOORS SHALL BE OPERABLE FROM THE INSIDE WITHOUT THE USE OF A KEY OR ANY SPECIAL KNOWLEDGE OR EFFORT.

GENERAL DOOR HARDWARE NOTES

1. CLOSERS: FURNISHED AND INSTALLED BY GENERAL CONTRACTOR. DOOR CLOSERS TO BE MOUNTED ON ROOM SIDE OF DOORS. DOOR CLOSERS TO HAVE A MAXIMUM OPENING FORCE OF 5 LBF (INTERIOR HINGED DOORS). THE SWEEP PERIOD OF THE CLOSERS SHALL BE ADJUSTED SO THAT FROM AN OPEN POSITION OF 70 DEGREES, THE DOOR SHALL TAKE AT LEAST 3 SECONDS TO MOVE TO A POINT 3 IN. FROM THE LATCH, MEASURED TO THE LEADING EDGE OF THE DOOR.
2. CONTRACTOR SHALL VERIFY WITH SUPPLIER THAT ALL HARDWARE MEETS ADA REQUIREMENTS.
3. ALL DOOR HINGES TO BE STEEL BALL BEARING, FULL MORTISE TYPE.
4. ALL METAL DOOR FRAMES TO BE PROVIDED WITH SILENCERS.
5. ALL INTERIOR DOORS TO BE PROVIDED WITH COMMERCIAL GRADE WALL OR FLOOR STOPS.
6. EXTERIOR HINGES TO HAVE NON-REMOVABLE PINS.
7. PROVIDE AT TOILET ROOM DOOR, DISABILITY ACCESS SIGN FOR MEN/ WOMEN.
8. ALL DOORS WITH CLOSERS SHALL HAVE KICK DOWN DOOR HOLDER LIKE CAL-ROYAL SBDH41300 BRUSHED ALUMINUM FINISH, AND RUBBER STOP.
9. ALL CLASSROOM DOORS TO HAVE PUSH THUMB LOCKING MECHANISM FROM INSIDE THE ROOM IN CASE OF EMERGENCY LOCK DOWN SECURITY.

ABBREVIATIONS

HM	HOLLOW METAL DOOR FRAME
HC	HOLLOW CORE WOOD DOOR
SC	SOLID CORE WOOD DOOR
PTD	PAINTED
STND	STAINED
LAQ	LACQUERED



TYP. EXTERIOR WINDOW STUCCO ON
WOOD
3\"/>

EIT DESIGN STUDIO
architecture

Eladio Toranzo Jr. Architect T.Y.L.C. 20510
6735 Indel St. | San Antonio | Tx | 78249 | 210.318.8334 | 210.617.9195

Barrio Dogg Remodel

620 S. Press St.
San Antonio TX 78210

DATE: _____

DRAWN BY: _____

ISSUE/REVISION: _____

NO.	DATE	DESCRIPTION
01	08.19.22	Owner Review
02	10.07.22	Owner Review
03	11.04.22	Owner Review
04	01.11.23	Lndird Review
05	02.03.23	Permit
06	03.11.23	City Comments
07	03.22.23	City Comments
08	07.24.23	HDRC

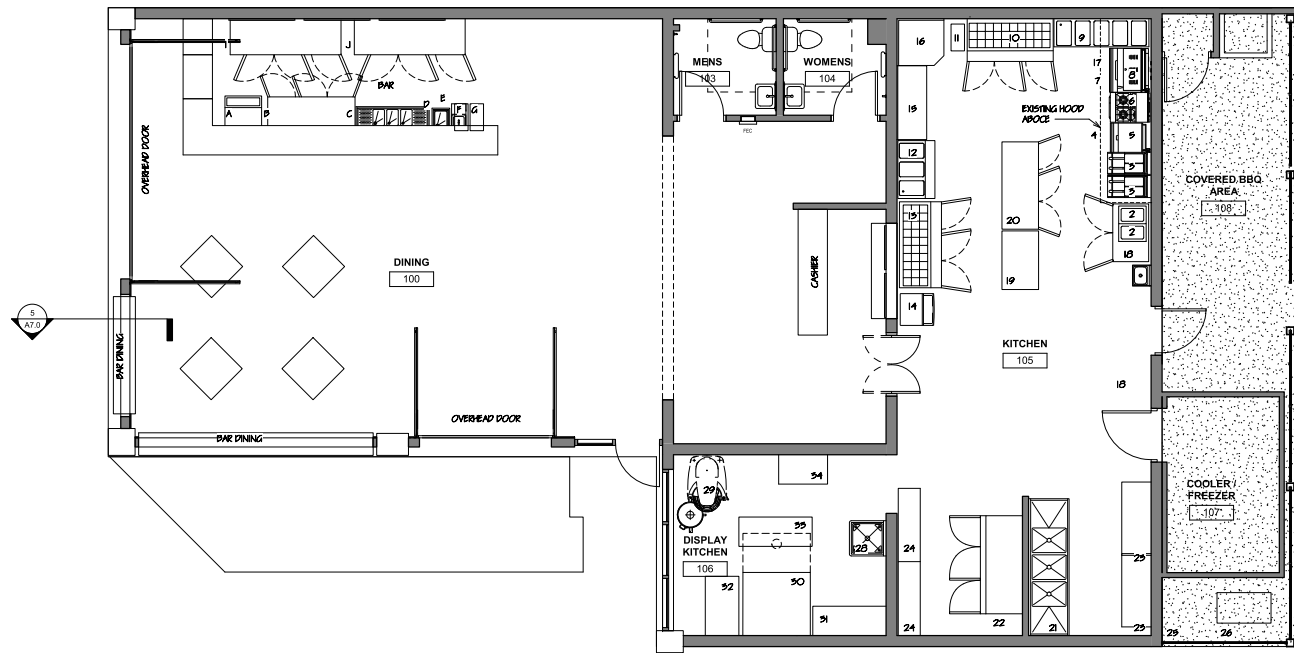
SHEET TITLE: _____

DOOR SCHEDULE & DETAILS

SHEET NO. _____

A9.0

OF



1 Kitchen Plan
1/4" = 1'-0"

BAR AND KITCHEN SCHEDULE				
NO.	DESCRIPTION	MANUFACTURE	MODEL	NOTES
A	UNDERMOUNT ICE MACHINE	NANITWOC	NEO 310	
B	UNDERCOUNTER REFRIGERATOR	AVANTCO	1785SUC72RHC	
C	1 BOWL UNDERBAR SINK	REGENCY	600S3100213	
D	1 BOWL UNDERBAR HAND SINK	REGENCY	600B11014	
E	BLENDER STATION WITH DUMP SINK	ADVANCE TABCO	CR-RS SERIES	
F	RUBBERMAID 23-GAL. TRASH CAN	WEBSTAIRANT STORE	686F-G3400BK	
G	RUBBERMAID 23-GAL. TRASH CAN	WEBSTAIRANT STORE	680F-G3400BL	
H	POS SYSTEM	CLOVER		NO MODEL NUMBER
I	BLACK BAR REFRIGERATOR	AVANTCO	178LBB4HC	
J	BLACK BAR REFRIGERATOR	AVANTCO	178LBB4HC	
1	WORKTOP FREEZER	AVANTCO	1785SW148FHC	
2	COUNTERTOP FOOD COOKER/WARMER	AVANTCO	177W50CK3	
3	STAINLESS STEEL FLOOR FRYER	AVANTCO	177FF400N	
4	HEATED DRAWER WARMER	HATCO	HDWTC-1	
5	COUNTERTOP GRIDDLE	CPS	351GMCP329NL	
6	NATURAL GAS 4 BURNER	CPS	351S24N	
7	CHEF BASE	AVANTCO	178CBE30HC	
8	COUNTERTOP GRIDDLE	CPS	351GMCP329NL	
9	5 PAN WETBATH	WEBSTAIRANT STORE	106WB5GN	
10	SANDWICH PREP TABLE	AVANTCO	178APT71MHC	
11	RUBBERMAID 23-GAL. TRASHCAN	WEBSTAIRANT STORE	686F-G3400BK	
12	WETBATH TABLE	ADVANCE TABCO	WB-3G-NAT	
13	SANDWICH PREP TABLE	AVANTCO	178APT71MHC	
14	UNDERCOUNTER ICE MACHINE	AVANTCO	184UC250A	
15	WORK TABLE	REGENCY	600TSSB304BS	
16	CORNER WORK TABLE	REGENCY	600TSSC303BS	
17	INFRARED SALAMANDER BROILER	CPS	351SSB5BNK	
18	PEDESTAL HAND SINK	REGENCY	600HS17FPDST	
19	COMMERCIAL WORK TABLE	REGENCY	600T349BGC	
20	WORKTOP REFRIGERATOR	AVANTCO	1785SW129HC	
21	COMMERCIAL SINK WITH 2 DRAINBOARDS	REGENCY	600S320282AS	
22	SOLID DOOR REACH-IN REFRIGERATOR	AVANTCO	178S338HC	
23	CHROME WIRING SHELF	REGENCY	460EC2480	
24	CHROME WIRING SHELF	REGENCY	460EC1860	
25	MOP SERVICE BASIN	MUSTEE	65M	
26	GREASE INTERCEPTORS	POLYTRAP	48175	
27	SELF-CONTAINED CAPSULE PAK	NORLAKE		
28	ONE COMPARTMENT SINK	STEELETON	522C312424	
29	MIXER	HOBART	HL600	
30	SIGNATURE RACK OVEN	DOYAN & NUUVI	SRO1G	
31	ROLL-IN PROOFERS	DOYAN	E2361LO	
32	CHROME WIRE SHELVING	REGENCY	460EC2430	
33	WOOD TOP TABLE	ADVANCE TABCO	H2Q-245	
34	DOUGH MOLDER	PRO RESTAURANT EQUIPMENT	AE-DM31	



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Barrio Dagg Remodel

620 S. Press St.
San Antonio TX 78210

620 S. Press St.
San Antonio TX 78210

DATE:
DRAWN BY:

ISSUE/REVISION:

NO. | DATE | DESCRIPTION

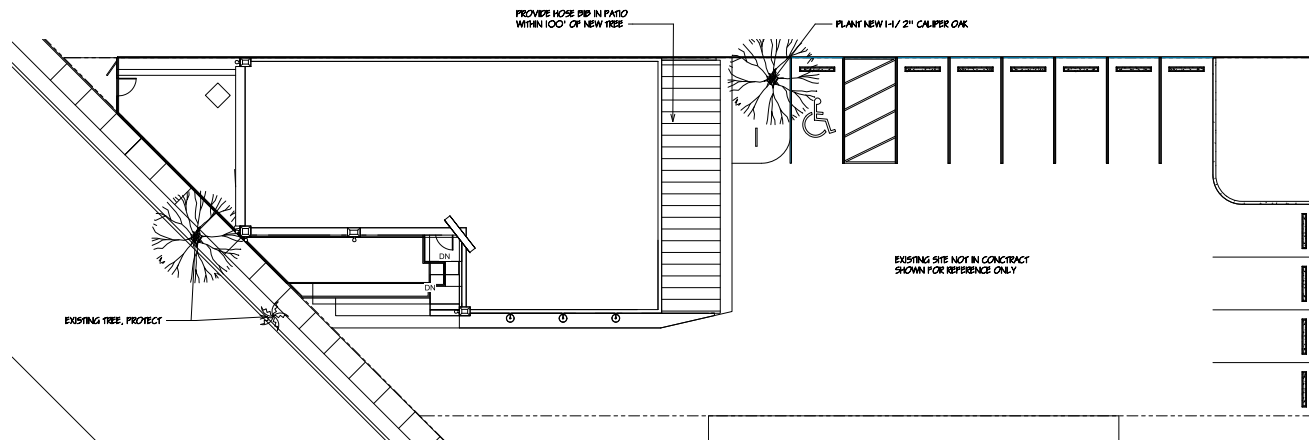
01 08.19.22 Owner Review
02 10.07.22 Owner Review
03 11.04.22 Owner Review
04 01.11.23 Lndrid Review
05 02.03.23 Permit
06 03.11.23 City Comments
07 03.22.23 City Comments
08 07.24.23 HDRC

SHEET TITLE:

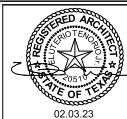
KITCHEN PLAN

SHEET NO.

K1.0
OF



Tree Plan
1" = 10'-0"



EIT DESIGN STUDIO
architecture

Eladio Tamayo Jr. Architect T.X.L.C. 20510
6735 Medals st. | San Antonio | tx | 78249 | 210.378.8334 | 210.697.2575

Barrio Dogg Remodel

620 S. Pressa St.
San Antonio TX 78210

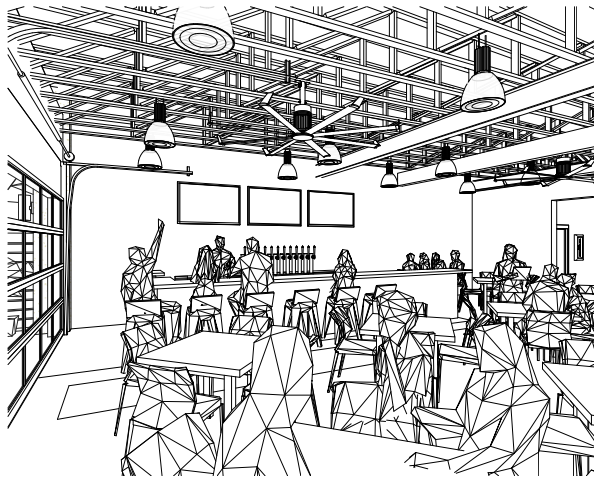
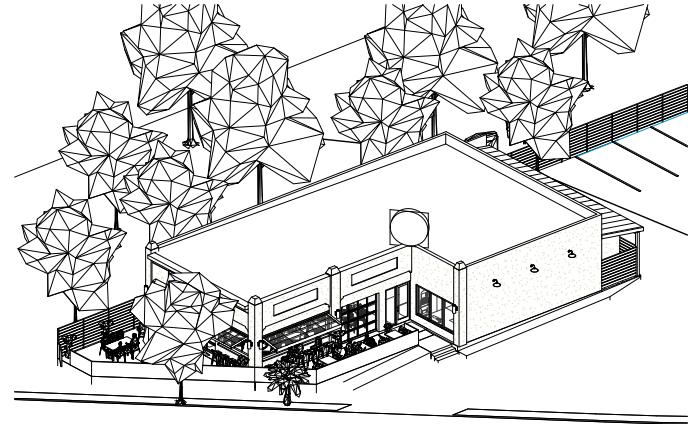
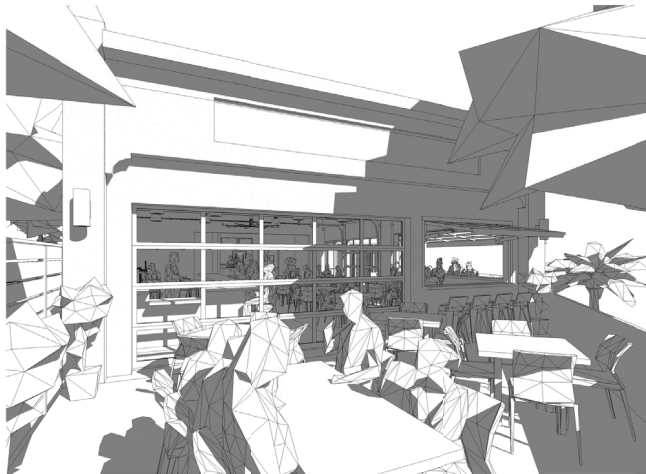
DATE:		
DRAWN BY:		
ISSUE/REVISION:		
NO.	DATE	DESCRIPTION
01	08.19.22	Owner Review
02	10.07.22	Owner Review
03	11.04.22	Owner Review
04	01.11.23	Landlord Review
05	02.03.23	Permit
06	03.11.23	City Comments
07	03.22.23	City Comments
08	07.24.23	HDRC

SHEET TITLE:

Tree Plan

SHEET NO.

L1.0
OF



NOT FOR
CONSTRUCTION

03.16.22

ESIG STUDIO
architecture

Estudio Tanorio Jr. Architect P.L.L.C. 20510
6707 W. Hausman Rd., Suite 103 | San Antonio, TX 78249 | 210.722.3759



RIVERCITY
BUILDERS



6707 W. Hausman Rd.
Suite 103
San Antonio Texas 78249
210.722.3759
www.rivercitybuilders-sa.com

Barrio Dogg
Remodel

620 S. Presa St.
San Antonio TX 78210

DATE:

DRAWN BY:

ISSUE/REVISION:

NO. | DATE | DESCRIPTION

01 08.19.22 Owner Review
02 10.07.22 Owner Review
03 11.04.22 Owner Review
04 01.11.23 Lndird Review
05 02.03.23 Permit
06 03.11.23 City
Comments 07
03.22.23 City Comments
08 07.24.23 HDRC

SHEET TITLE:

Renderings

SHEET NO.

P1

OF

SEÑOR

VEGGIE









Dens Glass Sheathing

Dens Glass Sheathing

D

insulation

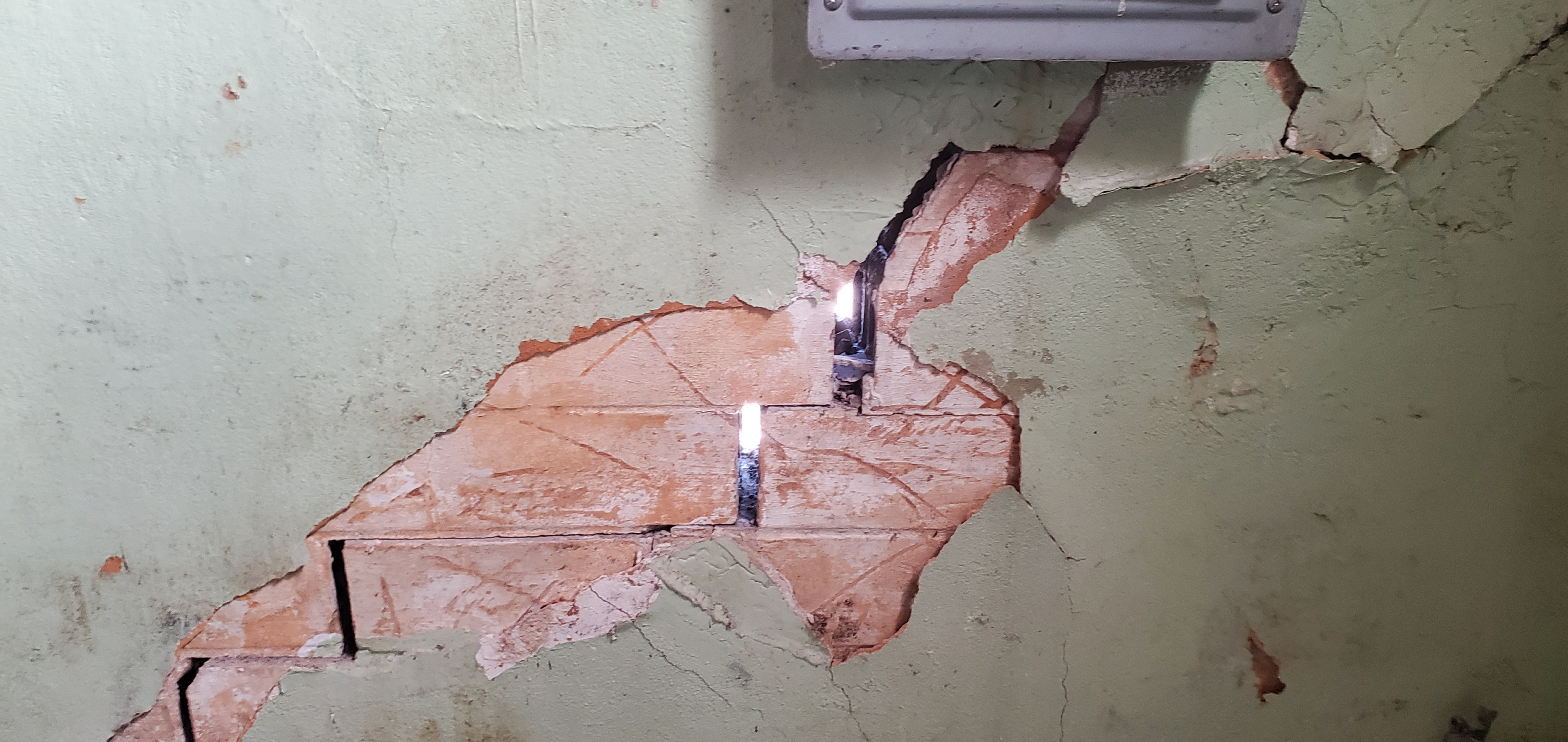


Sheathing

ng

15' PLK 1 8" HT. 6' 0" 0.5





























178A49FH
2330x775x1070
91.7x30.5x42.1

178A49FH
2330x775x1070
91.7x30.5x42.1

178A49FH
2330x775x1070
91.7x30.5x42.1

178UBB4HC
2330x775x1070
91.7x30.5x42.1

178UBB4HC
2330x775x1070
91.7x30.5x42.1

178UBB4HC
2330x775x1070
91.7x30.5x42.1

78APT71MHC
1920x995x1245
75.6x39.2x49



Aug 23, 2023 at 9:59:10 AM
629 S Presa St
San Antonio TX 78210
United States



Aug 23, 2023 at 9:59:17 AM
628 S Presa St
San Antonio TX 78210
United States



Aug 23, 2023 at 9:59:39 AM
620 S Presa St
San Antonio TX 78210
United States



Aug 23, 2023 at 9:59:43 AM
620 S Presa St
San Antonio TX 78210
United States



Aug 23, 2023 at 10:15:34 AM
642-644 S Presa St
San Antonio TX 78210
United States



Aug 23, 2023 at 10:15:46 AM
642-644 S Presa St
San Antonio TX 78210
United States



Aug 23, 2023 at 10:16:01 AM
642-644 S Presa St
San Antonio TX 78210
United States



Aug 23, 2023 at 10:16:37 AM
620 S Presa St
San Antonio TX 78210
United States



Aug 23, 2023 at 10:16:55 AM
628 S Presa St
San Antonio TX 78210
United States





Investigation Report

Property

Address	620 S Presa
District/Overlay	Lavaca
Owner Information	Pablo Rios

Site Visit

Date	08/30/2023
Time	05:00 PM (-5 GMT)
Context	drive-by
Present Staff	Claudia Espinosa
Present Individuals	Contractor(s)
Types of Work Observed	Exterior Maintenance and Alterations
Amount of Work Completed	75%
Description of work	Application of stucco over unapproved rigid foam installation. A Stop Work Order was issued in August 22, 2023.
Description of interaction	Staff informed the contractors that a Stop Work Order was previously issued. The contractors continued work.

Action Taken

Violation Type	Beyond scope of Certificate of Appropriateness (Code 35-451h)
OHP Action	Spoke with contractor(s)
Will post-work application fee apply?	Yes

Documentation



Investigation Report

Photographs





Investigation Report





Investigation Report





Investigation Report





Investigation Report





Investigation Report





Investigation Report



08/31/2023 09:37 AM



Investigation Report

Property

Address	620 S Presa
District/Overlay	Lavaca
Owner Information	Pablo Rios

Site Visit

Date	08/23/2023
Time	10:00 AM (-5 GMT)
Context	citizen report
Present Staff	Rachel Rettaliata
Present Individuals	Homeowner, Contractor(s)
Types of Work Observed	Exterior Maintenance and Alterations
Amount of Work Completed	75%
Description of work	Installation of rigid foam over existing stucco exterior.
Description of interaction	SWO issued for all exterior work. Owner agreed to comply and submit additional materials for HDRC review.

Action Taken

Violation Type	Beyond scope of Certificate of Appropriateness (Code 35-451h)
OHP Action	Spoke with property owner, Spoke with contractor(s), Posted additional "Stop Work Notice"
Will post-work application fee apply?	Yes

Documentation



Investigation Report

Photographs





Investigation Report





Investigation Report





Investigation Report

Aug 23, 2023 at 10:13:07 AM
629 S Presa St
San Antonio TX 78210
United States

CITY OF SAN ANTONIO
OFFICE of HISTORIC PRESERVATION
1901 S. Alamo St. San Antonio, Texas 78204
7:45am - 4:30pm Monday - Friday
(210) 207 - 0035

NOTICE OF INVESTIGATION

ADDRESS: 629 S PRESA [BCAD] OWNER: PABLO KIOS

An investigation of this property has been performed by the Office of Historic Preservation and the following violations have been identified:

☐ Code 25-431(a): Work without Certificate of Appropriateness (COA):

☒ Code 25-431(b): Work beyond Scope of Approval: INSTALLATION OF KIDNEY FORM ON EXTERIOR

☐ Code 35-415: Demolition by Neglect:

STOP WORK: ☒ Yes ☐ Not Applicable

Please contact the Office of Historic Preservation within 48 hours of the inspection date: 8/23/2023

A re-inspection by staff may occur without prior notice; photographs have been recorded for evidence.

Continued failure to comply with the laws of the City of San Antonio and the State of Texas will subject you to criminal and civil prosecutions, to the full extent permitted by law. Violations of City ordinances are subject to civil penalties and will be prosecuted accordingly. Violations of State law are also subject to civil prosecution in state district court by the City of San Antonio. Penalties for continued violations of the law include but are not limited to: (i) a criminal conviction on your record; (ii) criminal fines; (iii) court costs; (iv) civil penalties in the range of \$1,000.00 per day; (v) attorney's fees; (vi) repayment to the City of the costs to prosecute you; (vii) loss of your property; and (viii) the county shall reimburse (viii) a judicial finding that you have maintained a nuisance and are responsible to the community for the same; (ix) destruction of your property; (x) if you are found to be a nuisance, the City may deny you further and future permits for this project and others, etc.



Investigation Report





Investigation Report





Investigation Report





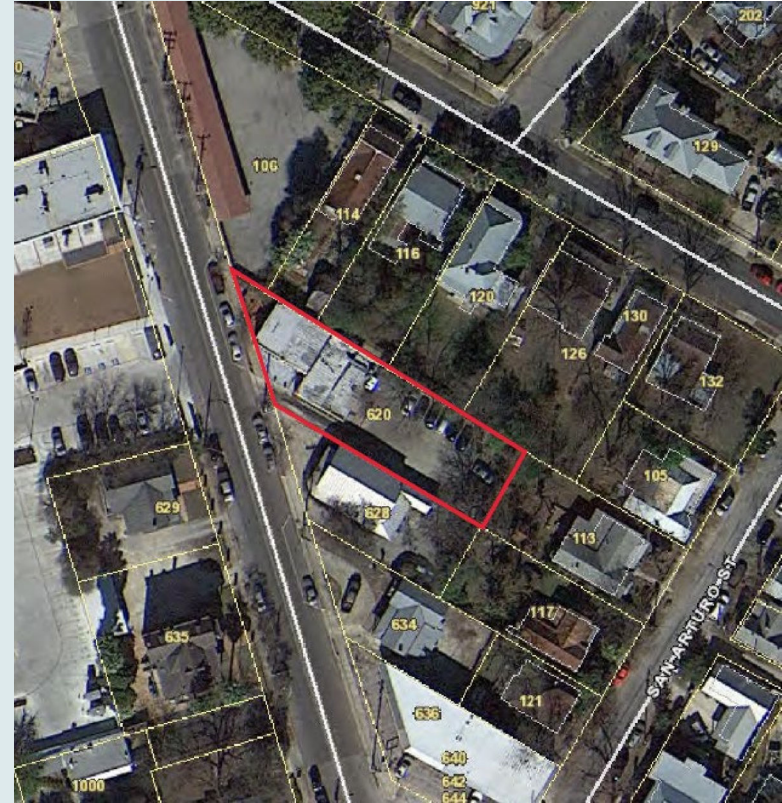
Investigation Report



08/31/2023 09:23 AM

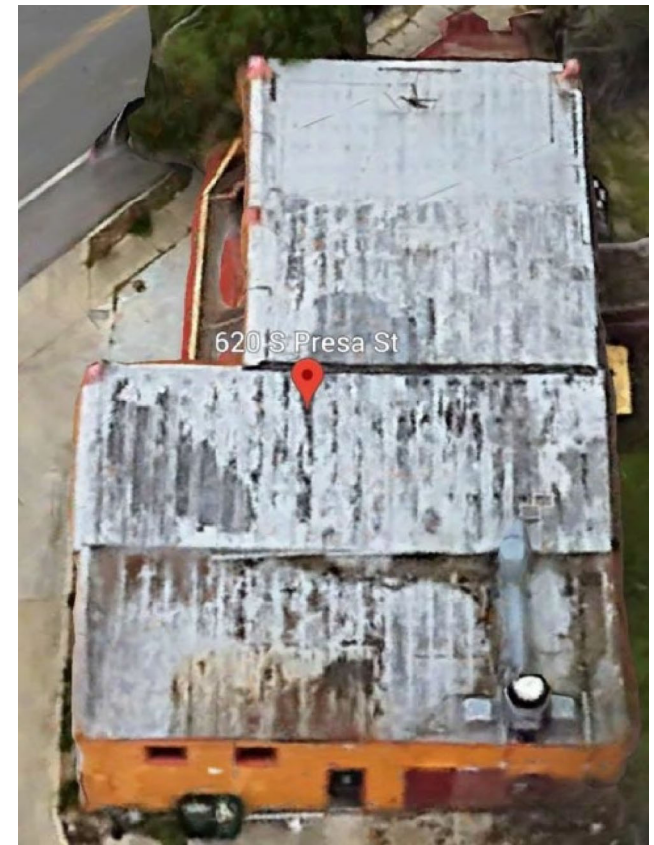
BOA-23-10300263

Zoning Board of Adjustment
620 S. Presa
Item #1
Official Appeal



SUBJECT PROPERTY

- 620 S. Presa, San Antonio, Texas, 78210
- Lavaca Historic District
- Located in Southtown off S. St. Mary's Street



HISTORY OF PROPERTY

- 1896/1910 – Built as a residence
- 1931 - Became a filling station with a battery shop (original structure demolished, front-facing building added)
- 1935 – Armature Works Building (additional building added)
- 1950-2014 – Several neighborhood eateries
- 2013 – Señor Veggie restaurant established



CASE HISTORY/TIMELINE

Date	Item
April 3, 2023	Property Owner received Certificate of Appropriateness for several exterior modifications
- August 22, 2023	Stop Work Order Issued
- August 23 rd - August 24 th - August 28 th - August 29 th	<ul style="list-style-type: none">• 1.34 inches of rain• 1.5 inches of rain• 1.52 inches of rain• 2 inches of rain
August 31, 2023	Staff issued an additional Stop Work Order by email & Property Owner paid \$500 post-work application fee and requested to be heard on at the next HDRC meeting
September 6, 2023	HDRC denied the request to install foam insulation on existing stucco cladding and apply new stucco on the foam



FINDINGS OF FACT

1. The property owner continued work due to forecasted rain and potential damage to the exposed stucco and insulation if left unfinished.
 - The rain and moisture of recent months can cause a potential public safety issue and provide the opportunity for faults in the building to manifest. Creating a far more dangerous situation of unstable construction for tenants and customers.
 - Stucco is particularly susceptible to water and can harvest mold



FINDINGS OF FACT

2. There was a total loss to the bond of stucco on over 40% of the building due to previous structural issues.

- Due to this, the Property Owner was required to refurbish the foundation and the roof of the building.



FINDINGS OF FACT

3. Exterior Maintenance and Alterations were taken with great care, and the Property Owner scouted multiple types of exterior stucco, as patching was unavailable.

- The physical and visual integrity of the historic stucco has been so compromised by prior incompatible and ill-conceived repairs that patching would not be successful.



Visible Stucco Issues

FINDINGS OF FACT

4. General misunderstanding and lack of clarity provided to Property Owner on what materials are allowed.

- On September 6th, the HDRC focused on stop work order consequences rather than a true holistic interpretation of the case and the actions of the property owner with the goal of improving and preserving a historic building on the property owner.



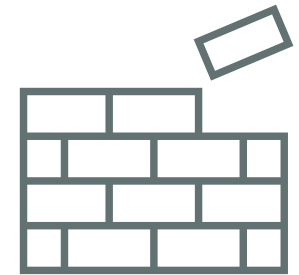
The scope of HDRC is building and design standards – not to provide punishment due to a property owner's misunderstanding.



FINDINGS OF FACT

5. The integrity of the structure has been improved, and the removal of the already placed foam would create an undue hardship for the Property Owner.

- Removal of the already placed foam is counter-intuitive and creates additional hazards for future tenants and customers.

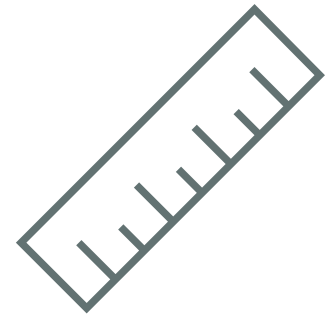


FINDINGS OF FACT

6. The scope of HDRC is to review projects related to *exterior* changes to historic properties

- The foam insulation that is being used is not visible on the exterior of the building.
- With the insulation and approved stucco being used, this only adds 2 inches to the building's exterior.

The integrity of the structure has been improved and removal of the already placed foam would create an unnecessary hardship for the Property Owner.



REQUESTED APPEAL

Request for Appeal to staff's recommendation to remove foam insulation.

The foam insulation provides:

- weatherization (which is greatly needed in historic buildings),
- sanitation from rodents and bugs, and
- cannot be seen from the street or from the inside of the building



THERMA-FOAM

Sustainable Material

- reduces energy use in buildings which protects the local environment.
- 100% recyclable.
- meets COSA code requirements for continuous insulation and Sustainable Design (Appendix G, Ch.11, Sec. E(1)).



EIFS/THERMA-FOAM CONT.

Houston

- City of Houston: Allows EIFS on a on a case by-case basis as replacement materials or for use on a new addition or new building in a historic district.
- The City looks at
 - Potential impact on historic significance
 - Durability
 - Appearance
 - Cost
 - Environmental Impact
 - Location

El Paso

- Allows EIFS with special inspection



LETTERS OF SUPPORT

1. Nellie Leal – 812 S Alamo St. – (210)255-9836
2. Carlos Villarreal – 116 Camargo St. – (210)388-2377
3. Aaron Garza – 636 S Presa St. – (210)952-8448
4. Jose Rodriguez – 628 S Presa St. – (210)902-9662
5. Octavio Lozano – 812 S Alamo St – (713)294-8418
6. Angel Encarnacion – 701 S Alamo St. – (210)818-4719
7. Noah Hudson – 640 S Presa St. – (210)833-2106
8. Olga Torres – 1032 S Presa St. – (210)620-0080
9. Douglas Dilley – 635 S Presa St. – (210)225-0111
10. Elizabeth Johanson – 611 S Presa #106 – (210)303-2572



REQUEST:	Appealing a Certificate of Appropriateness
----------	--

Board of Adjustment Response Form – Case No. BOA-23-10300263

You may use either this form to submit comments to the Development Services Department, P.O. Box 839966 San Antonio, Texas, 78283-3966 or you may email your comments to the case manager above. Please note that all information submitted to the City is subject to the Public Information Act and may be disclosed pursuant to an open record request.

Name: CARLOS VILLARREAL Telephone: 210-383-2377

Address: 116 CANAZZO ST. SAN ANTONIO TX 78210
☒ In Favor ☐ In Opposition

Comments: EXCITED ABOUT THE IMPROVEMENTS TO OUR COMMUNITY

[Signature]
 Property Owner's Signature (required)

Case Manager: Joseph Leos/ (210) 207-3074

"Excited about the improvement to our community."

REQUEST:	Appealing a Certificate of Appropriateness
----------	--

Board of Adjustment Response Form – Case No. BOA-23-10300263

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Name: Nellie Leal Telephone: 210-255-9836

Address: 8125 Alamo
☒ In Favor ☐ In Opposition

Comments: Need new establishments in the neighborhood

[Signature]
 Property Owner's Signature (required)

Case Manager: Joseph Leos/ (210) 207-3074

"Need new establishments in the neighborhood."

REQUEST:	Appealing a Certificate of Appropriateness
----------	--

Board of Adjustment Response Form – Case No. BOA-23-10300263

You may use either this form to submit comments to the Development Services Department, P.O. Box 839966 San Antonio, Texas, 78283-3966 or you may email your comments to the case manager above. Please note that all information submitted to the City is subject to the Public Information Act and may be disclosed pursuant to an open record request.

Name: Aaron Gurza Telephone: 210-952-8448

Address: 636 S Presa
☒ In Favor ☐ In Opposition

Comments: I think the improvements to the building are good for the neighborhood

[Signature]
 Property Owner's Signature (required)

Case Manager: Joseph Leos/ (210) 207-3074

"I think the improvements to the building are good for the neighborhood."

REQUEST:	Appealing a Certificate of Appropriateness
----------	--

Board of Adjustment Response Form – Case No. BOA-23-10300263

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Name: Jose Rodriguez Telephone: (210) 902-9662

Address: 628 S. Pecos

(☒) In Favor () In Opposition

Comments: Love to see development in our neighborhood !!

Jose Rodriguez

Property Owner's Signature (required) Case Manager: Joseph Leos/ (210) 207-3074

"Love to see development in our neighborhood!"

SOLICITUD:	Appealing a Certificate of Appropriateness
------------	--

Formulario de respuesta de la Junta de Ajuste - Caso No. BOA-23-10300263

Puede usar este formulario para enviar comentarios al Departamento de Servicios de Desarrollo, PO Box 839966 San Antonio, Texas, 78283-3966 o puede enviar sus comentarios por correo electrónico al administrador de caso antes mencionado. Incluya su nombre y dirección. Tenga en cuenta que toda la información enviada a la Ciudad está sujeta a la Ley de Información Pública y puede ser divulgada de conformidad con una solicitud de registro abierto.

Nombre: Angel Encarnacion / Sweet Baker Teléfono: 210-818-4719

Dirección: 701 S. Pecos 78201

(☒) In Favor () En Oposición

Comentarios: Looks really nice, a good addition to the Southtown

Angel Encarnacion

Firmá dueño de propiedad (requerido) Administrador del caso: Joseph Leos/ (210)207-3074/

"Looks really nice, a good addition to the Southtown."

REQUEST:	Appealing a Certificate of Appropriateness
----------	--

Board of Adjustment Response Form – Case No. BOA-23-10300263

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Name: Douglas Dilley Telephone: 210-225-0111

Address: 635 S. Pecos

(☒) In Favor () In Opposition

Comments: We welcome all new businesses to the Neighborhood

Douglas Dilley

Property Owner's Signature (required) Case Manager: Joseph Leos/ (210) 207-3074

"We welcome all new businesses to the neighborhood."

APPROVED APPEAL RESULTS

- A historic building that is up to code regarding structure and safety for tenants/customers.
- An improved historic building located in an area with a rich history.
- Improved economic development of downtown.





THANK YOU

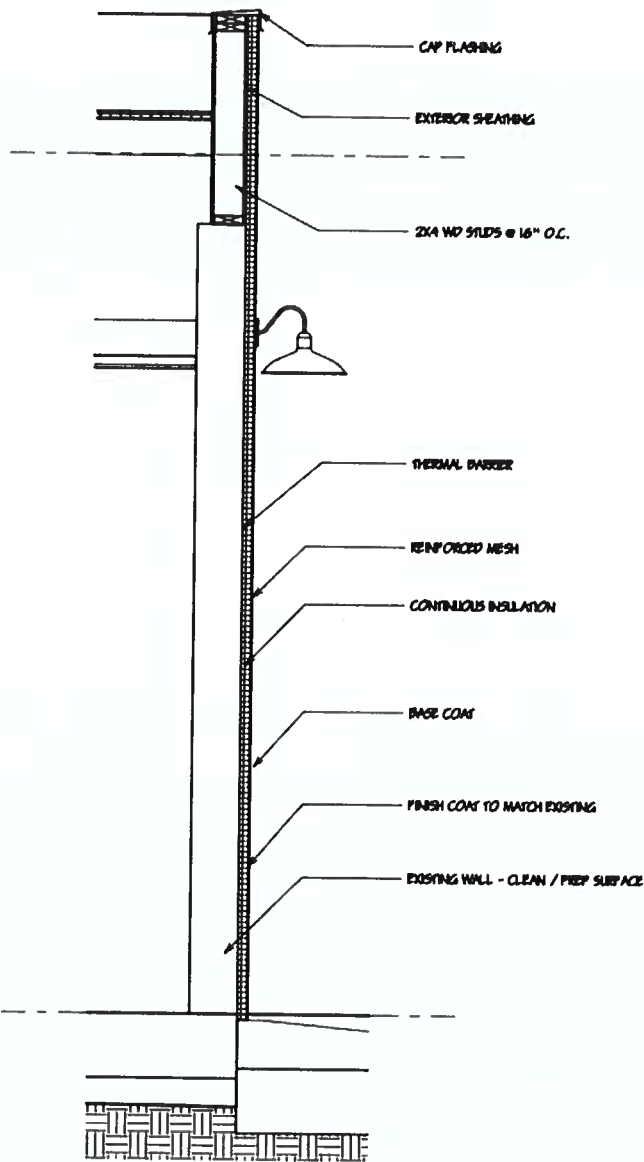


**620 S PRESA
SAN ANTONIO TX 78210**

SPEC SHEET SUMMARY

Exterior Restoration Materials:

1. Sherwin Williams LOXON - Concrete & Masonry Primer Sealer
2. Sherwin Williams LOXON XP - Waterproofing Masonry Coating - Flat
3. ThermaFoam - General Info
4. ThermaFoam - Exterior Sheathing
5. ThermaFoam - Concrete Applications
6. ThermaFoam - Architectural Shapes
7. ThermaFoam - Tech Data
8. ThermaFoam - UL Evaluation Report
9. Tytan Professional - Foam Bond 60 Adhesive\
10. Tytan Professional - Spec Sheet
11. Finestone - Finestop RA - Vapor Permeable - Air/Water Resistive Barrier Membrane
12. Finestone - Reinforcing Mesh
13. Finestone - Finebuild - Stucco Base
14. Sherwin Williams - Duration - Exterior Acrylic Flat



① Section 1 - Callout 1
3/4" = 1'-0"



10.07.19

EIT DESIGN STUDIO
architecture

Elvino Tenorio Jr., Architect TX LIC. 20510
210.318.8334 | 210.611.2545
78249 | tx

6735 Lancelot St. | San Antonio



**RIVERCITY
BUILDERS**



- Custom Homes -

11415 Enchanted Sunset
San Antonio
Texas 78253
210.679.6106
210.722.3759
www.rivercitybuilders-sa.com

Barrio Dogg Remodel

620 S. Presa St.
San Antonio TX 78210

DATE:

DRAWN BY:

ISSUE/REVISION:

NO.	DATE	DESCRIPTION
01	08.19.22	Owner Review
02	10.07.22	Owner Review
03	11.04.22	Owner Review
04	01.11.23	Lnldr Review
05	02.03.23	Permit
06	03.11.23	City Comments
07	03.22.23	City Comments
08	07.24.23	HDRC

SHEET TITLE:

WALL SECTIONS

SHEET NO.

A7.1

OF

Loxon®**Concrete and Masonry Primer-Sealer**

US LX02W0050, Canada LX02WQ050 White

**SHERWIN
WILLIAMS.****CHARACTERISTICS**

Loxon Concrete & Masonry Primer-Sealer is an acrylic coating specifically engineered for interior and exterior, above grade, masonry surfaces requiring a high-performance primer. It is highly alkali and efflorescence resistant and can be applied to a surface with a pH of 6 to 13.

Loxon Concrete and Masonry Primer-Sealer: Seals and adheres to concrete, brick, stucco and plaster.

Conditions porous masonry surfaces.

Use on above grade masonry surfaces for a long-lasting finish.

Apply to masonry and concrete surfaces that are at least 7 days old.

Prevents harm to subsequent coatings by alkalies in the substrate.

For use on these surfaces:

Concrete, Concrete Block, Brick, Stucco, EIFS Fiber Cement Siding, Plaster, Mortar, Exterior Wall Cladding, Tilt-Up/Pre-Cast Concrete

Finish: 0-10 units @ 85°
Color: White

Coverage:
Wet mils: 5.3-8.0
Dry mils: 2.1-3.2
Coverage: 200-320 sq. ft. per gallon
Coverage on porous & rough stucco 80 square feet per gallon.

Coverage (thin-mil primer application to new construction tilt-up/precast concrete):
Wet mils: 2.7-4.0
Dry mils: 1.1-1.6
Coverage: 400-600 sq. ft. per gallon

Drying Schedule 77°F @ 50% RH:

To touch 4 hours
To recoat 24 hours

Air and surface temperatures must not drop below 40°F for 48 hours after application.

Drying and recoat times are temperature, humidity, and film thickness dependent.

Tinting with CCE only:

For best topcoat color development, use the recommended "P"-shade primer. If desired, up to 4 oz. per gallon of ColorCast Ecotones can be used to approximate the topcoat color. Check color before use.

Extra White LX02W0050

V.O.C. (less exempt solvents):
less than 50 grams per litre; 0.42 lbs. per gallon
As per 40 CFR 59.406

Volume Solids: 40 ±2%
Weight Solids: 55 ±2%
Weight per Gallon: 10.92 lbs
Flash Point: N.A.
Vehicle Type: Acrylic
Shelf Life: 36 months, unopened

COMPLIANCE

As of 07/19/2023, Complies with:

OTC	Yes
OTC Phase II	Yes
S.C.A.Q.M.D.	Yes
CARB	Yes
CARB SCM 2007	Yes
CARB SCM 2020	Yes
Canada	Yes
LEED® v4 & v4.1 Emissions	Yes
LEED® v4 & v4.1 V.O.C.	Yes
EPD-NSF® Certified	Yes
MIR-Product Lens Certified	Yes
MPI®	Yes

APPLICATION

Temperature: 40°F minimum
The following is a guide. Changes in pressures and tip sizes may be needed for proper spray characteristics. Always purge spray equipment before use with listed reducer. Any reduction must be compatible with the existing environmental and application conditions.

Reducer: No reduction necessary
Airless Spray:
Pressure 2000-2700 p.s.i.
Tip .19 inch
Brush: nylon-polyester
Roller Cover: ½ to 1½ inch nap synthetic cover

Spray and back roll on porous & rough stucco to achieve required film build and a pin-hole free surface.

For porous block, a coat of Loxon Acrylic Block Surfer is required to achieve a pinhole free surface.

Apply at temperatures above 40°F. When the air temperature is at 40°F, substrates may be colder; prior to painting, check to be sure the air, surface, and material temperature are above 40°F and at least 5°F above the dew point. Avoid using if rain or snow is expected within 4-6 hours.

Do not apply at air or surface temperatures below 40°F or when air or surface temperatures may drop below 40°F within 48 hours.

For best performance results, avoid painting in direct sun or painting substrates with elevated surface temperatures.

Do not reduce.

May be applied to damp but not to wet surfaces.

APPLICATION TIPS

Apply paint at the recommended film thickness and spreading rate as indicated on the page. Application of coating below minimum recommended spreading rate may adversely affect the coating systems performance.

When spot priming on some surfaces, a non-uniform appearance of the final coat may result, due to differences in holdout between primed and unprimed areas. To avoid this, prime the entire surface rather than spot priming.

For optimal performance, this primer-sealer must be topcoated with a latex, alkyd-oil, water-based epoxy, or solvent based epoxy coating on architectural applications.

For exterior use, this primer-sealer must be topcoated within 14 days to prevent degradation due to weathering.

RECOMMENDED SYSTEMS**Concrete, Masonry, Cement:**

1 coat Loxon Concrete & Masonry Primer
2 coats Appropriate Topcoat

Stucco, Fiber Cement Siding, EIFS:

1 coat Loxon Concrete & Masonry Primer
2 coats Appropriate Topcoat

Recommended Architectural Topcoats:

A-100 Exterior Latex
Duration Exterior & Duration Home Interior
Emerald Exterior & Interior
Loxon Masonry Coatings
SuperPaint Exterior & Interior
ProClassic Interior
ProMar Interior

Recommended Industrial Topcoats:

Industrial Enamels
Pro Industrial Series
Water Based Catalyzed Epoxy

Industrial finishes have been tested for architectural applications only. Loxon Concrete and Masonry Primer has not been tested in environments subject to chemical attack. Any recommendations for use in such areas must follow a thorough evaluation of the effects of the environment on the Loxon Concrete and Masonry Primer and topcoat system.

Loxon®

Concrete and Masonry Primer-Sealer

SURFACE PREPARATION

WARNING! If you scrape, sand or remove old paint, you may release lead dust. **LEAD IS TOXIC. EXPOSURE TO LEAD DUST CAN CAUSE SERIOUS ILLNESS, SUCH AS BRAIN DAMAGE, ESPECIALLY IN CHILDREN. PREGNANT WOMEN SHOULD ALSO AVOID EXPOSURE.** Wear a NIOSH-approved respirator to control lead exposure. Clean up carefully with a HEPA vacuum and a wet mop. Before you start, find out how to protect yourself and your family by contacting: US - National Lead Information Hotline at 1-800-424-LEAD or log on to www.epa.gov/lead; Canada - your local health authority.

Remove all surface contamination by washing with an appropriate cleaner, rinse thoroughly and allow to dry. Existing peeled or checked paint should be scraped and sanded to a sound surface. Glossy surfaces should be sanded dull. Stains from water, smoke, ink, pencil, grease, etc. should be sealed with the appropriate primer-sealer. Recognize that any surface preparation short of total removal of the old coating may compromise the service length of the system.

Masonry, Concrete, Stucco:

All new surfaces must cure for at least 7 days. Remove all form release and curing agents. Pressure clean to remove all dirt, dust, grease, oil, loose particles, laitance, foreign material, peeling and defective coatings, chalks, etc. Allow the surface to dry before proceeding. Repair cracks, voids, and other holes with an appropriate patching compound or sealant.

Concrete and mortar must be cured at least 7 days at 75°F. Moisture content must be 15% or lower. On tilt-up and poured-in-place concrete, commercial detergents and sandblasting may be necessary to remove sealers, release compounds, and to provide an anchor pattern. Fill bugholes, air pockets and other voids with an acrylic elastomeric patch or sealant.

Caulking:

Fill gaps between walls, ceilings, crown moldings, and other trim with the appropriate caulk after priming the surface

SURFACE PREPARATION

Mildew:

Prior to attempting to remove mildew, it is always recommended to test any cleaner on a small, inconspicuous area prior to use. Bleach and bleaching type cleaners may damage or discolor existing paint films. Bleach alternative cleaning solutions may be advised.

Mildew may be removed before painting by washing with a solution of 1 part liquid bleach and 3 parts clean water. Apply the solution and scrub the mildewed area. Allow the solution to remain on the surface for 10 minutes. Rinse thoroughly with clean water and allow the surface to dry before painting. Wear protective eyewear, waterproof gloves, and protective clothing. Quickly wash off any of the mixture that comes in contact with your skin. Do not add detergents or ammonia to the bleach-water solution.

PHYSICAL PROPERTIES

Do not paint on wet surfaces.

LX02W0050

Water Vapor Permeance (US):

Method: ASTM D1653 (grains/hr ft² in Hg)

Result: 25.79 perms

Flexibility:

Method: ASTM D522

Result: method B, 180° bend, 1/8 inch mandrel

Pass

Alkali Resistance:

Method: ASTM D1308

Result: Pass

Mildew Resistance:

Method: ASTM D3273/D3274

Result: Pass

Efflorescence:

Method: ASTM D7072-04

Result: Pass (None)

Wind-Driven Rain Test:

Method: ASTM D6904-03

Result: Pass

SAFETY PRECAUTIONS

For interior or exterior use.

Protect from freezing.

Do not apply at temperatures below 40°F. Air and surface temperatures must not drop below 40°F for 48 hours after application.

Before using, carefully read **CAUTIONS** on label.

ZINC Use only with adequate ventilation. To avoid overexposure, open windows and doors or use other means to ensure fresh air entry during application and drying. If you experience eye watering, headaches, or dizziness, increase fresh air, or wear respiratory protection (NIOSH approved) or leave the area. Avoid contact with eyes and skin. Wash hands after using. Keep container closed when not in use. Do not transfer contents to other containers for storage. **FIRST AID:** In case of eye contact, flush thoroughly with large amounts of water. Get medical attention if irritation persists. If swallowed, call Poison Control Center, hospital emergency room, or physician immediately. **WARNING:** This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. **DO NOT TAKE INTERNALLY. KEEP OUT OF THE REACH OF CHILDREN.**

HOTW 07/19/2023 LX02W0050 50 46
FRC, SP

CLEANUP INFORMATION

Clean spills, spatters, hands and tools immediately after use with soap and warm clean water. After cleaning, flush spray equipment with compliant cleanup solvent to prevent rusting of the equipment. Follow manufacturer's safety recommendations when using solvents.

Loxon® XP

Waterproofing Masonry Coating-Flat

LX11-50 Series


**SHERWIN
WILLIAMS**

CHARACTERISTICS

Loxon XP is an exterior, high build coating that provides excellent flexibility, durability and weather resistance. This product will protect against wind-driven rain when used on concrete, CMU, stucco and shotcrete-gunite. It is highly alkali and efflorescence resistant. This may be applied to a surface with a pH of 6 to 13.

Apply directly to fresh concrete (at least 7 days old). Shotcrete/gunite surfaces may be painted after 3 days.

Can be applied over high pH (up to 13) substrates, no primer required.

Can be applied down to 35°F.

Color: Most Colors

1 coat system, brush, roller, or spray applied, coverage per coat:

Wet mils: 14.5-18.5

Dry mils: 6.5-8.4

Coverage sq. ft. per gallon 85-110

Can be applied up to 40 mils wet.

Coverage will vary with the substrate and the texture. Coverage on porous & rough stucco 80 square feet per gallon.

Drying Schedule @ 50% RH: temperature and humidity dependent.

	@35-45°F	@ 45°F+
Touch:	6 hrs	4 hrs
Recoat:	24-48 hrs	24 hrs

Drying time is temperature, humidity, and film thickness dependent.

Finish: 0-10 units @ 85°

Tinting with CCE only:

Base	oz. per gallon	Strength
Extra White	0-6	SherColor
Deep Base	4-12	SherColor
Ultradeep	10-12	SherColor
Light Yellow	0-12	SherColor

Extra White LX11W0051
(may vary by color)

V.O.C. (less exempt solvents):

less than 50 grams per litre; 0.42 lbs. per gallon
As per 40 CFR 59.406

Volume Solids: 45 ± 2%

Weight Solids: 61 ± 2%

Weight per Gallon: 11.46 lb

Flash Point: N.A.

Vehicle Type: Proprietary Acrylic

Shelf Life: 36 months, unopened

Mildew Resistant:

This coating contains agents which inhibit the growth of mildew on the surface of this coating film. Passes ASTM D3273/D3274

COMPLIANCE

As of 2/4/2022, Complies with:

OTC	Yes
OTC Phase II	Yes
S.C.A.Q.M.D	Yes
CARB	Yes
CARB SCM 2007	Yes
CARB SCM 2020	Yes
Canada	Yes
LEED® v4 & v4.1 Emissions	N.A.
LEED® v4 & v4.1 V.O.C.	Yes
EPD-NSF® Certified	No
MIR-Manufacturer Inventory	No
MPI®	Yes
SWRI®- Wall Coating	Yes

APPLICATION

Temperature: 35°F minimum

The following is a guide. Changes in pressures and tip sizes may be needed for proper spray characteristics. Always purge spray equipment before use with listed reducer. Any reduction must be compatible with the existing environmental and application conditions.

Reducer: Do not reduce

Airless Spray:

Pressure 2300 p.s.i.

Tip .021 inch

Brush Use a nylon/polyester brush

Roller Cover Use a ½ to 1½ inch nap synthetic roller cover.

The substrate and its condition will determine the application procedure. Considerations to minimize pinholes:

- 2 coat application with overnight drying between coats
- Spray application with backrolling
- Power rolling

Spray and backroll on porous & rough stucco to achieve required film build and a pin-hole free surface.

When the air temperature is at 35°F, substrates may be colder. Prior to painting, check to be sure the air, surface, and material temperatures are above 35°F and at least 5°F above the dewpoint. Avoid using if rain or snow is expected within 2-3 hours.

Do not apply at air or surface temperatures below 35°F or when air or surface temperatures may drop below 35°F within 48 hours.

Do not reduce.

APPLICATION TIPS

For proper waterproofing performance and to resist alkalis, 2 coats of the coating **MUST** be applied between 14.5 -18.5 mils wet per coat.

A total dry film thickness of 13 - 16.8 mils of topcoat and a surface with 10 or less pinholes per square foot is required for a waterproofing system.

For extremely porous block a coat of Loxon Block Surfer may be required to achieve a pinhole free surface.

For rehabilitating existing concrete water tanks, additional products may be used.

RECOMMENDED SYSTEMS

Concrete, Stucco, Concrete Block, CMU, Split-face Block, and other Cementitious surfaces

1 coat Loxon Acrylic Block Surfer (if needed) or Loxon Conditioner (if needed)

1-2 coats Loxon XP

Previously Coated in good condition:

After power washing, apply 1 coat of Loxon XP over the surface.

Incidental Wood:

1 coat Exterior Latex Wood Primer-1-2 coats Loxon XP

Incidental Metal:

(steel, galvanized, or aluminum):

1 coat Pro Industrial Pro-Cryl Primer

1-2 coats Loxon XP

Waterproofing System:

- Two coats of topcoat
- 6.5 to 8.4 mils d.f.t. per coat
- 13 to 16.8 mils total dry film thickness
- 10 or less pinholes per square foot

Loxon® XP

Waterproofing Masonry Coating-Flat

SURFACE PREPARATION

WARNING! Removal of old paint by sanding, scraping or other means may generate dust or fumes that contain lead. Exposure to lead dust or fumes may cause brain damage or other adverse health effects, especially in children or pregnant women. Controlling exposure to lead or other hazardous substances requires the use of proper protective equipment, such as a properly fitted respirator (NIOSH approved) and proper containment and cleanup. For more information, call the National Lead Information Center at 1-800-424-LEAD (in US) or contact your local health authority.

Remove all surface contamination by washing with an appropriate cleaner, rinse thoroughly and allow to dry. Scrape and sand peeled or checked paint to a sound surface. Sand glossy surfaces dull. Seal stains from water, smoke, ink, pencil, grease, etc. with the appropriate primer-sealer. Recognize that any surface preparation short of total removal of the old coating may compromise the service length of the system.

Concrete, CMU, Stucco:

On tilt-up and poured-in-place concrete, commercial detergents and sandblasting may be necessary to remove sealers, release compounds, and to provide an anchor pattern. Concrete and mortar must be cured at least 7 days at 75°F. Fill bugholes, air pockets, cracks, and other voids with an elastomeric patch or sealant. Rough surfaces can be filled to provide a smooth surface.

Incidental Metal:

Wash to remove any oil, grease, or other surface contamination. All corrosion must be removed with sandpaper, wire brush, or other abrading method. Primer required.

Incidental Wood:

Sand any exposed wood to a fresh surface. Patch all holes and imperfections with a wood filler or putty and sand smooth. All patched areas must be primed. Primer required.

Sealing and Patching—After cleaning the surface thoroughly, prime the concrete surface with Loxon XP, apply an elastomeric patch or sealant if needed, allow to dry, then topcoat.

To improve the performance, consider:

- Use caution when preparing the substrate to create a uniform surface.
- Cracks, crevices, and through-wall openings must be patched with an elastomeric patch or sealant.
- Fill voids and openings around window and doors with an elastomeric patch or sealant.
- Stripe coat all inside and outside corners and edges with 1 coat of Loxon XP coating.

SURFACE PREPARATION

Mildew:

Prior to attempting to remove mildew, it is always recommended to test any cleaner on a small, inconspicuous area prior to use. Bleach and bleaching type cleaners may damage or discolor existing paint films. Bleach alternative cleaning solutions may be advised.

Mildew may be removed before painting by washing with a solution of 1 part liquid bleach and 3 parts water. Apply the solution and scrub the mildewed area. Allow the solution to remain on the surface for 10 minutes. Rinse thoroughly with water and allow the surface to dry before painting. Wear protective eyewear, waterproof gloves, and protective clothing. Quickly wash off any of the mixture that comes in contact with your skin. Do not add detergents or ammonia to the bleach-water solution.

PHYSICAL PROPERTIES

Do not paint on wet surfaces.

LX11W0051

Wind-Driven Rain Test : Pass

Method: ASTM D6904 7 day cure
2 coats Loxon XP @ 8.1 mils d.f.t. per coat

Water Vapor Permeance:

(perms) 18.03 grains/h-ft²-in Hg.
Method: ASTM D1653 7 day cure @ 73°F & 50% RH; Method B, Condition A-Wet cup
2 coats Loxon XP @ 8.1 mils d.f.t. per coat

Elongation : 312%

Method: ASTM D412, 7 day cure @ 72°F & 50% RH 20 inch per minute
2 coats Loxon XP @ 8.1 mils d.f.t. per coat

Tensile Strength : 295 p.s.i.

Method: ASTM D412, 7 day cure @ 72°F & 50% RH 20 inch per minute
2 coats Loxon XP @ 8.1 mils d.f.t. per coat

Flexibility:

Method: ASTM D522, 9 mils d.f.t., 1 day cure
Result: Pass 1/8 inch

Alkali Resistance:

Method: ASTM D1308, 7 day cure,
11.25 mils d.f.t.
Result: Pass

Chloride Ion Permeability:

Result: 243 coulombs

Result: "Very Low" Permeability Class

CO₂ Diffusion (anti-carbonation):

Method: ASTM F2476
Result: 344 meters

equivalent air thickness >50 meters to pass
8.0 g/m²/24 hrs

Crack Bridging: Class A5 Pass

Method: EN 1062-7 Method A
Result: up to 2.5 mm @ -10°C

Efflorescence:

Method: ASTM D7072-19
1 coat, 1 day cure, 7.2 d.f.t.

Result: Pass

Adhesion:

Method: ASTM D4541
2 coats, 7 day cure, 7.2 d.f.t. per coat
Result: 375 average p.s.i.

CAUTIONS

For exterior use only.

Protect from freezing.

Non-photochemically reactive.

Not for use on horizontal surfaces (floors, roofs, decks, etc.) where water will collect.

Not for use below grade. Will not withstand hydrostatic pressure.

Before using, carefully read **CAUTIONS** on label.

ZINC. Use only with adequate ventilation. To avoid overexposure, open windows and doors or use other means to ensure fresh air entry during application and drying. If you experience eye watering, headaches, or dizziness, increase fresh air, or wear respiratory protection (NIOSH approved) or leave the area. Avoid contact with eyes and skin. Wash hands after using. Keep container closed when not in use. Do not transfer contents to other containers for storage. **FIRST AID:** In case of eye contact, flush thoroughly with large amounts of water. Get medical attention if irritation persists. If swallowed, call Poison Control Center, hospital emergency room, or physician immediately. **WARNING:** This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. **DO NOT TAKE INTERNALLY. KEEP OUT OF THE REACH OF CHILDREN.**

HOTW 2/4/2022 LX11W0051 27 00
FRC, SP

CLEANUP INFORMATION

Clean spills, spatters, hands and tools immediately after use with soap and warm water. After cleaning, flush spray equipment with a compliant cleanup solvent to prevent rusting of the equipment. Follow manufacturer's safety recommendations when using solvents.

THERMAFOAM *R-CONTROL*

Molded Polystyrene Insulation.

ThermaFoam R-Control molded polystyrene insulation is a cost-effective, durable, and energy efficient solution. ThermaFoam R-Control is an insulation manufactured to provide architects, specifiers, distributors, and contractors all the features and benefits inherent in a high quality insulation.

Stable R-value - ThermaFoam R-Control has a R-value that never changes over time.

Strength - ThermaFoam R-Control comes in compressive strengths of 10, 13, 15, 25, 40, and 60 psi.

Moisture Resistance - ThermaFoam R-Control is a closed cell polystyrene insulation and is resistant to moisture gain.

Vapor Permeable - ThermaFoam R-Control allows moisture vapor to move through its structure.

Drying Potential - ThermaFoam R-Control rapidly releases absorbed moisture.

When you consider all performance characteristics and cost, **THERMAFOAM *R-CONTROL*** is your best choice for foam insulation.

Performance Value.

ThermaFoam R-Control has air in its closed cells and therefore has a stable R-value. Many other insulations use blowing agents that cause R-value loss and are harmful to the environment.

ThermaFoam R-Control has compressive strength to meet specific project requirements.

ThermaFoam R-Control is manufactured to resist moisture absorption in wetting conditions and release absorbed moisture quickly during drying periods, which means ThermaFoam R-Control maintains R-value.

Termite Resistant.

One of the most destructive forces anywhere is termites. ThermaFoam R-Control can be manufactured with borate, a proven and safe additive, that effectively resists termites.

ThermaFoam R-Control with borate meets ICC ES AC239, "Acceptance Criteria for Termite-Resistant Foam Plastics".

THERMAFOAM
R-CONTROL

FOAM FACTS:

THERMAFOAM *R-CONTROL* outperforms XPS.

- ThermaFoam R-Control provides a stable long-term R-value at a lower cost
- ThermaFoam R-Control uses a blowing agent with 10 x lower global warming potential and 10,000 x lower ozone depletion
- ThermaFoam R-Control meets strength requirements at a lower cost
- ThermaFoam R-Control and XPS have resistance to moisture, but ThermaFoam R-Control has a higher vapor permeance leading to superior drying potential
- ThermaFoam R-Control with borate treatment available to provide termite resistance

THERMAFOAM R-CONTROL PERFORMS IN ALL APPLICATIONS

From Frost Line to Roof Line.

ThermaFoam R-Control is used in a wide range of critical insulation applications: Perimeter, Underslab, Cavity Wall, Wall Sheathing, Precast Concrete Core, Flat/Tapered Roofing, Vegetative Green Roof, Plaza Deck, Drainage Board, and Waterproofing Protection. All of these applications benefit from the exceptional physical properties and wide range of board thicknesses, sizes, and options available with R-Control.

ThermaFoam R-Control is engineered to give you the greatest possible control over your project application: from design and timelines, to material cost, and ultimately, control over your results.

- Perimeter/Underslab
- Cavity Wall
- Wall Sheathing
- Precast Concrete Core
- Flat/Tapered Roofing
- Plaza Deck/Vegetative Green Roof
- Drainage Board
- Waterproofing Protection

With THERMAFOAM R-CONTROL, you're in control of your materials.

• Strength/R-value.

THERMAFOAM R-CONTROL	Compressive Strength ¹ , psi	R-value/inch ²	
		75°F	40°F
100	10	3.9	4.2
130	13	3.9	4.3
150	15	4.2	4.6
250	25	4.4	4.8
400	40	4.4	4.8
600	60	4.5	4.9

¹ Compressive strength @ 10% deformation.

² R-value units are °F-ft²-h/Btu.

ThermaFoam R-Control is available in a wide range of R-values and thicknesses to meet your needs. Project requirements vary, so ThermaFoam R-Control can be ordered in any R-value thicknesses to meet your needs.

Proven to meet, or exceed, building codes.

ThermaFoam R-Control is manufactured under an industry leading quality control program monitored by UL and further recognized in UL Evaluation Report UL ER40338-01. ThermaFoam R-Control meets ASTM C578, "Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation".



Sustainability.

ThermaFoam R-Control reduces energy use in buildings, helping protect our environment. Well insulated buildings perform better and improve the environment. Life Cycle Analysis (LCA) has shown significant energy savings and substantial reductions in greenhouse gas emissions with the use of ThermaFoam R-Control.

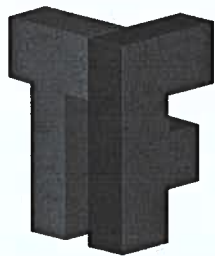
The use of ThermaFoam R-Control in building construction helps earn credits for green building initiative programs, such as LEED Certification. ThermaFoam R-Control does not use ozone depleting blowing agents and is recyclable.

Fifty year R-value warranty, regardless of thickness or application – the warranty covers it!

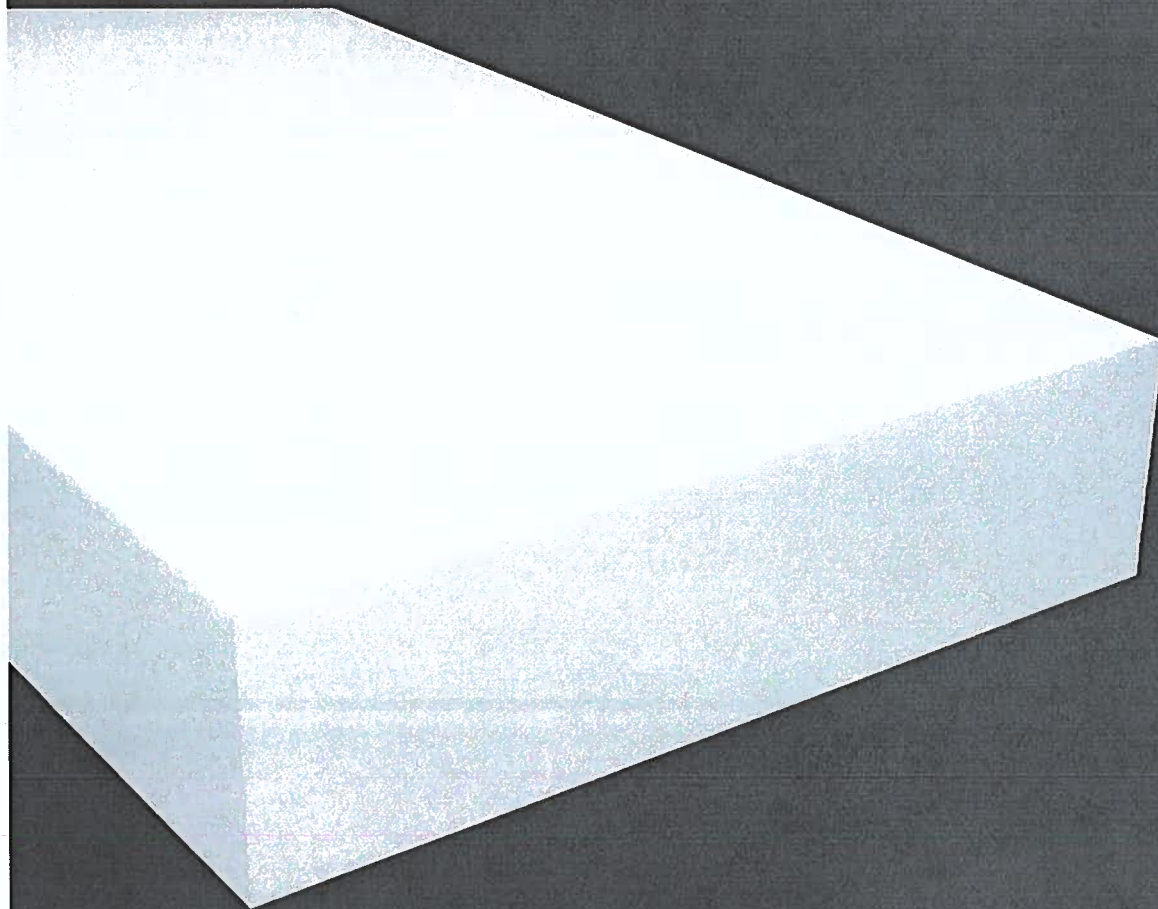


Recyclable.

After it's life as a building insulation, ThermaFoam R-Control is 100% recyclable. It can be ground into granules and reincorporated into new ThermaFoam R-Control products. Or it can be thermally processed into a resin that's used to manufacture other new products.



sales@thermafoam.com



**MOLDED
POLYSTYRENE
INSULATION**


Exterior Sheathing

Molded Polystyrene Insulation.

ThermaFoam R-Control molded polystyrene insulation is a cost-effective, durable, and energy efficient solution for insulated sheathing applications. It is an ideal material to stop energy loss through framing members. ThermaFoam R-Control insulation is available in a range of types and thicknesses to meet your local energy code requirements.

- R-value that never changes and is stable over time
- Range of compressive strengths available
- Closed cell insulation with superior moisture resistance
- High drying potential to rapidly release absorbed moisture
- Meets code requirements for continuous insulation

Strength/R-value.

	Compressive Strength ¹ , psi	R-value/inch ²	
		75°F ³	40°F ⁴
100	10	3.9	4.2
130	13	3.9	4.3
150	15	4.2	4.6
250	25	4.4	4.8

¹ Compressive strength @ 10% deformation.

² R-value units are °F·ft²/h/Btu.

³ Recommended for design in WARM climates.

⁴ Recommended for design in COLD climates.

ThermaFoam R-Control is available in a wide range of R-values and thicknesses to meet your needs. Product thicknesses are provided in the ThermaFoam R-Control Thickness Selector. Project requirements vary, so ThermaFoam R-Control can be ordered in any R-value thicknesses to meet your needs.

Proven to meet, or exceed, building codes.

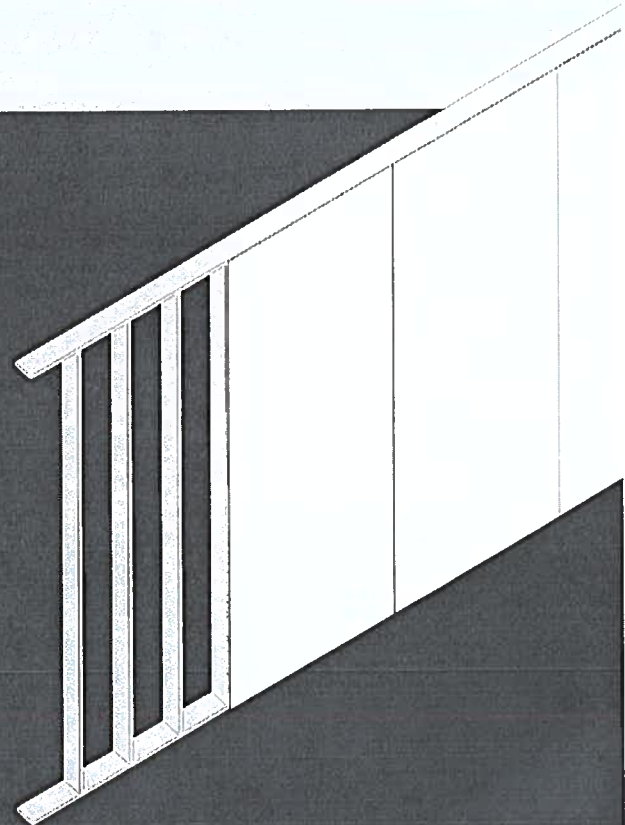
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Stands up to the weather.

When tested in accordance with ASTM C1512, "Standard Test Method for Characterizing the Effect of Exposure to Environmental Cycling on Thermal Performance of Insulation Products", ThermaFoam R-Control maintains its R-value and strength after severe exposure to freeze-thaw cycles.

ThermaFoam R-CONTROL



FOAM FACTS:

ThermaFoam R-Control outperforms XPS.

- ThermaFoam R-Control provides a stable long-term R-value at a lower cost
- ThermaFoam R-Control uses a blowing agent with 10 x lower global warming potential and 10,000 x lower ozone depletion
- ThermaFoam R-Control meets strength requirements at a lower cost
- ThermaFoam R-Control and XPS have resistance to moisture, but ThermaFoam R-Control has a higher vapor permeance leading to superior drying potential
- ThermaFoam R-Control with borate treatment available to provide termite resistance

Performance Value.

When you consider all performance characteristics and cost, ThermaFoam R-Control is your best choice for foam insulation.

ThermaFoam R-Control has air in its closed cells and therefore has a stable R-value. Many other insulations use blowing agents that cause R-value loss and are harmful to the environment.

ThermaFoam R-Control has compressive strength to meet specific project requirements.

ThermaFoam R-Control is manufactured to resist moisture absorption in wetting conditions and release absorbed moisture quickly during drying periods, which means ThermaFoam R-Control maintains R-value.

Termite Resistant.

One of the most destructive forces anywhere is termites. ThermaFoam R-Control can be manufactured with borate, a proven and safe additive, that effectively resists termites.

ThermaFoam R-Control with borate meets ICC ES AC239, "Acceptance Criteria for Termite-Resistant Foam Plastics".

Recyclable.

After its life as a building insulation, ThermaFoam R-Control is 100% recyclable. It can be ground into granules and reincorporated into new ThermaFoam R-Control products or it can be thermally processed into a resin that's used to manufacture other new products.

Ready to take control? Start here.

If you're ready to have ThermaFoam R-Control contribute to your next project, just contact your ThermaFoam R-Control, Inc. Technical Sales Representative. They will be happy to give you design consultation, information about ThermaFoam R-Control products, pricing, and answers to all of your questions.

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Concrete Applications

Molded Polystyrene Insulation.

ThermaFoam R-Control molded polystyrene insulation is a cost-effective, durable, and energy efficient solution for insulation applications. It is an ideal material to stop energy loss. ThermaFoam R-Control insulation for poured-in place and precast concrete systems reduce the requirement for concrete and overall weight. ThermaFoam R-Control insulation can be used as: concrete sandwich panel cores, block-outs/knock-outs, void fillers, custom pattern forms, and more.

- R-value that never changes and is stable over time
- Range of compressive strengths available
- Closed cell insulation with superior moisture resistance
- High drying potential to rapidly release absorbed moisture
- Excellent adhesion to concrete

Strength/R-value.

	Compressive Strength ¹ , psi	R-value/inch ²	
		75°F ³	40°F ⁴
100	10	3.9	4.2
130	13	3.9	4.3
150	15	4.2	4.6
250	25	4.4	4.8

¹ Compressive strength @ 10% deformation.

² R-value units are °F·ft²·h/Btu.

³ Recommended for design in WARM climates.

⁴ Recommended for design in COLD climates.

ThermaFoam R-Control is available in a wide range of R-values and thicknesses to meet your needs. Product thicknesses are provided in the ThermaFoam R-Control Thickness Selector. Project requirements vary, so ThermaFoam R-Control can be ordered in any R-value thicknesses to meet your needs.

Proven to meet, or exceed, building codes.

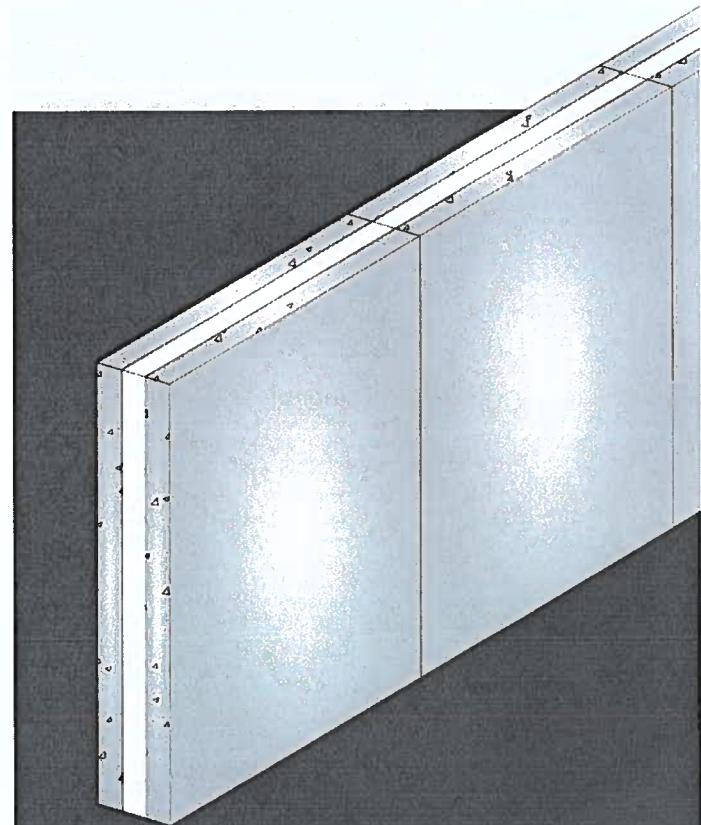
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Sizes and Shapes.

ThermaFoam R-Control insulation can be made in large or small, thick or thin sections. It can be custom cut in sizes ranging from a few square inches up to 3' x 4' x 16'. Patterns for custom projects are easily produced on computer aided cutting equipment.

THERMAFOAM
R-CONTROL



FOAM FACTS:

ThermaFoam R-Control outperforms XPS.

- ThermaFoam R-Control provides a stable long-term R-value at a lower cost
- ThermaFoam R-Control uses a blowing agent with 10 x lower global warming potential and 10,000 x lower ozone depletion
- ThermaFoam R-Control meets strength requirements at a lower cost
- ThermaFoam R-Control and XPS have resistance to moisture, but ThermaFoam R-Control has a higher vapor permeance leading to superior drying potential
- ThermaFoam R-Control with borate treatment available to provide termite resistance

Performance Value.

When you consider all performance characteristics and cost, ThermaFoam R-Control is your best choice for foam insulation.

ThermaFoam R-Control has air in its closed cells and therefore has a stable R-value. Many other insulations use blowing agents that cause R-value loss and are harmful to the environment.

ThermaFoam R-Control has compressive strength to meet specific project requirements.

ThermaFoam R-Control is manufactured to resist moisture absorption in wetting conditions and release absorbed moisture quickly during drying periods, which means ThermaFoam R-Control maintains R-value.

Termite Resistant.

One of the most destructive forces anywhere is termites. ThermaFoam R-Control can be manufactured with borate, a proven and safe additive, that effectively resists termites.

ThermaFoam R-Control with borate meets ICC ES AC239, "Acceptance Criteria for Termite-Resistant Foam Plastics".

Recyclable.

After it's life as a building insulation, ThermaFoam R-Control is 100% recyclable. It can be ground into granules and reincorporated into new ThermaFoam R-Control products or it can be thermally processed into a resin that's used to manufacture other new products.

Ready to take control? Start here.

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Architectural Shapes




Molded Polystyrene Insulation.

ThermaFoam R-Control molded polystyrene insulation includes an ingredient you won't find in other molded polystyrene products. Control. ThermaFoam R-Control insulation gives you control over the design of your project. You determine the shape and specs of the molded polystyrene components you need, then your ThermaFoam R-Control molded polystyrene supplier works with you to deliver them on time and within budget.

- R-value that never changes and is stable over time
- Range of compressive strengths available
- Closed cell insulation with superior moisture resistance
- High drying potential to rapidly release absorbed moisture
- Preferred component for architectural shapes

Strength/R-value.

	Compressive Strength ¹ , psi	R-value/inch ²	
		75°F ³	40°F ⁴
100	10	3.9	4.2
130	13	3.9	4.3
150	15	4.2	4.6
250	25	4.4	4.8

¹ Compressive strength @ 10% deformation.

² R-value units are °F·ft²·h/Btu.

³ Recommended for design in WARM climates.

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Proven to meet, or exceed, building codes.

ThermaFoam R-Control is manufactured under an industry leading quality control program monitored by UL and further recognized in UL Evaluation Report UL ER40338-01. ThermaFoam R-Control meets ASTM C578, "Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation".



Custom Fabrication.

ThermaFoam R-Control insulation shapes are custom fabricated by hot wire cutting with computer aided design, and if necessary, assembled together to provide a solution specific to your needs.

ThermaFoam R-Control insulation means that you can achieve product designs that wouldn't be possible with other materials.



FOAM FACTS:

ThermaFoam R-Control Architectural Shapes.

- ThermaFoam R-Control Architectural Shapes can create effective 3-D architectural shapes
- ThermaFoam R-Control Architectural Shapes meet strength requirements at a lower cost and are available in a range of densities/types
- ThermaFoam R-Control Architectural Shapes are well suited for lower volume items and are compatible with exterior finish coatings

Performance Value.

When you consider all performance characteristics and cost, ThermaFoam R-Control is your best choice for foam insulation.

ThermaFoam R-Control has air in its closed cells and therefore has a stable R-value. Many other insulations use blowing agents that cause R-value loss and are harmful to the environment.

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Termite Resistant.

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Recyclable.

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ThermaFoam R-Control molded polystyrene is an industrial grade closed cell, moisture resistant rigid foam used for all types of industrial, packaging, and construction applications. ThermaFoam R-Control conforms to ASTM C578, "Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation".

ThermaFoam R-Control is manufactured under an industry leading quality control program monitored by UL and further recognized in UL Evaluation Report UL ER40338-01.




PRODUCT			THERMAFOAM R-CONTROL						
			50	100	130	150	250	400	600
Compressive Resistance ¹ ASTM D1621	@1%	psi (kPa)	2.2 (15)	3.6 (25)	5.8 (40)	7.3 (50)	10.9 (75)	15.0 (103)	18.6 (128)
	@5%	psi (kPa)	4.0 (28)	8.0 (55)	11.7 (81)	13.5 (93)	22.5 (155)	35.0 (241)	43.5 (300)
	@10%	psi (kPa)	5.0 (35)	10.0 (69)	13.0 (90)	15.0 (104)	25.0 (173)	40.0 (276)	60.0 (414)
R-value ² , Thermal Resistance per inch ASTM C518	25°F	°F·ft ² ·h/Btu (°K·m ² /W)	3.6 (0.63)	4.4 (0.77)	4.5 (0.80)	4.8 (0.84)	5.0 (0.88)	5.0 (0.88)	5.1 (0.90)
	40°F	°F·ft ² ·h/Btu (°K·m ² /W)	3.4 (0.60)	4.2 (0.73)	4.3 (0.75)	4.6 (0.80)	4.8 (0.84)	4.8 (0.84)	4.9 (0.86)
	75°F	°F·ft ² ·h/Btu (°K·m ² /W)	3.2 (0.56)	3.9 (0.68)	3.9 (0.69)	4.2 (0.73)	4.4 (0.77)	4.4 (0.77)	4.5 (0.78)
k-value, Thermal Conductivity ASTM C518	25°F	Btu·in/°F·ft ² ·h (W/°K·m)	0.28 (0.040)	0.23 (0.033)	0.22 (0.032)	0.21 (0.030)	0.20 (0.029)	0.20 (0.029)	0.20 (0.028)
	40°F	Btu·in/°F·ft ² ·h (W/°K·m)	0.29 (0.042)	0.24 (0.035)	0.24 (0.034)	0.22 (0.032)	0.21 (0.030)	0.21 (0.030)	0.21 (0.030)
	75°F	Btu·in/°F·ft ² ·h (W/°K·m)	0.31 (0.045)	0.26 (0.037)	0.26 (0.037)	0.24 (0.035)	0.23 (0.033)	0.23 (0.033)	0.22 (0.032)
Density, min., ASTM C303		lb/ft ³ (kg/m ³)	0.70 (12)	0.90 (15)	1.15 (18)	1.35 (22)	1.80 (29)	2.40 (38)	3.00 (48)

¹Value obtained from short duration testing. Appropriate factor of safety required when designing for sustained loads.

²Please refer to ASTM C578 specification for complete information.

Additional Properties on Next Page

PRODUCT								
		50	100	130	150	250	400	600
Elastic Modulus ASTM D1621	psi (kPa)	220 (1500)	360 (2500)	580 (4000)	730 (5000)	1090 (7500)	1500 (10300)	1860 (12800)
Tensile Strength ASTM D1263	psi (kPa)	10 (69)	20 (138)	25 (173)	30 (208)	40 (276)	50 (345)	60 (414)
Flexural Strength ¹ ASTM C203	psi (kPa)	10 (69)	25 (173)	30 (208)	35 (242)	50 (345)	60 (414)	75 (517)
Shear Strength ASTM C273	psi (kPa)	7 (48)	12 (83)	15.5 (107)	18 (124)	24 (166)	30 (208)	35 (242)
Maximum Long-Term Exposure Temperature	F° (C°)	165 (74)	165 (74)	165 (74)	165 (74)	165 (74)	165 (74)	165 (74)
Coefficient of Thermal Expansion	x10 ⁻⁶ /°F (x10 ⁻⁶ /°C)	35 (63)	35 (63)	35 (63)	35 (63)	35 (63)	35 (63)	35 (63)
ASTM C578 Compliance, Type		XI	I	VIII	II	IX	XIV	XV

¹Please refer to ASTM C578 specification for complete information.

Thermal Performance.

The R-value of ThermaFoam R-Control insulation remains constant and does not suffer from R-value loss over time.

Exposure to Water and Water Vapor.

The mechanical properties of molded polystyrene are unaffected by moisture.

Temperature Exposure/Flame Retardants.

Although flame retardants used in the manufacture of molded polystyrene provide an important margin of safety, all molded polystyrene products must be considered combustible.

Weathering.

Long-term exposure to sunlight causes yellowing and a slight embrittlement of the surface due to ultraviolet light. This has little effect on mechanical properties.

Resistance to Mold and Mildew.

Molded polystyrene will not decompose and will not support mold or mildew growth. Molded polystyrene provides no nutrient value to plants or animals.

Adhesives, Coatings, and Chemicals.

Solvents which attack molded polystyrene include esters, ketones, ethers, aromatic, and aliphatic hydrocarbons and their emulsions, among others.

Warranty.

ThermaFoam R-Control, Inc. offers a product warranty ensuring thermal performance.



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UL Evaluation Report

UL ER40338-01

Issued: December 31, 2020

Revised: October 15, 2021

Visit UL, LLC's [Product IQ™ database](#) for the status of this Report.

UL Category Code: ULEX

CSI MasterFormat®

DIVISION: 06 00 00 - WOOD, PLASTICS, AND COMPOSITES

Sub-level 2: 06 12 00 - Structural Panels

Sub-level 3: 06 12 19 - Shear Wall Panels

Sub-level 2: 06 16 00 - Sheathing

DIVISION: 07 00 00 - THERMAL AND MOISTURE PROTECTION

Sub-level 2: 07 20 00 - Thermal Protection

Sub-level 3: 07 21 00 - Thermal Insulation

Sub-level 4: 07 21 13 - Board Insulation

Sub-level 3: 07 22 00 - Roof and Deck Insulation

Sub-level 4: 07 22 16 - Roof Board Insulation

Sub-level 3: 07 25 00 - Weather Barriers

Sub-level 3: 07 27 00 - Air Barriers

DIVISION: 31 00 00 - Earthworks

Sub-level 3: 31 23 00 - Excavation and Fill

Sub-level 4: 31 23 23 - Fill

COMPANY:

THERMAFOAM OPERATING, LLC

1240 HWY 77 NORTH

HILLSBORO, TX 76645

www.R-Control.com



1. SUBJECT:

R-CONTROL® INSULATION BOARDS
R-CONTROL® MAX INSULATION BOARDS
THERMASHIELD INSULATION BOARDS
R-CONTROL® GEOFOAM BLOCK
R-CONTROL® NAILBASE
R-CONTROL® NAILBASE 2Ci
R-CONTROL® NAILBASE 3Ci

Throughout this report, unless specifically indicated otherwise:

- The reference to R-Control Insulation Boards and ThermaShield Insulation Boards will also apply to R-Control Insulation Boards and ThermaShield Insulation Boards with Perform Guard.
- The reference to R-Control Geofoam Blocks will apply to R-Control Geofoam Blocks with Perform Guard.

2. SCOPE OF EVALUATION:

- 2018 and 2015 *International Building Code* ® (IBC)
- 2018 and 2015 *International Residential Code* ® (IRC)
- 2018 and 2015 *International Energy Code* ® (IECC)
- ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12)
- ICC-ES Acceptance Criteria for Termite Resistant Foam Plastic (AC239)
- ICC-ES Acceptance Criteria for Foam Plastic Sheathing Panels used as Water Resistive Barriers (AC71)
- ICC-ES Acceptance Criteria for Quality Documentation (AC10)

The products were evaluated for the following properties:

R-Control Insulation Boards:

- Surface Burning Characteristics (UL723)
- Physical Properties (ASTM C578)
- Physical Properties – WSG Insulation only (ASTM E2430)
- Roof Deck Construction Material with Resistance to Internal Fire Exposure (UL1256)
- Roofing Systems for Exterior Fire Exposure (UL790)
- Uplift Tests For Roof Covering Systems (UL1897)
- Flammability Testing for Use in Attics and Crawl Spaces (AC12, App. A and B)
- Termite Resistance –Insulation Boards with Perform Guard (AC239)
- For Use on Exterior Commercial Walls (NFPA 285)

R-Control MAX:

- Surface Burning Characteristics (UL723)
- Physical Properties (ASTM C578)
- Roof Deck Construction Material With Resistance to Internal Fire Exposure (UL1256)
- Roofing Systems for Exterior Fire Exposure (UL790)
- Uplift Tests for Roof Covering Systems (UL1897)
- Flammability Testing for Use in Attics and Crawl Spaces (AC12, App. A and B)
- Termite Resistance –R-Control MAX Insulation Board with Perform Guard only (AC239)
- For Use on Exterior Commercial Walls (NFPA 285)

THERMASHIELD Insulation Boards:

- Surface Burning Characteristics (UL723)
- Physical Properties (ASTM C578)
- Roofing Systems for Exterior Fire Exposure (UL790)
- Air Barrier (ASTM E2178)
- Flammability Testing for Use in Attics and Crawl Spaces (AC12, App. A and B)
- Water-resistive Barrier (AC71)
- Termite Resistance –Insulation Boards with Perform Guard (AC239)

R-Control Geofoam Blocks:

- Surface Burning Characteristics (UL723)
- Physical Properties (ASTM D6817)
- Foam Plastic - Special Approval (UL1715)
- Termite Resistance - Geofoam Blocks with Perform Guard only (AC239)

R-Control Nailbase:

- Surface Burning Characteristics –Insulation Component (UL723)
- Physical Properties –Insulation Component (ASTM C578)
- Roofing Systems for Exterior Fire Exposure (UL790)
- Uplift Tests for Roof Covering Systems (UL1897)

R-Control Nailbase 2-Ci:

- Surface Burning Characteristics –Insulation Component (UL723)
- Physical Properties –Insulation Component (ASTM C578)
- Roofing Systems for Exterior Fire Exposure (UL790)
- Uplift Tests for Roof Covering Systems (UL1897)

R-Control Nailbase 3-Ci:

- Surface Burning Characteristics –Insulation Component (UL723)
- Physical Properties –Insulation Component (ASTM C578)
- Roofing Systems for Exterior Fire Exposure (UL790)
- Uplift Tests for Roof Covering Systems (UL1897)
- Water Resistive Barrier –Insulation Component (AC71)
- Air Barrier –Insulation Component (ASTM E2178)

Table 1 – Properties Evaluated

Properties Evaluated	R-Control Insulation Boards	R-Control MAX	Film Faced R-Control Insulation Boards	R-Control Geofoam Blocks	R-Control Nailbase, R-Control Nailbase 2-Ci, R-Control Nailbase 3-Ci
Surface Burning Characteristics	X	X	X	X	X ³
Physical Properties (ASTM C578)	X	X	X		X
Physical Properties (ASTM D2430)	X ¹				
Physical Properties (ASTM D6817)				X	
Roofing Systems for Exterior Fire Exposure	X	X	X		X
Uplift Tests for Roof Covering Systems	X	X	X		X
Flammability Testing for Use in Attics and Crawl Spaces	X	X	X		
Termite Resistance ²	X	X	X	X	
Water-resistive Barrier			X		X ⁴
Air Barrier			X		X ⁴
Foam Plastic - Special Approval	X	X		X	
Exterior Commercial Walls	X	X			

¹ Only R-Control WSG Insulation Boards

² Only the products with Perform Guard have been evaluated for Termite Resistance

³ Foam plastic component only

⁴ Applicable to R-Shield Nailbase 3-Ci only

3. REFERENCED DOCUMENTS

■ ICC-ES:

- ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12)
- ICC-ES Acceptance Criteria for Quality Documentation (AC10)
- ICC-ES Acceptance Criteria for Termite Resistant Foam Plastic (AC239)

■ UL:

- UL723 (ASTM E84), Test for Surface Burning Characteristics of Building Materials
- UL790 (ASTM E108), Standard Test Methods for Fire Tests of Roof Coverings
- UL1256, Standard for Fire Test of Roof Deck Constructions
- UL 1897, Uplift Tests for Roof Covering Systems
- UL 1715, Fire Test of Interior Finish Material

■ ASTM:

- ASTM C578, Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation
- ASTM D6817, Standard Specification for Rigid Cellular Polystyrene Geofoam
- ASTM D7180, Standard Guide for Use of Expanded Polystyrene (EPS) Geofoam in Geotechnical Projects
- ASTM D7557, Standard Practice for Sampling of Expanded Polystyrene Geofoam Specimens
- ASTM E2178, Standard Test Method for Air Permeance of Building Materials
- ASTM E2430, Standard Specification for Expanded Polystyrene (EPS) Thermal Insulation Boards for Use in Exterior Insulation and Finish Systems (EIFS)

■ U.S. Department of Commerce:

- DOC PS-2, Performance Standard for Wood-Based Structural-Use Panels

■ NFPA:

- NFPA 285, Standard Fire Test for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Assemblies Containing Combustible Components

4. USES

4.1 R-Control Insulation Boards:

R-Control and R-Control MAX Insulation Boards are used as nonstructural insulation on the interior or exterior of above grade walls, on the interior or exterior of below grade walls, below concrete slabs, around concrete slab edges, or as roof insulation. Installation shall be in accordance with Section 6.2 of this report.

The insulation boards may be used on walls in attics and crawl spaces when installation is in accordance with Section 6.2.2 of this report.

4.2 R-Control Geofoam Blocks:

R-Control Geofoam Blocks are used as lightweight structural fill in floor cavities. Installation shall be in accordance with Section 6.3 of this report.

4.3 R-Control Nailbase:

R-Control Nailbase is used as insulation on the interior or exterior of above grade walls or as roof insulation. Installation shall be in accordance with Section 6.4 of this report.

4.4 R-Control Nailbase 2-Ci:

R-Control Nailbase 2-Ci is used as insulation on the interior or exterior of above grade walls. Installation shall be in accordance with Section 6.5 or Section 6.7 of this report.

4.5 R-Control Nailbase 3-Ci:

R-Control Nailbase 3-Ci is used as insulation on the interior or exterior of above grade walls. Installation shall be in accordance with Section 6.6 or Section 6.8 of this report.

The insulation may be used as an alternative to the water-resistive barrier specified in Section 1403.2 of the 2018 IBC, Section 1404.2 of the 2015 IBC, and Section R703.2 of the 2018 and 2015 IRC when installation is in accordance with Section 6.8 of this report.

The insulation may be used as an air barrier to limit air infiltration in accordance with Section C402.5.1 of the 2018 and 2015 IECC when installation is in accordance with Section 6.6 of this report.

5. PRODUCT DESCRIPTION

5.1 General:

R-Control Insulation Boards, ThermaShield Insulation Boards, and R-Control Geofoam Blocks described in 5.2, 5.3, and 5.4 are molded, closed-cell expanded polystyrene having a flame spread index not exceeding 25 and a smoke developed index not exceeding 450 for thicknesses up to 5 inches for the R-Control Insulation Boards and R-Control Geofoam Blocks and for thicknesses up to 4 inches for ThermaShield, when tested in accordance with UL723 (ASTM E84) as required by Section 2603.3 of the 2018 and 2015 IBC or Section R316.3 of the 2018 and 2015 IRC, as applicable.

The following products are treated for termite resistance in accordance with Section 2603.9 of the 2018 IBC and Section 2603.8 of the 2015 IBC, or Section R318.4, of the 2018 and 2015 IRC, as applicable:

- R-Control Insulation Boards with Perform Guard
- ThermaShield Insulation Boards with Perform Guard
- R-Control Geofoam with Perform Guard

R-Control Nailbase, R-Control Nailbase 2-Ci and R-Control Nailbase 3-Ci described in 5.6, 5.7, and 5.8 are insulation products consisting of R-Control Insulation Boards laminated to Oriented Strand Board (OSB). The OSB facing is 7/16-inch thick in compliance with U.S. Department of Commerce, DOC PS-2, Performance Standard for Wood-Based Structural-Use Panels.

5.2 R-Control Insulation Boards:

R-Control-50, 100, 130, 150, 250, 400, and 600 Insulation Boards are manufactured at minimum densities of 0.70, 0.90, 1.15, 1.35, 1.80, 2.40, and 3.00 lbs/ft³ and comply with ASTM C578 designations of Type XI, Type I, Type VIII, Type II, Type IX, Type XIV, and Type XV, respectively.

See Table 2 for thermal resistance and Table 3 for potential heat.

Table 2 – Thermal Resistance of R-Control Insulation Boards

PRODUCT	ASTM C578 Type	DENSITY, min., lb/ft ³	THERMAL RESISTANCE ¹ , min., °F-ft ² -h/Btu
R-Control 50	XI	0.70	3.1
R-Control 100	I	0.90	3.6
R-Control 130	VIII	1.15	3.8
R-Control 150	II	1.35	4.0
R-Control 250	IX	1.80	4.2
R-Control 400	XIV	2.40	4.2
R-Control 600	XV	3.00	4.3

¹ Thermal resistance (R) values are based on tested values at 1-inch thickness and 75°F mean temperature and must be multiplied by the installed thickness for thicknesses greater than 1 inch.

Table 3 – Potential Heat of R-Control Insulation Boards

PRODUCT	ASTM C578 TYPE	HEAT POTENTIAL ¹ , Btu/ft ²	HEAT POTENTIAL ¹ , mJ/m ²
R-Control 50	XI	1165	13.2
R-Control 100	I	1500	17.0
R-Control 130	VIII	1875	21.3
R-Control 150	II	2250	25.5
R-Control 250	IX	3000	34.0
R-Control 400	XIV	4000	45.4
R-Control 600	XV	5000	56.8

¹Based on 1 in. thickness

5.3 R-Control MAX Insulation Boards:

R-Control MAX 100, 130, 150, 200, and 250 Insulation Boards are manufactured at minimum densities of 0.90, 1.15, 1.35, 1.45, and 1.80 lbs/ft³, respectively and comply with ASTM C578 designations of Type I, Type VIII, Type II, Type II, and Type IX, respectively. See Table 4 for applicable thermal resistance values for each Type.

Table 4 – Thermal Resistance of R-Control IMAX Insulation Boards

PRODUCT	ASTM C578 Type	DENSITY, min., lb/ft ³	THERMAL RESISTANCE ¹ , min., °F-ft ² -h/Btu
R-Control MAX 100	I	0.90	5.0
R-Control MAX 130	VIII	1.15	5.0
R-Control MAX 150	II	1.35	5.0
R-Control MAX 250	IX	1.80	5.0

¹Thermal resistance (R) values are based on tested values at 1-1/16 inch thickness and 75°F mean temperature.

5.4 ThermaShield Insulation Boards:

ThermaShield 100, 130, 150, and 250 Insulation Boards consist of R-Control Insulation Boards laminated with polyethylene or polyester film on both faces. The facers may also be a metalized polypropylene film. ThermaShield 100, 130, 150, and 250 are manufactured at minimum core densities of 0.90, 1.15, 1.35, and 1.80lbs/ft³ and comply with ASTM C578 designations Type I, Type VIII, Type II, and Type IX, respectively. R-Control MAX 100, 130, 150, and 250 Insulation Boards may be used as an alternate to ThermaShield.

5.5 R-Control Geofoam Blocks:

R-Control Geofoam EPS12, EPS15, EPS19, EPS22, EPS29, EPS39, AND EPS46 blocks are manufactured at minimum densities of 0.70, 0.90, 1.15, 1.35, 1.80, 2.40, and 2.85 lbs/ft³ and comply with ASTM D6817 designations of EPS12, EPS15, EPS19, EPS22, EPS29, EPS39, and EPS46, respectively. See Table 4.

Table 5 – Compressive Resistance of R-Control Geofoam Block

PRODUCT	ASTM D6817 Type	DENSITY, min., lb/ft ³	COMPRESSIVE RESISTANCE AT 1% STRAIN, min., psi
R-Control EPS12	EPS12	0.70	2.2
R-Control EPS15	EPS15	0.90	3.6
R-Control EPS19	EPS19	1.15	5.8
R-Control EPS22	EPS22	1.35	7.3
R-Control EPS29	EPS29	1.80	10.9
R-Control EPS39	EPS39	2.40	15.0
R-Control EPS46	EPS46	2.85	18.6

5.6 R-Control Nailbase:

R-Control Nailbase consists of R-Control 100 laminated to a $\frac{7}{16}$ -inch OSB facing. R-Control Nailbase is available in thicknesses of 2, 4, 6, 7- $\frac{3}{4}$, 9- $\frac{3}{4}$, and 11- $\frac{3}{4}$ inches. R-Control MAX may be used as an alternate insulation component in Nailbase products.

Table 5 – Thermal Resistance of R-Control Nailbase

THICKNESS, in.	THERMAL RESISTANCE ¹ , min., °F-ft ² -h/Btu
2	6.2
4	13.4
6	20.6
7- $\frac{3}{4}$	26.9
9- $\frac{3}{4}$	34.1
11- $\frac{3}{4}$	41.3

¹Overall R-value is calculated based on a combination of the R-value of the OSB and the EPS at 75°F mean temperature

5.7 R-Control Nailbase 2-Ci:

R-Control Nailbase 2-Ci consists of R-Control 100 laminated to a $\frac{7}{16}$ -inch OSB facing. R-Control Nailbase 2-Ci is available in thicknesses of 1- $\frac{5}{16}$, 1- $\frac{9}{16}$, 2- $\frac{1}{4}$, and 2- $\frac{7}{8}$ inches. R-Control MAX may be used as an alternate insulation component in Nailbase products.

Table 6 – Thermal Resistance of R-Control Nailbase 2-Ci

THICKNESS, in.	THERMAL RESISTANCE ¹ , min., °F-ft ² -h/Btu
1- $\frac{5}{16}$	3.8
1- $\frac{9}{16}$	5.1
2- $\frac{1}{4}$	7.6
2- $\frac{7}{8}$	10.1

¹Overall R-value is calculated based on a combination of the R-value of the OSB and the EPS at 75°F mean temperature

5.8 R-Control Nailbase 3-Ci:

R-Control Nailbase 3-Ci consists of R-Control 100 laminated to a $\frac{7}{16}$ -inch OSB facing on one side and polymeric film on the other side. R-Control Nailbase 3-Ci is available in thicknesses of $1\frac{5}{16}$, $1\frac{9}{16}$, $2\frac{1}{4}$, and $2\frac{7}{8}$ inches. R-Control MAX may be used as an alternate insulation component in Nailbase products.

Table 8 – Thermal Resistance of R-Control Nailbase 3-Ci

THICKNESS, in.	THERMAL RESISTANCE ¹ , min., °F-ft ² -h/Btu
$1\frac{5}{16}$	3.8
$1\frac{9}{16}$	5.1
$2\frac{1}{4}$	7.6
$2\frac{7}{8}$	10.1

¹Overall R-value is calculated based on a combination of the R-value of the OSB and the EPS at 75°F mean temperature

6. INSTALLATION

6.1 General:

R-Control Insulation Boards, ThermaShield Insulation Boards, R-Control MAX Insulation Boards, and R-Control Geofoam blocks, R-Control Nailbase, R-Control Nailbase 2-Ci, and R-Control Nailbase 3-Ci are installed in accordance with the manufacturer's published installation instructions and this evaluation report. The manufacturer's published installation instructions and this report must be strictly adhered to, and a copy of the instructions shall be available on the jobsite during installation.

6.2 R-Control Insulation Boards, R-Control MAX Insulation Boards, and ThermaShield Insulation Boards:

R-Control Insulation Boards, R-Control MAX, or ThermaShield must be attached to the structure in a manner that will hold the insulation securely in place. The insulation boards must not be used structurally to resist transverse, axial, or shear loads.

The interior of the building must be separated from the R-Control Insulation Boards and ThermaShield Insulation Boards with a thermal barrier as required by Section 2603.4 of the IBC or Section R316.4 of the IRC, as applicable.

R-Control Insulation Boards may be used as vapor retarders based on perm values described in Tables 9 and 10, respectively, when required in accordance with the applicable sections of the IBC, IRC, and IECC. Vapor retarders are certified as follows:

Class I: 0.1 perm or less

Class II: $0.1 < \text{perm} \leq 1.0$

Class III: $1.0 < \text{perm} \leq 10 \text{ perm}$

Table 9 – Water Vapor Permeance of R-Control Insulation Boards

PRODUCT	ASTM C578 Type	DENSITY, min., lb/ft ³	PERMEANCE ¹ , max., perms
R-Control 50	XI	0.70	5.0
R-Control 100	I	0.90	5.0
R-Control 130	VIII	1.15	3.5
R-Control 150	II	1.35	3.5
R-Control 250	IX	1.80	2.5
R-Control 400	XIV	2.40	2.5
R-Control 600	XV	3.00	2.5

¹Water vapor permeance values are based on 1-inch thickness when tested in accordance with ASTM C578 and ASTM E96. Actual water vapor permeance values may be calculated based on insulation thickness, by dividing the perm value shown by the installed thickness in inches.

Table 10 – Water Vapor Permeance of ThermaShield Insulation Boards

PRODUCT	ASTM C578 Type	DENSITY, min., lb/ft ³	PERMEANCE ¹ , max., perms
R- Control 100	I	0.90	0.3
R- Control 130	VIII	1.15	0.3
R- Control 150	II	1.35	0.3
R- Control 250	IX	1.80	0.3

¹Water vapor permeance values are based on 1-inch thickness when tested in accordance with ASTM C578 and ASTM E96. Actual water vapor permeance values vary based on insulation thickness.

Table 11 – Water Vapor Permeance of Film Faced R-Control Insulation Boards

PRODUCT	ASTM C578 Type	DENSITY, min., lb/ft ³	PERMEANCE ¹ , max., perms
R-Control 100	I	0.90	0.3
R-Control 130	VIII	1.15	0.3
R-Control 150	II	1.35	0.3
R-Control 250	IX	1.80	0.3

¹Water vapor permeance values are based on 1-inch thickness when tested in accordance with ASTM C578 and ASTM E96. Actual water vapor permeance values vary based on insulation thickness.

6.2.1 R-Control Insulation Boards, R-Control MAX Insulation Boards, and R-Control Nailbase Used in Roofing:

R-Control Insulation Boards and R-Control MAX are used as a roofing insulation as follows:

- As part of a UL Certified Class A, B or C roof-covering assembly in accordance with UL 790,
- As part of a UL Certified Roof Deck Construction in accordance with UL 1256, or
- As part of a UL Certified Roofing System, Uplift Resistance, in accordance with UL 1897.

ThermaShield Boards are used as a roofing insulation as follows:

As part of a UL Certified Class A, B or C roof-covering assembly in accordance with UL790.

6.2.2 R-Control Insulation Boards, R-Control MAX Insulation Boards, and ThermaShield Insulation Boards Used in Attics and Crawl Spaces:

R-Control Insulation Boards and ThermaShield Insulation Boards may be used in attics and crawl spaces, without the ignition barrier listed in Section 2603.4.1.6 of the IBC or Sections R316.5.3 and R316.5.4 of the IRC, as follows:

1. Attic ventilation is provided when required by Section 1202.1 of the 2018 IBC, Section 1203.2 of 2015 IBC or Section R806.1 of the IRC, as applicable.
2. Under-floor (crawl space) ventilation is provided when required by Section 1203.3 of the IBC, or Section R408.1 or Section R408.3 of the IRC, as applicable.
3. Combustion air is provided in accordance with Section 701.1 of the IMC.
4. Insulation boards are limited to a maximum thickness of 4 inches (102 mm) for R-Control 100 and R-Control MAX 100, or a maximum thickness of 3-¼ inches (82.6 mm) for R-Control 130 and R-Control MAX 130, or a maximum thickness of 2-½ inches (67.8 mm) for R-Control 150 and R-Control MAX 150, or a maximum thickness of 2-½ inches (60 mm) for R-Control 200 and R-Control MAX 200, or a maximum thickness of 2 inches (51 mm) for R-Control 250 and R-Control MAX 250.

6.2.3 ThermaShield Insulation Board Used as a Water-Resistive Barrier

ThermaShield Insulation Board with a minimum of 1 inch (25.4 mm) thickness may be used as an alternative to the water-resistive barrier required by Section 1403.2 of the 2018 IBC, Section 1404.2 of the 2015 IBC, and Section R703.2 of the IRC when installed in accordance with this Section.

ThermaShield Insulation Board must be installed directly to framing members spaced a maximum of 24 inches (610 mm) on center. ThermaShield Insulation Board must be installed horizontally with tongue edges facing upward or installed vertically with no horizontal joints. Vertical joints must be backed by framing members. ThermaShield Insulation Board is attached with 1 inch (25.4 mm) wide crown No. 16 gage corrosion-resistant staples spaced 6 inches (152mm) on center. Fastener crowns and joints between boards must be covered with ThermaShield Tape. A minimum 0.019-inch (0.48 mm) corrosion-resistance weep screed with a vertical attachment flange measuring a minimum of 3-½ inches (89mm) must be provided at the bottom of the wall. The installation of the weep screed must be in accordance with Section 2512.1.2 of the IBC or Section R703.7.2.1 of the IRC, as applicable.

Flashing of flanged window penetrations must be installed in accordance with Section 1404.4 of the 2018 IBC and Section 1405.4 of the 2015 IBC. The flashing tape must completely cover the framing sill and extend a minimum of 8 inches (203 mm) up the sides of the opening and 6 inches (152 mm) onto the face of the ThermaShield at the front of the window opening.

Flashing of small penetrations (e.g., pipes) must be with a silicone sealant complying with ASTM C920.

6.2.4 R-Control Insulation Boards, R-Control MAX Insulation Boards, and ThermaShield Insulation Boards used on the exterior of above grade walls:

R-Control Insulation Boards, R-Control MAX, and ThermaShield Insulation Boards are used on the exterior of above grade walls as follows:

- Exterior Walls of One- and Two-Family Dwellings in accordance with the 2015 IRC,
- Exterior walls of one story buildings of Types I, II, III, or IV construction in accordance with Section 2603.4.1.4 of the IBC,
- Exterior walls of Type V construction in accordance with Sections 2603.2, 2603.3, and 2603.4 of the IBC.
- Exterior walls of buildings more than one story of Types I, II, III, or IV construction in accordance with Section 2603.5 of the 2018 and 2015 IBC, when part of:
 - A UL Classified Exterior Wall System in accordance with NFPA 285. See Section 7.2.
 - An Exterior Wall System in accordance with NFPA 285. See Table 12.

Figure 1 – NFPA 285 Wall Assembly

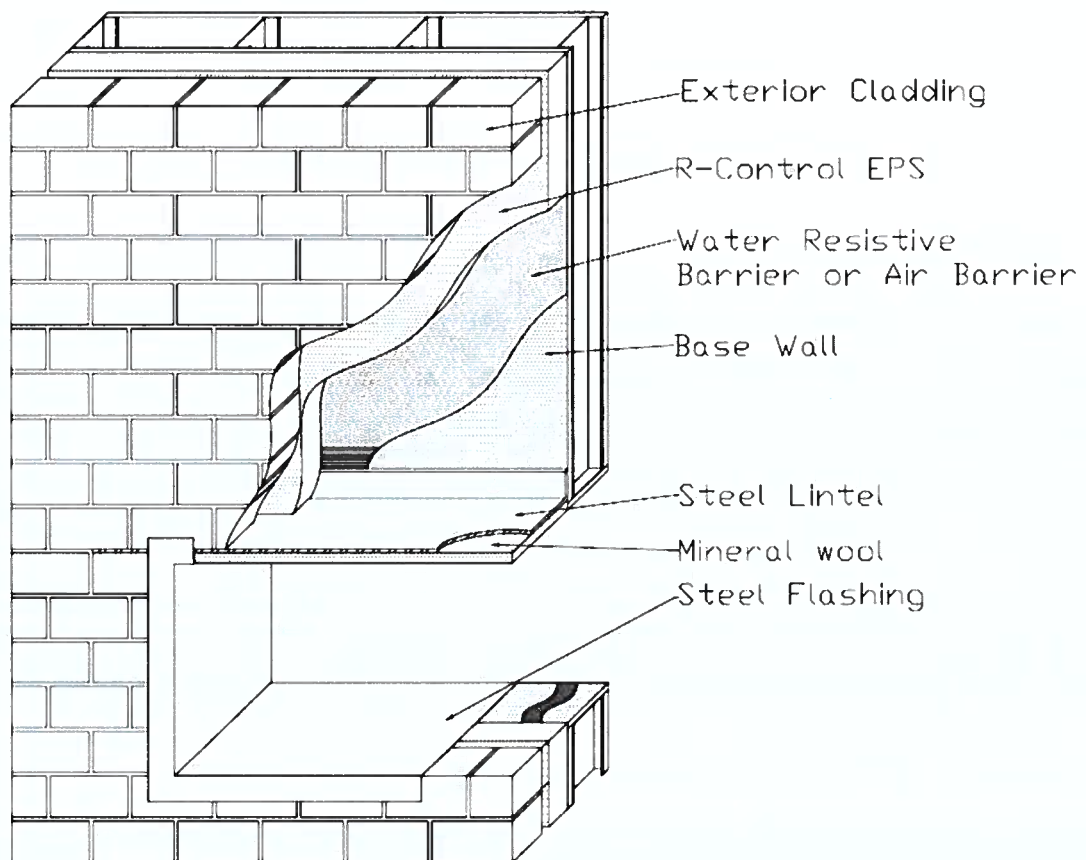


Table 12 – NFPA 285 Compliant Assembly Options – See Figure 1

Base Wall Options	
1) Cast Concrete Walls	
2) CMU Cast Concrete Walls	
3) Steel Stud Framed Wall	
a. 25 GA. (min.) 3-5/8" (min.) steel studs spaced 24" o.c. (max.)	
b. Lateral Bracing Every 4 ft. vertically	
c. 5/8" Type X Gypsum Wallboard Interior	
d. Cavity Insulation	
i. None	
ii. Any Class A, B, or C Fiberglass batt insulation (faced or unfaced)	
iii. Any noncombustible insulation	
e. Any 1/2" (min.) Exterior Gypsum Sheathing	
Water Resistive Barrier / Air Barrier Options Over Base Wall	
1) None	
2) BASF Enershield HP	
3) BASF Enershield I	
4) Carlisle Barritech NP	
5) Carlisle Barritech VP	
6) Dupont Fluid Applied WB	
7) Dupont Tyvek Commercialwrap (1 or 2 layers)	
8) Grace Perm-A-Barrier VPS	
9) Tremco EXOAir 230	
R-Control EPS Exterior Insulation Options	
1) 10-3/4" (max.) R-Control 100 or R-Control MAX 100	
2) 8-1/4" (max.) R-Control 130 or R-Control MAX 130	
3) 7" (max.) R-Control 150 or R-Control MAX 150	
4) 6" (max.) R-Control 200 or R-Control MAX 200	
5) 5-1/4" (max.) R-Control 250 or R-Control MAX 250	
Exterior Cladding Options	
1) Brick - Nominal 4" clay brick or veneer with 2" (max.) air gap behind the cladding. Brick with ties/anchors 24" o.c. (max.)	
2) Concrete - 2" (min.) with 2" (max.) air gap behind the cladding	
3) Concrete Masonry Units - 4" (min.) with 2" (max.) air gap behind the cladding	
4) Limestone - 2" (min.) with non-open joints installation technique such as shiplap	
5) Natural Stone Veneer - 2" (min.) with non-open joints installation technique such as shiplap	
6) Precast Artificial Stone - 1-1/2" (min.) complying with ICC-ES, AC 51 with non-open joint installation technique	
7) Terra Cotta Cladding - 1-1/4" (min.) solid with non-open joint installation technique such as shiplap	
8) Stucco - 3/4" (min.) exterior cement plaster and lath	
Fire Stopping at Floor Line Options	
1) Mineral wool fiber fire stop in each stud cavity at floor line. Thickness equal to stud cavity depth. Follow manufacturer instruction for installation.	
Window Header Detail	
1) 25 GA. (min.) sheet metal (steel) flashing with 1" thick, 4 pcf mineral wool over interior of sheet steel	
2) Header design equal or better than item 1	

6.3 R-Control Geofoam Blocks:

R-Control Geofoam blocks are placed loosely on a level surface or existing structural slab. The blocks may be installed in a single layer or in multiple layers.

Structural loads on the R-Control geofoam blocks shall not exceed the compressive resistance at 1% strain in accordance with ASTM D6817. Additional design considerations are included in ASTM D7180, "Standard Guide for Use of Expanded Polystyrene (EPS) Geofoam" and ASTM D7557, "Standard Practice for Sampling of Expanded Polystyrene Geofoam Specimens". When R-Control geofoam blocks are less than 4 in. in thickness, the interior of the building must be separated from the geofoam blocks with a thermal barrier as required by Section 2603.4 of the IBC or Section R316.4 of the IRC, as applicable.

When R-Control geofoam blocks are greater than 4 in. in thickness, a minimum 1 in. concrete or masonry must cover the geofoam blocks on all faces.

6.4 R-Control Nailbase:

R-Control Nailbase must be attached to the structure in a manner that will hold the insulation securely in place.

The interior of the building must be separated from the EPS component of R-Control Nailbase Boards with a thermal barrier as required by Section 2603.4 of the 2018 and 2015 IBC or Section R316.4 of the 2018 and 2015 IRC, as applicable.

R-Control Nailbase may be used as vapor retarders based on perm values described in Tables 4 when required in accordance with the applicable sections of the IBC, IRC and IECC. Vapor retarders are Certified as follows:

Class I: 0.1 perm or less

Class II: $0.1 < \text{perm} \leq 1.0$

Class III: $1.0 < \text{perm} \leq 10 \text{ perm}$

Table 13 – Water Vapor Permeance of R-Control Nailbase

THICKNESS, +/- in.	PERMEANCE¹, max., perms
2	1.2
4	0.8
6	0.6
7-¾	0.5
9-¾	0.4
11-¾	0.4

¹Overall Perm Rating is calculated based on a combination of the perm rating of the OSB (at 50% RH) and the EPS

6.4.1 R-Control Nailbase may be used as a roofing insulation as follows:

- As part of a UL Certified Class A, B, or C roof-covering assembly in accordance with UL790
- As part of a UL Certified Roofing System, Uplift Resistance, in accordance with UL 1897

6.5 R-Control Nailbase 2-Ci:

R-Control Nailbase 2-Ci must be attached to the structure in a manner that will hold the insulation securely in place.

The interior of the building must be separated from the EPS component of R-Control Nailbase 2-Ci boards with a thermal barrier as required by Section 2603.4 of the 2018 and 2015 IBC or Section R316.4 of the 2018 and 2015 IRC, as applicable.

R-Control Nailbase 2-Ci may be used as vapor retarders based on perm values described in Tables 5 when required in accordance with the applicable sections of the IBC, IRC and IECC. Vapor retarders are Certified as follows:

Class I: 0.1 perm or less

Class II: $0.1 < \text{perm} \leq 1.0$

Class III: $1.0 < \text{perm} \leq 10 \text{ perm}$

Table 5 – Water Vapor Permeance of R-Control Nailbase 2-Ci

THICKNESS, in.	PERMEANCE ¹ , max., perms
1- ⁵ / ₁₆	1.5
1- ⁹ / ₁₆	1.3
2- ¹ / ₄	1.1
2- ⁷ / ₈	1.0

¹Overall Perm Rating is calculated based on a combination of the perm rating of the OSB (at 50% RH) and the EPS

6.6 R-Control Nailbase 3-Ci:

R-Control Nailbase 3-Ci must be attached to the structure in a manner that will hold the insulation securely in place.

The interior of the building must be separated from the EPS component of R-Control Nailbase 3-Ci boards with a thermal barrier as required by Section 2603.4 of the 2018 and 2015 IBC or Section R316.4 of the 2018 and 2015 IRC, as applicable.

R-Control Nailbase 3-Ci may be used as vapor retarders based on perm values described in Table 5 when required in accordance with the applicable sections of the IBC, IRC and IECC. Vapor retarders are Certified as follows:

Class I: 0.1 perm or less

Class II: $0.1 < \text{perm} \leq 1.0$

Class III: $1.0 < \text{perm} \leq 10 \text{ perm}$

Table 15 – Water Vapor Permeance of R-Control Nailbase 3-Ci

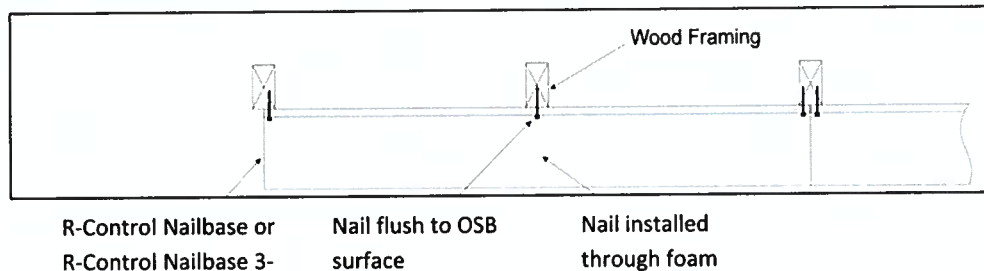
THICKNESS, in.	PERMEANCE ¹ , max., perms
1- ⁵ / ₁₆	0.2
1- ⁹ / ₁₆	0.2
2- ¹ / ₄	0.2
2- ⁷ / ₈	0.2

¹Overall Perm Rating is calculated based on a combination of the perm rating of the OSB (at 50% RH) and the EPS

6.7 R-Control Nailbase 2-Ci and R-Control Nailbase 3-Ci Used as Wall Bracing:

R-Control Nailbase 2-Ci and R-Control Nailbase 3-Ci are used as a wall bracing material for exterior walls when installed with the OSB side applied directly to wood framing members. Installation requires a specialty nail gun which installs code specified diameter fasteners through the insulation and flush against the OSB surface. Minimum fastener diameter must be 0.113 inch. Minimum fastener penetration into framing members must be 1-½ inch.

Figure 2 – Installation of R-Control Nailbase 2-Ci and R-Control Nailbase 3-Ci as Wall Bracing



When installed in accordance with Figure 2, R-Control Nailbase 2-Ci and R-Control Nailbase 3-Ci are sheathing alternatives to:

- IRC bracing methods using wood structural panels (WSP), including portal frames, in accordance with Section R602.10 and R602.12 of the 2018 and 2015 IRC.
- IBC Conventional Wall Bracing provisions, Section 2308.9.3 for Type V construction and the alternative bracing methods in accordance with Section 2308.6.5.
- IBC performance-based provisions, Section 2306.1 and 2306.3 of the 2018 and 2015 IBC for light-frame wood wall assemblies

6.8 R-Control 3-Ci Used as a Water-Resistive Barrier:

R-Control Nailbase 3-Ci may be used as an alternative to the water-resistive barrier required by Section 1403.2 of the 2018 IBC, Section 1404.2 of the 2015 IBC, and Section R703.2 of the 2018 and 2015 IRC when installed in accordance with this Section.

Holes from fastener installation and joints between boards must be covered with R-Control Tape.

A minimum 0.019-inch (0.48 mm) corrosion-resistance weep screed with a vertical attachment flange measuring a minimum of 3-½ inches (89mm) must be provided at the bottom of the wall. The installation of the weep screed must be in accordance with Section 2512.1.2 of the 2018 and 2015 IBC or Section R703.7.2.1 of the 2018 and 2015 IRC, as applicable.

Flashing of flanged window penetrations must be installed in accordance with Section 1404.4 of the 2018 IBC and Section 1405.4 of the 2015 IBC. The flashing tape must completely cover the framing sill and extend a minimum of 8 inches (203 mm) up the sides of the opening and 6 inches (152 mm) onto the face of the Foam-Control R-CONTROL 3-Ci at the front of the window opening.

Flashing of small penetrations (e.g., pipes) must be with a silicone sealant complying with ASTM C920.

7. CONDITIONS OF USE

7.1 General:

The R-Control Insulation Boards, ThermaShield Insulation Boards and the R-Control Geofoam blocks described in this report comply with, or are suitable alternatives to what is specified in those codes listed in Section 2 of this report, subject to the following conditions. The R-Control Insulation Boards, ThermaShield Insulation Boards and R-Control Geofoam Blocks must be produced, identified, and installed in accordance with the manufacturer's published installation instructions. If there is a conflict between this report and the manufacturer's instructions this report governs.

In areas where the probability of termite infestation is defined as "very heavy", R-Control Insulation Boards, ThermaShield Insulation Boards and R-Control Geofoam Blocks without the Perform Guard treatment must be installed in accordance with Section 2603.9 of the IBC or Section R318.4 of the IRC, as applicable.

The use of R-Control Insulation Boards, R-Control MAX Insulation Boards, ThermaShield Insulation Boards and R-Control Geofoam Blocks with the Perform Guard treatment are not restricted in areas where the probability of termite infestation is defined as "very heavy" in accordance with Section 2603.9 of the IBC or Section R318.4 of the IRC, as applicable.

The R-Control Nailbase, R-Control 2-Ci, and R-Control Nailbase 3-Ci described in this report comply with, or are suitable alternatives to, what is specified in those codes listed in Section 2 of this report, subject to the following conditions. The R-Control Nailbase, R-Control Nailbase 2- Ci, and R-Control Nailbase 3-Ci must be produced, identified, and installed in accordance with the manufacturer's published installation instructions. If there is a conflict between this report and the manufacturer's instructions this report governs.

7.2 R-Control Insulation Boards, R-Control MAX Insulations Boards, and ThermaShield Insulation Boards:

The R-Control Insulation Boards and ThermaShield must be separated from the building interior with a thermal barrier, such as ½ in. gypsum board, as required by Section 2603.4 of the IBC or Section R316.4 of the IRC, as applicable.

For a listing of applicable UL Certifications for R-Control Insulation Boards and R-Control MAX Insulations Boards, see the Product iQ™ database for the following categories. ThermaShield is UL Certified for BRYX and QORW only.

See UL Product iQ™ database for the following:

- Foamed Plastic, UL Certified for Surface Burning Characteristics in accordance with UL723 ([BRYX](#))
- Polystyrene Thermal Insulation, Rigid Cellular, UL Certified in accordance with ASTM C578 ([QORW](#))
- Class A, B or C roof-covering assemblies UL Certified in accordance with UL 790 ([TGFU](#))
- Roof Deck Constructions for assemblies UL Certified in accordance with UL 1256 ([TJBX](#))
- Roof Deck Constructions for assemblies UL Certified in accordance with UL 1897 ([TGIK](#))

For a listing of applicable UL Certifications for R-Control Insulation Boards and R-Control MAX Insulation Boards, see the Product iQ™ database for the following Exterior Walls for assemblies UL Classified in accordance with NFPA 285 (FWFO):

[EWS0001](#)

[EWS0002](#)

[EWS0003](#)

7.3 R-Control Geofoam Blocks:

R-Control Geofoam Blocks less than 4 in. in thickness must be separated from the building interior with a thermal barrier such as ½ inch thick gypsum board, as required by Section 2603.4 of the IBC or Section R316.4 of the IRC, as applicable. R-Control Geofoam Blocks greater than 4 in. in thickness must be separated from the building interior with a minimum 1 in. thick concrete or masonry on all faces as required by Section 2603.4.1.1 of the IBC.

Design loads to be resisted by the R-Control Geofoam Blocks must be determined in accordance with the IBC or IRC, as applicable, and must not exceed the allowable loads noted in this report.

All construction documents specifying the R-Control Geofoam Blocks must comply with the design limitations of this report. Design calculations and details for the specific applications must be furnished to the code official, verifying compliance with this report and applicable codes. The documents must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.

For a listing of applicable UL Certifications for R-Control Geofoam Blocks, see the Product iQ™ database for the following categories:

- Foamed Plastic, UL Certified for Surface Burning Characteristics in accordance with UL723 ([BRYX](#)).
- Foamed Plastic, UL Certified for Interior Building Construction in accordance with UL1715 ([OERU](#)).

7.4 R-Control Nailbase, R-Control Nailbase 2-Ci, and R-Control Nailbase 3-Ci:

The EPS component of R-Control Nailbase, R-Control Nailbase 2-Ci, and R-Control Nailbase 3-Ci must be separated from the building interior with a thermal barrier, such as ½-inch thick gypsum board, as required by Section 2603.4 of the 2018 and 2015 IBC or Section R316.4 of the 2018 and 2015 IRC, as applicable.

For a listing of applicable UL Certifications, see the Product iQ™ database for the following categories.

- Foamed Plastic, UL Certified for Surface Burning Characteristics in accordance with UL723 ([BRYX](#)) for the R-Control EPS component of R-Control Nailbase, R-Control Nailbase 2-Ci, and R-Control Nailbase 3-Ci.
- Class A, B or C roof-covering assemblies UL Certified in accordance with UL 790 ([TGFU](#)) for R-Control Nailbase.
- Roof Deck Constructions for assemblies UL Certified in accordance with UL 1897 ([TGIK](#)) for R-Control Nailbase.
- Polystyrene Thermal Insulation, Rigid Cellular, UL Certified in accordance with ASTM C578 ([QORW](#)) for the R-Control EPS component of R-Control Nailbase, R-Control Nailbase 2-Ci, and R-Control Nailbase 3-Ci.

7.5 Manufacturing Locations:

The products are manufactured at the following locations described in Table 8 under the UL LLC Listing or Certification and Follow-Up Service Program, which includes audits in accordance with ICC-ES Acceptance Criteria for Quality Documentation, AC 10.

Table 8 – Manufacturing Locations

LISTEE	LOCATION	PLANT ID NO.
PowerFoam, LLC	550 Murray Street Midlothian, TX 76065	TF-2
ThermaFoam Operating, LLC	1240 Hwy 77 N Hillsboro, Texas 76645	TF-1
ThermaFoam R-Control, LLC	203 South Redmond Road Jacksonville, AR 72076	TF-3

8. SUPPORTING EVIDENCE**8.1 R-Control Insulation Boards and R-Control Max Insulations Boards:**

8.1.1 Data in accordance with ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12)

8.1.2 Data in accordance with ICC-ES Acceptance Criteria for Termite Resistant Foam Plastics (AC239)

8.1.3 UL Certification reports in accordance with UL 723, ASTM C578, UL 790, UL 1256, and UL 1897. See UL Product Certification Categories (BRYX), (QORW), (TGFU), (TJBX), and (TGIK), respectively

See links to UL, LLC's Product iQ™ database in Section 7.2

8.1.4 Documentation of quality system elements described in AC10

8.2 ThermaShield Insulation Boards:

8.2.1 Data in accordance with ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12)

8.2.2 Data in accordance with ICC-ES Acceptance Criteria for Termite Resistant Foam Plastics (AC239)

8.2.3 Data in accordance with ICC-ES Acceptance Criteria for Foam Plastic Sheathing Panels used as Water Resistive Barriers (AC71)

8.2.4 Data in accordance with ASTM E2178 Standard Test Method for Air Permeance of Building Materials

8.2.5 UL Certification reports in accordance with UL 723, ASTM C578, and ASTM E2430. See UL Product Certification Categories (BRYX), and (QORW).

See links to UL, LLC's Product iQ™ database in Section 7.2.

8.2.6 Documentation of quality system elements described in AC10

8.3 R-Control MAX Insulation Boards:

8.3.1 UL Certification reports in accordance with UL 723, ASTM D6817, and UL 1715. See UL Product Certification Categories (BRYX), (QORW) and (OERU), respectively

See links to UL, LLC's Product iQ™ database for BRYX and QORW in section 7.3.

8.3.2 Data in accordance with ICC-ES Acceptance Criteria for Termite Resistant Foam Plastics (AC239)

8.3.3 Documentation of quality system elements described in AC10

8.4 R-Control Geofoam Blocks:

8.4.1 UL Certification reports in accordance with UL 723, ASTM D6817, and UL 1715. See UL Product Certification Categories (BRYX), (QORW) and (OERU), respectively.

See links to UL, LLC's Product iQ™ database for BRYX and QORW in section 7.3.

8.4.2 Data in accordance with ICC-ES Acceptance Criteria for Termite Resistant Foam Plastics (AC239), dated October 2008.

8.4.3 Documentation of quality system elements described in AC10

8.4 R-Control Nailbase:

8.4.1 Data in accordance with ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12).

See links to UL, LLC's Product iQ™ database for BRYX and QORW in section 7.3.

8.4.2 Documentation of quality system elements described in AC10.

8.5 R-Control Nailbase 2-Ci:

8.5.1 Data in accordance with ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12).

8.5.2 Documentation of quality system elements described in AC10.

8.6 R-Control Nailbase 3-Ci:

8.6.1 Data in accordance with ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12).

8.6.2 Data in accordance with ICC-ES Acceptance Criteria for Foam Plastic Sheathing Panels used as Water Resistive Barriers (AC71).

8.6.3 Data in accordance with ASTM E2178 Standard Test Method for Air Permeance of Building Materials.

8.6.4 Documentation of quality system elements described in AC10.

9. IDENTIFICATION

The R-Control Insulation Boards, R-Control MAX Insulation Boards, ThermaShield Insulation Boards, and R-Control Geofoam Blocks, R-Control Nailbase, R-Control Nailbase 2-Ci, and R-Control Nailbase 3-Ci products described in this evaluation report are identified by a marking bearing the report holder's name (ThermaFoam Operating, LLC), the plant identification, the product name, the ASTM type designation, the UL Certification Mark, and the evaluation report number UL ER40338-01. The validity of the evaluation report is contingent upon this identification appearing on the product or UL Certification Mark certificate.

10. USE OF UL EVALUATION REPORT

10.1 The approval of building products, materials or systems is under the responsibility of the applicable authorities having jurisdiction.

10.2 UL Evaluation Reports shall not be used in any manner that implies an endorsement of the product, material or system by UL.

10.3 The status of this report, as well as a complete directory of UL Evaluation Reports may be found at UL.com via the Product iQ™ database.

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#75382

2/3/2021

QORW.R40338 - Polystyrene Thermal Insulation, Rigid Cellular | UL Product iQ

UL Product iQ™



QORW.R40338 - Polystyrene Thermal Insulation, Rigid Cellular

Polystyrene Thermal Insulation, Rigid Cellular

See General Information for Polystyrene Thermal Insulation, Rigid Cellular

THERMAFOAM LLC

R40338

1240 HWY 77 NORTH
HILLSBORO, TX 76645 USA

Cellular polystyrene in the form of blocks or boards, Types XI, I, VIII, II, IX, XIV and XV, in accordance with ASTM C578.

Cellular polystyrene (EIFS) in the form of blocks on boards in accordance with ASTM E2430.

Cellular polystyrene (geofoam) in the form of blocks or boards, Types EPS12, EPS15, EPS19, EPS22, EPS29, EPS39, or EPS46 in accordance with ASTM D6817.

Last Updated on 2021-01-05

The appearance of a company's name or product in this database does not in itself assure that products so identified have been manufactured under UL's Follow-Up Service. Only those products bearing the UL Mark should be considered to be Certified and covered under UL's Follow-Up Service. Always look for the Mark on the product.

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#75382

CERTIFICATE OF COMPLIANCE

Certificate Number R40338
Report Reference R40338-20201209
Date 2020-December-28

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements

Expanded polystyrene foamed plastic boards designated "R-Control" and "ThermaShield"

Standards for Safety:

ANSI/UL 790, Standard Test Methods for Fire Tests of Roof Coverings

CAN/ULC-S107, Methods of Fire Tests of Roof Coverings

UL 723, Test for Surface Burning Characteristics of Building Materials

CAN/ULC-S102, Test for Surface Burning Characteristics of Building Materials and Assemblies

ANSI/UL 1715, Fire Test of Interior Finish Material

ANSI/UL 1897, Uplift Tests for Roof Covering Systems

ANSI/UL 580, Tests for Uplift Resistance of Roof Assemblies

ANSI/UL 1256, Fire Tests of Roof Deck Constructions

B. Mahlen

Bruce Mahlenholz, Director North American Certification Program

UL LLC



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#75382

CERTIFICATE OF COMPLIANCE

Certificate Number R40338
Report Reference R40338-20201209
Date 2020-December-28

Issued to: ThermaFoam LLC
1240 Hwy 77 North
Hillsboro TX, 76645 US

**This is to certify that
representative samples of**

ROOFING SYSTEMS, FOAMED PLASTICS,
POLYSTYRENE THERMAL INSULATION, RIGID
CELLULAR, SURFACE BURNING CHARACTERISTICS,
EIFS, PHYSICAL PROPERTIES, GEOFOAM, ROOFING
SYSTEMS, UPLIFT RESISTANCE, ROOF DECK
CONSTRUCTIONS

See Addendum Page for Product Designation(s).

Have been investigated by UL in accordance with the
Standard(s) indicated on this Certificate.

Standard(s) for Safety: See Addendum Page for Standards

Additional Information: See the UL Online Certifications Directory at
<https://iq.ulprospector.com> for additional information

This Certificate of Compliance does not provide authorization to apply the UL Mark. Only the UL Follow-Up Services Procedure provides authorization to apply the UL Mark.

Only those products bearing the UL Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

Look for the UL Certification Mark on the product.

FOAMED PLASTIC R40338
SURFACE BURNING CHARACTERISTICS

1/2 - 5 IN. THICK+

FLAME SPREAD

20#

SMOKE DEVELOPED

300#



Bruce Mahrenholz, Director North American Certification Program

UL LLC

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TYTAN PROFESSIONAL Foam Bond 60 Adhesive

FOA-FOA-7867-TP-78-oz-24-002

Item number: 10038218

Tytan Professional Foam Bond 60 is one of the fastest curing universal one-component polyurethane adhesive that is EPS, XPS and ISO foam board safe. With superior strength and quick adhesion, Foam Bond 60 can be used in many applications faster than traditional caulk adhesive. Made to have a fast tack, Foam Bond 60 can help reduce fasteners needed and ensure a strong bond that won't fade with time. Foam Bond 60 works with most construction materials including metal, wood, brick, stone, rubber, vinyl, PVC and more. With TYTAN Professional Foam Bond 60 you can Build with Confidence!

The adhesive is manufactured in compliance with requirements of ISO 9001:2015 standard.



BENEFITS

- Foam Safe, Solvent Free
- Polyurethane Bonding Technology
- 60 second adhesion to building materials surface
- application temperature range that suits North America
- creates a strong bond the first time that won't weaken
- helps reduce the amount of fasteners needed
- fast and easy application



APPLICATION

- Foam Safe, Solvent Free
- EPS, XPS, PUR, ISO, and mineral wool
- multipurpose construction adhesive with high adhesion to many materials and substrates.
- trim, molding
- installing counter tops
- hanging mirrors
- All DIY projects

TECHNICAL DATA

Parameter (73°F (+23°C)/50% RH)	Value
Nominal value [oz]	24
Correction time [min]	2 - 5
Open time [min]	2 - 5
Full cure time (RB024) [h]	24
Flame spread / Smoke developed ((UL723 (ASTM E84))	15/10
Shear strength (conditions: joint 1mm, open time 60-90 sec, at 23C 50%RH) [EOTA TR 46] [PSI]	>29
Tensile strength (conditions: joint 1mm, open time 60-90 sec, at 23C 50%RH) [EOTA TR 46] [PSI]	>44
Conditions of application	Value
Can / applicator temperature [°F] (optimum 68°F)	41 - 95
Ambient/substrate temperature [°F]	32 - 95
Colour	Value
Yellow	+

METHOD OF USE

Prior to application, read safety instruction presented at the end of TDS and in MSDS.

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Surface preparation

- The working surface should be clean and free of any dust, oil, grease, etc.
- Cover and protect surfaces not intended for foam exposure.
- It is necessary to level the surface when unevenness exceeds 0.39 inches (1 cm).

Product preparation

- If necessary, the product should be brought to room temperature; e.g. by immersion in warm water (max temp up to 86°F (+30°C)), or by allowing the product to warm to room temperature for at least 24 hours.
- Gun temperature cannot be lower than the can temperature.
- Use protective gloves, mask and glasses.
- Shake the can vigorously for 30-45 seconds.
- Remove the protective cap, invert the can and screw the can firmly onto the dispensing gun using the plastic collar and do not overtighten.
- Maintain the can in an upside-down, inverted position during the application.
- Adjust the control knob on the gun handle to achieve the desired application flow. Point the gun into a trash can and slowly pull the trigger to test dispensing flow rate until desired bead size is determined.

Application

- Always dispense the product with the can inverted, valve down.
- While applying the foam, maintain a consistent pulling motion with the gun tip leading the direction the foam will be applied.
- When applying the foam adhesive, the bead diameter should not exceed 1.18 inches.
- After approximately one minute from application of the adhesive to the substrate, join the two materials together and correct positioning quickly after.
- When adhering a large material such as Drywall, OSB, or Tile, the adhesive should cover more than 10% of the bonding surface.
- Apply the adhesive 2 inches from the edges with a diagonal cross or serpentine beads through the middle if required.
- When adhering materials to the ceiling or a vertical surface, the material must be temporarily held or mechanically fastened in place until the adhesive has the initial grip (approximately 1-5 minutes).
- If the application of the foam is delayed for more than 5 minutes, clean the applicator tip with TYTAN Foam Cleaner and vigorously shake the can prior to resuming application.
- Upon finishing the application, tighten the control knob, clean the gun tip with TYTAN Foam

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Cleaner, leave the gun attached and store the can in an upright position.

Works after completion of application

- Cured foam will be damaged when exposed to UV rays. Protect cured foam by covering or painting.
- After completion of work, the gun should be thoroughly cleaned using TYTAN Foam Cleaner.
- When the can is empty, tighten the control knob, unscrew the can from the gun and spray the tip and basket of the gun with TYTAN Foam Cleaner. Then screw on the can of TYTAN Foam Cleaner, open the control knob and squeeze the trigger until clear foam cleaner solution is flowing out of the gun. Tighten the control knob to ensure no air will enter the barrel of the gun and unscrew the foam cleaner from the gun.

Remarks / restriction

- Always leave the can on the gun until a new can is needed to continue or start a new application. The can should only be removed when empty and a new can is needed to complete the same job.
- Ensure the control knob is tightened when the product is not in use. Air entering the barrel of the gun for more than 2-3 minutes will decrease the efficiency and life of your gun.
- The curing of the product is dependent on temperature and humidity. A significant decrease in temperature within 24 hours of application can affect the product's properties and adhesion.
- Use opened product within seven days.
- The product will not adhere to polyethylene, polypropylene, polyamide, silicone and Teflon.
- Quality and condition of the gun can impact the performance of the foam product.
- Uncured foam can be removed with TYTAN Foam Cleaner.
- Hardened foam may be removed mechanically (e.g. with a knife).
- For the safety of the installer, always ensure access to adequate ventilation during the application of polyurethane foams.



REMARKS / RESTRICTION

All parameters are based on tests compliant with manufacturer's internal standards and are highly dependent on environmental conditions during application and curing of the foam (ambient and surface temperatures, condition of applicator and the skill of the installer).

The manufacturer uses test methods approved by FEICA, designed to deliver transparent and reproducible test results and to ensure that customers have an accurate representation of product performance. FEICA OCF test methods are available at: <http://www.feica.com> (Our industry -> PU Foam (OCF) -> OCF Test Methods). FEICA is a multinational association representing the European adhesive and sealant industry, including one-component foam manufacturers.

TRANSPORT / STORAGE

The adhesive maintains its usability within 12 months from manufacturing date, provided that it is stored in original packaging in vertical position (valve facing up) in a dry place in temperature 41°F (+5°C) to 86°F (+30°C). Storage in temperature exceeding 86°F (+30°C) shortens the shelf life of the product, adversely affecting its parameters. The product may be stored in temperature 23°F (-5°C), no longer however than for 7 days (excluding transport). Storage of adhesive cans in temperature exceeding 122°F (+50°C) or in vicinity of open flame is not allowed. Storage of the product in a position other than recommended may result in jamming the valve. The can cannot be squeezed or pierced even when it is empty. Do not store the foam in the passenger compartment. Transported only in the trunk.

Detailed transport information is included in the Safety Data Sheet (SDS).

Transport temperature	Foam transport period [days]
< -4 °F (-20°C)	4
-2°F ÷ 14°F (-19°C ÷ -10°C)	7
16°F ÷ 32°F (-9°C ÷ 0°C)	10



SAFETY AND HEALTH PRECAUTIONS

The information contained herein is offered in good faith based on Producer's research and is believed to be accurate. However, because conditions and methods of use of our products are beyond our control, this information shall not be used in substitution for customer's tests to ensure that Producer's products are fully satisfactory for your specific applications. Producer's sole warranty is that the product will meet its current sales specifications. Your exclusive remedy for breach of such warranty is limited to refund of purchase price or replacement of any product shown to be other than as warranted. Producer specifically disclaims any other expressed or implied warranty of fitness for a particular purpose or merchantability. Producer disclaims liability for any incidental or consequential damages. Suggestions of use shall not be taken as inducements to infringe any patent.



TYTAN PROFESSIONAL Foam Bond 60 Foam Adhesive

TYTAN Foam Bond 60 PRO Foam Adhesive's innovative formula bonds architectural foam shapes and foam panels fast! It does not contain solvents so it does not have an offensive odor and is safe for all foams. It bonds after 60 seconds and is secure after five minutes. It performs well on damp surfaces and has excellent bond strength on a range of popular construction materials. The TYTAN PRO applicator reduces body strain and allows you to work faster compared to using a conventional cartridge applicator. It cures by the moisture in the air, so high humidity speeds up the curing process.

APPLICATIONS

MULTIPURPOSE CONSTRUCTION
ADHESIVE WITH HIGH ADHESION TO
MANY MATERIALS AND SUBSTRATES.

BENEFITS

▲▲▲ ADHESION TO BUILDING MATERIALS SURFACE
▲▲▲ WIDE APPLICATION TEMPERATURE RANGE
▲▲▲ EFFECTIVITY OF PREPARATION
▲▲▲ EFFECTIVITY OF APPLICATION
▲▲▲ THERMAL BRIDGES ELIMINATION
▲▲▲ CLAEN TECHNOLOGY
▼▼▼ ADHESION PREASSURE
▲▲▲ high; ▲▲ increased; ■ normal; ▼▼ decreased; ▼▼▼ low; - no application

APPLICATION CONDITIONS

Can/ applicator temperature [°C] (optimal +20°C)	41°F + 95°F +5°C + +35°C
Ambient/ surface temperature [°C]	32°F + 95°F 0°C + +35°C

DIRECTIONS FOR USE

Prior to application, read safety instruction presented at the end of TDS and in MSDS.

1. SURFACE PREPARATION

Wearing work clothes, gloves, and eye protection is recommended. Use only with adequate ventilation or approved respiratory equipment. Clean the surface of oil, dust and greases.





4. WORKS AFTER COMPLETION OF APPLICATION

Gun Cleaning: use TYTAN Wipes to clean the tip of the gun in between uses. Only use TYTAN Foam Cleaner in well-ventilated areas or with approved respiratory equipment. Use TYTAN Foam Cleaner's spray nozzle to spray any uncured foam off the end of the gun applicator nozzle into a trash can or a throw away material. Remove the used foam canister from the gun applicator and spray all external uncured foam with TYTAN Foam Cleaner. Screw the TYTAN Foam Cleaner canister onto the gun and spray the cleaner through the gun to clean uncured foam out the inside of the gun barrel. Leave the TYTAN Foam Cleaner canister screwed onto the gun applicator. Tighten the control knob on the guns handle so no air can enter the barrel of the gun. Air entering the barrel of the gun for more than 2-3 minutes will decrease the efficiency and life of your gun.

Foam Clean up: spray any uncured foam with TYTAN Foam Cleaner and wipe away with TYTAN Wipes. You may also use nail polish remover, acetone, or paint thinner for easy clean-up of uncured foam. Cured foam cannot be removed with solvents. Cured foam must be removed mechanically and may leave a residue. Cured foam can be removed from skin using an industrial cleaner with pumice or petroleum jelly. Cured foam will wear away over time and is not harmful to health.

5. REMARKS / RESTRICTIONS

- Lower than recommended application temperature results in yield decreasing and extension of the adhesive drying time.
- Open adhesive package should be used within 1 week.
- Product does not adhere to polyethylene, polypropylene, polyamide, silicones, Teflon.
- Quality and technical condition of used applicator affect the parameters of final product.
- The adhesive is safe for polystyrene board, not destroy them.
- Use acetone Cleaner to remove uncured adhesive. Caution! Cleaners can cause for foamed polystyrene boards by dissolving matter. Hardened adhesive may only be removed mechanically (e.g. with a knife).
- Hardened adhesive may only be removed mechanically (e.g. with a knife).
- The adhesive should not be used in spaces without access of fresh air and poorly ventilated or in places exposed to direct sunlight.

TECHNICAL DATA

Color	
yellow	+

Parameter (+23°C/50% RH) ¹⁾	Value
Capacity [m] ²⁾	36
Full cure time [h] (RB024)	24
Open time [min] ¹⁾	2-5
Correction time [min] ¹⁾	2-5
Initial grip [s]: ³⁾	
-light elements	60
-heavy elements	120



Flammability class (DIN 4102)	B3
Flammability class (EN 13501-1:2008)	F

- 1) All given parameters are based on laboratory tests compliant with internal manufacturer's standards and strongly depend on foam hardening conditions (ca, ambient, surface temperature, quality of used equipment and skills of person applying the foam). For gaps wider than 2cm values may differ from those declared in the technical data table.
- 2) Studies conducted for the adhesive tails 2-3cm in diameter, performance is dependent on ambient temperature, humidity, the distance between the adhesive and the wall elements and the chosen method of application.
- 3) The given times apply to a minimum humidity of 40%. In the case of lower humidity times may be extended.

TRANSPORT / STORAGE

Transport temperature	Foam transport period [days]
< -20°C	4
-19°C + -10°C	7
-9°C + 0°C	10

The adhesive maintains its usability within 12 months from manufacturing date, provided that it is stored in original packaging in vertical position (valve facing up) in a dry place in temperature +5°C do +30°C. Storage in temperature exceeding +30°C shortens the shelf life of the product, adversely affecting its parameters. The product may be stored in temperature -5°C, no longer however than for 7 days (excluding transport). Storage of adhesive cans in temperature exceeding +50°C or in vicinity of open flame is not allowed. Storage of the product in a position other than recommended may result in jamming the valve. The can cannot be squeezed or pierced even when it is empty. Do not store the foam in the passenger compartment. Transported only in the trunk.

Detailed transport information is included in the Material Safety Data Sheet (MSDS).

The information contained herein is offered in good faith based on Producer's research and is believed to be accurate. However, because conditions and methods of use of our products are beyond our control, this information shall not be used in substitution for customer's tests to ensure that Producer's products are fully satisfactory for your specific applications. Producer's sole warranty is that the product will meet its current sales specifications. Your exclusive remedy for breach of such warranty is limited to refund of purchase price or replacement of any product shown to be other than as warranted. Producer specifically disclaims any other expressed or implied warranty of fitness for a particular purpose or merchantability. Producer disclaims liability for any incidental or consequential damages. Suggestions of use shall not be taken as inducements to infringe any patent.

▶ FOAM BOND 60 ADHESIVE



UNIVERSAL
FAST-TACK
ADHESIVE

SOLVENT FREE,
FOAM SAFE

60

SECOND BONDING
TECHNOLOGY

- ▶ General construction adhesive
- ▶ Powerful bond
- ▶ Polyurethane technology
- ▶ Water and heat resistant



FOAM BOND 60 ADHESIVE

ISO 9001:2015

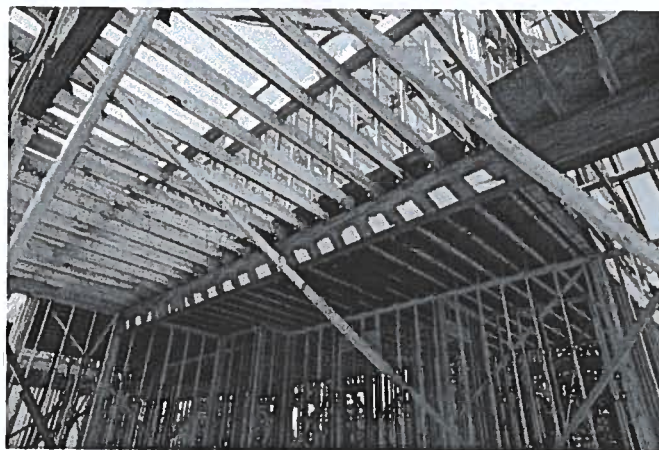


TYTAN Professional Foam Bond 60 is one of the fastest curing universal one-component polyurethane adhesives that is EPS, XPS and ISO foam board safe!

HOW IT WORKS

With superior strength and quick adhesion, Foam Bond 60 can be used in many applications faster than traditional caulk adhesive. Made to have a fast tack, Foam Bond 60 can help reduce fasteners needed and ensure a strong bond that will not fade over time.

- **Foam Safe, Solvent Free**
- **60 second adhesion to surface**
- **Will not weaken over time**
- **Reduces required fasteners**

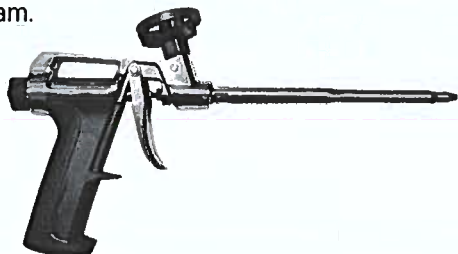


Formulated for:

- **EPS, XPS, PUR, ISO, mineral wool**
- **Trim, molding, gypsum board**
- **Installing counter tops**
- **Hanging mirrors**
- **Many other construction projects**

RECOMMENDED FOR USE WITH TYTAN PRO APPLICATOR

TYTAN's Pro applicator allows everyday professional users to install foam sealants quickly and reliably. It is made with a heavy duty metal construction design and teflon-coated basket that allows exterior mechanical removal of cured foam.



TYTAN Professional is a brand of the Selena Group, a global leader and distributor of construction chemicals and one of the four largest producers of polyurethane foam in the world. Selena was founded in 1992 in Wroclaw, Poland. Visit TYTAN.com/us to learn more, or give us a call at (817) 381-4427.

Finestop RA

Vapor Permeable Air/Water-Resistive Barrier Membrane

COLOR

Gray

PACKAGING

60 lbs per 5-gallon pail
(27.2 kg per 19-liter pail)

VOC

<0.41 lbs/gal or <50g/l less water and
exempt solvents.

SHELF LIFE

Two (2) years, properly stored in original
container.

COVERAGE PER PAIL

Substrate

ASTM C1177 Type Sheathing

450 ft² (41 m²) per pail

Cement Board

500 ft² (46 m²) per pail

Plywood*

265 ft² (24 m²) per pail

Oriented Strand Board (OSB)*

265 ft² (24 m²) per pail

Concrete Masonry Units (CMU)*

Standard Weight 265 ft² (24 m²) per pail

Medium Weight 180 ft² (17 m²) per pail

Light Weight 125 ft² (12 m²) per pail

Poured Concrete

500 ft² (46 m²) per pail

Embed Sheathing Fabric

4" Sheathing Fabric 630 ft (192 m) per pail

6" Sheathing Fabric 420 ft (128 m) per pail

9" Sheathing Fabric 280 ft (85 m) per pail

*Roll or spray / backroll for optimum coverage
rate. Other application methods may provide less
coverage. Actual results may vary depending on
surface porosity, roughness, moisture uptakes, or
other factors.

DESCRIPTION

Finestop RA is a one-component, fluid-applied vapor permeable vertical above grade air/water-resistive barrier with built in low temperature application properties. This waterproof, resilient coating may be spray-, roller-, brush-, or trowel-applied directly to approved above grade wall substrates. It provides excellent secondary moisture protection behind most wall claddings including EIFS, stucco*, brick, siding and metal panels. Finestop RA is listed in ICC ESR-1878 and ESR-2986.

*A slipsheet is required for stucco claddings.

USES

For use over the following exterior wall substrates:

Poured concrete/unit masonry, ASTM C1177 type sheathings, including DensGlass™ or DensElement exterior sheathing (sheathing only), eXP™ sheathing, GlasRoc® sheathing, Securock™ glass-mat sheathing, Weather Defense™ Platinum sheathing, GreenGlass® sheathing, PermaBase™ cement-board and other cement-boards (ASTM C1325 Type A Exterior), Untreated Exposure I or exterior plywood sheathing (grade C-D or better), Untreated Exposure I OSB, Zip Sheathing (sheathing only) Fire Treated wood sheathing: Pyro-Guard® and Dricon® plywood and FlameBlock® OSB; gypsum sheathing (ASTM C79/ASTM C139).

ADVANTAGES

One continuous air/water-resistive barrier for buildings with multiple claddings (can be used with most code-compliant claddings).

ICC ESR-2986 evaluation report confirms compliance with IBC, IRC and IECC requirements.

Approved for projects requiring ABAA specifications and quality assurance.

<1% of allowable air leakage tested per ASTM E2357, easily meets air tightness requirements per ASHRAE 189.1 and 90.1 and ABAA.

Self sealing performance meets ASTM D1970 nail sealability requirements with and without Sheathing Fabric.

One component, easy to apply formulation that meets low VOC requirements in all 50 states.

Nonflammable as applied.

Will not dry out or crack due to loss of oil/plasticizer over time.

Cleans up with water; solvents and citrus based cleaners not required.

Low temperature application down to 25°F (-4°C).

Allows for flexible construction scheduling with an 180 day outdoor exposure ratio.

TEST RESULTS

TEST	METHOD	CRITERIA	RESULTS
VOC content	ASTM D3960 (based in part on EPS method 24)	Report value	<0.41 lbs/gal or <50g/l less water and exempt solvents
Air Leakage of Air Barrier Assemblies	ASTM E2357	0.04 cfm/ft ² @ 1.57 psf (0.2 l/(s.m ²) @75 Pa)	0.0001 cfm/ft ² @ 1.57 psf (0.0007 l/s.m ²) @ 75 Pa) positive / post conditioning 0.0003 cfm/ft ² @ 1.57 psf (0.0014 l/s.m ²) @ 75 Pa) negative / post conditioning
Air Permeance of Building Materials	ASTM E2178	0.004 cfm/ft ² @ 1.57 psf (0.02 l/(s.m ²) @75 Pa)	0.00098 cfm/ft ² @ 1.57 psf (0.0049 l/s.m ²) @ 75 Pa)
Rate of Air Leakage	ASTM E283	Report value	0.0037 cfm/ft ² @ 1.57 psf (0.0185 l/s.m ²) @ 75 Pa)
Water Vapor Transmission	ASTM E96 Method B	Report value	18 perms (grains/Hr. in Hg. ft ²) @ 10 mils wet film thickness 14 perms (grains/Hr. in Hg. ft ²) @ 20 mils wet film thickness
Pull-Off Strength of Coatings	ASTM D4541	Min. 15.9 psi (110 kPa) or substrate failure	Pass - Tested over exterior gypsum sheathing, ASTM C1177 glass-mat sheathing, cement board, OSB, plywood; pvc and galvanized flashing
Nail Sealability (without Sheathing Fabric)	ASTM D1970	No water penetration at galvanized roofing nail penetration under 5" 9127 mm) head of water after 3 days at 40°F (4°C)	Pass
Surface Burning	ASTM E84	Flame Spread < 25 Smoke Development < 450	Meets Class A: Flame spread = 15 Smoke developed = 95
Radiant Heat Multi-Story Tests	NFPA 268 NFPA 285	No increase in fire hazard	Pass using many wall designs; including Finestone EIFS cladding with 12" EPS insulation Reference technical bulletin NFPA 285 Compliant Wall Systems and Assemblies
Water-resistive barrier coatings used under EIFS	ASTM E2570		Pass (Meets all criteria in the standard)
Compound Stability (Elevated Temperature)	ASTM D5147 Section 15		No flowing, dripping, or drop formation up to 350°F (177°C)
Fire Resistance	ASTM E119/UL 263	Maintain fire resistance of existing rated assembly	Will not add or detract from the rating of a fire resistive wall assembly
Drainage Efficiency	ASTM E 2273	90% Minimum	99%
% Solids	Lab method	Report value	74%

ICC-ES AC 212 Acceptance Criteria for Water-Resistive Coatings used as Water-Resistive Barriers over Exterior Sheathing

TEST	METHOD	CRITERIA	RESULTS
Sequential Testing:			
1. Structural	1. ASTM E 1233 Procedure A	No cracking at joints or interface of flashing	Pass - Tested over OSB and gypsum sheathing
2. Racking	2. ASTM E 72	No water penetration after 15 min @ 2.86 psf (137 Pa)	No water penetration after 90 min @ 6.24 psf (299 Pa)
3. Restrained Environmental Conditioning	3. ICC-ES AC-212		
4. Water Penetration	4. ASTM E 331		
Sequential Testing - Weathering			
1. UV Light Exposure	1. ICC-ES AC-212	No cracking or bond failure to substrate	Pass
2. Accelerated Aging	2. ICC-ES AC-212	No water penetration after 21.7 in (550 mm) water for 5 hours	
3. Hydrostatic Pressure Test	3. AATCC 127-1985		
Freeze-Thaw	ASTM E 2485 (Method B)	No sign of deleterious effects after 10 cycles	Pass - Tested over exterior gypsum sheathing, ASTM C1177 glass-mat sheathing, cement board, OSB, plywood
Water Resistance	ASTM D2247	No deleterious effects after 14-day exposure	Pass - Tested over exterior gypsum sheathing, ASTM C1177 glass-mat sheathing, cement board, OSB, plywood
Tensile Bond	ASTM C 297	Minimum 15 psi (103 kPa)	Pass - Tested over exterior gypsum sheathing, ASTM C1177 glass-mat sheathing, cement board, OSB, plywood, CMU, pvc and galvanized flashing
Tensile Bond (after freeze-thaw)	ASTM C 297	Minimum 15 psi (103 kPa) avg; no failure after 10 cycles freeze-thaw	Pass (Tested over various substrates)

ICC-ES AC 148 Acceptance Criteria for Flexible Flashing Materials

TEST	METHOD	CRITERIA	RESULTS
Sequential Testing - Weathering			
1. UV Light Exposure	1. ICC-ES AC 148	No cracking or bond failure to substrate	Pass
2. Accelerated Aging	2. ICC-ES AC 148	No water penetration after 21.7 in (550 mm) water for 5 hours	
3. Hydrostatic Pressure Test	3. AATCC 127-1985		
Peel Adhesion	ASTM D 3330 Method F	After UV Exposure After Accelerated Aging After Elevated Temperature Exposure After Water Immersion	Pass - tested over ASTM C1177 glass-mat sheathing, OSB, plywood, PVC and uncoated aluminum
Nail Sealability after Thermal Cycling	ASTM D 1970 (Modified), AAMA 711	No water penetration at galvanized roofing nail penetration under 1.2" (31 mm) head of water after 24 hours at 40°F (4°C)	Pass
Tensile Strength after UV Exposure	ASTM D 5034, AAMA 711	Minimum 20 lbs./in (3.5 N/mm)	Pass
Cold Temperature Pliability	ASTM D 1970, AAMA 711	No cracking after bending around a 1" (25 mm) mandrel after 2-hour exposure to 0°F (-18°C)	Pass
Resistance to Peeling	AAMA 711	No signs of distress or failure after 24 hours of exposure at room temperature, 122°F (50°C), 149°F (65°C), 176°F (80°C)	Pass

CCMC Tech Guide 07240 and CAN/ULC-S716.1

Joint Disruption Resistance	No cracking, delamination or other deleterious effects at L/180 deflection.
Joint Relaxation Resistance	Pass Max water transmission rate. $2 \times 10^{-7} \text{ kg/m}^2 \cdot \text{s}$ ($4.1 \times 10^{-8} \text{ lbs/ft}^2 \cdot \text{s}$) after extension and environmental cycling.
Adhesive/Cohesive Bond	Pass Min 0.3 MPa (43.5 psi) in dry state, 0.1 MPa (14.5 psi) after 48 hour water immersion.
Nail Popping Resistance	No cracking or delamination around nail head following 1 mm (0.04") protrusion.
Water Absorption	Pass Maximum $0.004 \text{ kg/m}^2 \cdot \text{s}$ ($0.0008 \text{ lbs/ft}^2 \cdot \text{s}$).
Accelerated Weather Resistance	No visible effects (cracking, flaking, other deleterious effects) after 334 total hours.

PRODUCT CONSIDERATIONS AND JOB CONDITIONS

- Cold temperature application less than 40°F (4°C) down to 25°F (-4°C): expect extended dry time. Final air/water-resistive properties and film durability rely on temperatures rising above freezing (32°F/0°C).
- Walls shall be capped to prevent moisture and precipitation from entering wall during construction.
- Dry/cure times of adhered EPS insulation board installed over Finestop RA may be prolonged, particularly in cool and/or damp weather. Non-cementitious adhesives are not recommended for EPS insulation board attachment to Finestop RA. Proper application is the responsibility of the user.
- A minimum of two 10-mil wet coats of Finestop RA is required over OSB, plywood and CMU. Finestop RA may be sprayed to a 20-mil thickness over OSB, plywood and CMU in one wet application. Backrolling may be needed to produce a pinhole-free film.
- Punched studs in rough openings must be treated with MasterSeal AWB 970 NP flashing membrane.
- Ensure all fasteners are spotted with Finestop RA or MaxFlash.
- Prior to application of claddings, visually inspect the Finestop RA for voids, pinholes, surface deficiencies, etc. Repair deficiencies and areas that are not intact. Apply additional Finestop RA as necessary, such that the barrier is free of voids, pinholes, etc. All sheathing joints, terminations, inside and outside corners

must be reinforced with Sheathing Fabric embedded in Finestop RA, MaxFlash or MasterSeal AWB 970 NP.

- Treat expansion joints with MasterSeal AWB 970 NP flashing membrane, provide sufficient slack in MasterSeal AWB 970 NP at joint to allow for movement.

SURFACE PREPARATION

- Substrate shall be of a type acceptable by Master Builders Solutions and shall be installed per substrate manufacturer's instructions and local code requirements.
- Substrate shall be dry, clean, sound and free of release agents, paint/coatings, other residue or other deleterious conditions before application of cladding. Verify substrate is flat, free of fins or planar irregularities greater than 1/4" in 10' (6.4 mm in 3 m). Unsatisfactory conditions shall be reported to the general contractor and corrected before application of Finestop RA and claddings.

EQUIPMENT

- For roller application, use a 3/4" (20mm) nap roller. Prewet the synthetic roller pad with water and spin out the excess. The prewetting only needs to be done once, at the start of application.
- For spraying application instructions and equipment reference Spray Application technical bulletin.

MIXING

1. Use directly from original packaging or prepare in a container that is clean and free of foreign substances. Do not use a container which has contained or been

cleaned with a petroleum-based product.

2. Mix Finestop RA with a clean, rust-free paddle and drill until thoroughly blended. Dilution of Finestop RA is not recommended.
3. Additives are not permitted.
4. Close container when not in use.
5. Clean tools and equipment with water immediately after use. Dried material can only be removed mechanically.

APPLICATION

FLASHING ROUGH OPENINGS

Using MaxFlash

1. Apply a bead of MaxFlash in each corner of the rough opening, ensuring that corners are fully sealed. Where wood bucks are used, apply a bead of MaxFlash into gaps between bucks and between the buck and building structure.
2. Apply additional MaxFlash in a zigzag pattern onto head, sill, jambs and exterior substrate. Spread MaxFlash evenly across the rough opening to form a uniform, continuous, void and pinhole-free membrane with a 12-20 mil thickness. Extend MaxFlash at a minimum 4" onto the exterior wall, maintaining 12 to 20-mil thickness.
3. Allow MaxFlash to skin before applying Finestop RA to sheathing. Lap the air/water-resistive barrier a minimum of 2" onto MaxFlash, creating a continuous, monolithic air/water-resistive barrier membrane.
4. Allow MaxFlash to cure prior to the installation of windows, doors and other wall assemblies.

Using Sheathing Fabric

1. Cut Sheathing Fabric to desired size. Apply a generous amount of mixed Finestop RA receiving coat across rough opening and out onto the substrate. Immediately embed Sheathing Fabric, ensure complete saturation. An additional coat of Finestop RA may be necessary to ensure a complete, void and pinhole-free membrane.
2. Extend Sheathing Fabric a minimum 2" onto the exterior wall. Reference Finestop RA published details for step by step application details.

SHEATHING JOINT REINFORCEMENT

Using MaxFlash

Apply a thick bead of MaxFlash to sheathing joints, inside and outside corners as well as knot holes and check cracks that may exist in plywood or OSB. Spread evenly a minimum of 1" beyond the joint on either side, maintaining 20-mils across the sheathing joint. Allow MaxFlash to skin before applying Finestop RA to sheathing. See the MaxFlash product bulletin for coverages and additional product highlights.

Note: MaxFlash can be used to treat sheathing joints up to ½" wide, not for use in expansion joints.

Using Sheathing Fabric

1. Precoat sheathing joints, inside and outside corners as well as knot holes and check cracks that may exist in plywood or OSB with mixed Finestop RA.
 2. Immediately place and center Sheathing Fabric over wet Finestop RA. Ensure Sheathing Fabric extends evenly on both sides of the sheathing joint. Completely saturate Sheathing Fabric with Finestop RA.
 3. Lap Sheathing Fabric 2 ½" (63.5 mm) minimum at intersections.
 4. If using roller or brush application, allow to dry to the touch before applying Finestop RA to entire wall surface. If spraying, "wet on wet" application is acceptable.
- Note:** Sheathing Fabric can be used to treat sheathing joints up to ¼" wide, not for use in expansion joints.

FINESTOP RA APPLICATION OVER ACCEPTABLE SUBSTRATES

For concrete, glass-mat sheathing (C1177), cement board (ASTM C1325 Type A Exterior), and gypsum sheathing (ASTM C79/ASTM C1396); apply with roller, brush, stainless steel trowel or spray gun to a consistent, minimum 10 wet mil thickness that is free of voids and pin holes. If rolling, a fully loaded roller pad is required to obtain a consistent, minimum 10 wet mil thickness.

Note: Refer to Spray Application technical bulletin for spray application equipment and application instructions

For plywood, OSB or CMU substrate(s); apply with ¾" (20 mm) nap roller a consistent, minimum 10 wet mil thickness. Prior to application of the second coat, visually inspect to assure sheathing surface is blister free and coating is free of voids and pinholes. Repair if needed and then apply a second coat after the initial coating is sufficiently dry.

Note: A minimum of two (2) 10-mil wet coats of Finestop RA are required over OSB, plywood and CMU

Applying with spray equipment, Finestop RA may be sprayed to a 20-mil thickness over CMU, OSB and plywood in one wet application. Backrolling may be needed to produce a pinhole-free film.

Note: Refer to Spray Application technical bulletin for spray application equipment and application instructions. Verify thickness using a wet film mil gauge.

COLD TEMPERATURE APPLICATION LESS THAN 40°F (4°C) DOWN TO 25°F (-4°C).

- Precondition material to a minimum 65°F (18°C).
- Substrate and ambient temperature must be 25°F (-4°C) and rising. Do not apply if temperature below 25°F (-4°C) is expected at any time during the application or drying period. Substrate surface must be frost free and remain dry.
- Install material in dry weather and protect from rain and temperatures below 25°F (-4°C) for a minimum of 24 hours and until dry. Actual drying time will vary depending

on ambient and substrate temperature, humidity and the ability of the substrate to absorb water. Final air/water-resistive properties and film durability rely on temperatures rising above freezing (32°F/0°C).

DRYING TIME

40°F (4°C) and rising: allow to dry completely, typically 2-10 hours before proceeding with cladding installation.

40°F (4°C) down to 25°F (-4°C): when applied at a 10-mil wet film thickness, typically dry in approximately 12 hours at 32°F (0°C) and 50% relative humidity (RH). When applied at a 20-mil thickness (single pass spray), typically dry in approximately 18 hours at 32°F (0°C) and 50% (RH). Allow to dry completely prior to proceeding with cladding installation.

Note: Actual drying time will vary depending on ambient and substrate temperature, humidity and the ability of the substrate to absorb water. Final air/water-resistive properties and film durability rely on temperatures rising above freezing (32°F/0°C).

SHIPPING & STORAGE

- Protect materials during transportation to avoid physical damage. Store in a cool, dry place protected from freezing, extreme heat and direct sun. Store at no less than 40°F (4°C) and below 120°F (49°C). Protect from extreme heat and direct sun.
- Do not stack pallets.

LIMITATIONS

- Limit the weather exposure of Finestop RA to a maximum of 180 days. If exposure limits are exceeded, clean and recoat with Finestop RA.
- Do not use on damp surfaces, below-grade applications or on surfaces subject to water immersion.
- Do not apply in ambient temperatures below 25°F (-4°C) or onto substrates below 25°F (-4°C). Do not apply in ambient temperature above 100°F (38°C) or surface temperature above 120°F (49°C).

- Ensure wood sheathings and lumber including fire and pressure treated are dry throughout the thickness of the material and free of any bond inhibiting materials prior to application of Finestop RA.
- Finestop RA is designed as a positive side water barrier and does not function as a negative side barrier product.

TECHNICAL SUPPORT

Consult Master Builders Solutions Technical Services Department at +1 (800) 589-1336 for specific recommendations concerning all other applications. Consult the Wall Systems website at finestone.master-builders-solutions.com/en, for additional information about products and systems and for updated literature.

HEALTH, SAFETY AND ENVIRONMENTAL

Read, understand and follow all Safety Data Sheets and product label information for this product prior to use. The SDS can be obtained by visiting finestone.master-builders-solutions.com/en, e-mailing your request to mbsbscst@mbcc-group.com or calling +1 (800) 433-9517. Use only as directed.

IN CASE OF EMERGENCY: Call CHEMTEL +1 (800) 255-3924 or if outside the US or Canada, +1 (813) 248-0585.

LIMITED WARRANTY NOTICE

Master Builders Solutions Construction Systems US, LLC ("Master Builders") warrants this product to be free from manufacturing defects and to meet the technical properties on the current Technical Data Guide, if used as directed within shelf life. Satisfactory results depend not only on quality products but also upon many factors beyond our control. Master Builders MAKES NO OTHER WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO ITS PRODUCTS. The sole and exclusive remedy of Purchaser for any claim concerning this product, including but not limited to, claims alleging breach of warranty, negligence, strict liability or otherwise, is shipment to purchaser of product equal to the amount of product that fails to meet this warranty or refund of the original purchase price of product that fails to meet this warranty, at the sole option of Master Builders. Any claims concerning this product must be received in writing within one (1) year from the date of shipment and any claims not presented within that period are waived by Purchaser. Master Builders WILL NOT BE RESPONSIBLE FOR ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL (INCLUDING LOST PROFITS) OR PUNITIVE DAMAGES OF ANY KIND.

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For the most current version of this literature, please visit our website at finestone.master-builders-solutions.com/en.

Reinforcing Mesh

Balanced, open-weave glass fiber reinforcing mesh

COLOR

Finestone meshes are white, except 4" and 9" Sheathing Fabric which are gray.

DESCRIPTION

Balanced, open-weave glass fiber reinforcing mesh, twisted multi-end strands treated for compatibility with Finestone Base Coats. A variety of Reinforcing Mesh types are available to meet the different requirements of impact resistance at specific wall locations. Finestone Self-Adhering Mesh tape, in addition to having the same properties as described above, is coated with a pressure sensitive adhesive.

USES

1. For use with all Pebbletex Wall Systems and Pebbletex D, D7 and D10 Wall Systems, Finestone Surfacing Systems and Finestone Cement-Board Stucco Systems and for EPS shapes on Finestone Stucco Wall System that use either EPS or polyisocyanurate insulation boards and for use over EPS shapes on all Finestone Wall Systems.
2. For above ground use with all Finestone Surfacing Systems.
3. Finestone Self-Adhering Mesh tape only: reinforces Finestop over acceptable sheathing joints and reinforces Finestop over rough openings and at terminations.
4. Fiberlath Mesh only: reinforces and provides a keying device for base coat on Impact R Class PM EIFS.
5. 4", 9" Sheathing Fabric only: reinforces Finestop RA over acceptable sheathing joints and reinforces Finestop RA over rough openings and terminations.

APPLICATION

CORNER MESH:

Install Corner Mesh at exterior corners. Apply mixed Base Coat to insulation board at outside corners. Immediately embed the Corner Mesh into the Base Coat by troweling from the corner; butt edges and avoid wrinkles. After Base Coat is dry and hard, apply a layer of Standard, Intermediate 6 or 12 Reinforcing Mesh over the entire surface of the Corner Mesh.

STANDARD, INTERMEDIATE 6 AND 12 REINFORCING MESHES:

Fully embed clean mesh into wet base coat and smooth with a trowel so as to achieve mesh embedment with no mesh color visible. Double layers of Standard and Intermediate 6 mesh must be applied at all inside and outside corners. Window corners also require secondary reinforcement as per details. Lap Reinforcing Mesh 64 mm (2 1/2") minimum at edges.

ADVANTAGES

Alkali resistance, compatibility with all Finestone Base Coats; maintains tensile strength and flexibility for long-term durability; all glass fiber reinforcing mesh complies with ASTM E2098

Finestone Self-Adhering Mesh TAPE; simplifies and speeds application of Finestop Water-Resistive Barrier

STRONG 15 AND HI-IMPACT 20 REINFORCING MESHES:

Embed Strong 15 or Hi-Impact 20 Reinforcing Mesh in wet base coat by troweling from the center to the edges. Butt strong 15 or Hi-Impact 20 Reinforcing Mesh at all adjoining edges, do not use to backwrap or bend around corners. Butt strong 15 or Hi-Impact 20 Reinforcing Mesh at adjoining edges of Corner Mesh. Ensure Reinforcing Mesh is free of wrinkles and embedded in Base Coat so that no Reinforcing Mesh color is visible. After Base Coat with embedded Reinforcing Mesh is dry and hard (normally 8 to 10 hours), apply a layer of Standard or Intermediate 6 Reinforcing Mesh over the entire surface to achieve total nominal Base Coat/Reinforcing Mesh thickness of 2.4 mm (3/32").

SELF-ADHERING MESH TAPE:

Substrate shall be acceptable to Master Builders Solutions Wall Systems. Substrate shall be dry, clean, sound and free of release agents, paint or other contaminants. Verify that the substrate is flat, free of fins or anything that would hinder adhesion of the mesh. Unsatisfactory conditions shall be reported to the general contractor and corrected before application of the Finestone Wall System. Finestone Self-Adhering Mesh tape may be applied direct from the roll. Center the mesh over the area to be reinforced. Firmly press the mesh onto the surface while unrolling. Avoid creating wrinkles and fish-mouths. If they occur cut out the area with a utility knife and re-apply. Overlap ends of Finestone Self-Adhering Mesh tape a minimum of 63.5 mm (2 1/2"). Cover Self-Adhering Mesh tape with a layer of Finestop.

4", 9" SHEATHING FABRIC:

Apply mixed Finestop RA at all sheathing, joints, terminations, inside and outside corners and rough openings. Immediately place and center 4" or 9" Sheathing Fabric over wet Finestop RA at outside corners and rough openings. Ensure fabric extends evenly on both sides of the sheathing joint. Lap mesh 63.5 mm (2 1/2") minimum at intersections. Allow to dry to the touch, before applying Finestop RA to entire wall surface.

LIMITATIONS

1. Protect Finestone Reinforcing Mesh during transportation and installation to avoid physical damage.
2. Store Finestone Reinforcing Mesh in a cool, dry place protected from exposure to moisture.
3. See Finestone Specifications and Details for complete information on installation of Finestone Wall Systems.
4. Apply in temperatures of 4 °C (40 °F) and higher.

TECHNICAL DATA

ASTM E 695 IMPACT RESISTANCE:

No cracks in the exterior insulation and finish system from a drop height of 1.83 m (6'). Maximum indentation did not exceed 8.5 mm (0.33").

EIMA IMPACT STANDARD 101.86:

Standard/Base Coat	Standard Impact Resistance	[2.8–5.6 J (25–49 inch-lbs)]
Intermediate 6/Base Coat	Standard Impact Resistance	[2.8–5.6 J (25–49 inch-lbs)]
Intermediate 12/Base Coat	Medium Impact Resistance	[5.7–10.1 J (50–89 inch-lbs)]
Intermediate 12 & Standard/Base Coat	High Impact Resistance	[10.2–17.0 J (90–150 inch-lbs)]
Strong 15 & Standard/Base Coat	Ultra High Impact Resistance	[over 17.0 J (150 inch-lbs)]
Hi-Impact 20 & Standard/Base Coat	Ultra High Impact Resistance	[over 17.0 J (150 inch-lbs)]

DADE COUNTY PROTOCOL 201 IMPACT TESTS (LARGE AND SMALL MISSILE):

Passed with various wall assemblies. See technical bulletin, *EIFS and Coatings Tests Results*, for details.

STANDARD REINFORCING MESH:

A single-layer application of Standard Reinforcing Mesh provides reinforcement for wall system areas not expected to receive abnormal abuse or traffic.

Weave:	Leno
Weight:	142 g/m ² (4.2 oz/yd ²) +/- 5%
Fabric Count:	6 x 5
Packaging:	96.5 cm x 45.7 m (38" x 150') roll: 475 sf - 44.1 m ² 9" Starter rolls: 24.1 cm x 45.7 m (9" x 150'): 112.5 sf - 11.0 m ² 122 cm (48" width): 600 sf - 55.8 m ² 183 cm (72" width): 900 sf - 83.6 m ² 244 cm (96" width): 1200 sf - 111.51 m ²

INTERMEDIATE 6 REINFORCING MESH:

A single-layer application of Intermediate 6 provides reinforcement for wall system areas not expected to receive abnormal abuse or traffic.

Weave:	Leno
Weight:	190 g/m ² (5.6 oz/yd ²) +/- 5%
Fabric Count:	6 x 5
Packaging:	96.5 cm x 45.7 m (38" x 150') roll: 475 sf - 44.1 m ²

INTERMEDIATE 12 REINFORCING MESH:

A versatile, intermediate weight mesh. While capable of being used for a complete single-layer application, Intermediate 12 is often used in conjunction with Standard or Intermediate 6 to offer added impact resistance at specific areas (i.e. around doors or walkways).

Weave: Leno
Weight: 373 g/m² (11 oz/yd²) +/- 5%
Fabric Count: 16 x 12
Packaging: 96.5 cm x 22.8 m (38" x 75') roll: 237.5 sf - 22.1 m²

STRONG 15 REINFORCING MESH:

A medium/heavy-weight mesh intended for areas expected to receive traffic and abuse. Strong 15 has special installation procedures including:

1. Edges are butted (not overlapped).
2. Strong 15 cannot be used for backwrapping and will not bend around corners.
3. An application of Strong 15 requires a continuous and lapped Standard or Intermediate 6 application as an overlay.

Weave: Hurl Leno
Weight: 508 g/m² (15 oz/yd²) +/- 5%
Fabric Count: 4 x 4
Packaging: 96.5 cm x 22.8 m (38" x 75') roll: 237.5 sf - 22.1 m²

HI-IMPACT 20 REINFORCING MESH:

A heavy-weight mesh intended for areas expected to receive a high degree of traffic and abuse. Hi-Impact 20 has special installation procedures including:

1. Edges are butted (not overlapped).
2. Hi-Impact 20 cannot be used for backwrapping and will not bend around corners.
3. An application of Hi-Impact 20 requires a continuous and lapped Standard or Intermediate 6 application as an overlay.

Weave: Hurl Leno
Weight: 675 g/m² (20.0 oz/yd²) +/- 5%
Fabric Count: 4 x 3
Packaging: 99.0 cm x 22.8 m (39" x 75') roll: 243.75 sf - 22.6 m²

CORNER MESH:

An intermediate-weight mesh for use at exterior corners when added impact resistance or clean, crisp corners are desired. Corner Mesh is pre-marked for easy bending. An overlay of Standard, Intermediate 6 or 12 is required when Corner Mesh is used.

Weave: Plain or Hurl
Weight: 304 g/m² (9.0 oz/yd²) +/- 5%
Fabric Count: 12 x 4
Packaging: 22.9 cm x 45.7 m (9" x 150') roll: 112.5 sf - 10.47 m²

SELF-ADHERING REINFORCING MESH TAPE:

A standard weight mesh coated with a pressure sensitive adhesive and used with Finestop water-resistive barrier as reinforcement over acceptable sheathing joints, rough openings and at terminations.

Weave: Leno
Weight: 169 g/m² (5 oz/yd²) +/- 10%
Packaging: 4" Rolls: 10.2 cm x 45.7 m (4" x 150'): 50 sf - 4.66 m²
9" Rolls: 22.9 cm x 45.7 m (9" x 150'): 112.5 sf - 10.47 m²

4", 9" SHEATHING FABRIC:

4", 9" sheathing fabric is used with Finestop RA air/water-resistive barrier as reinforcement over acceptable sheathing joints, rough openings and at terminations.

Packaging: 4" Sheathing Fabric: 10.2 cm x 54.8 m (4" x 180 ft) roll: 60 sf - 5.59 m²
9" Sheathing Fabric: 22.9 cm x 54.8 m (9" x 180 ft) roll: 135 sf - 12.55 m²

HEALTH, SAFETY AND ENVIRONMENTAL

Read, understand and follow all Safety Data Sheets and product label information for this product prior to use. The SDS can be obtained by visiting finestone.master-builders-solutions.com/en, e-mailing your request to mbsbscst@mbcc-group.com or calling +1 (800) 433-9517. Use only as directed.

IN CASE OF EMERGENCY: Call CHEMTEL +1 (800) 255-3924 or if outside the US or Canada, +1 (813) 248-0585.

TECHNICAL SUPPORT

Consult Master Builders Solutions Technical Services Department at +1 (800) 589-1336 for specific recommendations concerning all other applications. Consult the Wall Systems website at finestone.master-builders-solutions.com/en, for additional information about products and systems and for updated literature.

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Finebuild

100% acrylic polymer

PACKAGING

19 L (5 gal.) pail

APPROXIMATE COVERAGE RATE

As a base coat only: 26 m² (280 ft²) per pail with standard mesh

As leveling agent: 10 m² (110 ft²) per pail at 3.2 mm (1/8") thick; 5 m² (55 ft²) per pail at 6.4 mm (1/4") thick

WORKING TIME

Approximately 1 hour after mixing, depending on ambient temperature and humidity.

CURING TIME

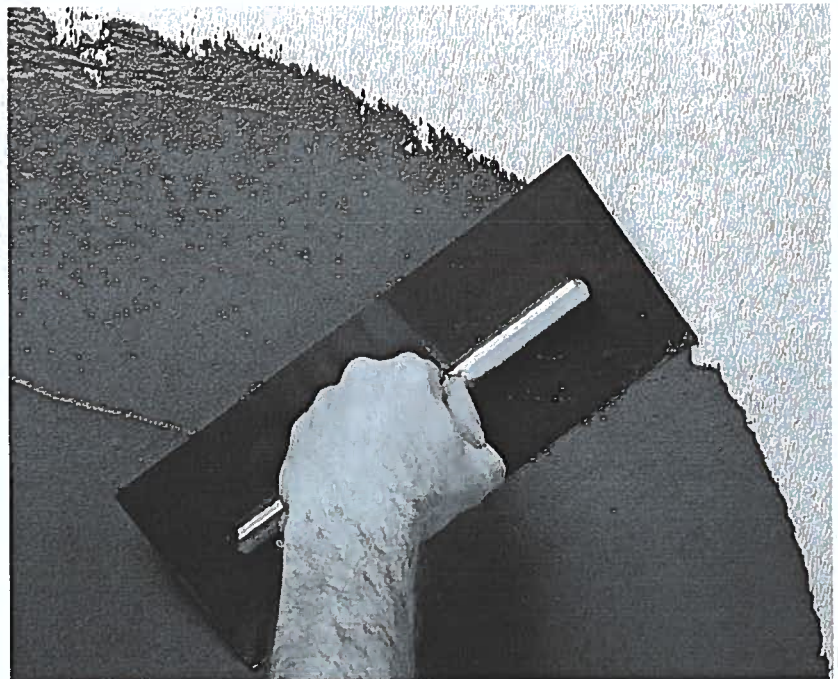
Protect from rain and temperatures of less than 4 °C (40°) for a minimum of 24 hours. Higher humidity and/or cooler temperatures may require longer protection. Allow to cure 24 hours prior to finish application. Finebuild achieves full strength in approximately 28 days.

STORAGE

Store in original containers at temperatures not less than 4 °C (40 °F) or greater than 43 °C (110 °F). Store out of direct sunlight and protect from weather. Do not stack pallets.

SHELF LIFE

Approximately 2 years, properly stored in original containers.



FEATURES

Smooth, creamy consistency

Familiar 1 to 1 mix ratio

100% acrylic polymer formula

High build

Water-based

BENEFITS

Easy to trowel on to achieve quality mesh embedment; less drag reduces applicator fatigue

Easy to mix quickly and accurately on job-site

Excellent adhesion, durability, flexibility and weather resistance

Levels polyiso insulation, concrete or masonry substrates quickly; saves time

Safe for workers and environment; easy clean up

Finebuild is a 100% acrylic polymer that is field mixed with Type I or I-II Portland cement to produce a cementitious leveling base coat for Finestone Pebbletex or Quik Clad Class PB EIFS or a leveling agent for masonry and concrete substrates. Its high-build formula allows application up to 1/4" in one coat. After mixing with cement, Finebuild's creamy consistency assures smooth, efficient troweling.

RECOMMENDED USES

AS A BASE COAT

To embed reinforcing mesh and create the base coat system in Finestone Pebbletex Class PB EIFS over approved insulation board or in Finescreen Cement Board Stucco Systems over approved sheathing.

AS A LEVELER

To level surfaces of concrete or masonry substrates in preparation for installation of Pebbletex EIFS or Pebbletex Finish.

Note: See Finestone Approved Insulation Boards for comprehensive recommendations of appropriate products.

LIMITATIONS

1. Do not use on wood or metal surfaces.
 2. Do not use on painted surfaces.
 3. Not recommended for adhering MEPS insulation board to any substrate or for adhering MEPS details to MEPS insulation board.
 4. Install only when temperatures will be at least 4 °C (40 °F) and higher for at least 24 hours.
 5. Protect from rain for at least 24 hours.
-

MIXING

1. At the time of use, mix Finebuild in a 1 to 1 ratio by weight with Type I or Type I-II Portland cement (ASTM C150). The Portland cement must be fresh and free of lumps.
2. For best results, mix at 400-500 rpm, using a heavy duty 13 mm (1/2"-2") drill with a jiffier-type paddle (Goldblatt Jiffier Mixer No. 15311 H7 or similar).
3. Open the pail of Finebuild and stir the material until thoroughly blended. Mix 1 part Finebuild with 1 part Portland cement in clean, 19-L (5-gal.) plastic pail. Add Portland cement to Finebuild in small increments until thoroughly blended. Let the mixture sit for 5 minutes then stir to a creamy consistency. Small amounts of clean, potable water, up to 0.9 L (30 oz.) per half pail, may be added to achieve the desired workability.

4. Do not overmix. Excessive stirring will cause faster setting of the Finebuild and significantly reduce working time.
 5. Do not exceed a 1 to 1 ratio of Finebuild to Portland cement. Excessive amounts of cement in the mixture will reduce the strength of the product and cause cracking and efflorescence.
 6. Do not add accelerators, retarders or other admixtures to the Finebuild.
-

APPLICATION / AS A BASE COAT

SURFACE PREPARATION

The Finestone Insulation Board must be well adhered to the wall. All gaps between the insulation board must be filled with slivers of insulation. Rasp the wall to a flat surface. Install all aesthetic joints and EPS details to the wall.

EQUIPMENT

For base coat application, use a stainless steel plastering trowel.

APPLICATION PROCEDURES

For the mechanically attached systems, first use the Finebuild to spot fasteners and level irregularities so that the insulation is flush. Then over the face of the sheathing or insulation board apply Finebuild in a thickness adequate to properly embed the Reinforcing Mesh, approximately 1.6 mm (1/16") for Standard Mesh and 3.2 mm (1/8") for Hi-Impact Mesh. Immediately lay the Reinforcing Mesh into the wet Finebuild and smooth the surface until the Reinforcing Mesh is totally embedded. The color of the mesh must not be visible. In some applications, a second coat of Finebuild may be needed to cover reinforcing mesh.

Allow to cure for at least 24 hours before applying finish. Protect from rain and from temperatures less than 4 °C (40 °F) for 24 hours.

APPLICATION / AS A LEVELER

SURFACE PREPARATION

Existing unit masonry and concrete substrates must be sound and free of paint, dirt, grease, oil, and efflorescence. New concrete must have cured for a minimum of 28 days and be free of form release agents and curing compound.

EQUIPMENT

Use a stainless steel plastering trowel.

APPLICATION PROCEDURES

To level unit masonry so that joints are not visible, apply Finebuild over the block face, filling joints up to 6.4 mm (1/4") deep and covering block surface with a smooth coating, an average 1.6 mm (1/16") thick. If necessary, repeat process over first application after it has dried.

To level concrete substrates, grind down irregularities higher than 6.4 mm (1/4"). Fill voids of up to 6.4 mm (1/4") with Finebuild. Then apply a leveling coat of Finebuild over the concrete substrate to a smooth 1.6 mm (1/16") thick coating.

Allow to cure for at least 24 hours before applying finish. Protect from rain and from temperatures less than 4 °C (40 °F) for 24 hours.

CLEAN UP

Remove wet material from tools or other surfaces with soap and water. Dry material must be mechanically removed.

TECHNICAL SUPPORT

Consult Master Builders Solutions Technical Services Department at +1 (800) 589-1336 for specific recommendations concerning all other applications. Consult the Wall Systems website at finestone.master-builders-solutions.com/en, for additional information about products and systems and for updated literature.

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Duration® Exterior Acrylic Flat

K32-Series


**SHERWIN
WILLIAMS.**

CHARACTERISTICS

Duration® Exterior Latex Coating is the result of advances in acrylic technology. **Duration** uses PermaLast® technology to provide you with the most durable and longest lasting coating available for protecting the outside of your home.

VinylSafe™ paint colors allow you the freedom to choose from 100 color options, including a limited selection of darker colors formulated to resist warping or buckling when applied to a sound, stable vinyl substrate.

- Self-priming One Coat Protection
- Low temperature application down to 35° F.
- Easy application
- Excellent durability and hiding
- Resists Blistering and Peeling

Color: Most Colors

Coverage: 250-300 sq. ft. per gallon
5.3-6.4 mils wet 2.2-2.7 mils dry,
up to 7.0 mils wet; 3.0 mils dry

Drying Time, @ 50% RH:

	@ 35-45°F	@ 45°F +
Touch:	2 hours	1 hour
Recoat:	24-48 hours	4 hours

Drying and recoat times are temperature, humidity, and film thickness dependent

Finish: 0-5 units @ 85°

Tinting with CCE only:

Base:	oz per gallon	Strength:
Extra White	0-7	SherColor
Deep Base	4-14	SherColor
Ultradeep Base	10-14	SherColor
Light Yellow	4-14	SherColor

Extra White K32W00251

(may vary by color)

VOC (less exempt solvents):

less than 50 grams per litre; 0.42 lbs. per gallon
As per 40 CFR 59.406

Volume Solids:	43 ± 2%
Weight Solids:	58 ± 2%
Weight per Gallon:	11.43 lbs
Flash Point:	N/A
Vehicle Type:	Acrylic
Shelf Life:	36 months unopened
WVP Perms (US)	20.86 grains/(hr ft² in Hg)

Mildew Resistant

This coating contains agents which inhibit the growth of mildew on the surface of this coating film.

COMPLIANCE

As of 08/31/2020, Complies with:

OTC	Yes
OTC Phase II	Yes
SCAQMD	Yes
CARB	Yes
CARB SCM 2007	Yes
Canada	Yes
LEED® v4 & v4.1 Emissions	N.A.
LEED® v4 & v4.1 VOC	Yes
EPD-NSF® Certified	N.A.
MIR-Manufacturer Inventory	N.A.
MPI®	Yes

APPLICATION

When the air temperature is at 35°F, substrates may be colder; prior to painting, check to be sure the air, surface, and material temperature are above 35°F and at least 5°F above the dew point. Avoid using if rain or snow is expected within 2-3 hours. Do not apply at air or surface temperatures below 35°F or when air or surface temperatures may drop below 35°F within 48 hours.

No reduction necessary.

Brush:

Use a nylon-polyester brush.

Roller:

Use a high quality 3/8-3/4 inch nap synthetic roller cover.

For specific brushes and rollers, please refer to our Brush and Roller Guide on sherwin-williams.com

Spray—Airless

Pressure 2000 p.s.i.
Tip .015-.019 inch

APPLICATION TIPS

Make sure product is completely agitated (mechanically or manually) before use.

Thoroughly follow the recommended surface preparations. Most coating failures are due to inadequate surface preparation or application. Thorough surface preparation will help provide long term protection with **Duration** coating. On repaint work, apply one coat of **Duration** coating; on bare surfaces, apply two coats of **Duration**, allowing 4 hours drying between coats.

Do not paint in direct sun. Apply at temperatures above 35°F. During application at temperatures above 80°F, **Duration** sets up quickly. Some adjustment in your painting approach may be required. Paint from a dry area into the adjoining wet coating area. Dries to touch in 1 hour and is ready for service overnight.

On large expanses of metal siding, the air, surface, and material temperatures must be 50°F or higher.

SPECIFICATIONS

Duration Exterior Acrylic Latex is self-priming on most surfaces. Apply 2 coats on new, bare substrates or 1 coat for repaint.

Use on these properly prepared surfaces:

Aluminum & Aluminum Siding¹

Galvanized Steel¹

Concrete Block

Split face Block

Cement Composition Siding/Panels

Stucco

Concrete

Plywood

Wood

***Vinyl Siding**

Surfaces with a pH greater than 9 must be primed with a high pH-resistant coating such as Loxon Concrete & Masonry Primer.

Standard latex primers cannot be used below 50°F. See specific primer label for that product's application limitations.

Concrete masonry units (CMU) - Surface should be thoroughly clean and dry. Air, material and surface temperatures must be at least 50°F (10°C) before filling. Use Loxon Acrylic Block Surfacers. The filler must be thoroughly dry before topcoating.

Knots and some woods, such as redwood and cedar, contain a high amount of tannin, a colored wood extract. If applied to these bare woods, the first coat of **DURATION** may show some staining, but it will be trapped in the first coat. A second coat will uniform the appearance. If staining persists, spot prime severe areas with 1 coat of Exterior Oil-Based Wood Primer prior to using **DURATION**.

¹ On large expanses of metal siding, the air, surface, and material temperatures must be 50°F or higher.

Duration® Exterior Latex Flat

SURFACE PREPARATION

WARNING! Removal of old paint by sanding, scraping or other means may generate dust or fumes that contain lead. Exposure to lead dust or fumes may cause brain damage or other adverse health effects, especially in children or pregnant women. Controlling exposure to lead or other hazardous substances requires the use of proper protective equipment, such as a properly fitted respirator (NIOSH approved) and proper containment and cleanup. For more information, call the National Lead Information Center at 1-800-424-LEAD (in US) or contact your local health authority.

Remove all surface contamination by washing with an appropriate cleaner, rinse thoroughly and allow to dry. Existing peeled or checked paint should be scraped and sanded to a sound surface. Glossy surfaces should be sanded dull. Stains from water, smoke, ink, pencil, grease, etc. should be sealed with the appropriate primer-sealer. Recognize that any surface preparation short of total removal of the old coating may compromise the service length of the system.

Aluminum and Galvanized Steel:

Wash to remove any oil, grease, or other surface contamination. All corrosion must be removed with sandpaper, wire brush, or other abrading method.

Cement Composition Siding/Panels:

Remove all dirt, dust, grease, oil, loose particles, laitance, foreign material, and peeling or defective coatings. Allow the surface to dry thoroughly. If the surface is new, test it for pH, if the pH is higher than 9, prime with Loxon Concrete & Masonry Primer. After power washing, previously painted masonry may still have a powdery surface that should be sealed with Loxon Conditioner and then apply 1 coat of Duration.

Caulking:

Gaps between windows, doors, trim, and other through-wall openings can be filled with the appropriate caulk after priming the surface. Allow proper drying time before application of the finish.

Concrete, Masonry, Cement, Block:

All new surfaces must be cured according to the supplier's recommendations—usually about 30 days. Remove all form release and curing agents. Rough surfaces should be filled to provide a smooth surface. If painting cannot wait 30 days, allow the surface to cure 7 days and prime the surface with Loxon Concrete & Masonry Primer. Cracks, voids, and other holes should be repaired with an elastomeric patch or sealant. **Concrete masonry units (CMU)** - Surface should be thoroughly clean and dry. Air, material and surface temperatures must be at least 50°F (10°C) before filling. Use Loxon Acrylic Block Surfer. The filler must be thoroughly dry before topcoating.

Composition Board/Hardboard:

Because of the potential for wax bleeding out of the substrate, apply 1 coat of Exterior Oil-Based Wood Primer and then topcoat.

Stucco:

Remove any loose stucco, efflorescence, or laitance. Allow new stucco to cure at least 30 days before painting. If painting cannot wait 30 days, allow the surface to dry 7 days and prime with Loxon Concrete & Masonry Primer. Repair cracks, voids, and other holes with an elastomeric patch or sealant.

SURFACE PREPARATION

Mildew:

Prior to attempting to remove mildew, it is always recommended to test any cleaner on a small, inconspicuous area prior to use. Bleach and bleaching type cleaners may damage or discolor existing paint films. Bleach alternative cleaning solutions may be advised.

Mildew may be removed before painting by washing with a solution of 1 part liquid bleach and 3 parts water. Apply the solution and scrub the mildewed area. Allow the solution to remain on the surface for 10 minutes. Rinse thoroughly with water and allow the surface to dry before painting. Wear protective eyewear, waterproof gloves, and protective clothing. Quickly wash off any of the mixture that comes in contact with your skin. Do not add detergents or ammonia to the bleach-water solution.

Previously Painted Surfaces:

Spot prime bare areas with Duration, wait 4 hours, and paint the entire surface. Some specific surfaces require specialized treatment.

Steel:

Rust and mill scale must be removed using sandpaper, wire brush, or other abrading method. Bare steel must be primed the same day as cleaned.

Unpainted Surfaces:

Duration can be used as a self-priming coating on many bare surfaces. When used this way, the first coat of Duration acts like a coat of primer and the second coat provides the final appearance and performance.

***Vinyl or other PVC Building Products:**

Clean the surface thoroughly by scrubbing with warm, soapy water. Rinse thoroughly, if needed prime with appropriate white primer. Do not paint vinyl with any color darker than the original color or having a Light Reflective Value (LRV) of less than 56 unless VinylSafe® Colors are used. If VinylSafe colors are not used the vinyl may warp. Follow all painting guidelines of the vinyl manufacturer when painting. Only paint properly installed vinyl siding. Deviating from the manufacturer's painting guidelines may cause the warranty to be voided.

Wood, Plywood, Composition Board:

Sand any exposed wood to a fresh surface. Patch all holes and imperfections with a wood filler or putty and sand smooth. All patched areas must be primed.

Knots and some woods, such as redwood and cedar, contain a high amount of tannin, a colored wood extract. If applied to these bare woods, the first coat of DURATION may show some staining, but it will be trapped in the first coat. A second coat will uniform the appearance. If staining persists, spot prime severe areas with 1 coat of Exterior Oil-Based Wood Primer prior to using DURATION.

CAUTIONS

For Exterior use only

Protect from freezing

Non-photochemically reactive

Not for use on floors.

Before using, carefully read **CAUTIONS on label**

CRYSTALLINE SILICA, ZINC: Use only with adequate ventilation. To avoid overexposure, open windows and doors or use other means to ensure fresh air entry during application and drying. If you experience eye watering, headaches, or dizziness, increase fresh air, or wear respiratory protection (NIOSH approved) or leave the area. Adequate ventilation required when sanding or abrading the dried film. If adequate ventilation cannot be provided wear an approved particulate respirator (NIOSH approved). Follow respirator manufacturer's directions for respirator use. Avoid contact with eyes and skin. Wash hands after using. Keep container closed when not in use. Do not transfer contents to other containers for storage. **FIRST AID:** In case of eye contact, flush thoroughly with large amounts of water. Get medical attention if irritation persists. If swallowed, call Poison Control Center, hospital emergency room, or physician immediately. **DELAYED EFFECTS FROM LONG TERM OVEREXPOSURE.** Abrading or sanding of the dry film may release crystalline silica which has been shown to cause lung damage and cancer under long term exposure. **WARNING:** This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. **DO NOT TAKE INTERNALLY. KEEP OUT OF THE REACH OF CHILDREN.**

HOTW 08/31/2020 K32W00251 20 45
FRC, SP

CLEANUP INFORMATION

Clean spills, spatters, hands and tools immediately after use with soap and warm water. After cleaning, flush spray equipment with compliant cleanup solvent to prevent rusting of the equipment. Follow manufacturer's safety recommendations when using solvents.



Exterior Insulation and Finish Systems (EIFS)



Mike Luna

Published on June 28, 2022

Exterior Insulation and Finish Systems (EIFS) were first introduced in the United States in the 1960s to be used to build commercial buildings and have since expanded to homes. Even if you don't recognize the term EIFS, you've most likely seen them without realizing it. EIFS can be found on all kinds of buildings such as houses, apartments, grocery stores, government buildings, and more.

What are Exterior Insulation and Finish Systems?

The International Building Code defines an Exterior Insulation and Finish System (EIFS) in chapter 2, section 202 as a non-load bearing, exterior wall cladding system that consists of an insulation board attached either adhesively, mechanically, or both, to the substrate, an integrally reinforced base coat, and a textured productive finish coat. The system may include primers, surface sealers, and accessories such as trim, corner beads, and stops.

EIFS function as a barrier-type system and can help keep moisture from penetrating the external surfaces of the building envelope. A building's envelope consists of external wall materials and designs that are climate-appropriate, structurally sound, and are aesthetically pleasing. Some types of EIFS rely on an outer barrier to help protect against water penetration, while others are designed to include a secondary drainage plane behind the insulation.

EIFS are a multi-layered assembly typically composed of:

- Water-resistant barrier
- Adhesives to connect the substrate to the insulation
- Insulation board
- Mesh reinforcement
- Base coat
- Finish coat

Why Use Exterior Insulation and Finish Systems?

According to EIFS Industry Member Association (EIMA), EIFS provide many benefits over traditional finishing systems. The benefits promoted by the association include:

Energy Efficiency

EIFS can reduce air infiltration by as much as 55%. With walls being one of the greatest areas of heat/air conditioning loss, improving the insulation of the wall can be beneficial in terms of energy conservation. One study showed that an EIFS clad building helped reduce energy use by almost 45% over a twelve-month period.

Durability

Unlike the traditional stucco, most EIFS are made with 100% acrylic binder which make EIFS resistant to fading, chalking, and yellowing. This allows systems to maintain their original color and means that they will rarely need to be painted.

Even if the surface of the system is scratched, the color will appear the same beneath where the scratch has occurred. It also provides more flexibility, meaning that it is easy to mold around doorways, arches, and other openings. This flexibility also makes the system less susceptible to damage from environmental changes.

Impact Resistance

EIFS are sustainable, durable, and resilient, and EIFS can achieve high-impact resistance when built with heavier reinforcing mesh. The Federal Emergency Management Agency (FEMA) has recognized the durability of EIFS and has referenced their use for properties that can be threatened by high winds.

Code Compliance for Exterior Insulation and Finish Systems

To comply with building code requirements and customer needs, manufacturers of EIFS and EIFS components have a few options. They can provide test data demonstrating compliance with each relevant section of the building code, which typically includes, but is not limited to, the following standards:

Performance Characteristics

- ASTM E2568 – Standard Specification for PB Exterior Insulation and Finish Systems

Fire Testing

- ASTM E119 – Standard Test Methods for Fire Tests of Building Construction and Materials
- [ASTM E84](#) – Standard Test Method for Surface Burning Characteristics of Building Materials
- [NFPA 285](#) – Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Wall Assemblies

Moisture Testing

- ASTM D2247 – Standard Practice for Testing Water Resistance of Coatings in 100 % Relative Humidity
- ASTM E2570 – Standard Test Methods for Evaluating Water-Resistive Barrier (WRB) Coatings Used under Exterior Insulation and Finish Systems (EIFS) or EIFS with Drainage
- ASTM E331 – Standard test method for water penetration of exterior windows, skylights, doors, and curtain walls by uniform static air pressure difference

Weatherization Testing

- [ASTM G155](#) – Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials
- ASTM E330 – Standard test method for structural performance of exterior windows, doors, skylights and curtain walls by uniform static air pressure difference
- ASTM E2273 – Standard test method for determining the drainage efficiency of exterior insulation and finish systems (EIFS) clad wall assemblies

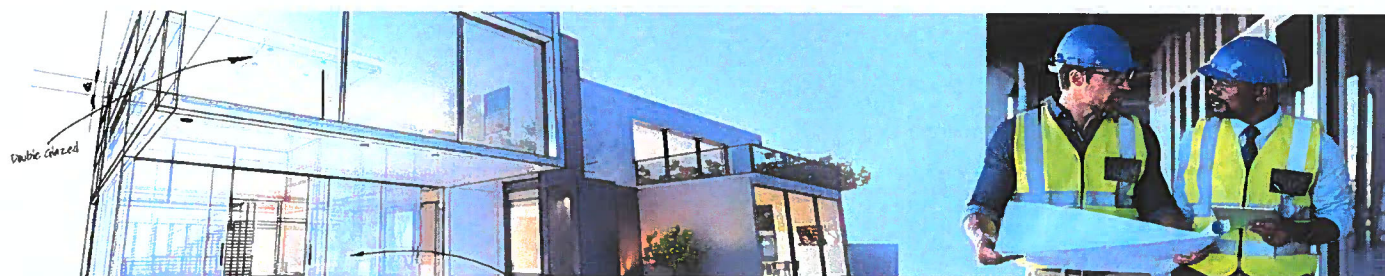
Alternatively, manufacturers who want to streamline the approval and building permitting process often work with an accredited third-party certification agency to develop a code compliance certification report, such as an ICC Evaluation Service ([ICC-ES](#)) Evaluation Report (ESR). Certification reports provide a public-facing summary of compliance for use by engineers, architects, and building officials to help them quickly understand how a product may be used and how it complies with all relevant code requirements.

| |

About ICC NTA, LLC: As an accredited third-party agency and part of the [International Code Council](#) (ICC) Family of Solutions, [ICC NTA](#) provides code evaluation, inspection, engineering, plan review, and product testing services, as well as independent quality and standards compliance verification for building product manufacturers. With offices, testing labs, and training facilities in Nappanee, Indiana and Bryan, Texas, ICC NTA serves residential and commercial builders, code officials, manufacturers, and suppliers throughout the building industry.

Sources:

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The International Code Council Family of Solutions

As the largest international association of building safety professionals, the Code Council offers solutions dedicated to providing businesses and municipalities with the tools needed to build safe, affordable and sustainable communities and buildings worldwide.

We have decades of knowledge that leads our thinking when developing codes, testing products, issuing certifications and developing technological solutions.



Codes & Standards

The Code Council connects building safety professionals from around the world to discuss building codes and standards. We work with you to understand and adopt modern codes and standards seamlessly, from technical support services to plan reviews and code opinions.



Discover more about Codes & Standards

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The Code Council offers product testing and evaluation solutions that ensure all building elements meet the highest standards and comply with code specifications. We've developed and built our evaluation and testing solutions to ensure manufacturers get safe and compliant products to market faster.



Discover more about Product Testing & Evaluation

Accreditation

Our solutions are recognized globally - ensuring safe, reliable products and services for several international standards. As an independent party, we verify that all product testing and evaluation meets the highest level of established quality, ethical, legal and technical standards.



Discover more about our Accreditation Solutions

Software & Technology

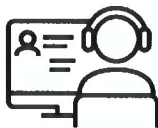
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Learn more about our Consulting Services

The International Code Council family of solutions includes



(Download a pdf or jpeg of this infographic)



About EIMA

Sustainability and energy conservation are critical issues, and Exterior Insulation and Finish Systems (EIFS) are proven solutions to today's design challenges. The mission of the EIFS Industry Members Association (EIMA) is the advancement and growth of EIFS in the United States. EIMA does this by promoting technical excellence through advocacy, industry standards, research, education and communication.

The only national organization solely dedicated to the EIFS industry, EIMA strives to provide a seamless flow of information to all of its stakeholders: suppliers, manufacturers, distributors, contractors, architects and owners.



What is EIMA?

Founded in 1981, the EIFS Industry Members Association (EIMA) is a national non-profit technical trade association comprised of leading suppliers, manufacturers, distributors, contractors, architects, related products manufacturers and suppliers, and other interested parties involved in the exterior insulation and finish systems (EIFS) industry.

Solving Industry Challenges

EIMA's core objective is to promote the advancement and growth of EIFS while providing outstanding industry representation and services to its members. EIMA develops technical, training, installation and design standards for use by architects, designers, code bodies and other technical associations.

EIMA monitors and positively influences government actions, and assures the long-term availability of qualified contractors. Over the years, many working relationships have been forged with national and regional contractor associations to address issues of common interest. In an effort to solve challenges facing the EIFS industry, EIMA actively encourages all elements of the construction community to work together and exchange information.

Assuring Standards of Quality

As an accredited ANSI standards organization, EIMA helps develop industry standards in an advisory capacity and educational programs that enable members to address important issues facing the EIFS and construction industries. It's Technical and Research Committee deals with a broad range of technical issues and represents the EIFS industry in negotiations with national building codes and standards agencies, as well as government regulators. In addition, the committee plans and implements research and testing programs, develops industry guideline specifications for EIFS, and presents at technical symposiums.



About EIFS:

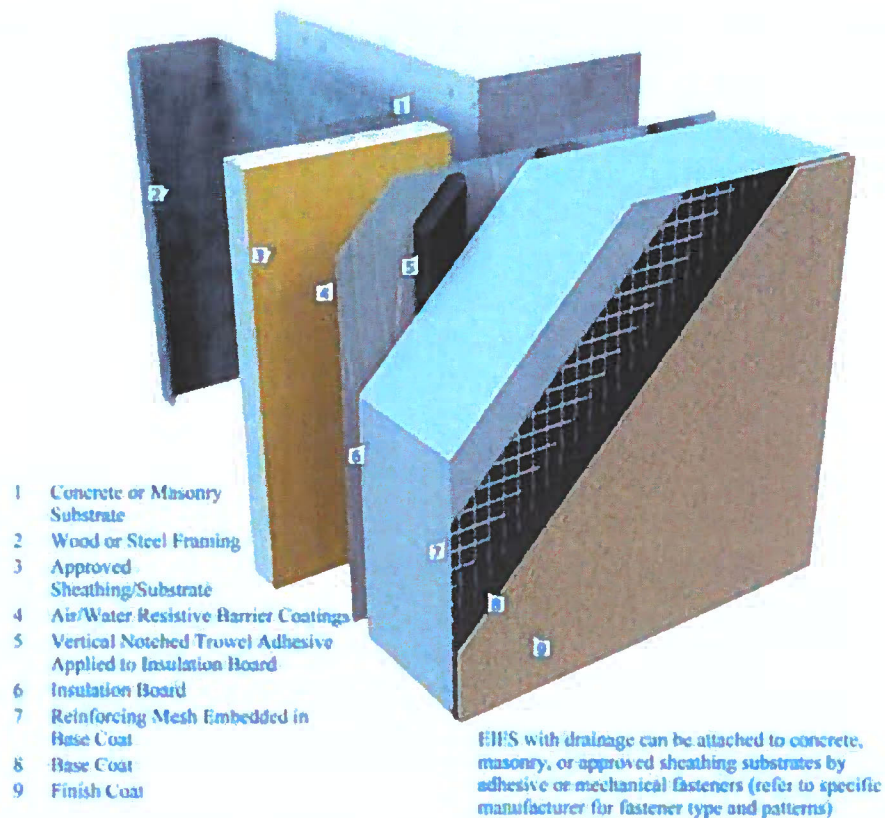
EIFS are...

Exterior Insulation and Finish Systems (EIFS) offer continuous insulation by design, allowing architects the design flexibility and aesthetics they require, while helping to meet the new energy codes. EIFS are continuous insulation.

According to the definitions of the International Building Code and ASTM International, an Exterior Insulation and Finish System (EIFS) is a nonload bearing, exterior wall cladding system that consists of an insulation board attached either adhesively or mechanically, or both, to the substrate; an integrally reinforced base coat; and a textured protective finish coat.

EIFS with Drainage, another EIFS system, is the predominate method of EIFS applied today. As the name implies, EIFS with Drainage helps to eliminate moisture before it has an opportunity to enter the wall cavity.

TYPICAL EIFS CONFIGURATION



EIFS were first introduced in the United States in the late 1960's, and were first used on commercial buildings, and later on homes. EIFS typically consist of the following components:

- A water-resistive barrier (WRB) that covers the substrate
- A drainage plane between the WRB and the insulation board that is most commonly achieved with vertical ribbons of adhesive applied over the WRB
- Insulation board typically made of expanded polystyrene (EPS) which is secured with an adhesive or mechanically to the substrate
- Glass-fiber reinforcing mesh embedded in the base coat
- A water-resistant base coat that is applied on top of the insulation to serve as a weather barrier
- A finish coat that typically uses colorfast and crack-resistant acrylic co-polymer technology.

EIFS today are one of the most tested and well researched claddings in the construction industry. Research, conducted by the Oak Ridge National Laboratory and supported by the Department of Energy, has validated that EIFS are the "best performing cladding" in relation to thermal and moisture control when compared to brick, stucco, and cementitious fiberboard siding. In addition EIFS is in full compliance with modern building codes which emphasize energy conservation through the use of CI (continuous insulation) and a continuous air barrier. Both these components are built into today's EIFS products to provide maximum energy savings, and reduced environmental impact over the life of the structure. Along with these functional advantages come virtually unlimited color, texture, and decorative choices to enhance curb appeal and enjoyment of almost any home or structure.



Boston Hill Center

Marion, IN | Renovation

Project Specifications:

Built in the late 1800s, the Boston Hill Center, a two-story retail space, was in dire need of restoration. The exterior brick façade was crumbling and allowing moisture infiltration. The owners wanted to restore weather tightness and energy performance while balancing a new aesthetic and the historical integrity of the structure.

The design and construction team worked together to design and implement a custom EIFS cladding solution. A dark gray acrylic finish was used for the bulk of the façade, with an EIFS brick finish added to vertical columns to mimic the brick that was on the existing building. Crumbling tiles at the bottom of the structure were replaced with an EIFS brick finish in a custom 8' by 16" size that replicates the look of limestone. Now the Boston Hill Center stands out as a modern shopping area while still showcasing its historic roots.

Manufacturer: [Dryvit Systems, Inc.](#)

Contractor: [Little Construction](#)

Distributor: Marshall Building Supplies

Owner/Developer: Boston Hill Center

General Contractor: JG Bowers



Finebuild

100% acrylic polymer

PACKAGING

19 L (5 gal.) pail

APPROXIMATE COVERAGE RATE

As a base coat only: 26 m² (280 ft²) per pail with standard mesh

As leveling agent: 10 m² (110 ft²) per pail at 3.2 mm (1/8") thick; 5 m² (55 ft²) per pail at 6.4 mm (1/4") thick

WORKING TIME

Approximately 1 hour after mixing, depending on ambient temperature and humidity.

CURING TIME

Protect from rain and temperatures of less than 4 °C (40°) for a minimum of 24 hours. Higher humidity and/or cooler temperatures may require longer protection. Allow to cure 24 hours prior to finish application. Finebuild achieves full strength in approximately 28 days.

STORAGE

Store in original containers at temperatures not less than 4 °C (40 °F) or greater than 43 °C (110 °F). Store out of direct sunlight and protect from weather. Do not stack pallets.

SHELF LIFE

Approximately 2 years, properly stored in original containers.



FEATURES

Smooth, creamy consistency

Familiar 1 to 1 mix ratio

100% acrylic polymer formula

High build

Water-based

BENEFITS

Easy to trowel on to achieve quality mesh embedment; less drag reduces applicator fatigue

Easy to mix quickly and accurately on job-site

Excellent adhesion, durability, flexibility and weather resistance

Levels polyiso insulation, concrete or masonry substrates quickly; saves time

Safe for workers and environment; easy clean up

Finebuild is a 100% acrylic polymer that is field mixed with Type I or I-II Portland cement to produce a cementitious leveling base coat for Finestone Pebbletex or Quik Clad Class PB EIFS or a leveling agent for masonry and concrete substrates. Its high-build formula allows application up to 1/4" in one coat. After mixing with cement, Finebuild's creamy consistency assures smooth, efficient troweling.

RECOMMENDED USES

AS A BASE COAT

To embed reinforcing mesh and create the base coat system in Finestone Pebbletex Class PB EIFS over approved insulation board or in Finescreen Cement Board Stucco Systems over approved sheathing.

AS A LEVELER

To level surfaces of concrete or masonry substrates in preparation for installation of Pebbletex EIFS or Pebbletex Finish.

Note: See Finestone Approved Insulation Boards for comprehensive recommendations of appropriate products.

LIMITATIONS

1. Do not use on wood or metal surfaces.
2. Do not use on painted surfaces.
3. Not recommended for adhering MEPS insulation board to any substrate or for adhering MEPS details to MEPS insulation board.
4. Install only when temperatures will be at least 4 °C (40 °F) and higher for at least 24 hours.
5. Protect from rain for at least 24 hours.

MIXING

1. At the time of use, mix Finebuild in a 1 to 1 ratio by weight with Type I or Type I-II Portland cement (ASTM C150). The Portland cement must be fresh and free of lumps.
2. For best results, mix at 400-500 rpm, using a heavy duty 13 mm (1/2") drill with a jiffly-type paddle (Goldblatt Jiffly Mixer No. 15311 H7 or similar).
3. Open the pail of Finebuild and stir the material until thoroughly blended. Mix 1 part Finebuild with 1 part Portland cement in clean, 19-L (5-gal.) plastic pail. Add Portland cement to Finebuild in small increments until thoroughly blended. Let the mixture sit for 5 minutes then stir to a creamy consistency. Small amounts of clean, potable water, up to 0.9 L (30 oz.) per half pail, may be added to achieve the desired workability.

4. Do not overmix. Excessive stirring will cause faster setting of the Finebuild and significantly reduce working time.
5. Do not exceed a 1 to 1 ratio of Finebuild to Portland cement. Excessive amounts of cement in the mixture will reduce the strength of the product and cause cracking and efflorescence.
6. Do not add accelerators, retarders or other admixtures to the Finebuild.

APPLICATION / AS A BASE COAT

SURFACE PREPARATION

The Finestone Insulation Board must be well adhered to the wall. All gaps between the insulation board must be filled with slivers of insulation. Rasp the wall to a flat surface. Install all aesthetic joints and EPS details to the wall.

EQUIPMENT

For base coat application, use a stainless steel plastering trowel.

APPLICATION PROCEDURES

For the mechanically attached systems, first use the Finebuild to spot fasteners and level irregularities so that the insulation is flush. Then over the face of the sheathing or insulation board apply Finebuild in a thickness adequate to properly embed the Reinforcing Mesh, approximately 1.6 mm (1/16") for Standard Mesh and 3.2 mm (1/8") for Hi-Impact Mesh. Immediately lay the Reinforcing Mesh into the wet Finebuild and smooth the surface until the Reinforcing Mesh is totally embedded. The color of the mesh must not be visible. In some applications, a second coat of Finebuild may be needed to cover reinforcing mesh.

Allow to cure for at least 24 hours before applying finish. Protect from rain and from temperatures less than 4 °C (40 °F) for 24 hours.

APPLICATION / AS A LEVELER

SURFACE PREPARATION

Existing unit masonry and concrete substrates must be sound and free of paint, dirt, grease, oil, and efflorescence. New concrete must have cured for a minimum of 28 days and be free of form release agents and curing compound.

EQUIPMENT

Use a stainless steel plastering trowel.

APPLICATION PROCEDURES

To level unit masonry so that joints are not visible, apply Finebuild over the block face, filling joints up to 6.4 mm (1/4") deep and covering block surface with a smooth coating, an average 1.6 mm (1/16") thick. If necessary, repeat process over first application after it has dried.

To level concrete substrates, grind down irregularities higher than 6.4 mm (1/4"). Fill voids of up to 6.4 mm (1/4") with Finebuild. Then apply a leveling coat of Finebuild over the concrete substrate to a smooth 1.6 mm (1/16") thick coating.

Allow to cure for at least 24 hours before applying finish. Protect from rain and from temperatures less than 4 °C (40 °F) for 24 hours.

CLEAN UP

Remove wet material from tools or other surfaces with soap and water. Dry material must be mechanically removed.

TECHNICAL SUPPORT

Consult Master Builders Solutions Technical Services Department at +1 (800) 589-1336 for specific recommendations concerning all other applications. Consult the Wall Systems website at finestone.master-builders-solutions.com/en, for additional information about products and systems and for updated literature.

HEALTH, SAFETY AND ENVIRONMENTAL

Read, understand and follow all Safety Data Sheets and product label information for this product prior to use. The SDS can be obtained by visiting finestone.master-builders-solutions.com/en, e-mailing your request to mbsbscst@mbcc-group.com or calling +1 (800) 433-9517. Use only as directed.

IN CASE OF EMERGENCY: Call CHEMTEL +1 (800) 255-3924 or if outside the US or Canada, +1 (813) 248-0585.

LIMITED WARRANTY NOTICE

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For the most current version of this literature, please visit our website at finestone.master-builders-solutions.com/en.

Reinforcing Mesh

Balanced, open-weave glass fiber reinforcing mesh

COLOR

Finestone meshes are white, except 4" and 9" Sheathing Fabric which are gray.

DESCRIPTION

Balanced, open-weave glass fiber reinforcing mesh, twisted multi-end strands treated for compatibility with Finestone Base Coats. A variety of Reinforcing Mesh types are available to meet the different requirements of impact resistance at specific wall locations. Finestone Self-Adhering Mesh tape, in addition to having the same properties as described above, is coated with a pressure sensitive adhesive.

USES

1. For use with all Pebbletex Wall Systems and Pebbletex D, D7 and D10 Wall Systems, Finestone Surfacing Systems and Finestone Cement-Board Stucco Systems and for EPS shapes on Finestone Stucco Wall System that use either EPS or polyisocyanurate insulation boards and for use over EPS shapes on all Finestone Wall Systems.
2. For above ground use with all Finestone Surfacing Systems.
3. Finestone Self-Adhering Mesh tape only: reinforces Finestop over acceptable sheathing joints and reinforces Finestop over rough openings and at terminations.
4. Fiberlath Mesh only: reinforces and provides a keying device for base coat on Impact R Class PM EIFS.
5. 4", 9" Sheathing Fabric only: reinforces Finestop RA over acceptable sheathing joints and reinforces Finestop RA over rough openings and terminations.

APPLICATION

CORNER MESH:

Install Corner Mesh at exterior corners. Apply mixed Base Coat to insulation board at outside corners. Immediately embed the Corner Mesh into the Base Coat by troweling from the corner; butt edges and avoid wrinkles. After Base Coat is dry and hard, apply a layer of Standard, Intermediate 6 or 12 Reinforcing Mesh over the entire surface of the Corner Mesh.

STANDARD, INTERMEDIATE 6 AND 12 REINFORCING MESHES:

Fully embed clean mesh into wet base coat and smooth with a trowel so as to achieve mesh embedment with no mesh color visible. Double layers of Standard and Intermediate 6 mesh must be applied at all inside and outside corners. Window corners also require secondary reinforcement as per details. Lap Reinforcing Mesh 64 mm (2 1/2") minimum at edges.

ADVANTAGES

Alkali resistance, compatibility with all Finestone Base Coats; maintains tensile strength and flexibility for long-term durability; all glass fiber reinforcing mesh complies with ASTM E2098

Finestone Self-Adhering Mesh TAPE; simplifies and speeds application of Finestop Water-Resistive Barrier

STRONG 15 AND HI-IMPACT 20 REINFORCING MESHES:

Embed Strong 15 or Hi-Impact 20 Reinforcing Mesh in wet base coat by troweling from the center to the edges. Butt strong 15 or Hi-Impact 20 Reinforcing Mesh at adjoining edges, do not use to backwrap or bend around corners. Butt strong 15 or Hi-Impact 20 Reinforcing Mesh at adjoining edges of Corner Mesh. Ensure Reinforcing Mesh is free of wrinkles and embedded in Base Coat so that no Reinforcing Mesh color is visible. After Base Coat with embedded Reinforcing Mesh is dry and hard (normally 8 to 10 hours), apply a layer of Standard or Intermediate 6 Reinforcing Mesh over the entire surface to achieve total nominal Base Coat/Reinforcing Mesh thickness of 2.4 mm (3/32").

SELF-ADHERING MESH TAPE:

Substrate shall be acceptable to Master Builders Solutions Wall Systems. Substrate shall be dry, clean, sound and free of release agents, paint or other contaminants. Verify that the substrate is flat, free of fins or anything that would hinder adhesion of the mesh. Unsatisfactory conditions shall be reported to the general contractor and corrected before application of the Finestone Wall System. Finestone Self-Adhering Mesh tape may be applied direct from the roll. Center the mesh over the area to be reinforced. Firmly press the mesh onto the surface while unrolling. Avoid creating wrinkles and fish-mouths. If they occur cut out the area with a utility knife and re-apply. Overlap ends of Finestone Self-Adhering Mesh tape a minimum of 63.5 mm (2 1/2"). Cover Self-Adhering Mesh tape with a layer of Finestop.

4", 9" SHEATHING FABRIC:

Apply mixed Finestop RA at all sheathing, joints, terminations, inside and outside corners and rough openings. Immediately place and center 4" or 9" Sheathing Fabric over wet Finestop RA at outside corners and rough openings. Ensure fabric extends evenly on both sides of the sheathing joint. Lap mesh 63.5 mm (2 1/2") minimum at intersections. Allow to dry to the touch, before applying Finestop RA to entire wall surface.

LIMITATIONS

1. Protect Finestone Reinforcing Mesh during transportation and installation to avoid physical damage.
2. Store Finestone Reinforcing Mesh in a cool, dry place protected from exposure to moisture.
3. See Finestone Specifications and Details for complete information on installation of Finestone Wall Systems.
4. Apply in temperatures of 4 °C (40 °F) and higher.

TECHNICAL DATA

ASTM E 695 IMPACT RESISTANCE:

No cracks in the exterior insulation and finish system from a drop height of 1.83 m (6'). Maximum indentation did not exceed 8.5 mm (0.33").

EIMA IMPACT STANDARD 101.86:

Standard/Base Coat	Standard Impact Resistance	[2.8–5.6 J (25–49 inch-lbs)]
Intermediate 6/Base Coat	Standard Impact Resistance	[2.8–5.6 J (25–49 inch-lbs)]
Intermediate 12/Base Coat	Medium Impact Resistance	[5.7–10.1 J (50–89 inch-lbs)]
Intermediate 12 & Standard/Base Coat	High Impact Resistance	[10.2–17.0 J (90–150 inch-lbs)]
Strong 15 & Standard/Base Coat	Ultra High Impact Resistance	[over 17.0 J (150 inch-lbs)]
Hi-Impact 20 & Standard/Base Coat	Ultra High Impact Resistance	[over 17.0 J (150 inch-lbs)]

DADE COUNTY PROTOCOL 201 IMPACT TESTS (LARGE AND SMALL MISSILE):

Passed with various wall assemblies. See technical bulletin, *EIFS and Coatings Tests Results*, for details.

STANDARD REINFORCING MESH:

A single-layer application of Standard Reinforcing Mesh provides reinforcement for wall system areas not expected to receive abnormal abuse or traffic.

Weave:	Leno
Weight:	142 g/m ² (4.2 oz/yd ²) +/- 5%
Fabric Count:	6 x 5
Packaging:	96.5 cm x 45.7 m (38" x 150') roll: 475 sf - 44.1 m ² 9" Starter rolls: 24.1 cm x 45.7 m (9" x 150'): 112.5 sf - 11.0 m ² 122 cm (48" width): 600 sf - 55.8 m ² 183 cm (72" width): 900 sf - 83.6 m ² 244 cm (96" width): 1200 sf - 111.51m ²

INTERMEDIATE 6 REINFORCING MESH:

A single-layer application of Intermediate 6 provides reinforcement for wall system areas not expected to receive abnormal abuse or traffic.

Weave:	Leno
Weight:	190 g/m ² (5.6 oz/yd ²) +/- 5%
Fabric Count:	6 x 5
Packaging:	96.5 cm x 45.7 m (38" x 150') roll: 475 sf - 44.1 m ²

INTERMEDIATE 12 REINFORCING MESH:

A versatile, intermediate weight mesh. While capable of being used for a complete single-layer application, Intermediate 12 is often used in conjunction with Standard or Intermediate 6 to offer added impact resistance at specific areas (i.e. around doors or walkways).

Weave: Leno
Weight: 373 g/m² (11 oz/yd²) +/- 5%
Fabric Count: 16 x 12
Packaging: 96.5 cm x 22.8 m (38" x 75') roll: 237.5 sf - 22.1 m²

STRONG 15 REINFORCING MESH:

A medium/heavy-weight mesh intended for areas expected to receive traffic and abuse. strong 15 has special installation procedures including:

1. Edges are butted (not overlapped).
2. strong 15 cannot be used for backwrapping and will not bend around corners.
3. An application of strong 15 requires a continuous and lapped Standard or Intermediate 6 application as an overlay.

Weave: Hurl Leno
Weight: 508 g/m² (15 oz/yd²) + 5%
Fabric Count: 4 x 4
Packaging: 96.5 cm x 22.8 m (38" x 75') roll: 237.5 sf - 22.1 m²

HI-IMPACT 20 REINFORCING MESH:

A heavy-weight mesh intended for areas expected to receive a high degree of traffic and abuse. Hi-Impact 20 has special installation procedures including:

1. Edges are butted (not overlapped).
2. Hi-Impact 20 cannot be used for backwrapping and will not bend around corners.
3. An application of Hi-Impact 20 requires a continuous and lapped Standard or Intermediate 6 application as an overlay.

Weave: Hurl Leno
Weight: 675 g/m² (20.0 oz/yd²) +/- 5%
Fabric Count: 4 x 3
Packaging: 99.0 cm x 22.8 m (39" x 75') roll: 243.75 sf - 22.6 m²

CORNER MESH:

An intermediate-weight mesh for use at exterior corners when added impact resistance or clean, crisp corners are desired. Corner Mesh is pre-marked for easy bending. An overlay of Standard, Intermediate 6 or 12 is required when Corner Mesh is used.

Weave: Plain or Hurl
Weight: 304 g/m² (9.0 oz/yd²) +/- 5%
Fabric Count: 12 x 4
Packaging: 22.9 cm x 45.7 m (9" x 150') roll: 112.5 sf - 10.47 m²

SELF-ADHERING REINFORCING MESH TAPE:

A standard weight mesh coated with a pressure sensitive adhesive and used with Finestop water-resistive barrier as reinforcement over acceptable sheathing joints, rough openings and at terminations.

Weave: Leno
Weight: 169 g/m² (5 oz/yd²) +/- 10%
Packaging: 4" Rolls: 10.2 cm x 45.7 m (4" x 150'): 50 sf - 4.66 m²
9" Rolls: 22.9 cm x 45.7 m (9" x 150'): 112.5 sf - 10.47 m²

4", 9" SHEATHING FABRIC:

4", 9" sheathing fabric is used with Finestop RA air/water-resistive barrier as reinforcement over acceptable sheathing joints, rough openings and at terminations.

Packaging: 4" Sheathing Fabric: 10.2 cm x 54.8 m (4" x 180 ft) roll: 60 sf - 5.59 m²
9" Sheathing Fabric: 22.9 cm x 54.8 m (9" x 180 ft) roll: 135 sf - 12.55 m²

HEALTH, SAFETY AND ENVIRONMENTAL

Read, understand and follow all Safety Data Sheets and product label information for this product prior to use. The SDS can be obtained by visiting finestone.master-builders-solutions.com/en, e-mailing your request to mbsbscst@mbcc-group.com or calling +1 (800) 433-9517. Use only as directed.

IN CASE OF EMERGENCY: Call CHEMTEL +1 (800) 255-3924 or if outside the US or Canada, +1 (813) 248-0585.

TECHNICAL SUPPORT

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UL Evaluation Report

UL ER40338-01

Issued: December 31, 2020

Revised: October 15, 2021

Visit UL, LLC's [Product iQ™ database](#) for the status of this Report.

UL Category Code: ULEX

CSI MasterFormat®

DIVISION: 06 00 00 - WOOD, PLASTICS, AND COMPOSITES

Sub-level 2: 06 12 00 - Structural Panels

Sub-level 3: 06 12 19 - Shear Wall Panels

Sub-level 2: 06 16 00 - Sheathing

DIVISION: 07 00 00 - THERMAL AND MOISTURE PROTECTION

Sub-level 2: 07 20 00 - Thermal Protection

Sub-level 3: 07 21 00 - Thermal Insulation

Sub-level 4: 07 21 13 - Board Insulation

Sub-level 3: 07 22 00 - Roof and Deck Insulation

Sub-level 4: 07 22 16 - Roof Board Insulation

Sub-level 3: 07 25 00 - Weather Barriers

Sub-level 3: 07 27 00 - Air Barriers

DIVISION: 31 00 00 - Earthworks

Sub-level 3: 31 23 00 - Excavation and Fill

Sub-level 4: 31 23 23 - Fill

COMPANY:

THERMAFOAM OPERATING, LLC

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www.R-Control.com



1. SUBJECT:

R-CONTROL® INSULATION BOARDS

R-CONTROL® MAX INSULATION BOARDS

THERMASHIELD INSULATION BOARDS

R-CONTROL® GEOFOAM BLOCK

R-CONTROL® NAILBASE

R-CONTROL® NAILBASE 2Ci

R-CONTROL® NAILBASE 3Ci

Throughout this report, unless specifically indicated otherwise:

- The reference to R-Control Insulation Boards and ThermaShield Insulation Boards will also apply to R-Control Insulation Boards and ThermaShield Insulation Boards with Perform Guard.
- The reference to R-Control Geofoam Blocks will apply to R-Control Geofoam Blocks with Perform Guard.

2. SCOPE OF EVALUATION:

- 2018 and 2015 *International Building Code* ® (IBC)
- 2018 and 2015 *International Residential Code* ® (IRC)
- 2018 and 2015 *International Energy Code* ® (IECC)
- ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12)
- ICC-ES Acceptance Criteria for Termite Resistant Foam Plastic (AC239)
- ICC-ES Acceptance Criteria for Foam Plastic Sheathing Panels used as Water Resistive Barriers (AC71)
- ICC-ES Acceptance Criteria for Quality Documentation (AC10)

The products were evaluated for the following properties:

R-Control Insulation Boards:

- Surface Burning Characteristics (UL723)
- Physical Properties (ASTM C578)
- Physical Properties – WSG Insulation only (ASTM E2430)
- Roof Deck Construction Material with Resistance to Internal Fire Exposure (UL1256)
- Roofing Systems for Exterior Fire Exposure (UL790)
- Uplift Tests For Roof Covering Systems (UL1897)
- Flammability Testing for Use in Attics and Crawl Spaces (AC12, App. A and B)
- Termite Resistance –Insulation Boards with Perform Guard (AC239)
- For Use on Exterior Commercial Walls (NFPA 285)

R-Control MAX:

- Surface Burning Characteristics (UL723)
- Physical Properties (ASTM C578)
- Roof Deck Construction Material With Resistance to Internal Fire Exposure (UL1256)
- Roofing Systems for Exterior Fire Exposure (UL790)
- Uplift Tests for Roof Covering Systems (UL1897)
- Flammability Testing for Use in Attics and Crawl Spaces (AC12, App. A and B)
- Termite Resistance –R-Control MAX Insulation Board with Perform Guard only (AC239)
- For Use on Exterior Commercial Walls (NFPA 285)

THERMASHIELD Insulation Boards:

- Surface Burning Characteristics (UL723)
- Physical Properties (ASTM C578)
- Roofing Systems for Exterior Fire Exposure (UL790)
- Air Barrier (ASTM E2178)
- Flammability Testing for Use in Attics and Crawl Spaces (AC12, App. A and B)
- Water-resistive Barrier (AC71)
- Termite Resistance –Insulation Boards with Perform Guard (AC239)

R-Control Geofoam Blocks:

- Surface Burning Characteristics (UL723)
- Physical Properties (ASTM D6817)
- Foam Plastic - Special Approval (UL1715)
- Termite Resistance - Geofoam Blocks with Perform Guard only (AC239)

R-Control Nailbase:

- Surface Burning Characteristics –Insulation Component (UL723)
- Physical Properties –Insulation Component (ASTM C578)
- Roofing Systems for Exterior Fire Exposure (UL790)
- Uplift Tests for Roof Covering Systems (UL1897)

R-Control Nailbase 2-Ci:

- Surface Burning Characteristics –Insulation Component (UL723)
- Physical Properties –Insulation Component (ASTM C578)
- Roofing Systems for Exterior Fire Exposure (UL790)
- Uplift Tests for Roof Covering Systems (UL1897)

R-Control Nailbase 3-Ci:

- Surface Burning Characteristics –Insulation Component (UL723)
- Physical Properties –Insulation Component (ASTM C578)
- Roofing Systems for Exterior Fire Exposure (UL790)
- Uplift Tests for Roof Covering Systems (UL1897)
- Water Resistive Barrier –Insulation Component (AC71)
- Air Barrier –Insulation Component (ASTM E2178)

Table 1 – Properties Evaluated

Properties Evaluated	R-Control Insulation Boards	R-Control MAX	Film Faced R-Control Insulation Boards	R-Control Geofoam Blocks	R-Control Nailbase, R-Control Nailbase 2-Ci, R-Control Nailbase 3-Ci
Surface Burning Characteristics	X	X	X	X	X³
Physical Properties (ASTM C578)	X	X	X		X
Physical Properties (ASTM D2430)	X¹				
Physical Properties (ASTM D6817)				X	
Roofing Systems for Exterior Fire Exposure	X	X	X		X
Uplift Tests for Roof Covering Systems	X	X	X		X
Flammability Testing for Use in Attics and Crawl Spaces	X	X	X		
Termite Resistance ²	X	X	X	X	
Water-resistive Barrier			X		X⁴
Air Barrier			X		X⁴
Foam Plastic - Special Approval	X	X		X	
Exterior Commercial Walls	X	X			

¹ Only R-Control WSG Insulation Boards

² Only the products with Perform Guard have been evaluated for Termite Resistance

³ Foam plastic component only

⁴ Applicable to R-Shield Nailbase 3-Ci only

3. REFERENCED DOCUMENTS

■ ICC-ES:

- ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12)
- ICC-ES Acceptance Criteria for Quality Documentation (AC10)
- ICC-ES Acceptance Criteria for Termite Resistant Foam Plastic (AC239)

■ UL:

- UL723 (ASTM E84), Test for Surface Burning Characteristics of Building Materials
- UL790 (ASTM E108), Standard Test Methods for Fire Tests of Roof Coverings
- UL1256, Standard for Fire Test of Roof Deck Constructions
- UL 1897, Uplift Tests for Roof Covering Systems
- UL 1715, Fire Test of Interior Finish Material

■ ASTM:

- ASTM C578, Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation
- ASTM D6817, Standard Specification for Rigid Cellular Polystyrene Geofoam
- ASTM D7180, Standard Guide for Use of Expanded Polystyrene (EPS) Geofoam in Geotechnical Projects
- ASTM D7557, Standard Practice for Sampling of Expanded Polystyrene Geofoam Specimens
- ASTM E2178, Standard Test Method for Air Permeance of Building Materials
- ASTM E2430, Standard Specification for Expanded Polystyrene (EPS) Thermal Insulation Boards for Use in Exterior Insulation and Finish Systems (EIFS)

■ U.S. Department of Commerce:

- DOC PS-2, Performance Standard for Wood-Based Structural-Use Panels

■ NFPA:

- NFPA 285, Standard Fire Test for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Assemblies Containing Combustible Components

4. USES

4.1 R-Control Insulation Boards:

R-Control and R-Control MAX Insulation Boards are used as nonstructural insulation on the interior or exterior of above grade walls, on the interior or exterior of below grade walls, below concrete slabs, around concrete slab edges, or as roof insulation. Installation shall be in accordance with Section 6.2 of this report.

The insulation boards may be used on walls in attics and crawl spaces when installation is in accordance with Section 6.2.2 of this report.

4.2 R-Control Geofoam Blocks:

R-Control Geofoam Blocks are used as lightweight structural fill in floor cavities. Installation shall be in accordance with Section 6.3 of this report.

4.3 R-Control Nailbase:

R-Control Nailbase is used as insulation on the interior or exterior of above grade walls or as roof insulation. Installation shall be in accordance with Section 6.4 of this report.

4.4 R-Control Nailbase 2-Ci:

R-Control Nailbase 2-Ci is used as insulation on the interior or exterior of above grade walls. Installation shall be in accordance with Section 6.5 or Section 6.7 of this report.

4.5 R-Control Nailbase 3-Ci:

R-Control Nailbase 3-Ci is used as insulation on the interior or exterior of above grade walls. Installation shall be in accordance with Section 6.6 or Section 6.8 of this report.

The insulation may be used as an alternative to the water-resistive barrier specified in Section 1403.2 of the 2018 IBC, Section 1404.2 of the 2015 IBC, and Section R703.2 of the 2018 and 2015 IRC when installation is in accordance with Section 6.8 of this report.

The insulation may be used as an air barrier to limit air infiltration in accordance with Section C402.5.1 of the 2018 and 2015 IECC when installation is in accordance with Section 6.6 of this report.

5. PRODUCT DESCRIPTION

5.1 General:

R-Control Insulation Boards, ThermaShield Insulation Boards, and R-Control Geofoam Blocks described in 5.2, 5.3, and 5.4 are molded, closed-cell expanded polystyrene having a flame spread index not exceeding 25 and a smoke developed index not exceeding 450 for thicknesses up to 5 inches for the R-Control Insulation Boards and R-Control Geofoam Blocks and for thicknesses up to 4 inches for ThermaShield, when tested in accordance with UL723 (ASTM E84) as required by Section 2603.3 of the 2018 and 2015 IBC or Section R316.3 of the 2018 and 2015 IRC, as applicable.

The following products are treated for termite resistance in accordance with Section 2603.9 of the 2018 IBC and Section 2603.8 of the 2015 IBC, or Section R318.4, of the 2018 and 2015 IRC, as applicable:

- R-Control Insulation Boards with Perform Guard
- ThermaShield Insulation Boards with Perform Guard
- R-Control Geofoam with Perform Guard

R-Control Nailbase, R-Control Nailbase 2-Ci and R-Control Nailbase 3-Ci described in 5.6, 5.7, and 5.8 are insulation products consisting of R-Control Insulation Boards laminated to Oriented Strand Board (OSB). The OSB facing is $\frac{7}{16}$ -inch thick in compliance with U.S. Department of Commerce, DOC PS-2, Performance Standard for Wood-Based Structural-Use Panels.

5.2 R-Control Insulation Boards:

R-Control-50, 100, 130, 150, 250, 400, and 600 Insulation Boards are manufactured at minimum densities of 0.70, 0.90, 1.15, 1.35, 1.80, 2.40, and 3.00 lbs/ft³ and comply with ASTM C578 designations of Type XI, Type I, Type VIII, Type II, Type IX, Type XIV, and Type XV, respectively.

See Table 2 for thermal resistance and Table 3 for potential heat.

Table 2 – Thermal Resistance of R-Control Insulation Boards

PRODUCT	ASTM C578 Type	DENSITY, min., lb/ft ³	THERMAL RESISTANCE ¹ , min., °F-ft ² -h/Btu
R-Control 50	XI	0.70	3.1
R-Control 100	I	0.90	3.6
R-Control 130	VIII	1.15	3.8
R-Control 150	II	1.35	4.0
R-Control 250	IX	1.80	4.2
R-Control 400	XIV	2.40	4.2
R-Control 600	XV	3.00	4.3

¹ Thermal resistance (R) values are based on tested values at 1-inch thickness and 75°F mean temperature and must be multiplied by the installed thickness for thicknesses greater than 1 inch.

Table 3 – Potential Heat of R-Control Insulation Boards

PRODUCT	ASTM C578 TYPE	HEAT POTENTIAL ¹ , Btu/ft ²	HEAT POTENTIAL ¹ , mJ/m ²
R-Control 50	XI	1165	13.2
R-Control 100	I	1500	17.0
R-Control 130	VIII	1875	21.3
R-Control 150	II	2250	25.5
R-Control 250	IX	3000	34.0
R-Control 400	XIV	4000	45.4
R-Control 600	XV	5000	56.8

¹Based on 1 in. thickness

5.3 R-Control MAX Insulation Boards:

R-Control MAX 100, 130, 150, 200, and 250 Insulation Boards are manufactured at minimum densities of 0.90, 1.15, 1.35, 1.45, and 1.80 lbs/ft³, respectively and comply with ASTM C578 designations of Type I, Type VIII, Type II, Type II, and Type IX, respectively. See Table 4 for applicable thermal resistance values for each Type.

Table 4 – Thermal Resistance of R-Control IMAX Insulation Boards

PRODUCT	ASTM C578 Type	DENSITY, min., lb/ft ³	THERMAL RESISTANCE ¹ , min., °F-ft ² -h/Btu
R-Control MAX 100	I	0.90	5.0
R-Control MAX 130	VIII	1.15	5.0
R-Control MAX 150	II	1.35	5.0
R-Control MAX 250	IX	1.80	5.0

¹Thermal resistance (R) values are based on tested values at 1-1/16 inch thickness and 75°F mean temperature.

5.4 ThermaShield Insulation Boards:

ThermaShield 100, 130, 150, and 250 Insulation Boards consist of R-Control Insulation Boards laminated with polyethylene or polyester film on both faces. The facers may also be a metalized polypropylene film. ThermaShield 100, 130, 150, and 250 are manufactured at minimum core densities of 0.90, 1.15, 1.35, and 1.80lbs/ft³ and comply with ASTM C578 designations Type I, Type VIII, Type II, and Type IX, respectively. R-Control MAX 100, 130, 150, and 250 Insulation Boards may be used as an alternate to ThermaShield.

5.5 R-Control Geofoam Blocks:

R-Control Geofoam EPS12, EPS15, EPS19, EPS22, EPS29, EPS39, AND EPS46 blocks are manufactured at minimum densities of 0.70, 0.90, 1.15, 1.35, 1.80, 2.40, and 2.85 lbs/ft³ and comply with ASTM D6817 designations of EPS12, EPS15, EPS19, EPS22, EPS29, EPS39, and EPS46, respectively. See Table 4.

Table 5 – Compressive Resistance of R-Control Geofoam Block

PRODUCT	ASTM D6817 Type	DENSITY, min., lb/ft ³	COMPRESSIVE RESISTANCE AT 1% STRAIN, min., psi
R-Control EPS12	EPS12	0.70	2.2
R-Control EPS15	EPS15	0.90	3.6
R-Control EPS19	EPS19	1.15	5.8
R-Control EPS22	EPS22	1.35	7.3
R-Control EPS29	EPS29	1.80	10.9
R-Control EPS39	EPS39	2.40	15.0
R-Control EPS46	EPS46	2.85	18.6

5.6 R-Control Nailbase:

R-Control Nailbase consists of R-Control 100 laminated to a ⁷/₁₆-inch OSB facing. R-Control Nailbase is available in thicknesses of 2, 4, 6, 7-³/₄, 9-³/₄, and 11-³/₄ inches. R-Control MAX may be used as an alternate insulation component in Nailbase products.

Table 5 – Thermal Resistance of R-Control Nailbase

THICKNESS, in.	THERMAL RESISTANCE ¹ , min., °F-ft ² -h/Btu
2	6.2
4	13.4
6	20.6
7- ³ / ₄	26.9
9- ³ / ₄	34.1
11- ³ / ₄	41.3

¹Overall R-value is calculated based on a combination of the R-value of the OSB and the EPS at 75°F mean temperature

5.7 R-Control Nailbase 2-Ci:

R-Control Nailbase 2-Ci consists of R-Control 100 laminated to a ⁷/₁₆-inch OSB facing. R-Control Nailbase 2-Ci is available in thicknesses of 1-⁵/₁₆, 1-⁹/₁₆, 2-¹/₄, and 2-⁷/₈ inches. R-Control MAX may be used as an alternate insulation component in Nailbase products.

Table 6 – Thermal Resistance of R-Control Nailbase 2-Ci

THICKNESS, in.	THERMAL RESISTANCE ¹ , min., °F-ft ² -h/Btu
1- ⁵ / ₁₆	3.8
1- ⁹ / ₁₆	5.1
2- ¹ / ₄	7.6
2- ⁷ / ₈	10.1

¹Overall R-value is calculated based on a combination of the R-value of the OSB and the EPS at 75°F mean temperature

5.8 R-Control Nailbase 3-Ci:

R-Control Nailbase 3-Ci consists of R-Control 100 laminated to a $\frac{7}{16}$ -inch OSB facing on one side and polymeric film on the other side. R-Control Nailbase 3-Ci is available in thicknesses of $1\text{-}\frac{5}{16}$, $1\text{-}\frac{9}{16}$, $2\text{-}\frac{1}{4}$, and $2\text{-}\frac{7}{8}$ inches. R-Control MAX may be used as an alternate insulation component in Nailbase products.

Table 8 – Thermal Resistance of R-Control Nailbase 3-Ci

THICKNESS, in.	THERMAL RESISTANCE¹, min., °F-ft²-h/Btu
$1\text{-}\frac{5}{16}$	3.8
$1\text{-}\frac{9}{16}$	5.1
$2\text{-}\frac{1}{4}$	7.6
$2\text{-}\frac{7}{8}$	10.1

¹Overall R-value is calculated based on a combination of the R-value of the OSB and the EPS at 75°F mean temperature

6. INSTALLATION

6.1 General:

R-Control Insulation Boards, ThermaShield Insulation Boards, R-Control MAX Insulation Boards, and R-Control Geofoam blocks, R-Control Nailbase, R-Control Nailbase 2-Ci, and R-Control Nailbase 3-Ci are installed in accordance with the manufacturer's published installation instructions and this evaluation report. The manufacturer's published installation instructions and this report must be strictly adhered to, and a copy of the instructions shall be available on the jobsite during installation.

6.2 R-Control Insulation Boards, R-Control MAX Insulation Boards, and ThermaShield Insulation Boards:

R-Control Insulation Boards, R-Control MAX, or ThermaShield must be attached to the structure in a manner that will hold the insulation securely in place. The insulation boards must not be used structurally to resist transverse, axial, or shear loads.

The interior of the building must be separated from the R-Control Insulation Boards and ThermaShield Insulation Boards with a thermal barrier as required by Section 2603.4 of the IBC or Section R316.4 of the IRC, as applicable.

R-Control Insulation Boards may be used as vapor retarders based on perm values described in Tables 9 and 10, respectively, when required in accordance with the applicable sections of the IBC, IRC, and IECC. Vapor retarders are certified as follows:

Class I: 0.1 perm or less

Class II: $0.1 < \text{perm} \leq 1.0$

Class III: $1.0 < \text{perm} \leq 10$ perm

Table 9 – Water Vapor Permeance of R-Control Insulation Boards

PRODUCT	ASTM C578 Type	DENSITY, min., lb/ft³	PERMEANCE¹, max., perms
R-Control 50	XI	0.70	5.0
R-Control 100	I	0.90	5.0
R-Control 130	VIII	1.15	3.5
R-Control 150	II	1.35	3.5
R-Control 250	IX	1.80	2.5
R-Control 400	XIV	2.40	2.5
R-Control 600	XV	3.00	2.5

¹Water vapor permeance values are based on 1-inch thickness when tested in accordance with ASTM C578 and ASTM E96. Actual water vapor permeance values may be calculated based on insulation thickness, by dividing the perm value shown by the installed thickness in inches.

Table 10 – Water Vapor Permeance of ThermaShield Insulation Boards

PRODUCT	ASTM C578 Type	DENSITY, min., lb/ft³	PERMEANCE¹, max., perms
R- Control 100	I	0.90	0.3
R- Control 130	VIII	1.15	0.3
R- Control 150	II	1.35	0.3
R- Control 250	IX	1.80	0.3

¹Water vapor permeance values are based on 1-inch thickness when tested in accordance with ASTM C578 and ASTM E96. Actual water vapor permeance values vary based on insulation thickness.

Table 11 – Water Vapor Permeance of Film Faced R-Control Insulation Boards

PRODUCT	ASTM C578 Type	DENSITY, min., lb/ft³	PERMEANCE¹, max., perms
R-Control 100	I	0.90	0.3
R-Control 130	VIII	1.15	0.3
R-Control 150	II	1.35	0.3
R-Control 250	IX	1.80	0.3

¹Water vapor permeance values are based on 1-inch thickness when tested in accordance with ASTM C578 and ASTM E96. Actual water vapor permeance values vary based on insulation thickness.

6.2.1 R-Control Insulation Boards, R-Control MAX Insulation Boards, and R-Control Nailbase Used in Roofing:

R-Control Insulation Boards and R-Control MAX are used as a roofing insulation as follows:

- As part of a UL Certified Class A, B or C roof-covering assembly in accordance with UL 790,
- As part of a UL Certified Roof Deck Construction in accordance with UL 1256, or
- As part of a UL Certified Roofing System, Uplift Resistance, in accordance with UL 1897.

ThermaShield Boards are used as a roofing insulation as follows:

As part of a UL Certified Class A, B or C roof-covering assembly in accordance with UL790.

6.2.2 R-Control Insulation Boards, R-Control MAX Insulation Boards, and ThermaShield Insulation Boards Used in Attics and Crawl Spaces:

R-Control Insulation Boards and ThermaShield Insulation Boards may be used in attics and crawl spaces, without the ignition barrier listed in Section 2603.4.1.6 of the IBC or Sections R316.5.3 and R316.5.4 of the IRC, as follows:

1. Attic ventilation is provided when required by Section 1202.1 of the 2018 IBC, Section 1203.2 of 2015 IBC or Section R806.1 of the IRC, as applicable.
2. Under-floor (crawl space) ventilation is provided when required by Section 1203.3 of the IBC, or Section R408.1 or Section R408.3 of the IRC, as applicable.
3. Combustion air is provided in accordance with Section 701.1 of the IMC.
4. Insulation boards are limited to a maximum thickness of 4 inches (102 mm) for R-Control 100 and R-Control MAX 100, or a maximum thickness of 3-¼ inches (82.6 mm) for R-Control 130 and R-Control MAX 130, or a maximum thickness of 2-⅝ inches (67.8 mm) for R-Control 150 and R-Control MAX 150, or a maximum thickness of 2-½ inches (60 mm) for R-Control 200 and R-Control MAX 200, or a maximum thickness of 2 inches (51 mm) for R-Control 250 and R-Control MAX 250.

6.2.3 ThermaShield Insulation Board Used as a Water-Resistive Barrier

ThermaShield Insulation Board with a minimum of 1 inch (25.4 mm) thickness may be used as an alternative to the water-resistive barrier required by Section 1403.2 of the 2018 IBC, Section 1404.2 of the 2015 IBC, and Section R703.2 of the IRC when installed in accordance with this Section.

ThermaShield Insulation Board must be installed directly to framing members spaced a maximum of 24 inches (610 mm) on center. ThermaShield Insulation Board must be installed horizontally with tongue edges facing upward or installed vertically with no horizontal joints. Vertical joints must be backed by framing members. ThermaShield Insulation Board is attached with 1 inch (25.4 mm) wide crown No. 16 gage corrosion-resistant staples spaced 6 inches (152mm) on center. Fastener crowns and joints between boards must be covered with ThermaShield Tape. A minimum 0.019-inch (0.48 mm) corrosion-resistance weep screed with a vertical attachment flange measuring a minimum of 3-½ inches (89mm) must be provided at the bottom of the wall. The installation of the weep screed must be in accordance with Section 2512.1.2 of the IBC or Section R703.7.2.1 of the IRC, as applicable.

Flashing of flanged window penetrations must be installed in accordance with Section 1404.4 of the 2018 IBC and Section 1405.4 of the 2015 IBC. The flashing tape must completely cover the framing sill and extend a minimum of 8 inches (203 mm) up the sides of the opening and 6 inches (152 mm) onto the face of the ThermaShield at the front of the window opening.

Flashing of small penetrations (e.g., pipes) must be with a silicone sealant complying with ASTM C920.

6.2.4 R-Control Insulation Boards, R-Control MAX Insulation Boards, and ThermaShield Insulation Boards used on the exterior of above grade walls:

R-Control Insulation Boards, R-Control MAX, and ThermaShield Insulation Boards are used on the exterior of above grade walls as follows:

- Exterior Walls of One- and Two-Family Dwellings in accordance with the 2015 IRC,
- Exterior walls of one story buildings of Types I, II, III, or IV construction in accordance with Section 2603.4.1.4 of the IBC,
- Exterior walls of Type V construction in accordance with Sections 2603.2, 2603.3, and 2603.4 of the IBC.
- Exterior walls of buildings more than one story of Types I, II, III, or IV construction in accordance with Section 2603.5 of the 2018 and 2015 IBC, when part of:
 - A UL Classified Exterior Wall System in accordance with NFPA 285. See Section 7.2.
 - An Exterior Wall System in accordance with NFPA 285. See Table 12.

Figure 1 – NFPA 285 Wall Assembly

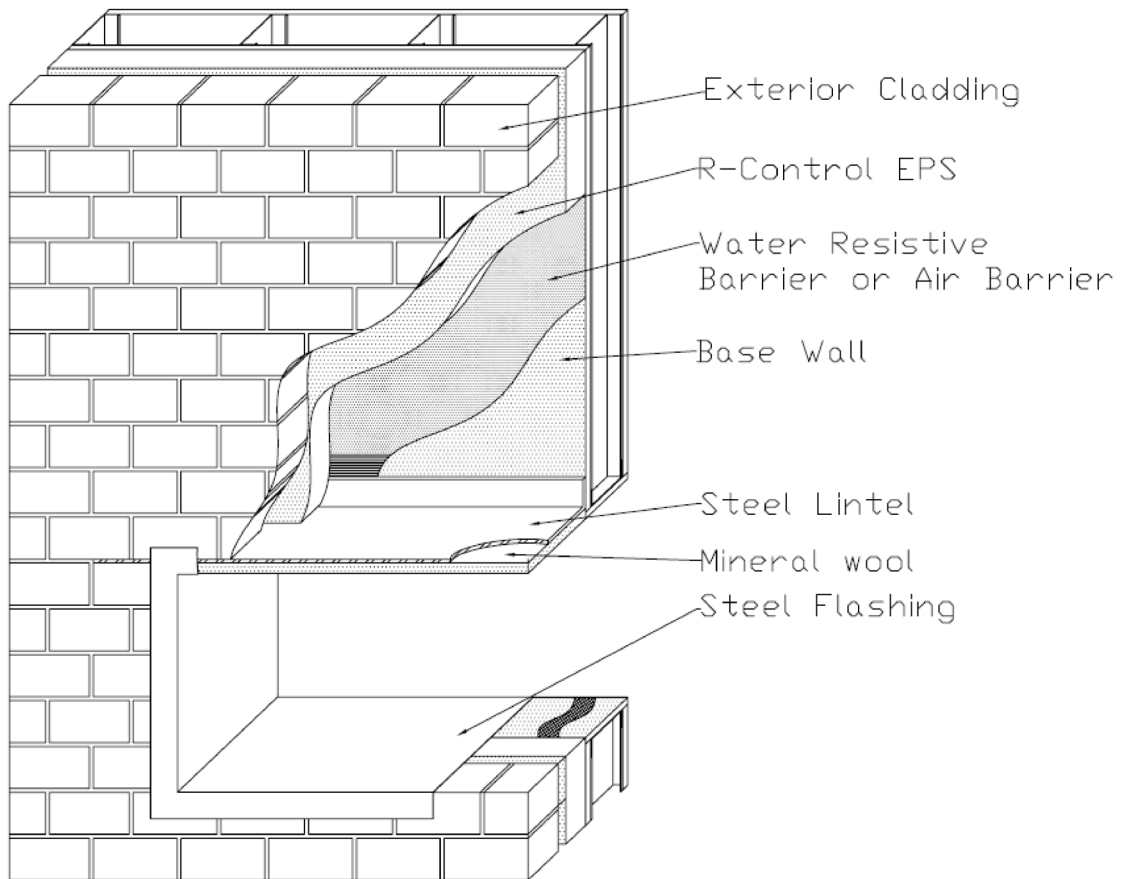


Table 12 – NFPA 285 Compliant Assembly Options – See Figure 1

Base Wall Options	
1) Cast Concrete Walls	
2) CMU Cast Concrete Walls	
3) Steel Stud Framed Wall	
a. 25 GA. (min.) 3-5/8" (min.) steel studs spaced 24" o.c. (max.)	
b. Lateral Bracing Every 4 ft. vertically	
c. 5/8" Type X Gypsum Wallboard Interior	
d. Cavity Insulation	
i. None	
ii. Any Class A, B, or C Fiberglass batt insulation (faced or unfaced)	
iii. Any noncombustible insulation	
e. Any 1/2" (min.) Exterior Gypsum Sheathing	
Water Resistive Barrier / Air Barrier Options Over Base Wall	
1) None	
2) BASF Enershield HP	
3) BASF Enershield I	
4) Carlisle Barritech NP	
5) Carlisle Barritech VP	
6) Dupont Fluid Applied WB	
7) Dupont Tyvek Commercialwrap (1 or 2 layers)	
8) Grace Perm-A-Barrier VPS	
9) Tremco EXOAir 230	
R-Control EPS Exterior Insulation Options	
1) 10-3/4" (max.) R-Control 100 or R-Control MAX 100	
2) 8-1/4" (max.) R-Control 130 or R-Control MAX 130	
3) 7" (max.) R-Control 150 or R-Control MAX 150	
4) 6" (max.) R-Control 200 or R-Control MAX 200	
5) 5-1/4" (max.) R-Control 250 or R-Control MAX 250	
Exterior Cladding Options	
1) Brick - Nominal 4" clay brick or veneer with 2" (max.) air gap behind the cladding. Brick with ties/anchors 24" o.c. (max.)	
2) Concrete - 2" (min.) with 2" (max.) air gap behind the cladding	
3) Concrete Masonry Units - 4" (min.) with 2" (max.) air gap behind the cladding	
4) Limestone - 2" (min.) with non-open joints installation technique such as shiplap	
5) Natural Stone Veneer - 2" (min.) with non-open joints installation technique such as shiplap	
6) Precast Artificial Stone - 1-1/2" (min.) complying with ICC-ES, AC 51 with non-open joint installation technique	
7) Terra Cotta Cladding - 1-1/4" (min.) solid with non-open joint installation technique such as shiplap	
8) Stucco - 3/4" (min.) exterior cement plaster and lath	
Fire Stopping at Floor Line Options	
1) Mineral wool fiber fire stop in each stud cavity at floor line. Thickness equal to stud cavity depth. Follow manufacturer instruction for installation.	
Window Header Detail	
1) 25 GA. (min.) sheet metal (steel) flashing with 1" thick, 4 pcf mineral wool over interior of sheet steel	
2) Header design equal or better than item 1	

6.3 R-Control Geofoam Blocks:

R-Control Geofoam blocks are placed loosely on a level surface or existing structural slab. The blocks may be installed in a single layer or in multiple layers.

Structural loads on the R-Control geofoam blocks shall not exceed the compressive resistance at 1% strain in accordance with ASTM D6817. Additional design considerations are included in ASTM D7180, "Standard Guide for Use of Expanded Polystyrene (EPS) Geofoam" and ASTM D7557, "Standard Practice for Sampling of Expanded Polystyrene Geofoam Specimens". When R-Control geofoam blocks are less than 4 in. in thickness, the interior of the building must be separated from the geofoam blocks with a thermal barrier as required by Section 2603.4 of the IBC or Section R316.4 of the IRC, as applicable.

When R-Control geofoam blocks are greater than 4 in. in thickness, a minimum 1 in. concrete or masonry must cover the geofoam blocks on all faces.

6.4 R-Control Nailbase:

R-Control Nailbase must be attached to the structure in a manner that will hold the insulation securely in place.

The interior of the building must be separated from the EPS component of R-Control Nailbase Boards with a thermal barrier as required by Section 2603.4 of the 2018 and 2015 IBC or Section R316.4 of the 2018 and 2015 IRC, as applicable.

R-Control Nailbase may be used as vapor retarders based on perm values described in Tables 4 when required in accordance with the applicable sections of the IBC, IRC and IECC. Vapor retarders are Certified as follows:

Class I: 0.1 perm or less

Class II: $0.1 < \text{perm} \leq 1.0$

Class III: $1.0 < \text{perm} \leq 10 \text{ perm}$

Table 13 – Water Vapor Permeance of R-Control Nailbase

THICKNESS,+- in.	PERMEANCE¹, max., perms
2	1.2
4	0.8
6	0.6
7-¾	0.5
9-¾	0.4
11-¾	0.4

¹Overall Perm Rating is calculated based on a combination of the perm rating of the OSB (at 50% RH) and the EPS

6.4.1 R-Control Nailbase may be used as a roofing insulation as follows:

- As part of a UL Certified Class A, B, or C roof-covering assembly in accordance with UL790
- As part of a UL Certified Roofing System, Uplift Resistance, in accordance with UL 1897

6.5 R-Control Nailbase 2-Ci:

R-Control Nailbase 2-Ci must be attached to the structure in a manner that will hold the insulation securely in place.

The interior of the building must be separated from the EPS component of R-Control Nailbase 2-Ci boards with a thermal barrier as required by Section 2603.4 of the 2018 and 2015 IBC or Section R316.4 of the 2018 and 2015 IRC, as applicable.

R-Control Nailbase 2-Ci may be used as vapor retarders based on perm values described in Tables 5 when required in accordance with the applicable sections of the IBC, IRC and IECC. Vapor retarders are Certified as follows:

Class I: 0.1 perm or less

Class II: $0.1 < \text{perm} \leq 1.0$

Class III: $1.0 < \text{perm} \leq 10 \text{ perm}$

Table 5 – Water Vapor Permeance of R-Control Nailbase 2-Ci

THICKNESS, in.	PERMEANCE¹, max., perms
$1^{-5}/_{16}$	1.5
$1^{-9}/_{16}$	1.3
$2^{-1}/_4$	1.1
$2^{-7}/_8$	1.0

¹Overall Perm Rating is calculated based on a combination of the perm rating of the OSB (at 50% RH) and the EPS

6.6 R-Control Nailbase 3-Ci:

R-Control Nailbase 3-Ci must be attached to the structure in a manner that will hold the insulation securely in place.

The interior of the building must be separated from the EPS component of R-Control Nailbase 3-Ci boards with a thermal barrier as required by Section 2603.4 of the 2018 and 2015 IBC or Section R316.4 of the 2018 and 2015 IRC, as applicable.

R-Control Nailbase 3-Ci may be used as vapor retarders based on perm values described in Table 5 when required in accordance with the applicable sections of the IBC, IRC and IECC. Vapor retarders are Certified as follows:

Class I: 0.1 perm or less

Class II: $0.1 < \text{perm} \leq 1.0$

Class III: $1.0 < \text{perm} \leq 10 \text{ perm}$

Table 15 – Water Vapor Permeance of R-Control Nailbase 3-Ci

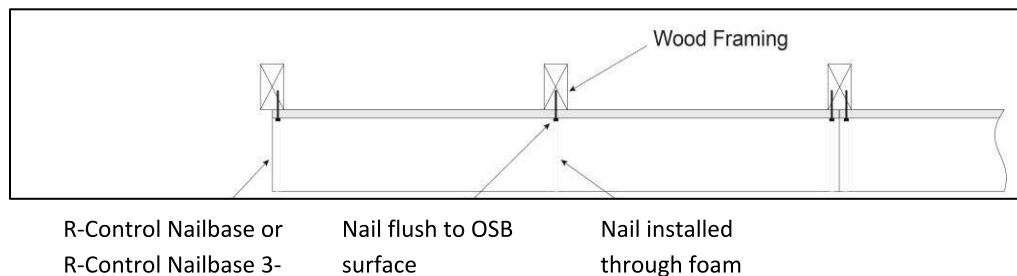
THICKNESS, in.	PERMEANCE¹, max., perms
$1^{-5}/_{16}$	0.2
$1^{-9}/_{16}$	0.2
$2^{-1}/_4$	0.2
$2^{-7}/_8$	0.2

¹Overall Perm Rating is calculated based on a combination of the perm rating of the OSB (at 50% RH) and the EPS

6.7 R-Control Nailbase 2-Ci and R-Control Nailbase 3-Ci Used as Wall Bracing:

R-Control Nailbase 2-Ci and R-Control Nailbase 3-Ci are used as a wall bracing material for exterior walls when installed with the OSB side applied directly to wood framing members. Installation requires a specialty nail gun which installs code specified diameter fasteners through the insulation and flush against the OSB surface. Minimum fastener diameter must be 0.113 inch. Minimum fastener penetration into framing members must be 1-½ inch.

Figure 2 – Installation of R-Control Nailbase 2-Ci and R-Control Nailbase 3-Ci as Wall Bracing



When installed in accordance with Figure 2, R-Control Nailbase 2-Ci and R-Control Nailbase 3-Ci are sheathing alternatives to:

- IRC bracing methods using wood structural panels (WSP), including portal frames, in accordance with Section R602.10 and R602.12 of the 2018 and 2015 IRC.
- IBC Conventional Wall Bracing provisions, Section 2308.9.3 for Type V construction and the alternative bracing methods in accordance with Section 2308.6.5.
- IBC performance-based provisions, Section 2306.1 and 2306.3 of the 2018 and 2015 IBC for light-frame wood wall assemblies

6.8 R-Control 3-Ci Used as a Water-Resistive Barrier:

R-Control Nailbase 3-Ci may be used as an alternative to the water-resistive barrier required by Section 1403.2 of the 2018 IBC, Section 1404.2 of the 2015 IBC, and Section R703.2 of the 2018 and 2015 IRC when installed in accordance with this Section.

Holes from fastener installation and joints between boards must be covered with R-Control Tape.

A minimum 0.019-inch (0.48 mm) corrosion-resistance weep screed with a vertical attachment flange measuring a minimum of 3-½ inches (89mm) must be provided at the bottom of the wall. The installation of the weep screed must be in accordance with Section 2512.1.2 of the 2018 and 2015 IBC or Section R703.7.2.1 of the 2018 and 2015 IRC, as applicable.

Flashing of flanged window penetrations must be installed in accordance with Section 1404.4 of the 2018 IBC and Section 1405.4 of the 2015 IBC. The flashing tape must completely cover the framing sill and extend a minimum of 8 inches (203 mm) up the sides of the opening and 6 inches (152 mm) onto the face of the Foam-Control R-CONTROL 3-Ci at the front of the window opening.

Flashing of small penetrations (e.g., pipes) must be with a silicone sealant complying with ASTM C920.

7. CONDITIONS OF USE

7.1 General:

The R-Control Insulation Boards, ThermaShield Insulation Boards and the R-Control Geofoam blocks described in this report comply with, or are suitable alternatives to what is specified in those codes listed in Section 2 of this report, subject to the following conditions. The R-Control Insulation Boards, ThermaShield Insulation Boards and R-Control Geofoam Blocks must be produced, identified, and installed in accordance with the manufacturer's published installation instructions. If there is a conflict between this report and the manufacturer's instructions this report governs.

In areas where the probability of termite infestation is defined as "very heavy", R-Control Insulation Boards, ThermaShield Insulation Boards and R-Control Geofoam Blocks without the Perform Guard treatment must be installed in accordance with Section 2603.9 of the IBC or Section R318.4 of the IRC, as applicable.

The use of R-Control Insulation Boards, R-Control MAX Insulation Boards, ThermaShield Insulation Boards and R-Control Geofoam Blocks with the Perform Guard treatment are not restricted in areas where the probability of termite infestation is defined as "very heavy" in accordance with Section 2603.9 of the IBC or Section R318.4 of the IRC, as applicable.

The R-Control Nailbase, R-Control 2-Ci, and R-Control Nailbase 3-Ci described in this report comply with, or are suitable alternatives to, what is specified in those codes listed in Section 2 of this report, subject to the following conditions. The R-Control Nailbase, R-Control Nailbase 2- Ci, and R-Control Nailbase 3-Ci must be produced, identified, and installed in accordance with the manufacturer's published installation instructions. If there is a conflict between this report and the manufacturer's instructions this report governs.

7.2 R-Control Insulation Boards, R-Control MAX Insulations Boards, and ThermaShield Insulation Boards:

The R-Control Insulation Boards and ThermaShield must be separated from the building interior with a thermal barrier, such as ½ in. gypsum board, as required by Section 2603.4 of the IBC or Section R316.4 of the IRC, as applicable.

For a listing of applicable UL Certifications for R-Control Insulation Boards and R-Control MAX Insulations Boards, see the Product iQ™ database for the following categories. ThermaShield is UL Certified for BRYX and QORW only.

See UL Product iQ™ database for the following:

- Foamed Plastic, UL Certified for Surface Burning Characteristics in accordance with UL723 ([BRYX](#))
- Polystyrene Thermal Insulation, Rigid Cellular, UL Certified in accordance with ASTM C578 ([QORW](#))
- Class A, B or C roof-covering assemblies UL Certified in accordance with UL 790 ([TGUFU](#))
- Roof Deck Constructions for assemblies UL Certified in accordance with UL 1256 ([TJBX](#))
- Roof Deck Constructions for assemblies UL Certified in accordance with UL 1897 ([TGIK](#))

For a listing of applicable UL Certifications for R-Control Insulation Boards and R-Control MAX Insulation Boards, see the Product iQ™ database for the following Exterior Walls for assemblies UL Classified in accordance with NFPA 285 (FWFO):

[EWS0001](#)

[EWS0002](#)

[EWS0003](#)

7.3 R-Control Geofoam Blocks:

R-Control Geofoam Blocks less than 4 in. in thickness must be separated from the building interior with a thermal barrier such as ½ inch thick gypsum board, as required by Section 2603.4 of the IBC or Section R316.4 of the IRC, as applicable. R-Control Geofoam Blocks greater than 4 in. in thickness must be separated from the building interior with a minimum 1 in. thick concrete or masonry on all faces as required by Section 2603.4.1.1 of the IBC.

Design loads to be resisted by the R-Control Geofoam Blocks must be determined in accordance with the IBC or IRC, as applicable, and must not exceed the allowable loads noted in this report.

All construction documents specifying the R-Control Geofoam Blocks must comply with the design limitations of this report. Design calculations and details for the specific applications must be furnished to the code official, verifying compliance with this report and applicable codes. The documents must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.

For a listing of applicable UL Certifications for R-Control Geofoam Blocks, see the Product iQ™ database for the following categories:

- Foamed Plastic, UL Certified for Surface Burning Characteristics in accordance with UL723 ([BRYX](#)).
- Foamed Plastic, UL Certified for Interior Building Construction in accordance with UL1715 ([OERU](#)).

7.4 R-Control Nailbase, R-Control Nailbase 2-Ci, and R-Control Nailbase 3-Ci:

The EPS component of R-Control Nailbase, R-Control Nailbase 2-Ci, and R-Control Nailbase 3-Ci must be separated from the building interior with a thermal barrier, such as ½-inch thick gypsum board, as required by Section 2603.4 of the 2018 and 2015 IBC or Section R316.4 of the 2018 and 2015 IRC, as applicable.

For a listing of applicable UL Certifications, see the Product iQ™ database for the following categories.

- Foamed Plastic, UL Certified for Surface Burning Characteristics in accordance with UL723 ([BRYX](#)) for the R-Control EPS component of R-Control Nailbase, R-Control Nailbase 2-Ci, and R-Control Nailbase 3-Ci.
- Class A, B or C roof-covering assemblies UL Certified in accordance with UL 790 ([TGFU](#)) for R-Control Nailbase.
- Roof Deck Constructions for assemblies UL Certified in accordance with UL 1897 ([TGIK](#)) for R-Control Nailbase.
- Polystyrene Thermal Insulation, Rigid Cellular, UL Certified in accordance with ASTM C578 ([QORW](#)) for the R-Control EPS component of R-Control Nailbase, R-Control Nailbase 2-Ci, and R-Control Nailbase 3-Ci.

7.5 Manufacturing Locations:

The products are manufactured at the following locations described in Table 8 under the UL LLC Listing or Certification and Follow-Up Service Program, which includes audits in accordance with ICC-ES Acceptance Criteria for Quality Documentation, AC 10.

Table 8 – Manufacturing Locations

LISTEE	LOCATION	PLANT ID NO.
PowerFoam, LLC	550 Murray Street Midlothian, TX 76065	TF-2
ThermaFoam Operating, LLC	1240 Hwy 77 N Hillsboro, Texas 76645	TF-1
ThermaFoam R-Control, LLC	203 South Redmond Road Jacksonville, AR 72076	TF-3

8. SUPPORTING EVIDENCE

8.1 R-Control Insulation Boards and R-Control Max Insulations Boards:

8.1.1 Data in accordance with ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12)

8.1.2 Data in accordance with ICC-ES Acceptance Criteria for Termite Resistant Foam Plastics (AC239)

8.1.3 UL Certification reports in accordance with UL 723, ASTM C578, UL 790, UL 1256, and UL 1897. See UL Product Certification Categories (BRYX), (QORW), (TGFU), (TJBX), and (TGIK), respectively

See links to UL, LLC's Product iQ™ database in Section 7.2

8.1.4 Documentation of quality system elements described in AC10

8.2 ThermaShield Insulation Boards:

8.2.1 Data in accordance with ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12)

8.2.2 Data in accordance with ICC-ES Acceptance Criteria for Termite Resistant Foam Plastics (AC239)

8.2.3 Data in accordance with ICC-ES Acceptance Criteria for Foam Plastic Sheathing Panels used as Water Resistive Barriers (AC71)

8.2.4 Data in accordance with ASTM E2178 Standard Test Method for Air Permeance of Building Materials

8.2.5 UL Certification reports in accordance with UL 723, ASTM C578, and ASTM E2430. See UL Product Certification Categories (BRYX), and (QORW).

See links to UL, LLC's Product iQ™ database in Section 7.2.

8.2.6 Documentation of quality system elements described in AC10

8.3 R-Control MAX Insulation Boards:

8.3.1 UL Certification reports in accordance with UL 723, ASTM D6817, and UL 1715. See UL Product Certification Categories (BRYX), (QORW) and (OERU), respectively

See links to UL, LLC's Product iQ™ database for BRYX and QORW in section 7.3.

8.3.2 Data in accordance with ICC-ES Acceptance Criteria for Termite Resistant Foam Plastics (AC239)

8.3.3 Documentation of quality system elements described in AC10

8.4 R-Control Geofoam Blocks:

8.4.1 UL Certification reports in accordance with UL 723, ASTM D6817, and UL 1715. See UL Product Certification Categories (BRYX), (QORW) and (OERU), respectively.

See links to UL, LLC's Product iQ™ database for BRYX and QORW in section 7.3.

8.4.2 Data in accordance with ICC-ES Acceptance Criteria for Termite Resistant Foam Plastics (AC239), dated October 2008.

8.4.3 Documentation of quality system elements described in AC10

8.4 R-Control Nailbase:

8.4.1 Data in accordance with ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12).

See links to UL, LLC's Product iQ™ database for BRYX and QORW in section 7.3.

8.4.2 Documentation of quality system elements described in AC10.

8.5 R-Control Nailbase 2-Ci:

8.5.1 Data in accordance with ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12).

8.5.2 Documentation of quality system elements described in AC10.

8.6 R-Control Nailbase 3-Ci:

8.6.1 Data in accordance with ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12).

8.6.2 Data in accordance with ICC-ES Acceptance Criteria for Foam Plastic Sheathing Panels used as Water Resistive Barriers (AC71).

8.6.3 Data in accordance with ASTM E2178 Standard Test Method for Air Permeance of Building Materials.

8.6.4 Documentation of quality system elements described in AC10.

9. IDENTIFICATION

The R-Control Insulation Boards, R-Control MAX Insulation Boards, ThermaShield Insulation Boards, and R-Control Geofoam Blocks, R-Control Nailbase, R-Control Nailbase 2-Ci, and R-Control Nailbase 3-Ci products described in this evaluation report are identified by a marking bearing the report holder's name (ThermaFoam Operating, LLC), the plant identification, the product name, the ASTM type designation, the UL Certification Mark, and the evaluation report number UL ER40338-01. The validity of the evaluation report is contingent upon this identification appearing on the product or UL Certification Mark certificate.

10. USE OF UL EVALUATION REPORT

10.1 The approval of building products, materials or systems is under the responsibility of the applicable authorities having jurisdiction.

10.2 UL Evaluation Reports shall not be used in any manner that implies an endorsement of the product, material or system by UL.

10.3 The status of this report, as well as a complete directory of UL Evaluation Reports may be found at UL.com via the [Product iQ™ database](#).

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Concrete Applications

Molded Polystyrene Insulation.

ThermaFoam R-Control molded polystyrene insulation is a cost-effective, durable, and energy efficient solution for insulation applications. It is an ideal material to stop energy loss. ThermaFoam R-Control insulation for poured-in place and precast concrete systems reduce the requirement for concrete and overall weight. ThermaFoam R-Control insulation can be used as: concrete sandwich panel cores, block-outs/knock-outs, void fillers, custom pattern forms, and more.

- R-value that never changes and is stable over time
- Range of compressive strengths available
- Closed cell insulation with superior moisture resistance
- High drying potential to rapidly release absorbed moisture
- Excellent adhesion to concrete

Strength/R-value.

	Compressive Strength ¹ , psi	R-value/inch ²	
		75°F ³	40°F ⁴
100	10	3.9	4.2
130	13	3.9	4.3
150	15	4.2	4.6
250	25	4.4	4.8

¹ Compressive strength @ 10% deformation.

² R-value units are °F·ft²·h/Btu.

³ Recommended for design in WARM climates.

⁴ Recommended for design in COLD climates.

ThermaFoam R-Control is available in a wide range of R-values and thicknesses to meet your needs. Product thicknesses are provided in the ThermaFoam R-Control Thickness Selector. Project requirements vary, so ThermaFoam R-Control can be ordered in any R-value thicknesses to meet your needs.

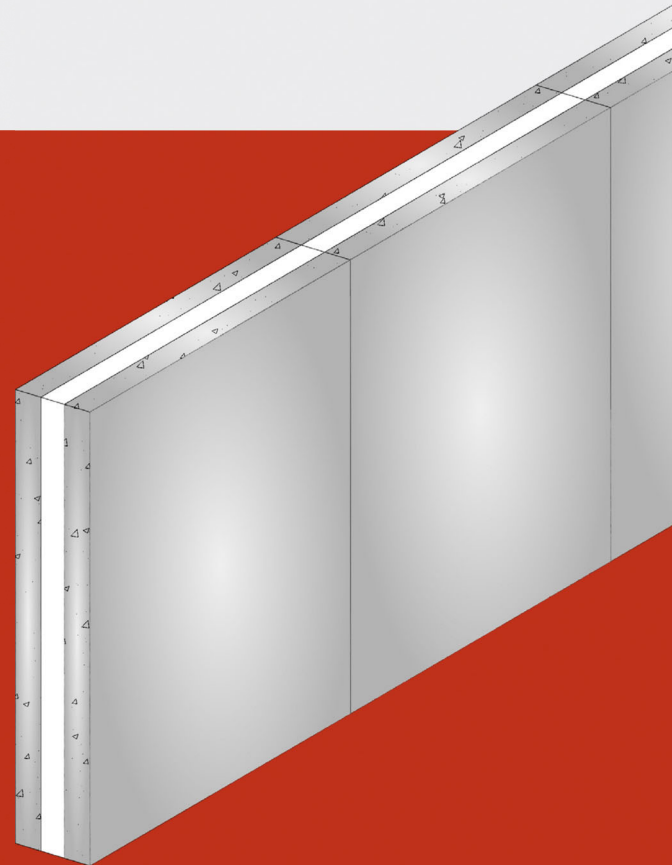
Proven to meet, or exceed, building codes.

ThermaFoam R-Control is manufactured under an industry leading quality control program monitored by UL and further recognized in UL Evaluation Report UL ER40338-01. ThermaFoam R-Control meets ASTM C578, "Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation".



Sizes and Shapes.

ThermaFoam R-Control insulation can be made in large or small, thick or thin sections. It can be custom cut in sizes ranging from a few square inches up to 3' x 4' x 16'. Patterns for custom projects are easily produced on computer aided cutting equipment.



FOAM FACTS:

ThermaFoam R-Control outperforms XPS.

- ThermaFoam R-Control provides a stable long-term R-value at a lower cost
- ThermaFoam R-Control uses a blowing agent with 10 x lower global warming potential and 10,000 x lower ozone depletion
- ThermaFoam R-Control meets strength requirements at a lower cost
- ThermaFoam R-Control and XPS have resistance to moisture, but ThermaFoam R-Control has a higher vapor permeance leading to superior drying potential
- ThermaFoam R-Control with borate treatment available to provide termite resistance

Performance Value.

When you consider all performance characteristics and cost, ThermaFoam R-Control is your best choice for foam insulation.

ThermaFoam R-Control has air in its closed cells and therefore has a stable R-value. Many other insulations use blowing agents that cause R-value loss and are harmful to the environment.

ThermaFoam R-Control has compressive strength to meet specific project requirements.

ThermaFoam R-Control is manufactured to resist moisture absorption in wetting conditions and release absorbed moisture quickly during drying periods, which means ThermaFoam R-Control maintains R-value.

Termite Resistant.

One of the most destructive forces anywhere is termites. ThermaFoam R-Control can be manufactured with borate, a proven and safe additive, that effectively resists termites.

ThermaFoam R-Control with borate meets ICC ES AC239, "Acceptance Criteria for Termite-Resistant Foam Plastics".

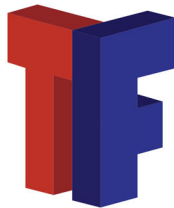
Recyclable.

After its life as a building insulation, ThermaFoam R-Control is 100% recyclable. It can be ground into granules and reincorporated into new ThermaFoam R-Control products or it can be thermally processed into a resin that's used to manufacture other new products.

Ready to take control? Start here.

If you're ready to have ThermaFoam R-Control contribute to your next project, just contact your ThermaFoam R-Control, Inc. Technical Sales Representative. They will be happy to give you design consultation, information about ThermaFoam R-Control products, pricing, and answers to all of your questions.

NEED INFORMATION OR A QUOTE



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www.thermafoam.com



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Hillsboro, TX 76645

Office: 254-582-2730
Fax: 254-582-2811


Exterior Sheathing

Molded Polystyrene Insulation.

ThermaFoam R-Control molded polystyrene insulation is a cost-effective, durable, and energy efficient solution for insulated sheathing applications. It is an ideal material to stop energy loss through framing members. ThermaFoam R-Control insulation is available in a range of types and thicknesses to meet your local energy code requirements.

- R-value that never changes and is stable over time
- Range of compressive strengths available
- Closed cell insulation with superior moisture resistance
- High drying potential to rapidly release absorbed moisture
- Meets code requirements for continuous insulation

Strength/R-value.

	Compressive Strength ¹ , psi	R-value/inch ²	
		75°F ³	40°F ⁴
100	10	3.9	4.2
130	13	3.9	4.3
150	15	4.2	4.6
250	25	4.4	4.8

¹ Compressive strength @ 10% deformation.

² R-value units are °F·ft²·h/Btu.

³ Recommended for design in WARM climates.

⁴ Recommended for design in COLD climates.

ThermaFoam R-Control is available in a wide range of R-values and thicknesses to meet your needs. Product thicknesses are provided in the ThermaFoam R-Control Thickness Selector. Project requirements vary, so ThermaFoam R-Control can be ordered in any R-value thicknesses to meet your needs.

Proven to meet, or exceed, building codes.

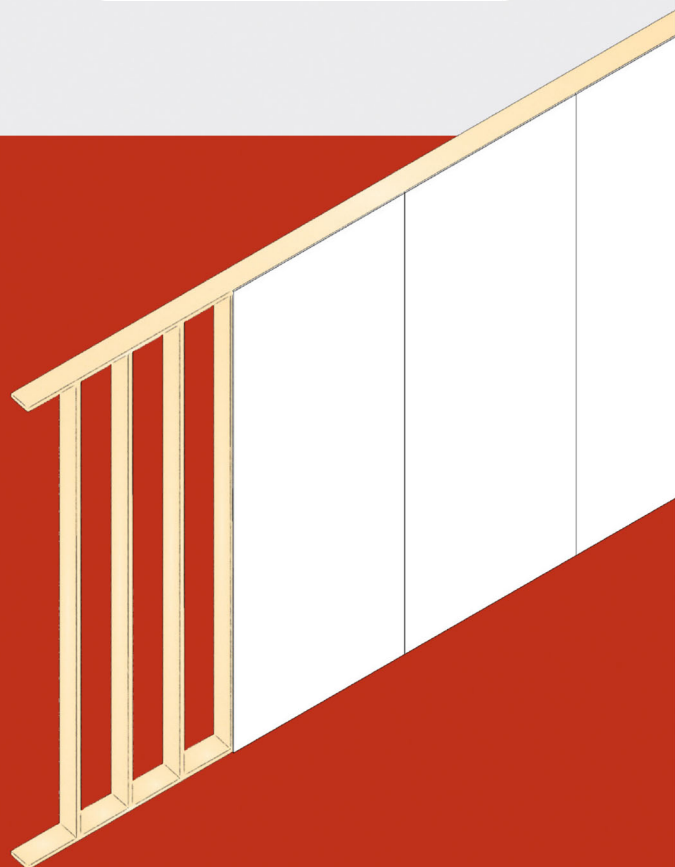
ThermaFoam R-Control is manufactured under an industry leading quality control program monitored by UL and further recognized in UL Evaluation Report UL ER40338-01. ThermaFoam R-Control meets ASTM C578, "Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation".



Stands up to the weather.

When tested in accordance with ASTM C1512, "Standard Test Method for Characterizing the Effect of Exposure to Environmental Cycling on Thermal Performance of Insulation Products", ThermaFoam R-Control maintains its R-value and strength after severe exposure to freeze-thaw cycles.

THERMAFOAM
R-CONTROL



FOAM FACTS:

ThermaFoam R-Control outperforms XPS.

- ThermaFoam R-Control provides a stable long-term R-value at a lower cost
- ThermaFoam R-Control uses a blowing agent with 10 x lower global warming potential and 10,000 x lower ozone depletion
- ThermaFoam R-Control meets strength requirements at a lower cost
- ThermaFoam R-Control and XPS have resistance to moisture, but ThermaFoam R-Control has a higher vapor permeance leading to superior drying potential
- ThermaFoam R-Control with borate treatment available to provide termite resistance

Performance Value.

When you consider all performance characteristics and cost, ThermaFoam R-Control is your best choice for foam insulation.

ThermaFoam R-Control has air in its closed cells and therefore has a stable R-value. Many other insulations use blowing agents that cause R-value loss and are harmful to the environment.

ThermaFoam R-Control has compressive strength to meet specific project requirements.

ThermaFoam R-Control is manufactured to resist moisture absorption in wetting conditions and release absorbed moisture quickly during drying periods, which means ThermaFoam R-Control maintains R-value.

Termite Resistant.

One of the most destructive forces anywhere is termites. ThermaFoam R-Control can be manufactured with borate, a proven and safe additive, that effectively resists termites.

ThermaFoam R-Control with borate meets ICC ES AC239, "Acceptance Criteria for Termite-Resistant Foam Plastics".

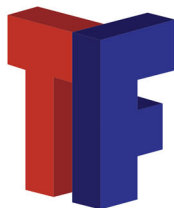
Recyclable.

After its life as a building insulation, ThermaFoam R-Control is 100% recyclable. It can be ground into granules and reincorporated into new ThermaFoam R-Control products or it can be thermally processed into a resin that's used to manufacture other new products.

Ready to take control? Start here.

If you're ready to have ThermaFoam R-Control contribute to your next project, just contact your ThermaFoam R-Control, Inc. Technical Sales Representative. They will be happy to give you design consultation, information about ThermaFoam R-Control products, pricing, and answers to all of your questions.

NEED INFORMATION OR A QUOTE

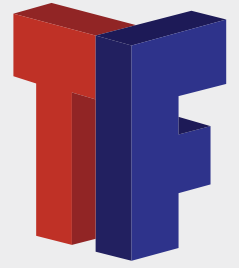
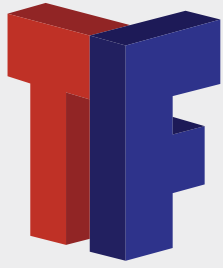


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**MOLDED
POLYSTYRENE
INSULATION**

ThermaFoam R-CONTROL PERFORMS IN ALL APPLICATIONS

From Frost Line to Roof Line.


ThermaFoam R-Control is used in a wide range of critical insulation applications: Perimeter, Underslab, Cavity Wall, Wall Sheathing, Precast Concrete Core, Flat/Tapered Roofing, Vegetative Green Roof, Plaza Deck, Drainage Board, and Waterproofing Protection. All of these applications benefit from the exceptional physical properties and wide range of board thicknesses, sizes, and options available with R-Control.

ThermaFoam R-Control is engineered to give you the greatest possible control over your project application: from design and timelines, to material cost, and ultimately, control over your results.

- Perimeter/Underslab
- Cavity Wall
- Wall Sheathing
- Precast Concrete Core
- Flat/Tapered Roofing
- Plaza Deck/Vegetative Green Roof
- Drainage Board
- Waterproofing Protection

With ThermaFoam R-CONTROL, you're in control of your materials.

• Strength/R-value.

	Compressive Strength ¹ , psi	R-value/inch ²	
		75°F	40°F
100	10	3.9	4.2
130	13	3.9	4.3
150	15	4.2	4.6
250	25	4.4	4.8
400	40	4.4	4.8
600	60	4.5	4.9

¹ Compressive strength @ 10% deformation.
² R-value units are °F-ft²-h/Btu.

ThermaFoam R-Control is available in a wide range of R-values and thicknesses to meet your needs. Project requirements vary, so ThermaFoam R-Control can be ordered in any R-value thicknesses to meet your needs.

Proven to meet, or exceed, building codes.

ThermaFoam R-Control is manufactured under an industry leading quality control program monitored by UL and further recognized in UL Evaluation Report UL ER40338-01. ThermaFoam R-Control meets ASTM C578, “Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation”.



Sustainability.

ThermaFoam R-Control reduces energy use in buildings, helping protect our environment. Well insulated buildings perform better and improve the environment. Life Cycle Analysis (LCA) has shown significant energy savings and substantial reductions in greenhouse gas emissions with the use of ThermaFoam R-Control.

The use of ThermaFoam R-Control in building construction helps earn credits for green building initiative programs, such as LEED Certification. ThermaFoam R-Control does not use ozone depleting blowing agents and is recyclable.

Fifty year R-value warranty, regardless of thickness or application – the warranty covers it!



Recyclable.

After it's life as a building insulation, ThermaFoam R-Control is 100% recyclable. It can be ground into granules and reincorporated into new ThermaFoam R-Control products. Or it can be thermally processed into a resin that's used to manufacture other new products.

THERMAFOAM *R-CONTROL*

Molded Polystyrene Insulation.

ThermaFoam R-Control molded polystyrene insulation is a cost-effective, durable, and energy efficient solution. ThermaFoam R-Control is an insulation manufactured to provide architects, specifiers, distributors, and contractors all the features and benefits inherent in a high quality insulation.

Stable R-value – ThermaFoam R-Control has a R-value that never changes over time.

Strength – ThermaFoam R-Control comes in compressive strengths of 10, 13, 15, 25, 40, and 60 psi.

Moisture Resistance – ThermaFoam R-Control is a closed cell polystyrene insulation and is resistant to moisture gain.

Vapor Permeable – ThermaFoam R-Control allows moisture vapor to move through its structure.

Drying Potential – ThermaFoam R-Control rapidly releases absorbed moisture.

When you consider all performance characteristics and cost, THERMAFOAM *R-CONTROL* is your best choice for foam insulation.

Performance Value.

ThermaFoam R-Control has air in its closed cells and therefore has a stable R-value. Many other insulations use blowing agents that cause R-value loss and are harmful to the environment.

ThermaFoam R-Control has compressive strength to meet specific project requirements.

ThermaFoam R-Control is manufactured to resist moisture absorption in wetting conditions and release absorbed moisture quickly during drying periods, which means ThermaFoam R-Control maintains R-value.

Termite Resistant.

One of the most destructive forces anywhere is termites. ThermaFoam R-Control can be manufactured with borate, a proven and safe additive, that effectively resists termites.

ThermaFoam R-Control with borate meets ICC ES AC239, "Acceptance Criteria for Termite-Resistant Foam Plastics".



FOAM FACTS: THERMAFOAM *R-CONTROL* outperforms XPS.

- ThermaFoam R-Control provides a stable long-term R-value at a lower cost
- ThermaFoam R-Control uses a blowing agent with 10 x lower global warming potential and 10,000 x lower ozone depletion
- ThermaFoam R-Control meets strength requirements at a lower cost
- ThermaFoam R-Control and XPS have resistance to moisture, but ThermaFoam R-Control has a higher vapor permeance leading to superior drying potential
- ThermaFoam R-Control with borate treatment available to provide termite resistance

Product Availability and Support.

ThermaFoam R-Control Insulation is supported by a team of experts who work with you to answer your questions, offer solutions, and do everything they can to make sure your project goes smoothly and ends successfully.

Ready to take control? Start here.

If you're ready to have ThermaFoam R-Control contribute to your next project, just contact ThermaFoam Technical Sales Representative. We will be happy to give you design consultation, information about ThermaFoam R-Control products, pricing, and answers to all of your questions.

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ThermaFoam R-Control molded polystyrene is an industrial grade closed cell, moisture resistant rigid foam used for all types of industrial, packaging, and construction applications. ThermaFoam R-Control conforms to ASTM C578, "Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation".

ThermaFoam R-Control is manufactured under an industry leading quality control program monitored by UL and further recognized in UL Evaluation Report UL ER40338-01.




PRODUCT									
			50	100	130	150	250	400	600
Compressive Resistance ¹ ASTM D1621	@1%	psi (kPa)	2.2 (15)	3.6 (25)	5.8 (40)	7.3 (50)	10.9 (75)	15.0 (103)	18.6 (128)
	@5%	psi (kPa)	4.0 (28)	8.0 (55)	11.7 (81)	13.5 (93)	22.5 (155)	35.0 (241)	43.5 (300)
	@10%	psi (kPa)	5.0 (35)	10.0 (69)	13.0 (90)	15.0 (104)	25.0 (173)	40.0 (276)	60.0 (414)
R-value ² , Thermal Resistance per inch ASTM C518	25°F	°F·ft ² ·h/Btu (°K·m ² /W)	3.6 (0.63)	4.4 (0.77)	4.5 (0.80)	4.8 (0.84)	5.0 (0.88)	5.0 (0.88)	5.1 (0.90)
	40°F	°F·ft ² ·h/Btu (°K·m ² /W)	3.4 (0.60)	4.2 (0.73)	4.3 (0.75)	4.6 (0.80)	4.8 (0.84)	4.8 (0.84)	4.9 (0.86)
	75°F	°F·ft ² ·h/Btu (°K·m ² /W)	3.2 (0.56)	3.9 (0.68)	3.9 (0.69)	4.2 (0.73)	4.4 (0.77)	4.4 (0.77)	4.5 (0.78)
k-value, Thermal Conductivity ASTM C518	25°F	Btu·in/°F·ft ² ·h (W/°K·m)	0.28 (0.040)	0.23 (0.033)	0.22 (0.032)	0.21 (0.030)	0.20 (0.029)	0.20 (0.029)	0.20 (0.028)
	40°F	Btu·in/°F·ft ² ·h (W/°K·m)	0.29 (0.042)	0.24 (0.035)	0.24 (0.034)	0.22 (0.032)	0.21 (0.030)	0.21 (0.030)	0.21 (0.030)
	75°F	Btu·in/°F·ft ² ·h (W/°K·m)	0.31 (0.045)	0.26 (0.037)	0.26 (0.037)	0.24 (0.035)	0.23 (0.033)	0.23 (0.033)	0.22 (0.032)
Density, min., ASTM C303		lb/ft ³ (kg/m ³)	0.70 (12)	0.90 (15)	1.15 (18)	1.35 (22)	1.80 (29)	2.40 (38)	3.00 (48)

¹Value obtained from short duration testing. Appropriate factor of safety required when designing for sustained loads.

²Please refer to ASTM C578 specification for complete information.

Additional Properties on Next Page

PRODUCT								
		50	100	130	150	250	400	600
Elastic Modulus ASTM D1621	psi (kPa)	220 (1500)	360 (2500)	580 (4000)	730 (5000)	1090 (7500)	1500 (10300)	1860 (12800)
Tensile Strength ASTM D1263	psi (kPa)	10 (69)	20 (138)	25 (173)	30 (208)	40 (276)	50 (345)	60 (414)
Flexural Strength ¹ ASTM C203	psi (kPa)	10 (69)	25 (173)	30 (208)	35 (242)	50 (345)	60 (414)	75 (517)
Shear Strength ASTM C273	psi (kPa)	7 (48)	12 (83)	15.5 (107)	18 (124)	24 (166)	30 (208)	35 (242)
Maximum Long-Term Exposure Temperature	F° (C°)	165 (74)	165 (74)	165 (74)	165 (74)	165 (74)	165 (74)	165 (74)
Coefficient of Thermal Expansion	x10 ⁻⁶ /°F (x10 ⁻⁶ /°C)	35 (63)	35 (63)	35 (63)	35 (63)	35 (63)	35 (63)	35 (63)
ASTM C578 Compliance, Type		XI	I	VIII	II	IX	XIV	XV

¹Please refer to ASTM C578 specification for complete information.

Thermal Performance.

The R-value of ThermaFoam R-Control insulation remains constant and does not suffer from R-value loss over time.

Exposure to Water and Water Vapor.

The mechanical properties of molded polystyrene are unaffected by moisture.

Temperature Exposure/Flame Retardants.

Although flame retardants used in the manufacture of molded polystyrene provide an important margin of safety, all molded polystyrene products must be considered combustible.

Weathering.

Long-term exposure to sunlight causes yellowing and a slight embrittlement of the surface due to ultraviolet light. This has little effect on mechanical properties.

Resistance to Mold and Mildew.

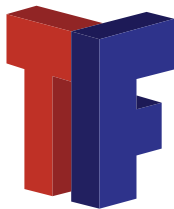
Molded polystyrene will not decompose and will not support mold or mildew growth. Molded polystyrene provides no nutrient value to plants or animals.

Adhesives, Coatings, and Chemicals.

Solvents which attack molded polystyrene include esters, ketones, ethers, aromatic, and aliphatic hydrocarbons and their emulsions, among others.

Warranty.

ThermaFoam R-Control, Inc. offers a product warranty ensuring thermal performance.



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Architectural Shapes

Molded Polystyrene Insulation.

ThermaFoam R-Control molded polystyrene insulation includes an ingredient you won't find in other molded polystyrene products. Control. ThermaFoam R-Control insulation gives you control over the design of your project. You determine the shape and specs of the molded polystyrene components you need, then your ThermaFoam R-Control molded polystyrene supplier works with you to deliver them on time and within budget.

- R-value that never changes and is stable over time
- Range of compressive strengths available
- Closed cell insulation with superior moisture resistance
- High drying potential to rapidly release absorbed moisture
- Preferred component for architectural shapes

Strength/R-value.

	Compressive Strength ¹ , psi	R-value/inch ²	
		75°F ³	40°F ⁴
100	10	3.9	4.2
130	13	3.9	4.3
150	15	4.2	4.6
250	25	4.4	4.8

¹ Compressive strength @ 10% deformation.

² R-value units are °F·ft²·h/Btu.

³ Recommended for design in WARM climates.

⁴ Recommended for design in COLD climates.

Proven to meet, or exceed, building codes.

ThermaFoam R-Control is manufactured under an industry leading quality control program monitored by UL and further recognized in UL Evaluation Report UL ER40338-01. ThermaFoam R-Control meets ASTM C578, "Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation".



Custom Fabrication.

ThermaFoam R-Control insulation shapes are custom fabricated by hot wire cutting with computer aided design, and if necessary, assembled together to provide a solution specific to your needs.

ThermaFoam R-Control insulation means that you can achieve product designs that wouldn't be possible with other materials.



FOAM FACTS: ThermaFoam R-Control Architectural Shapes.

- ThermaFoam R-Control Architectural Shapes can create effective 3-D architectural shapes
- ThermaFoam R-Control Architectural Shapes meet strength requirements at a lower cost and are available in a range of densities/types
- ThermaFoam R-Control Architectural Shapes are well suited for lower volume items and are compatible with exterior finish coatings

Performance Value.

When you consider all performance characteristics and cost, ThermaFoam R-Control is your best choice for foam insulation.

ThermaFoam R-Control has air in its closed cells and therefore has a stable R-value. Many other insulations use blowing agents that cause R-value loss and are harmful to the environment.

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ThermaFoam R-Control with borate meets ICC ES AC239, "Acceptance Criteria for Termite-Resistant Foam Plastics".

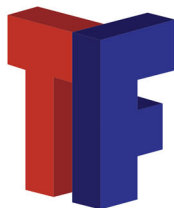
Recyclable.

After its life as a building insulation, ThermaFoam R-Control is 100% recyclable. It can be ground into granules and reincorporated into new ThermaFoam R-Control products or it can be thermally processed into a resin that's used to manufacture other new products.

Ready to take control? Start here.

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TYTAN PROFESSIONAL Foam Bond 60 Adhesive

FOA-FOA-7867-TP-78-oz-24-002

Item number: 10038218

Tytan Professional Foam Bond 60 is one of the fastest curing universal one-component polyurethane adhesive that is EPS, XPS and ISO foam board safe. With superior strength and quick adhesion, Foam Bond 60 can be used in many applications faster than traditional caulk adhesive. Made to have a fast tack, Foam Bond 60 can help reduce fasteners needed and ensure a strong bond that won't fade with time. Foam Bond 60 works with most construction materials including metal, wood, brick, stone, rubber, vinyl, PVC and more. With TYTAN Professional Foam Bond 60 you can Build with Confidence!

The adhesive is manufactured in compliance with requirements of ISO 9001:2015 standard.



BENEFITS

- Foam Safe, Solvent Free
- Polyurethane Bonding Technology
- 60 second adhesion to building materials surface
- application temperature range that suits North America
- creates a strong bond the first time that wont weaken
- helps reduce the amount of fasteners needed
- fast and easy application

APPLICATION

- Foam Safe, Solvent Free
- EPS, XPS, PUR, ISO, and mineral wool
- multipurpose construction adhesive with high adhesion to many materials and substrates.
- trim, molding
- installing counter tops
- hanging mirrors
- All DIY projects

TECHNICAL DATA

Parameter (73°F (+23°C)/50% RH)	Value
Nominal value [oz]	24
Correction time [min]	2 - 5
Open time [min]	2 - 5
Full cure time (RB024) [h]	24
Flame spread / Smoke developed ((UL723 (ASTM E84))	15/10
Shear strength (conditions: joint 1mm, open time 60-90 sec, at 23C 50%RH) [EOTA TR 46] [PSI]	>29
Tensile strength (conditions: joint 1mm, open time 60-90 sec, at 23C 50%RH) [EOTA TR 46] [PSI]	>44
Conditions of application	Value
Can / applicator temperature [°F] (optimum 68°F)	41 - 95
Ambient/substrate temperature [°F]	32 - 95
Colour	Value
Yellow	+

METHOD OF USE

Prior to application, read safety instruction presented at the end of TDS and in MSDS.



Surface preparation

- The working surface should be clean and free of any dust, oil, grease, etc.
- Cover and protect surfaces not intended for foam exposure.
- It is necessary to level the surface when unevenness exceeds 0.39 inches (1 cm).

Product preparation

- If necessary, the product should be brought to room temperature; e.g. by immersion in warm water (max temp up to 86°F (+30°C)), or by allowing the product to warm to room temperature for at least 24 hours.
- Gun temperature cannot be lower than the can temperature.
- Use protective gloves, mask and glasses.
- Shake the can vigorously for 30-45 seconds.
- Remove the protective cap, invert the can and screw the can firmly onto the dispensing gun using the plastic collar and do not overtighten.
- Maintain the can in an upside-down, inverted position during the application.
- Adjust the control knob on the gun handle to achieve the desired application flow. Point the gun into a trash can and slowly pull the trigger to test dispensing flow rate until desired bead size is determined.

Application

- Always dispense the product with the can inverted, valve down.
- While applying the foam, maintain a consistent pulling motion with the gun tip leading the direction the foam will be applied.
- When applying the foam adhesive, the bead diameter should not exceed 1.18 inches.
- After approximately one minute from application of the adhesive to the substrate, join the two materials together and correct positioning quickly after.
- When adhering a large material such as Drywall, OSB, or Tile, the adhesive should cover more than 10% of the bonding surface.
- Apply the adhesive 2 inches from the edges with a diagonal cross or serpentine beads through the middle if required.
- When adhering materials to the ceiling or a vertical surface, the material must be temporarily held or mechanically fastened in place until the adhesive has the initial grip (approximately 1-5 minutes).
- If the application of the foam is delayed for more than 5 minutes, clean the applicator tip with TYTAN Foam Cleaner and vigorously shake the can prior to resuming application.
- Upon finishing the application, tighten the control knob, clean the gun tip with TYTAN Foam

3/6



Cleaner, leave the gun attached and store the can in an upright position.

Works after completion of application

- Cured foam will be damaged when exposed to UV rays. Protect cured foam by covering or painting.
- After completion of work, the gun should be thoroughly cleaned using TYTAN Foam Cleaner.
- When the can is empty, tighten the control knob, unscrew the can from the gun and spray the tip and basket of the gun with TYTAN Foam Cleaner. Then screw on the can of TYTAN Foam Cleaner, open the control knob and squeeze the trigger until clear foam cleaner solution is flowing out of the gun. Tighten the control knob to ensure no air will enter the barrel of the gun and unscrew the foam cleaner from the gun.

Remarks / restriction

- Always leave the can on the gun until a new can is needed to continue or start a new application. The can should only be removed when empty and a new can is needed to complete the same job.
- Ensure the control knob is tightened when the product is not in use. Air entering the barrel of the gun for more than 2-3 minutes will decrease the efficiency and life of your gun.
- The curing of the product is dependent on temperature and humidity. A significant decrease in temperature within 24 hours of application can affect the product's properties and adhesion.
- Use opened product within seven days.
- The product will not adhere to polyethylene, polypropylene, polyamide, silicone and Teflon.
- Quality and condition of the gun can impact the performance of the foam product.
- Uncured foam can be removed with TYTAN Foam Cleaner.
- Hardened foam may be removed mechanically (e.g. with a knife).
- For the safety of the installer, always ensure access to adequate ventilation during the application of polyurethane foams.

REMARKS / RESTRICTION

All parameters are based on tests compliant with manufacturer's internal standards and are highly dependent on environmental conditions during application and curing of the foam (ambient and surface temperatures, condition of applicator and the skill of the installer).

The manufacturer uses test methods approved by FEICA, designed to deliver transparent and reproducible test results and to ensure that customers have an accurate representation of product performance. FEICA OCF test methods are available at: <http://www.feica.com> (Our industry -> PU Foam (OCF) -> OCF Test Methods). FEICA is a multinational association representing the European adhesive and sealant industry, including one-component foam manufacturers.

TRANSPORT / STORAGE

The adhesive maintains its usability within 12 months from manufacturing date, provided that it is stored in original packaging in vertical position (valve facing up) in a dry place in temperature 41°F (+5°C) to 86°F (+30°C). Storage in temperature exceeding 86°F (+30°C) shortens the shelf life of the product, adversely affecting its parameters. The product may be stored in temperature 23°F (-5°C), no longer however than for 7 days (excluding transport). Storage of adhesive cans in temperature exceeding 122°F (+50°C) or in vicinity of open flame is not allowed. Storage of the product in a position other than recommended may result in jamming the valve. The can cannot be squeezed or pierced even when it is empty. Do not store the foam in the passenger compartment. Transported only in the trunk.

Detailed transport information is included in the Safety Data Sheet (SDS).

Transport temperature	Foam transport period [days]
< -4 °F (-20°C)	4
-2°F ÷ 14°F (-19°C ÷ -10°C)	7
16°F ÷ 32°F (-9°C ÷ 0°C)	10



SAFETY AND HEALTH PRECAUTIONS

The information contained herein is offered in good faith based on Producer's research and is believed to be accurate. However, because conditions and methods of use of our products are beyond our control, this information shall not be used in substitution for customer's tests to ensure that Producer's products are fully satisfactory for your specific applications. Producer's sole warranty is that the product will meet its current sales specifications. Your exclusive remedy for breach of such warranty is limited to refund of purchase price or replacement of any product shown to be other than as warranted. Producer specifically disclaims any other expressed or implied warranty of fitness for a particular purpose or merchantability. Producer disclaims liability for any incidental or consequential damages. Suggestions of use shall not be taken as inducements to infringe any patent.

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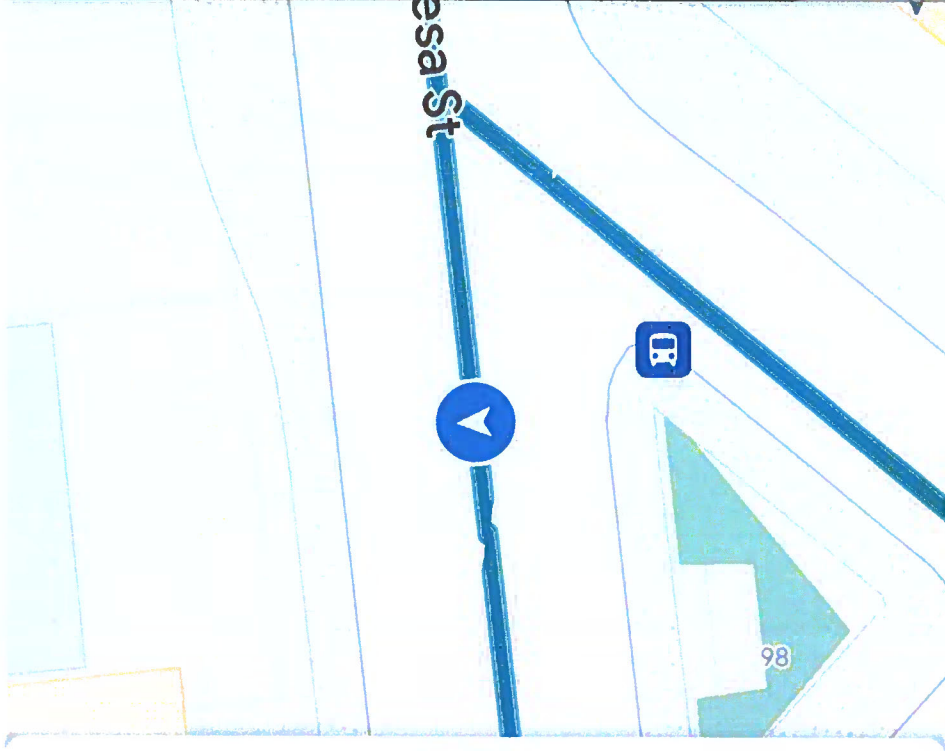
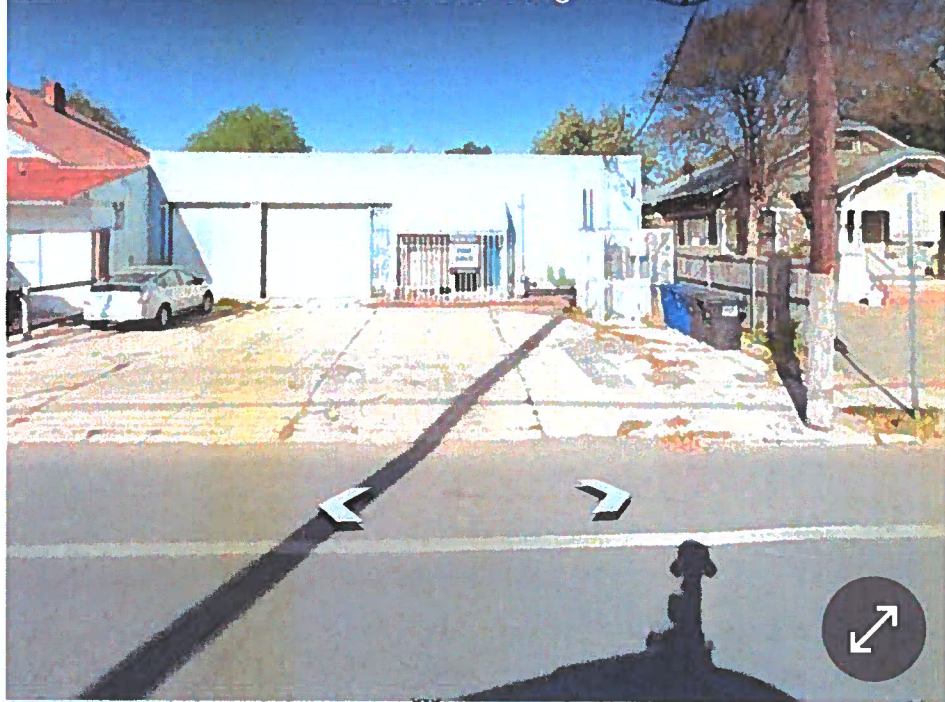
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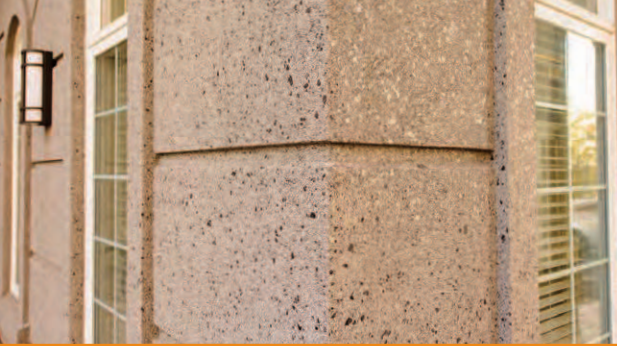
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Guide to EIFS

with Drainage Detailing

Exterior Insulation and Finish Systems (EIFS)

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Guide to EIFS

with Drainage Detailing

First Edition
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About EIMA

Sustainability and energy conservation are critical issues, and Exterior Insulation and Finish Systems (EIFS) are proven solutions to today's design challenges. The mission of the EIFS Industry Members Association (EIMA) is the advancement and growth of EIFS in the United States. EIMA does this by promoting technical excellence through advocacy, industry standards, research, education and communication.

The only national organization solely dedicated to the EIFS industry, EIMA strives to provide a seamless flow of information to all of its stakeholders: suppliers, manufacturers, distributors, contractors, architects and owners.

Founded in 1981, the EIFS Industry Members Association (EIMA) is a national non-profit technical trade association comprised of leading suppliers, manufacturers, distributors, contractors, architects, related products manufacturers and suppliers, and other interested parties involved in the Exterior Insulation and Finish Systems (EIFS) industry.

Solving Industry Challenges...

EIMA's core objective is to promote the advancement and growth of EIFS while providing outstanding industry representation and services to its members. EIMA develops technical, training, installation and design standards for use by architects, designers, code bodies and other technical associations.

EIMA monitors and positively influences government actions, and assures the long-term availability of qualified contractors. Over the years, many working relationships have been forged with national and regional contractor associations to address issues of common interest. In an effort to solve challenges facing the EIFS industry, EIMA actively encourages all elements of the construction community to work together and exchange information.

Assuring Standards of Quality...

As an accredited ANSI standards organization, EIMA helps develop industry standards in an advisory capacity and educational programs that enable members to address important issues facing the EIFS and construction industries. Its Technical and Research Committee deals with a broad range of technical issues and represents the EIFS industry in negotiations with national building codes and standards agencies, as well as government regulators. In addition, the committee plans and implements research and testing programs, develops industry guideline specifications for EIFS, and presents at technical symposiums.

Guide to EIFS with Drainage Detailing

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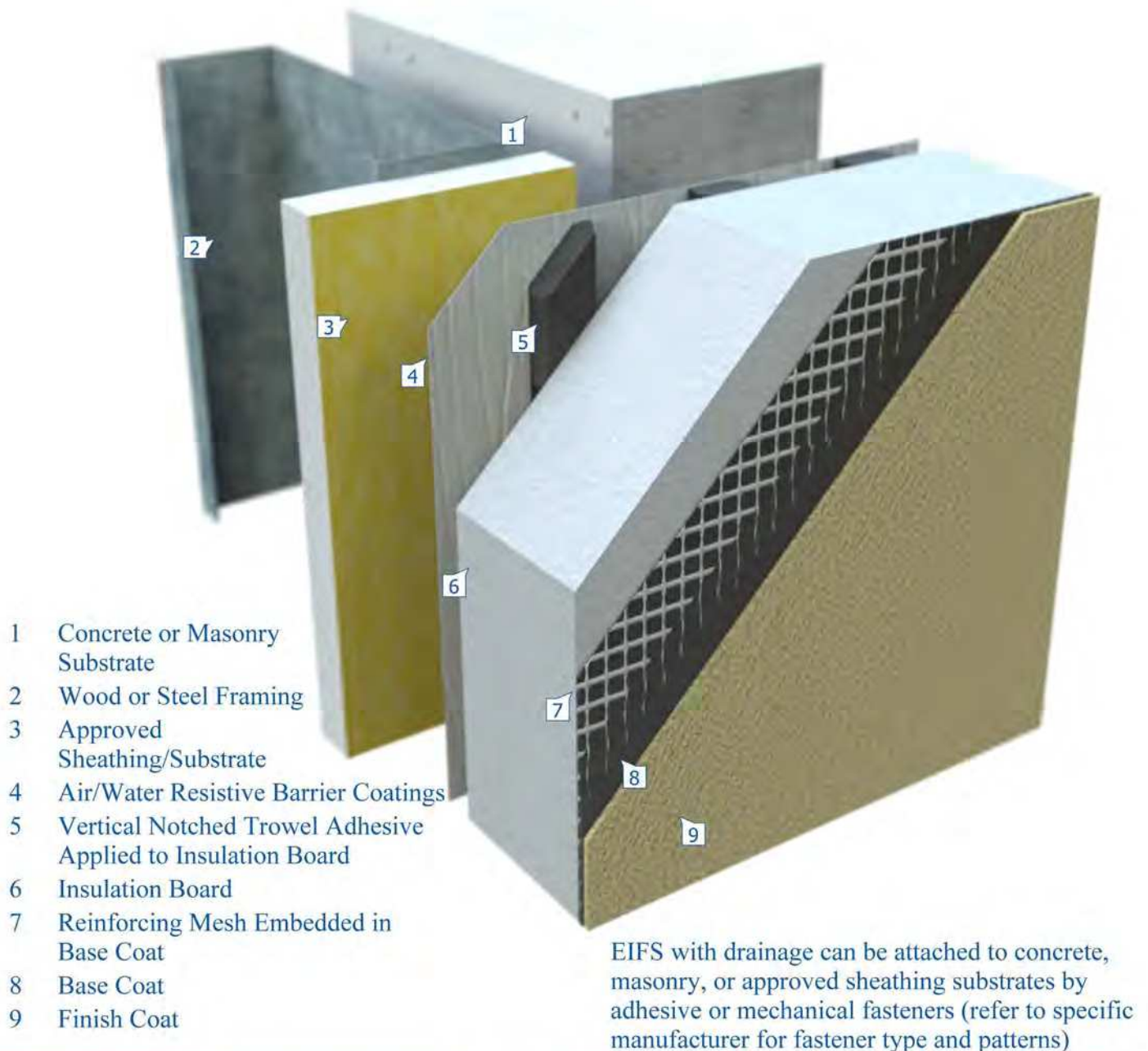
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TYPICAL EIFS CONFIGURATION



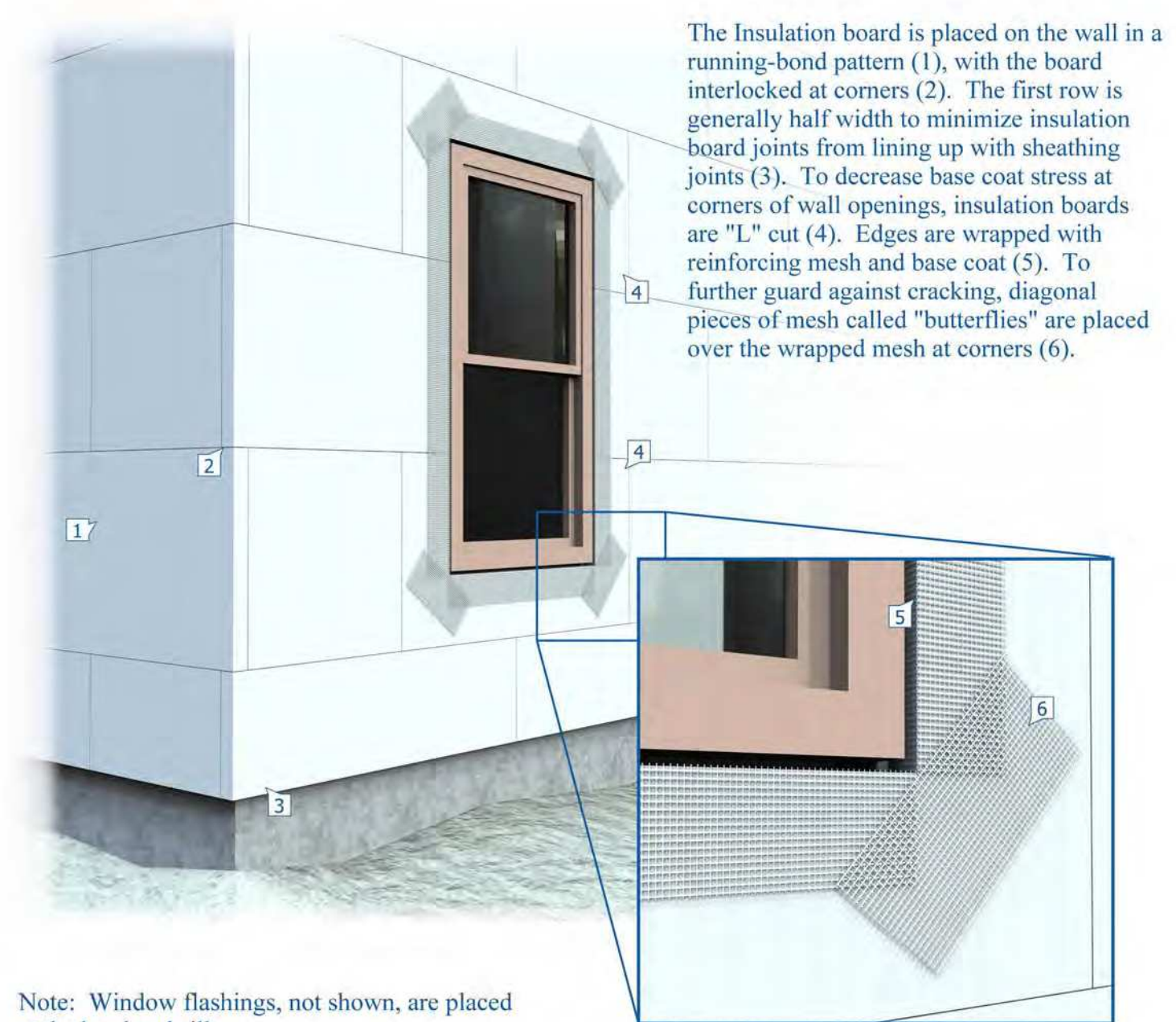
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EPS BOARD LAYOUT



Note: Window flashings, not shown, are placed at the head and sill.



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OPTIONS FOR TERMINATING AT FOUNDATION

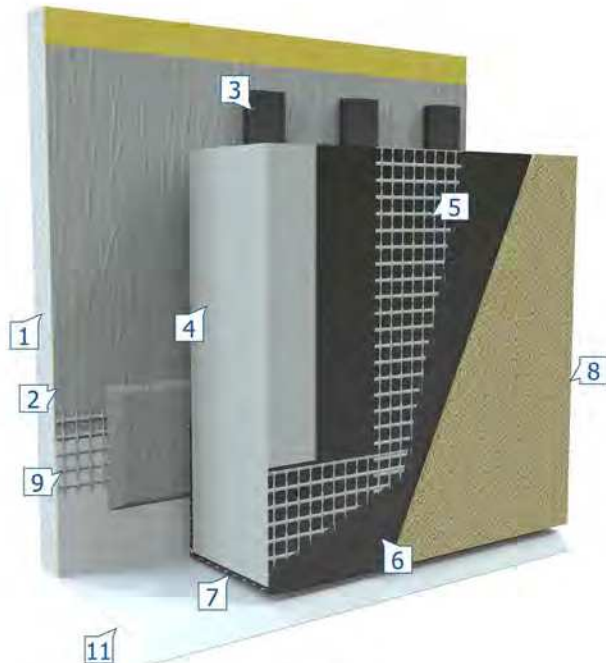


Fig. 1 Flashed Termination

- 9 EIFS Manufacturer Recommended Transition
- 10 Manufacturers Approved Drainage Strip If Applicable, Not Shown
(Some manufacturers include additional components to promote drainage at horizontal terminations)
- 11 Flashing

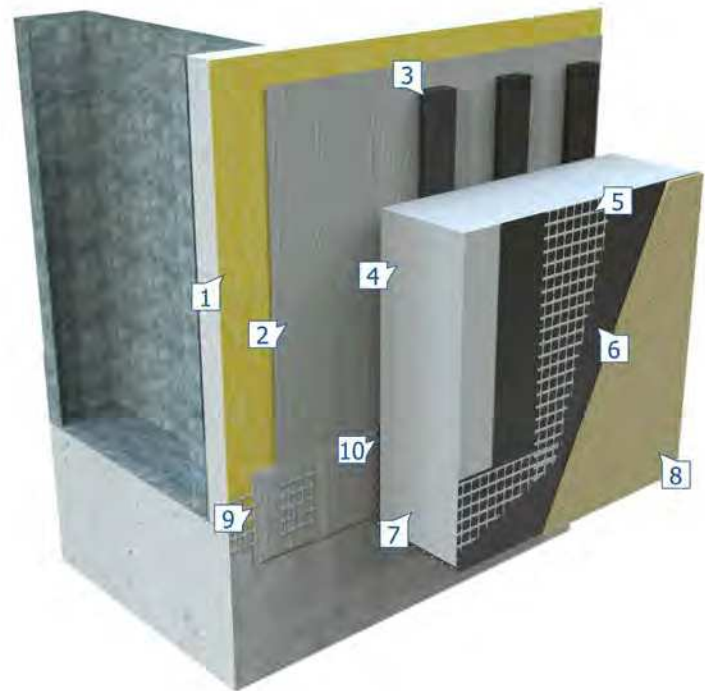


Fig. 2 Non-Flashed Termination



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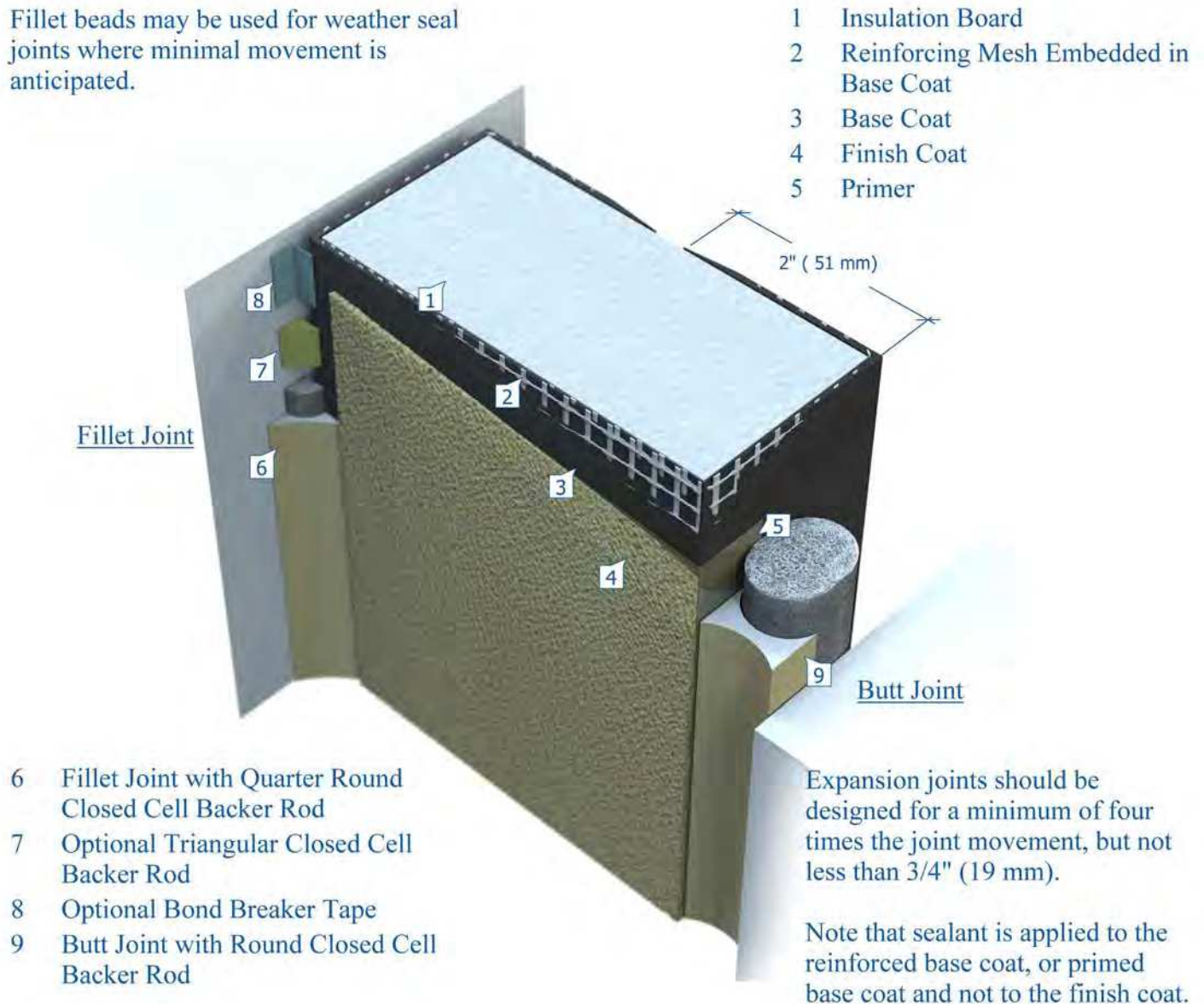
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SEALANT CONFIGURATION OPTIONS

Fillet beads may be used for weather seal joints where minimal movement is anticipated.



For specific installation requirements refer to the sealant manufacturer's guidelines and ASTM C1481, "Standard Guide for Use of Joint Sealants with Exterior Insulation and Finish Systems (EIFS)"



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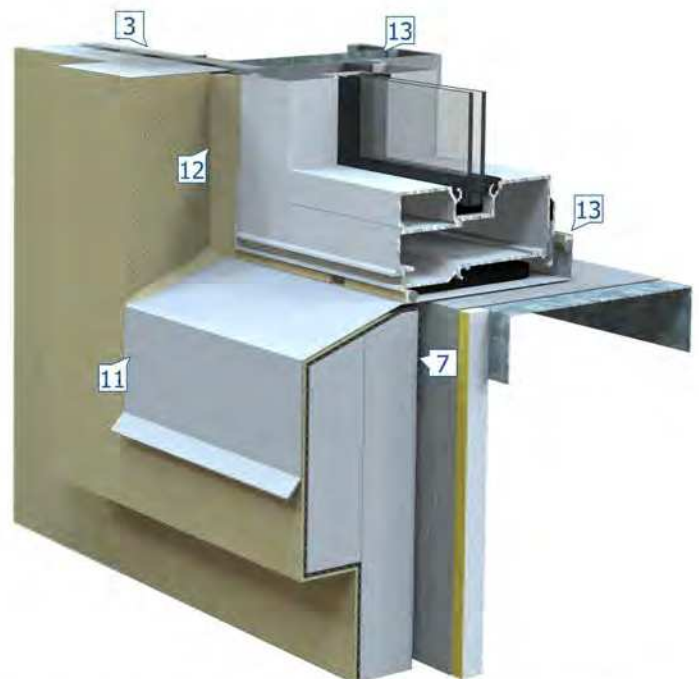
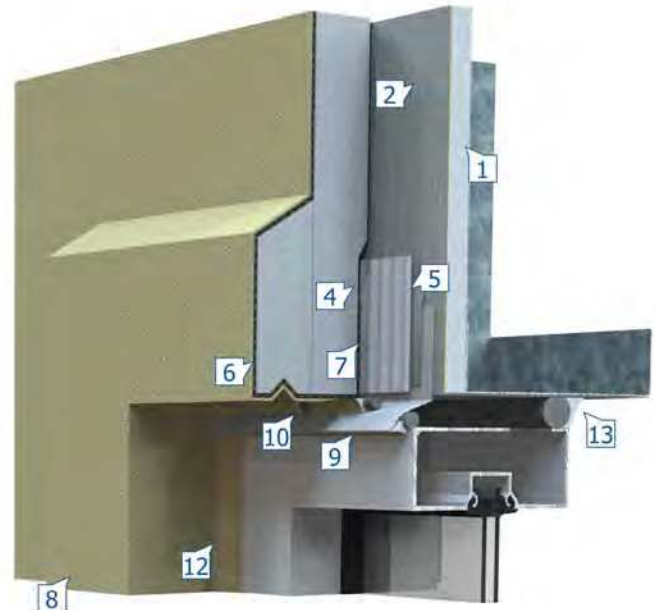
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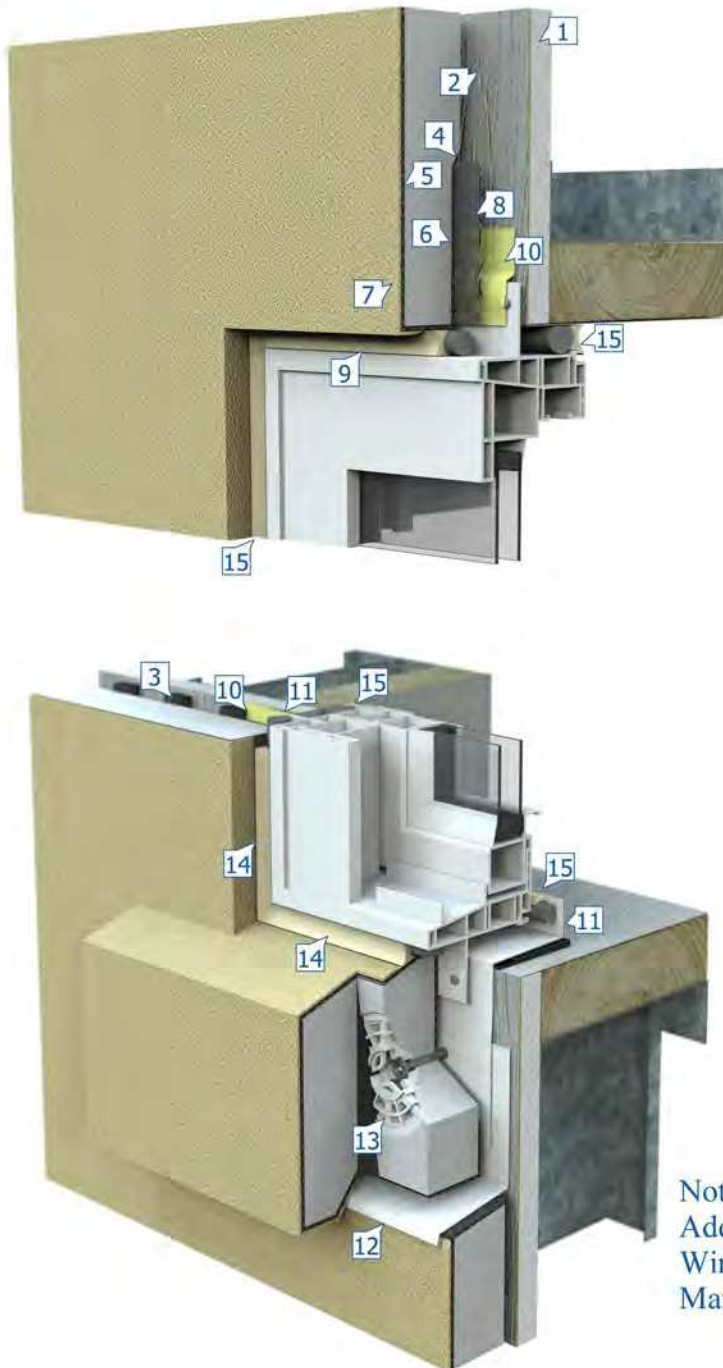
HEAD/SILL - STOREFRONT WINDOW

- 1 Approved Sheathing/Substrate
- 2 Air/Water Resistive Barrier Coatings
- 3 Adhesive in Vertical Notched Trowel Configuration
- 4 Insulation Board Notched to Accommodate Opening Preparation and Provision for Drainage (varies per manufacturer)
- 5 Drainage Strip per Manufacturer if Applicable
- 6 Reinforcing Mesh Embedded in Base Coat
- 7 Reinforcing Pre-Wrapped to Back Side of Insulation Board 2" (51 mm) Min.
- 8 Finish Coat
- 9 Flashing
- 10 Sealant with Closed Cell Backer Rod and Weeps a Maximum of Every 24" (610 mm)
- 11 Bed Sealed and Shimmed Sill Pan Flashing with End Dams
- 12 Sealant Joint
- 13 Air Seal



Sill Pan Flashing Example

HEAD/SILL SELF-FLASHING WINDOW



- 1 Approved Sheathing/Substrate
- 2 Air/Water Resistive Barrier Coatings
- 3 Adhesive in Vertical Notched Trowel Configuration
- 4 Insulation Board Notched to Accommodate Opening Preparation and Provision for Drainage
- 5 Reinforcing Mesh Embedded in Base Coat
- 6 Detail Mesh Wrapped to Back Side of Insulation Board 2" (51 mm) Min.
- 7 Finish Coat
- 8 Drainage Strip per Manufacturer if Applicable
- 9 Sealant with Closed Cell Backer Rod and Weeps Every 24" (610 mm)
- 10 EIFS Manufacturer Recommended Transition
- 11 Bed Sealed and Shimmed Concealed Sill Pan Flashing with End Dams
- 12 Transition Flashing
- 13 Mechanical Fastener
- 14 Sealant with Closed Cell Backer Rod
- 15 Air Seal

Note:

Additional Head Flashing May Be Necessary for Windows That Are Not Self Flashing, Refer to Window Manufacturer's Requirements.



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TERMINATION AT PARAPET CAP FLASHING



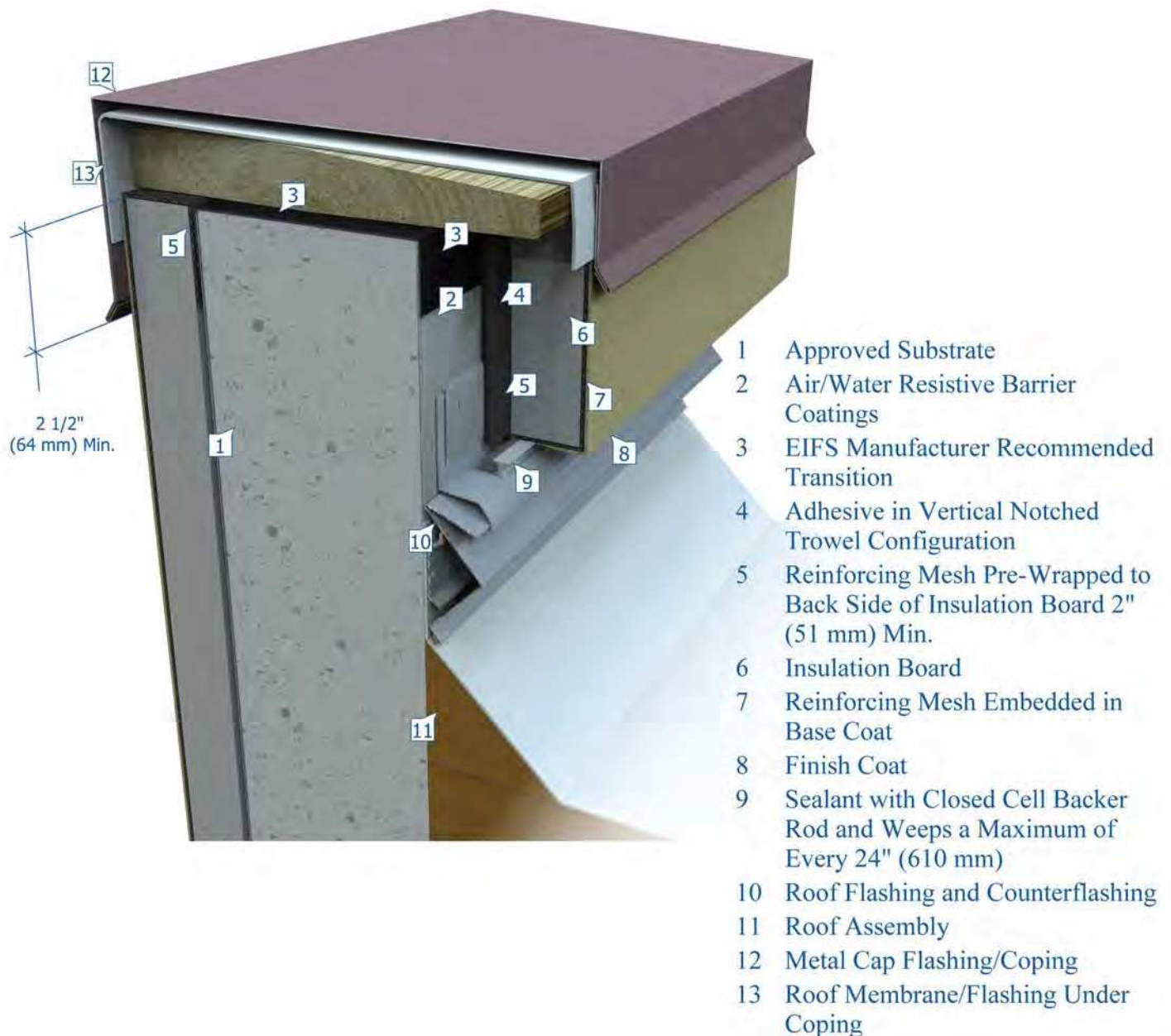
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TERMINATION AT PARAPET - SOLID SUBSTRATE



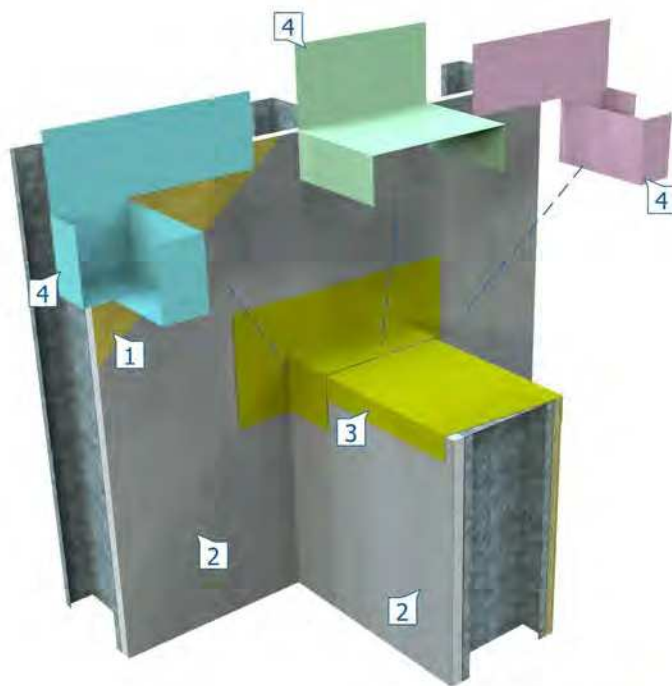
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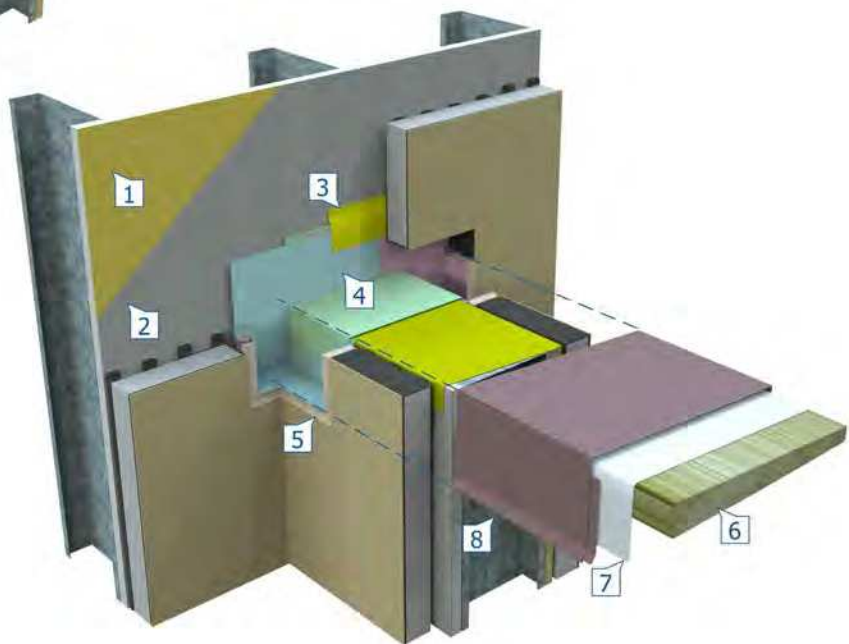
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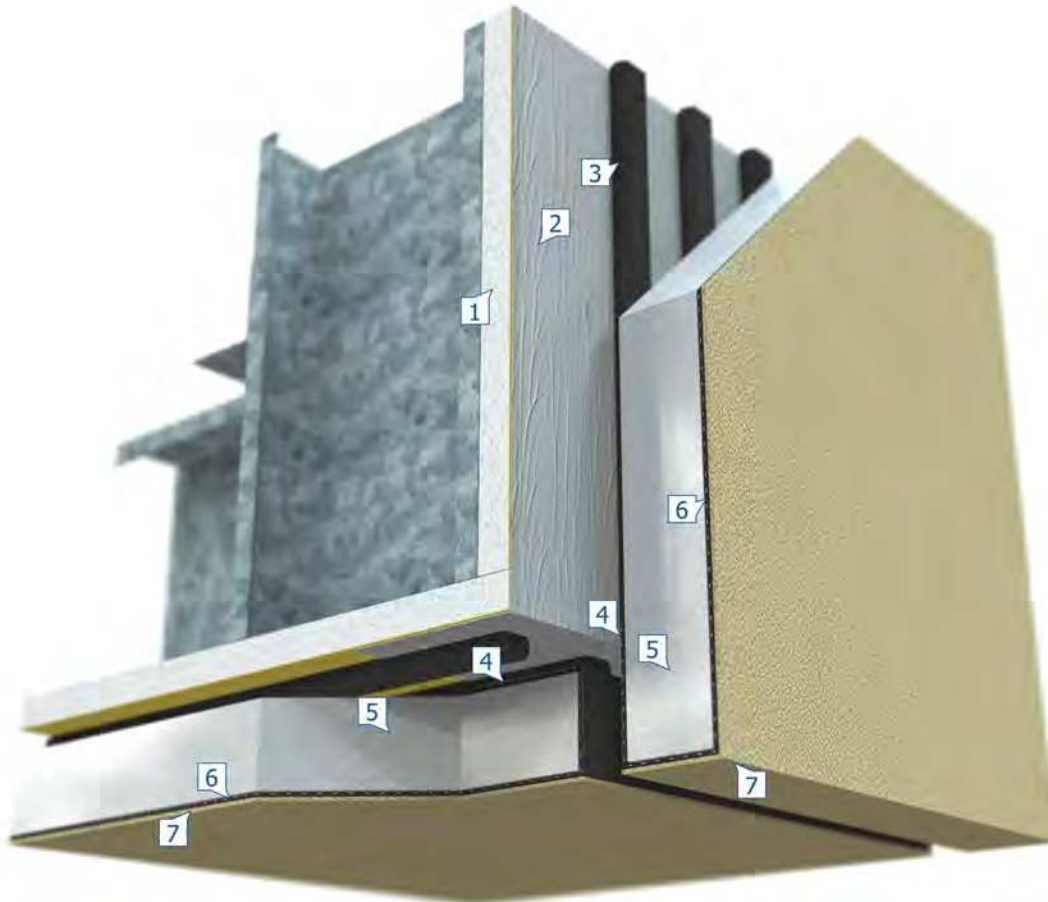
TERMINATION AT PARAPET WALL INTERSECTION



- 1 Approved Substrate
- 2 Air/Water Resistive Barrier Coatings
- 3 EIFS Manufacturer Recommended Transition
- 4 Saddle Flashing
- 5 Sealant with Closed Cell Backer Rod 3/4" (19 mm) Min.
- 6 Wood Blocking
- 7 Transition Membrane or Comparable Roofing Material
- 8 Metal Cap Flashing/Coping



TERMINATION AT SOFFIT/FASCIA INTERSECTION



Note:

Ensure bottom edge is left open to weep

- 1 Approved Substrate
- 2 Air/Water Resistive Barrier Coatings
- 3 Adhesive in Vertical Notched Trowel Configuration
- 4 Reinforcing Mesh Pre-Wrapped to Back Side of Insulation Board 2" (51 mm) Min.
- 5 Insulation Board
- 6 Reinforcing Mesh Embedded in Base Coat
- 7 Finish Coat



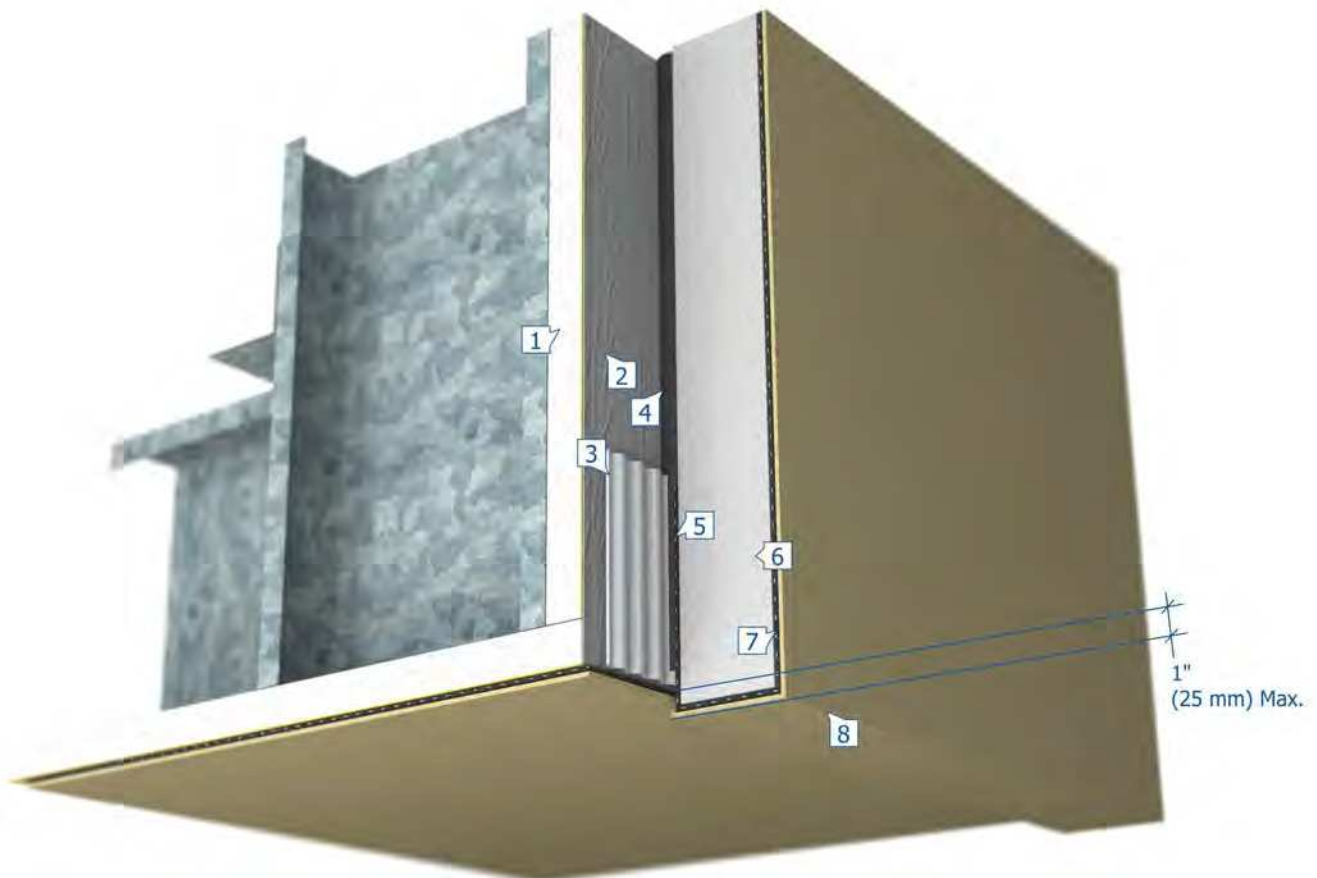
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TERMINATION AT SOFFIT - UNINSULATED



- 1 Approved Substrate
- 2 Air/Water Resistive Barrier Coatings
- 3 Drainage Strip per Manufacturer if Applicable
- 4 Adhesive in Vertical Notched Trowel Configuration
- 5 Reinforcing Mesh Pre-Wrapped to Back Side of Insulation Board 2" (51 mm) Min.

- 6 Insulation Board
- 7 Reinforcing Mesh Embedded in Base Coat
- 8 Finish Coat

Note:

Ensure bottom edge is left open to weep



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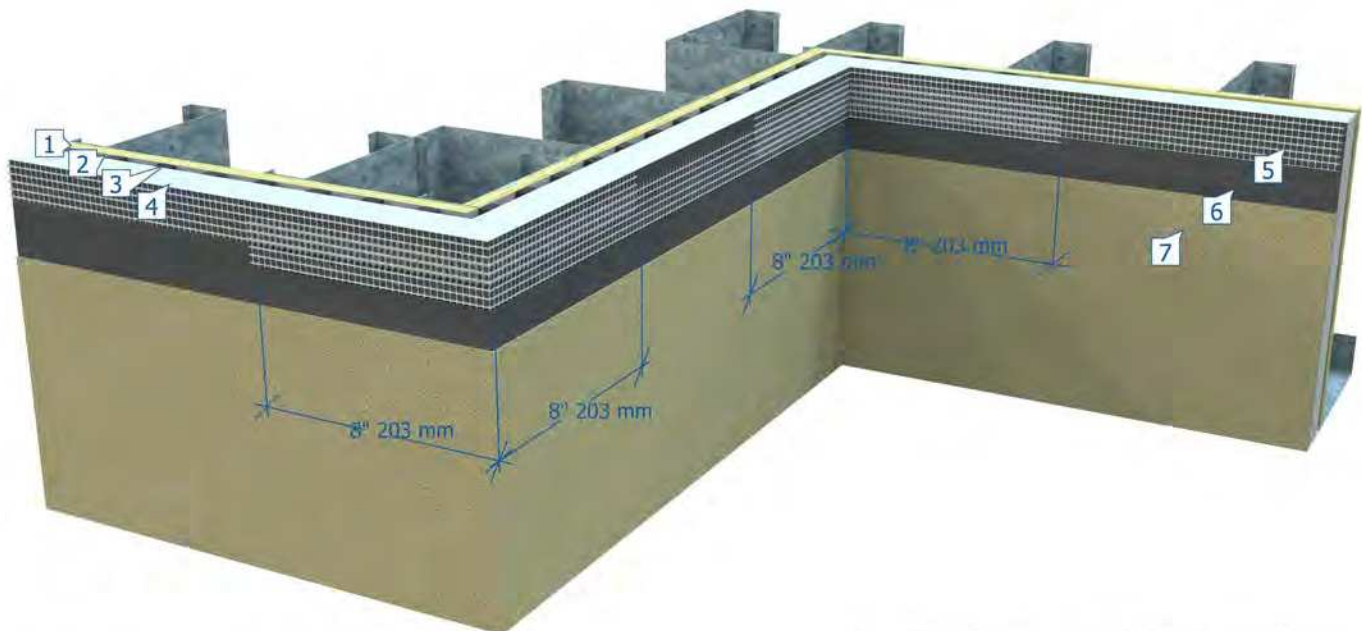
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INSIDE/OUTSIDE CORNERS

Double Wrap Inside and Outside Corners with
Reinforcing Mesh, Allow an 8" Overlap.
Offset Board Edges at Corners.



- 1 Approved Substrate
- 2 Air/Water Resistive Barrier Coatings
- 3 Adhesive in Vertical Notched Trowel Configuration
- 4 Insulation Board

- 5 Reinforcing Mesh Embedded in Base Coat
- 6 Base Coat
- 7 Finish Coat



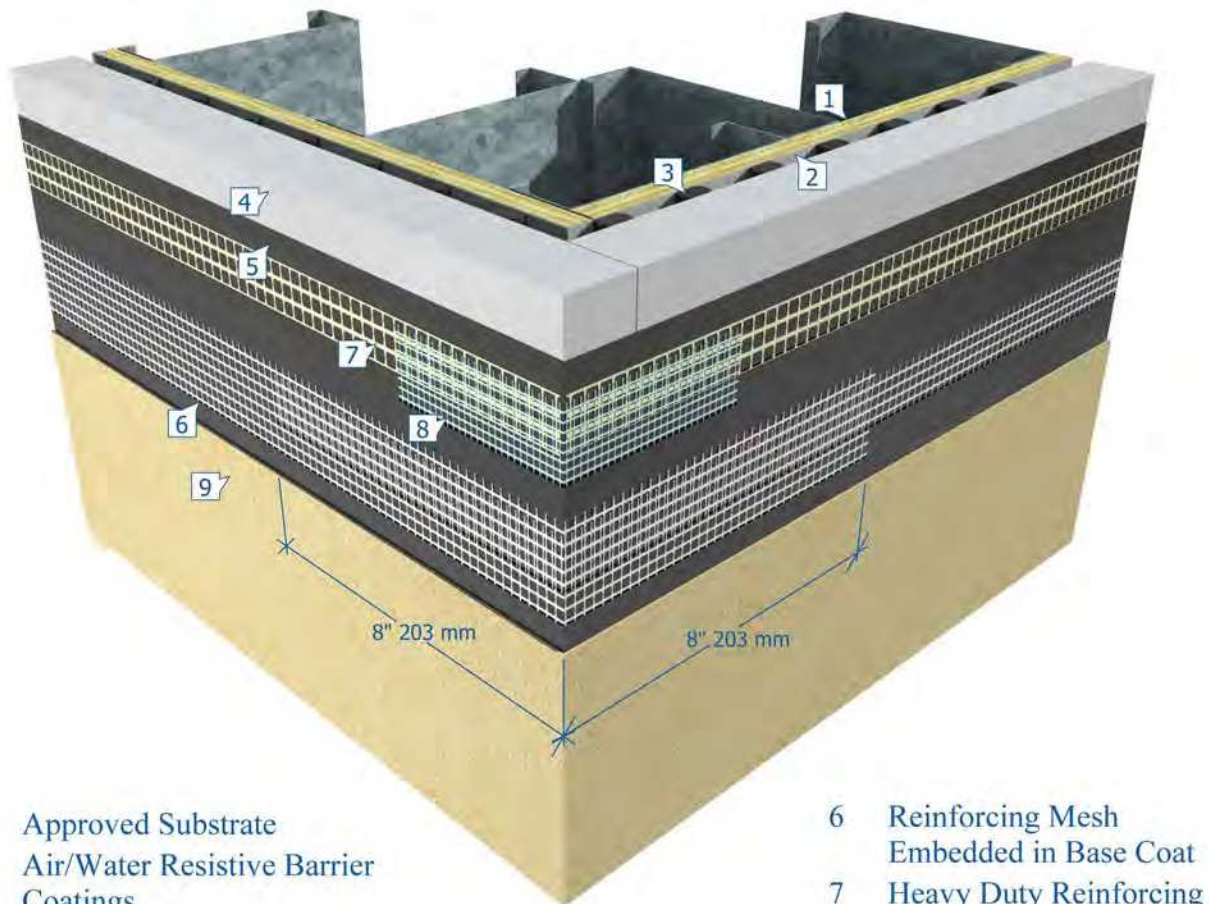
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OUTSIDE CORNER HIGH IMPACT



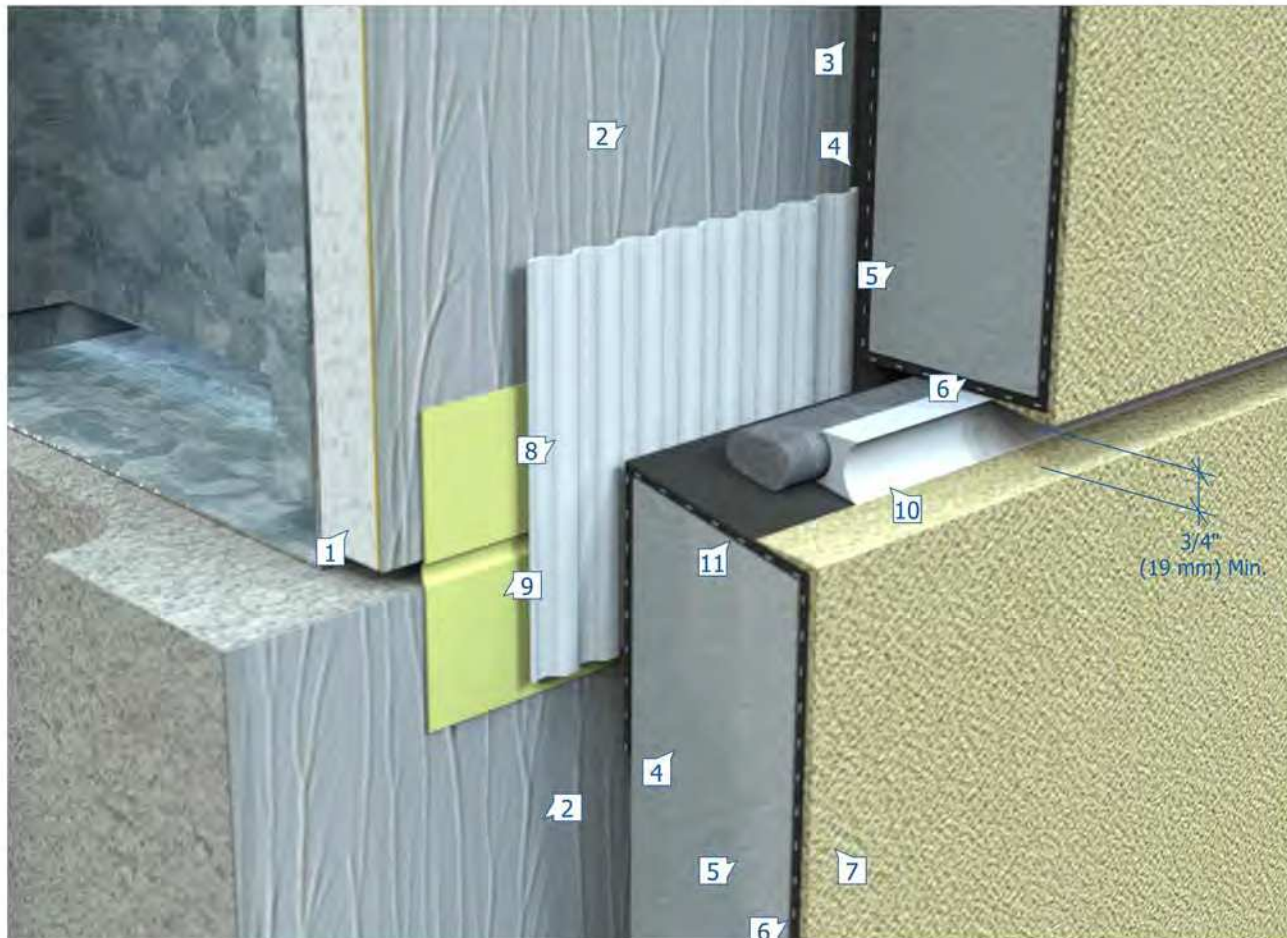
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HORIZONTAL JOINT-SUBSTRATE CHANGE



- | | | | |
|---|---|----|--|
| 1 | Approved Substrate | 7 | Finish Coat |
| 2 | Air/Water Resistive Barrier Coatings | 8 | Drainage Strip per Manufacturer if Applicable |
| 3 | Adhesive in Vertical Notched Trowel Configuration | 9 | EIFS Manufacturer Recommended Transition |
| 4 | Reinforcing Mesh Pre-Wrapped to Back Side of Insulation Board 2" (51 mm) Min. | 10 | Sealant with Closed Cell Backer Rod |
| 5 | Insulation Board | 11 | Slope Exposed Bottom Surface 1:5 Min. Outward to Drain |
| 6 | Reinforcing Mesh Embedded in Base Coat | | |



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HORIZONTAL SLIP JOINT



- | | | | |
|---|---|----|--|
| 1 | Approved Substrate | 7 | Finish Coat |
| 2 | Air/Water Resistive Barrier Coatings | 8 | EIFS Manufacturer Recommended Transition |
| 3 | Adhesive in Vertical Notched Trowel Configuration | 9 | Drainage Strip per Manufacturer if Applicable |
| 4 | Reinforcing Mesh Pre-Wrapped to Back Side of Insulation Board 2" (51 mm) Min. | 10 | Sealant with Closed Cell Backer Rod |
| 5 | Insulation Board | 11 | Slope Exposed Bottom Surface 1:5 Min. Outward to Drain |
| 6 | Reinforcing Mesh Embedded in Base Coat | | |



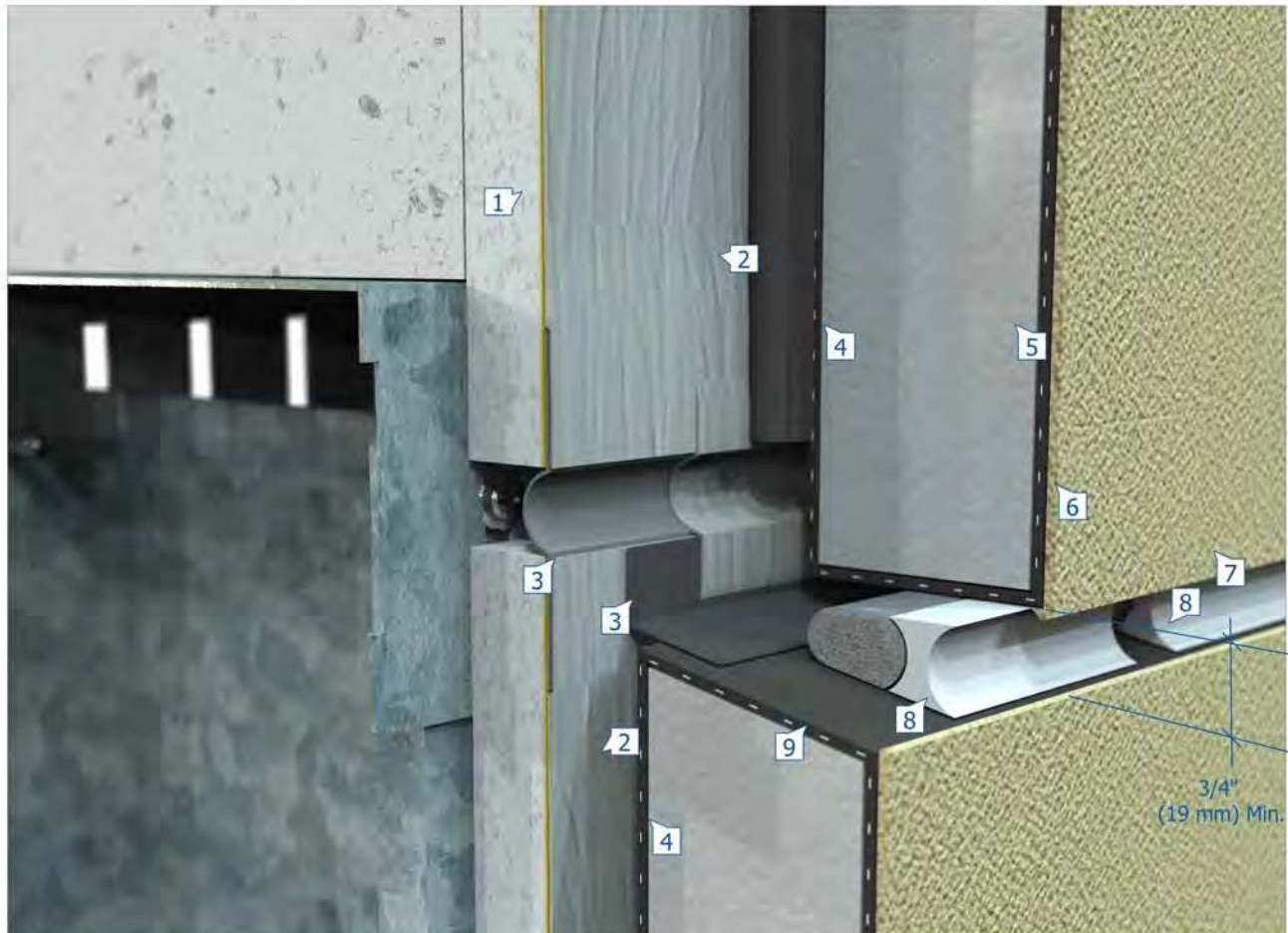
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HORIZONTAL SLIP JOINT WITH DRAINAGE



- | | | | |
|---|---|---|--|
| 1 | Approved Substrate | 7 | Finish Coat |
| 2 | Air/Water Resistive Barrier Coatings | 8 | Sealant with Closed Cell Backer Rod with Baffled Weeps 4' O.C. |
| 3 | EIFS Manufacturer Recommended Transition | 9 | Slope Exposed Bottom Surface 1:5 Min. Outward to Drain |
| 4 | Reinforcing Mesh Pre-Wrapped to Back Side of Insulation Board 2" (51 mm) Min. | | |
| 5 | Insulation Board | | |
| 6 | Reinforcing Mesh Embedded in Base Coat | | |



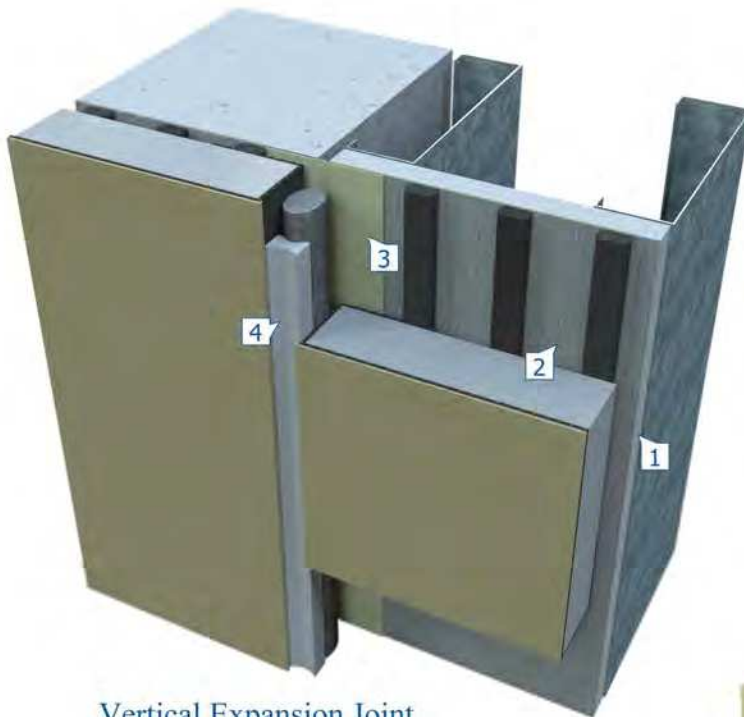
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VERTICAL EXPANSION JOINT OPTIONS

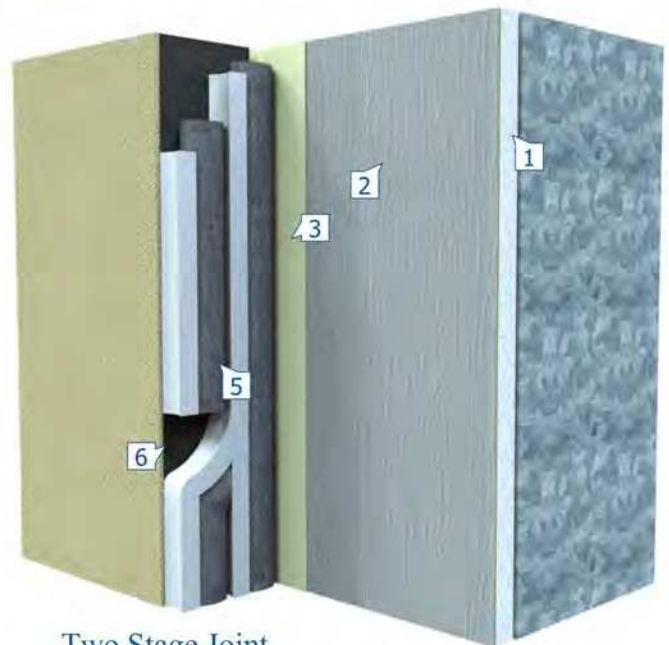


Vertical Expansion Joint

- 1 Approved Substrate
- 2 Air/Water Resistive Barrier Coatings
- 3 EIFS Manufacturer Recommended Transition
- 4 Sealant with Closed Cell Backer Rod
- 5 Two Stage Joint
- 6 Vented Transverse Section of Two Stage Joint

The vertical expansion joint can be installed flush or recessed. The joint is installed without flashing tape at EIFS expansion joints where a change in substrate does not occur.

A two stage joint with vented transverse sections can also be installed.



Two Stage Joint



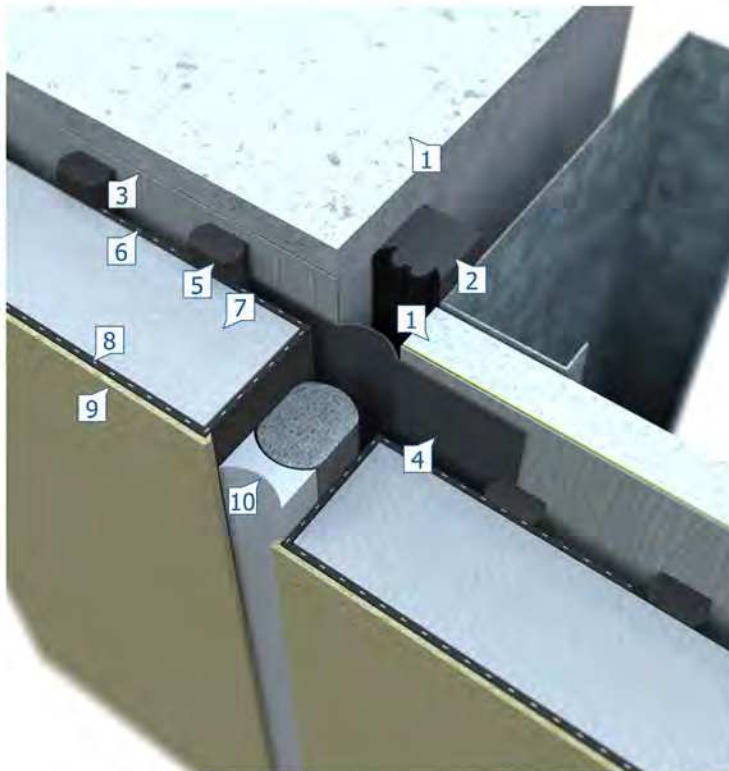
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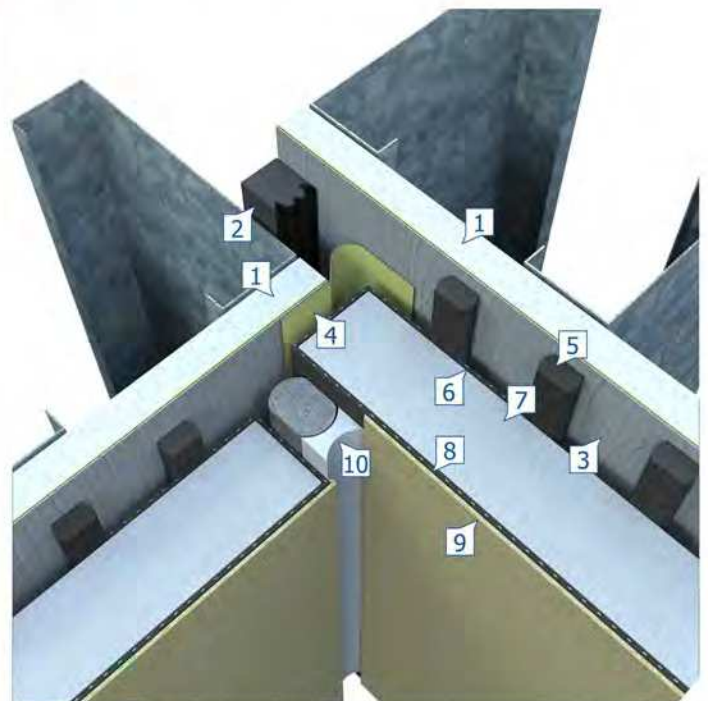
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STRUCTURAL EXPANSION JOINTS



Flush Joint



Corner Joint



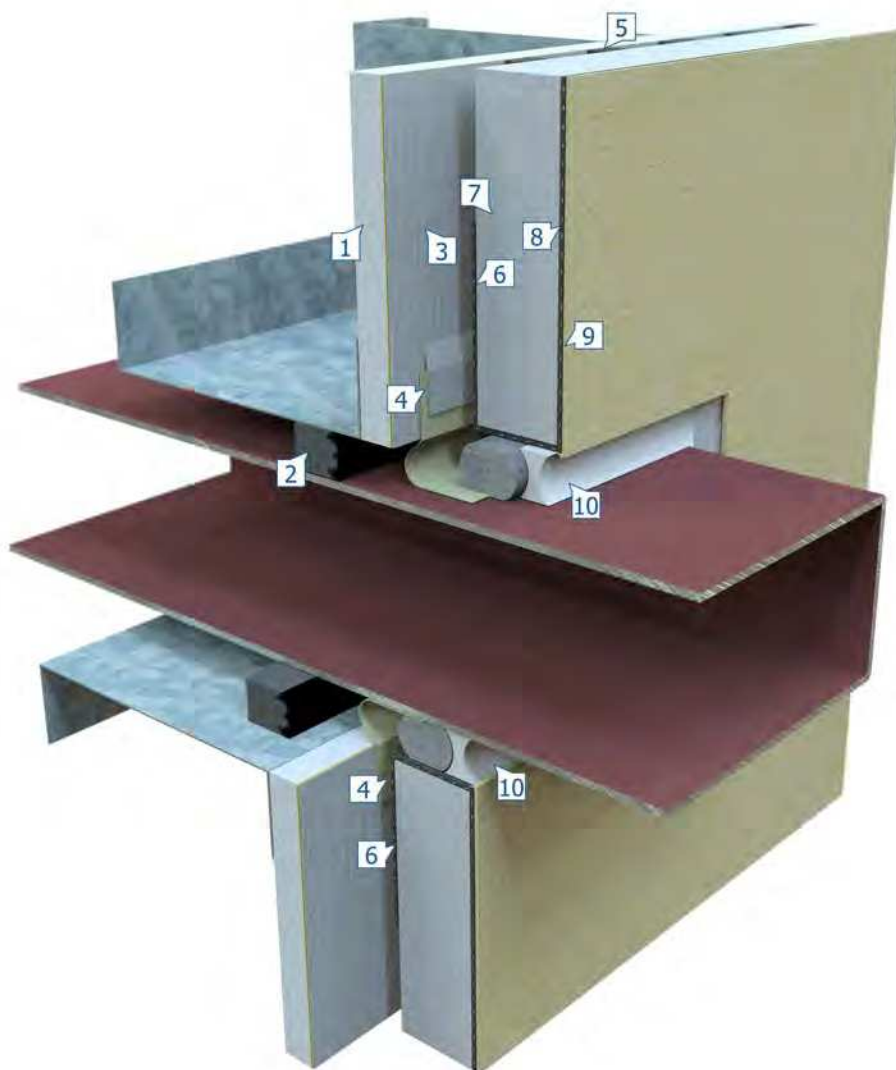
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PENETRATIONS



- 1 Approved Substrate
- 2 Optional Secondary Seal
- 3 Air/Water Resistive Barrier Coatings
- 4 EIFS Manufacturer Recommended Transition
- 5 Adhesive in Vertical Notched Trowel Configuration
- 6 Reinforcing Mesh Pre-Wrapped to Back Side of Insulation Board 2" (51 mm) Min.
- 7 Insulation Board
- 8 Reinforcing Mesh Embedded in Base Coat
- 9 Finish Coat
- 10 Sealant with Closed Cell Backer Rod



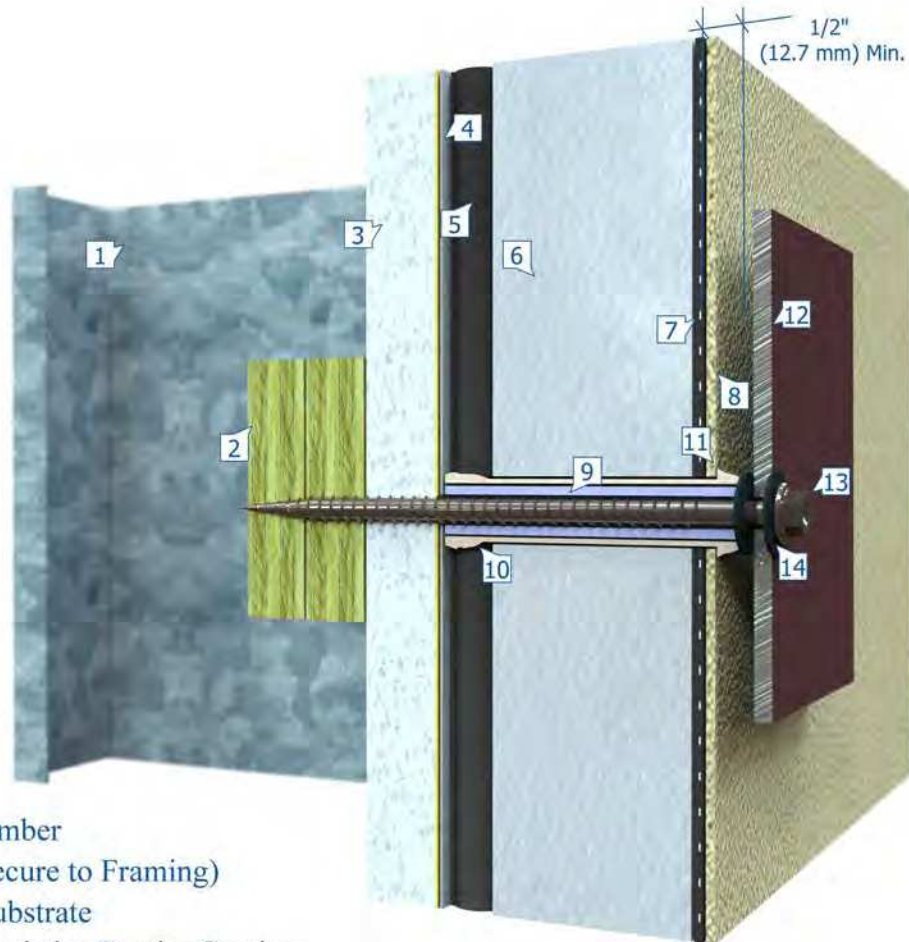
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FIXTURE ATTACHMENT



- 1 Framing Member
- 2 Blocking (Secure to Framing)
- 3 Approved Substrate
- 4 Air/Water Resistive Barrier Coatings
- 5 Adhesive in Vertical Notched Trowel Configuration
- 6 Insulation Board
- 7 Reinforcing Mesh Embedded in Base Coat
- 8 Finish Coat
- 9 Corrosive Resistant Pipe Sleeve
- 10 Sealant Between Sleeve and Water-Resistive Barrier

- 11 Sealant, (Ensure perimeter of pipe sleeve is caulked to prevent water entry into wall)
- 12 Fixture
- 13 Screw/Bolt Attachment to Building Framing/Blocking
- 14 Neoprene Washer

Note:

Screw or bolt and its support shall be designed and installed to carry all loads on it without transferring loads to the EIFS.



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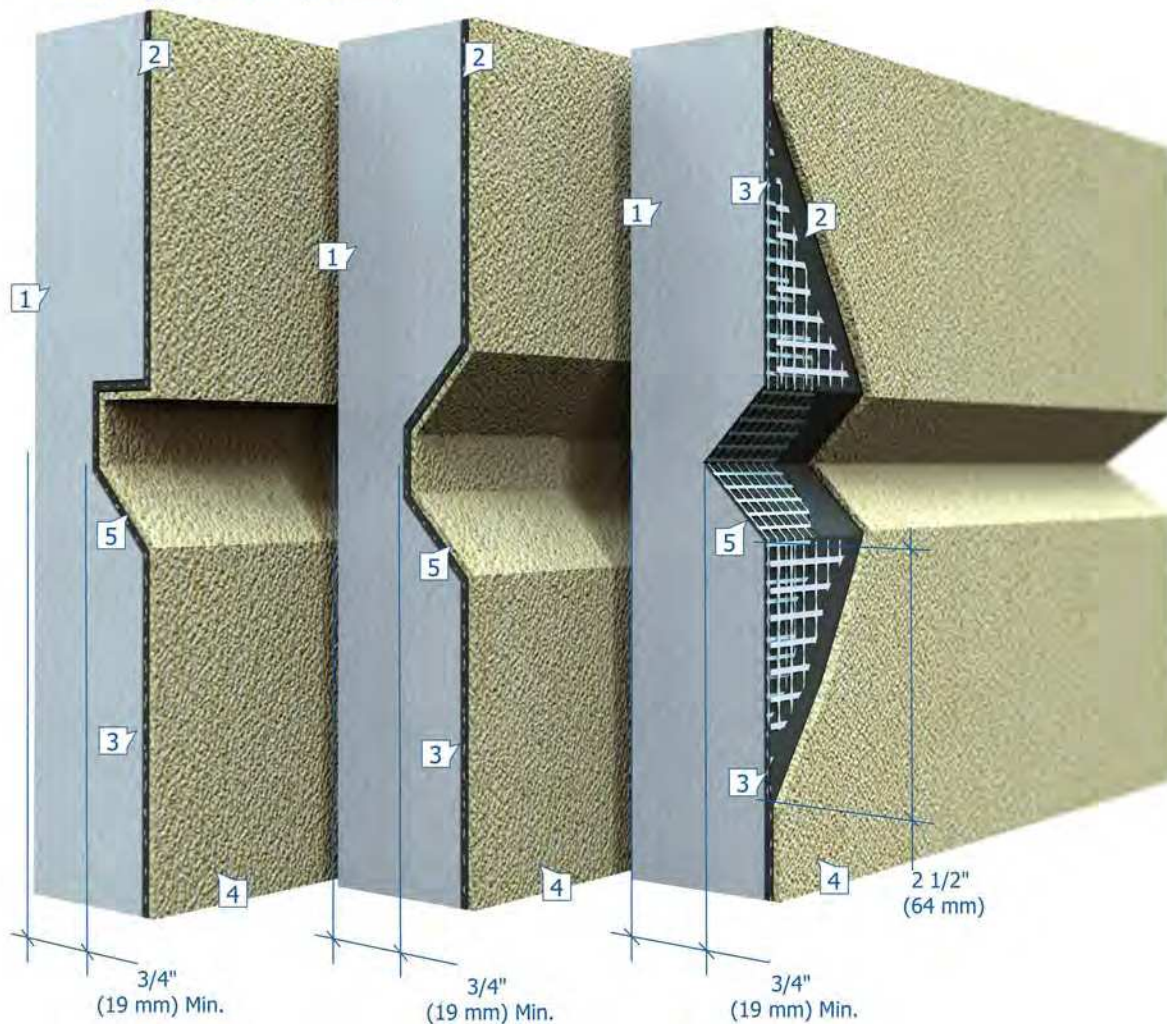
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AESTHETIC REVEALS

- | | | | |
|---|---|---|--|
| 1 | Insulation Board | 4 | Finish Coat |
| 2 | Reinforcing Mesh Embedded in Base Coat | 5 | Bottom Edge of Reveal Sloped for Positive Drainage |
| 3 | Reinforcing Mesh Embedded in Base Coat lapped 2 1/2" (64mm) | | |



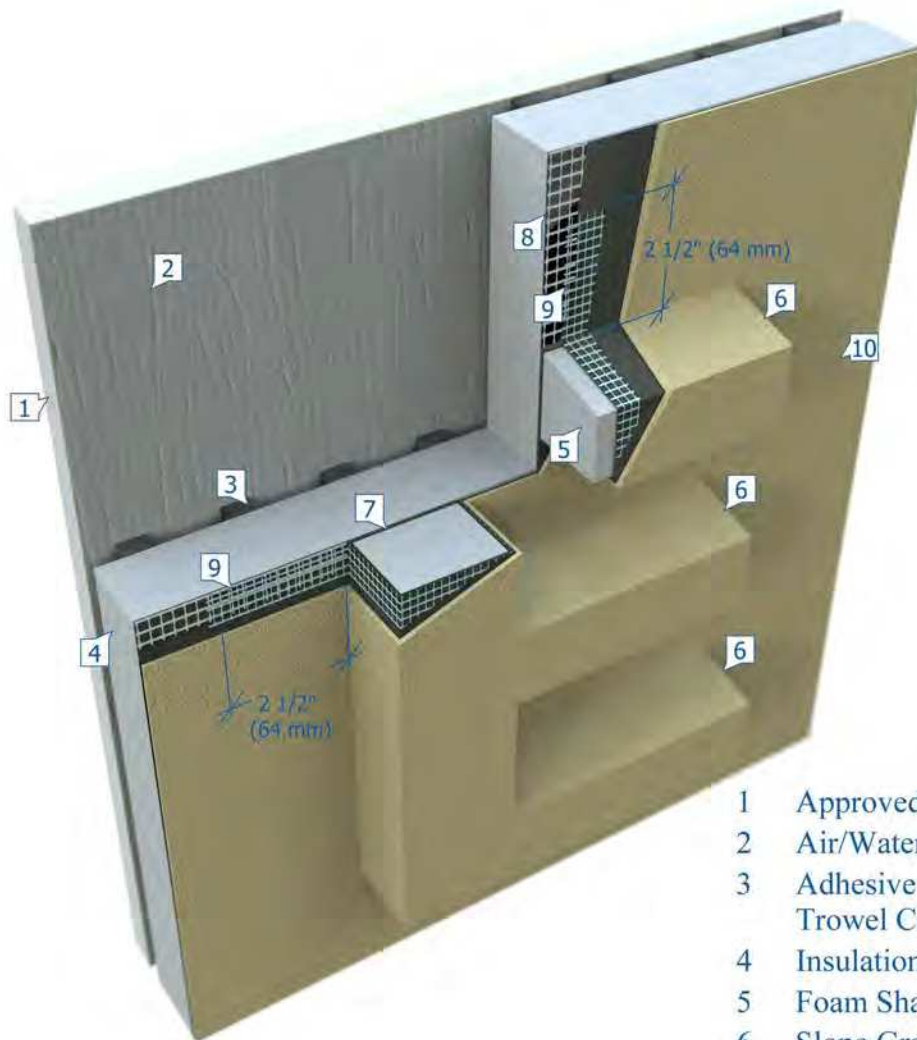
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PROJECTING GRAPHICS



Notes:

Shapes shall not exceed the tested thickness at any point measured from the substrate.

- 1 Approved Substrate
- 2 Air/Water Resistive Barrier Coatings
- 3 Adhesive in Vertical Notched Trowel Configuration
- 4 Insulation
- 5 Foam Shape
- 6 Slope Graphic For Positive Drainage
- 7 Adhesive
- 8 Reinforcing Mesh Embedded in Base Coat
- 9 Lap Reinforcing Mesh from Shape 2 1/2" (64mm) Min. onto Adjacent Insulation Board
- 10 Finish Coat



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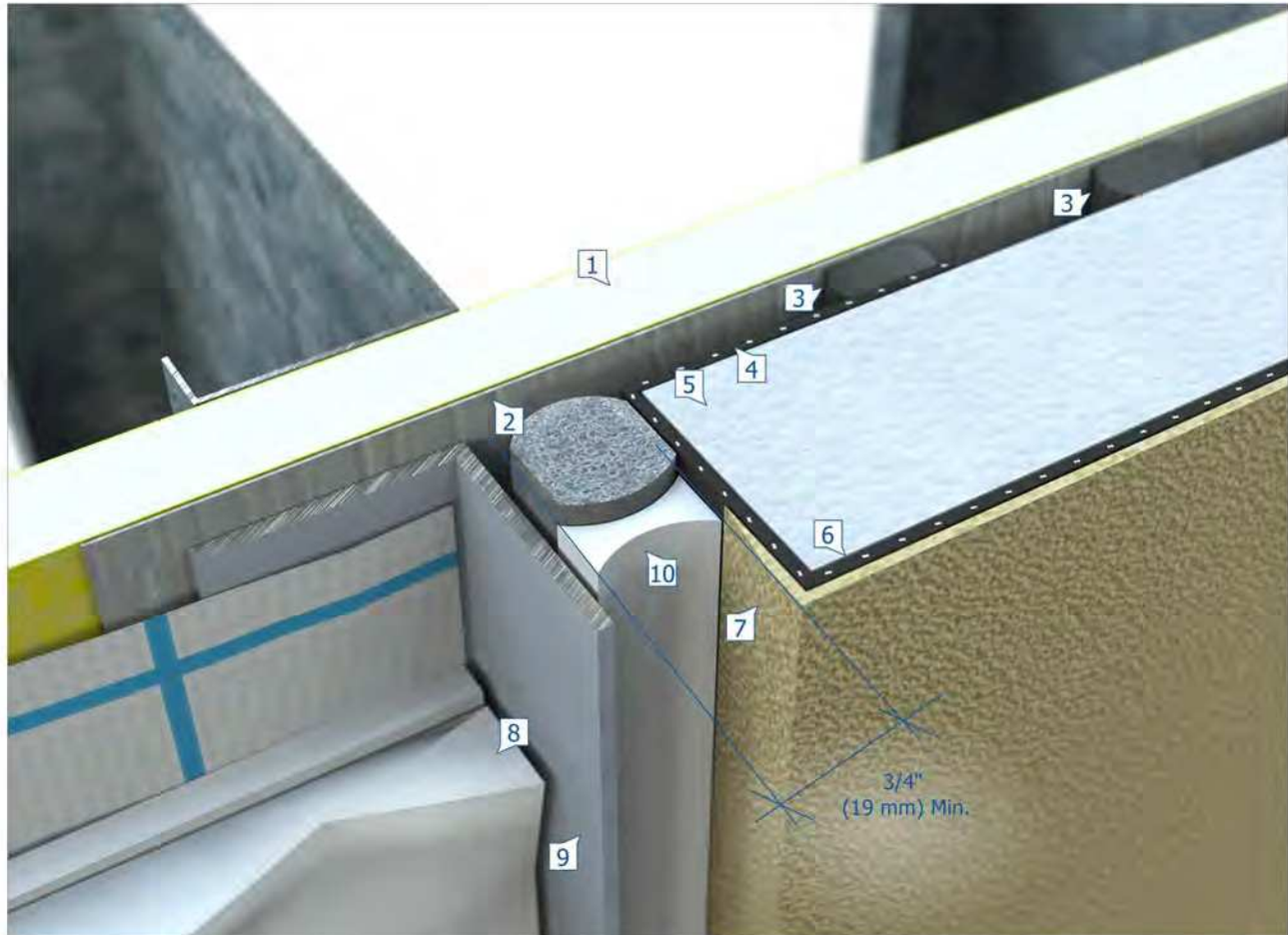
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HORIZONTAL JOINT AT CLADDING INTERFACE

- 1 Air/Water Resistive Barrier Coatings
- 2 Continuous Flashing
- 3 EIFS Manufacturer Recommended Transition
- 4 Drainage Strip per Manufacturer if Applicable
- 5 Reinforcing Mesh Pre-Wrapped to Back Side of Insulation Board 2" (51 mm) Min.
- 6 Insulation Board Notched to Accommodate Provisions for Drainage
- 7 Reinforcing Mesh Embedded in Base Coat
- 8 Finish Coat
- 9 Sealant with Closed Cell Backer Rod and Weeps a Maximum of every 24" (610 mm)
- 10 Sealant with Bond Breaker
- 11 Weather Resistive Barrier at Abutting Cladding



VERTICAL TERMINATION AT STONE VENEER



- | | | | |
|---|---|----|--|
| 1 | Approved Substrate | 7 | Finish Coat |
| 2 | Air/Water Resistive Barrier Coatings | 8 | Stone Veneer System (termination requirements may be different than shown, follow manufacturer's requirements) |
| 3 | Adhesive in Vertical Notched Trowel Configuration | 9 | Metal Stop for Stone Veneer System |
| 4 | Reinforcing Mesh Pre-Wrapped to Back Side of Insulation Board 2" (51 mm) Min. | 10 | Sealant with Closed Cell Backer Rod |
| 5 | Insulation Board | | |
| 6 | Reinforcing Mesh Embedded in Base Coat | | |



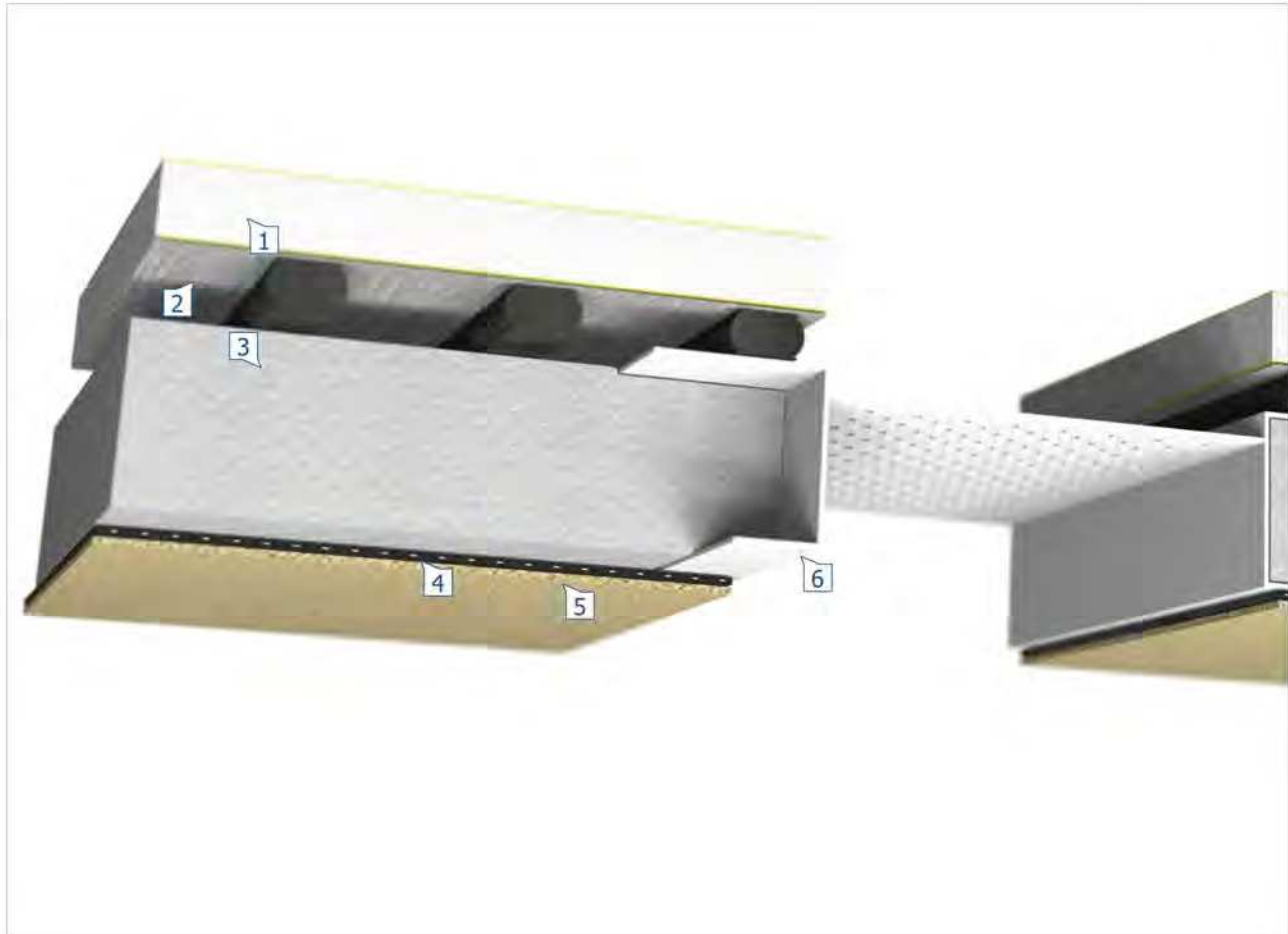
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SOFFIT VENT



- 1 Approved Substrate
- 2 Air/Water Resistive Barrier Coatings
- 3 Insulation Board
- 4 Reinforcing Mesh Embedded in Base Coat
- 5 Finish Coat
- 6 Soffit Vent



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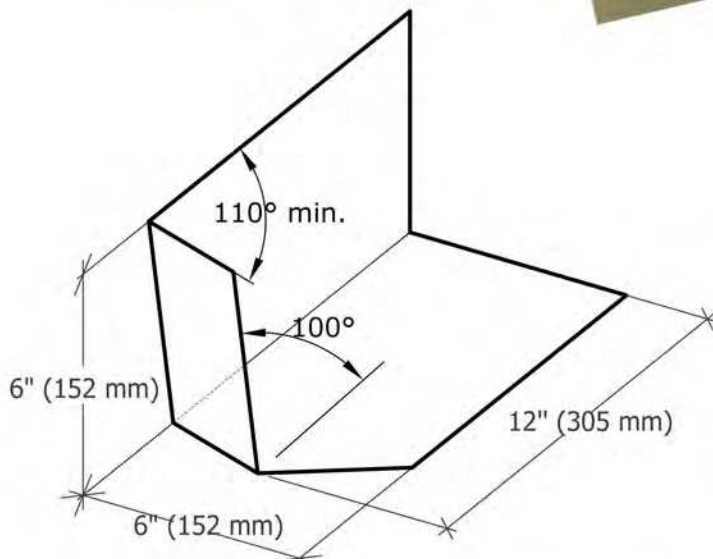
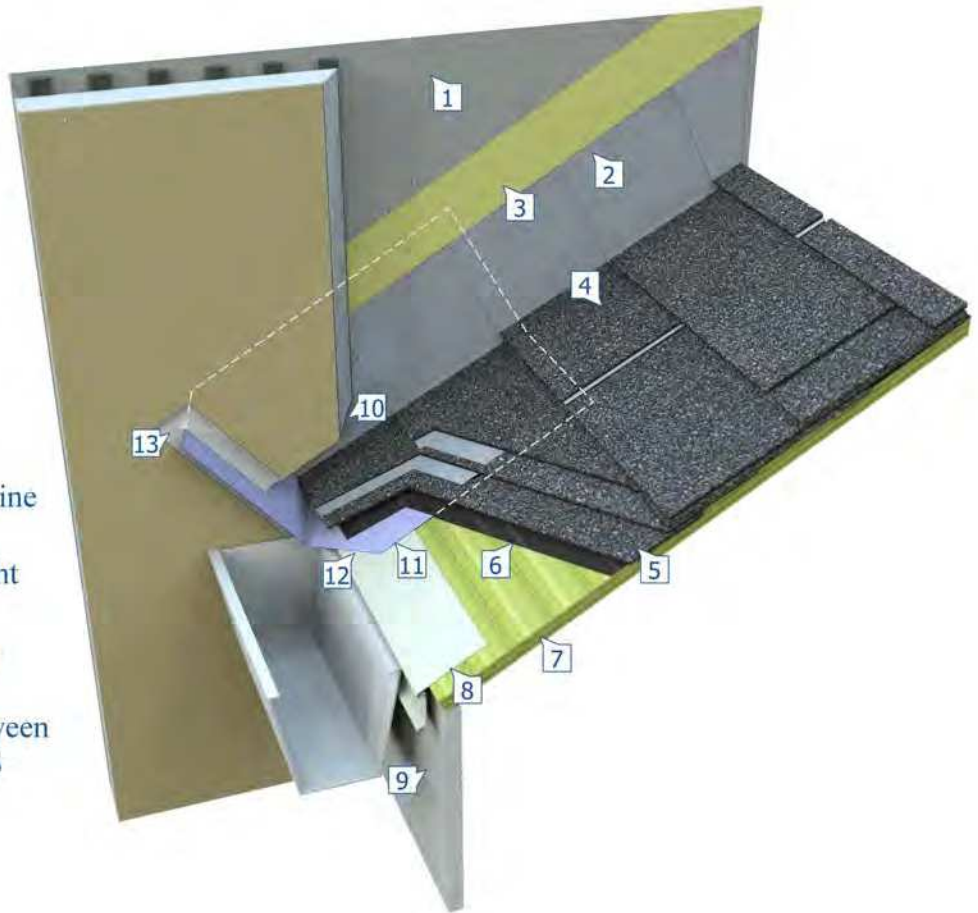
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ROOF AND WALL INTERSECTION

- 1 Air/Water Resistive Barrier Coatings
- 2 Roof Step Flashing
- 3 EIFS Manufacturer Recommended Transition
- 4 Roof Shingles Stepped with Roof Flashing
- 5 Starter Shingle
- 6 Underlayment
- 7 Sheathing
- 8 Drip Edge
- 9 Fascia
- 10 EIFS Terminated Above Roof Line Minimum Distance of 2"
- 11 Diverter Flashing with Watertight Seams
- 12 Seal Between Diverter and Drip Flashing
- 13 Sealant with Bond Breaker Between Diverter Kick Out Leg and EIFS



Flashing should extend up behind the EIFS.

A diverter flashing should be used wherever a water shed terminates into a vertical wall as shown. The EIFS should be terminated above the roof line to facilitate repairs and treatment of the EIFS termination. In addition, the clearance allows for free flow of water and minimizes accumulation of debris. Set the flashing in a full bed of roof cement between the roof sheathing and underlayment.



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Standards

Developed industry consensus standards through ASTM to replace previously issued EIMA guidelines and industry test methods

ASTM E 2098 replaced EIMA Std. 105.01

- Alkali Resistance of Reinforcing Mesh

ASTM E 2134 replaced EIMA Std. 101.03

- Tensile Adhesion of EIFS

ASTM E 2273 replaced EIMA Std. 200.02

- Drainage Efficiency of EIFS

ASTM E 2430 replaced EIMA Spec. for Insulation Board

- EPS for use with EIFS

ASTM E 2485 replaced EIMA Std. 101.01 and ICC-ES Procedure

- Freeze-Thaw Resistance

ASTM E 2486 replaced EIMA Std. 101.86

- Impact Resistance of EIFS

ASTM E 2568 is the conversion of AC 219

ASTM E 2570 is the conversion of AC 212

Code of Ethics

These Rules of Ethics provide specific mandatory standards of minimally acceptable professional conduct for all members of EIMA. These Rules of Ethics are enforceable by EIMA under the procedures provided in the EIMA Bylaws.

Members of the EIFS Industry Members Association Shall:

- manufacture and supply EIFS in compliance with current industry standards, test specifications and operating procedures as prescribed by the American National Standards Institute, the American Society for Testing Materials, local and model building codes, and other standard-setting organizations recognized generally in the industry and/or by local, state, or federal authorities;
- ensure that all packaging and promotional information, including statements designed or which can be interpreted to describe the properties or performance of the product is accurate and not misleading; actively support and comply with all EIMA guidelines and policy statements;
- not use EIMA activities for personal ends or engage in conduct detrimental to EIMA; and
- comply with all laws and regulations relating to the manufacture, distribution and installation of EIFS, including applicable occupational safety and health and environmental laws and regulations.

EIFS:
A hero hidden
in plain sight.



www.eima.com

Finestop RA

Vapor Permeable Air/Water-Resistive Barrier Membrane

COLOR

Gray

PACKAGING

60 lbs per 5-gallon pail
(27.2 kg per 19-liter pail)

VOC

<0.41 lbs/gal or <50g/l less water and
exempt solvents.

SHELF LIFE

Two (2) years, properly stored in original
container.

COVERAGE PER PAIL

Substrate

ASTM C1177 Type Sheathing

450 ft² (41 m²) per pail

Cement Board

500 ft² (46 m²) per pail

Plywood*

265 ft² (24 m²) per pail

Oriented Strand Board (OSB)*

265 ft² (24 m²) per pail

Concrete Masonry Units (CMU)*

Standard Weight 265 ft² (24 m²) per pail

Medium Weight 180 ft² (17 m²) per pail

Light Weight 125 ft² (12 m²) per pail

Poured Concrete

500 ft² (46 m²) per pail

Embed Sheathing Fabric

4" Sheathing Fabric 630 ft (192 m) per pail

6" Sheathing Fabric 420 ft (128 m) per pail

9" Sheathing Fabric 280 ft (85 m) per pail

*Roll or spray / backroll for optimum coverage
rate. Other application methods may provide less
coverage. Actual results may vary depending on
surface porosity, roughness, moisture uptakes, or
other factors.

DESCRIPTION

Finestop RA is a one-component, fluid-applied vapor permeable vertical above grade air/water-resistive barrier with built in low temperature application properties. This waterproof, resilient coating may be spray-, roller-, brush-, or trowel-applied directly to approved above grade wall substrates. It provides excellent secondary moisture protection behind most wall claddings including EIFS, stucco*, brick, siding and metal panels. Finestop RA is listed in ICC ESR-1878 and ESR-2986.

*A slipsheet is required for stucco claddings.

USES

For use over the following exterior wall substrates:

Poured concrete/unit masonry, ASTM C1177 type sheathings, including DensGlass™ or DensElement exterior sheathing (sheathing only), eXP™ sheathing, GlasRoc® sheathing, Securock™ glass-mat sheathing, Weather Defense™ Platinum sheathing, GreenGlass® sheathing, PermaBase™ cement-board and other cement-boards (ASTM C1325 Type A Exterior), Untreated Exposure I or exterior plywood sheathing (grade C-D or better), Untreated Exposure I OSB, Zip Sheathing (sheathing only) Fire Treated wood sheathing: Pyro-Guard® and Dricor® plywood and FlameBlock® OSB; gypsum sheathing (ASTM C79/ASTM C139).

ADVANTAGES

One continuous air/water-resistive barrier for buildings with multiple claddings (can be used with most code-compliant claddings).

ICC ESR-2986 evaluation report confirms compliance with IBC, IRC and IECC requirements.

Approved for projects requiring ABAA specifications and quality assurance.

<1% of allowable air leakage tested per ASTM E2357, easily meets air tightness requirements per ASHRAE 189.1 and 90.1 and ABAA.

Self sealing performance meets ASTM D1970 nail sealability requirements with and without Sheathing Fabric.

One component, easy to apply formulation that meets low VOC requirements in all 50 states.

Nonflammable as applied.

Will not dry out or crack due to loss of oil/plasticizer over time.

Cleans up with water; solvents and citrus based cleaners not required.

Low temperature application down to 25°F (-4°C).

Allows for flexible construction scheduling with an 180 day outdoor exposure ratio.

TEST RESULTS

TEST	METHOD	CRITERIA	RESULTS
VOC content	ASTM D3960 (based in part on EPS method 24)	Report value	<0.41 lbs/gal or <50g/l less water and exempt solvents
Air Leakage of Air Barrier Assemblies	ASTM E2357	0.04 cfm/ft ² @ 1.57 psf (0.2 l/(s.m ²) @75 Pa)	0.0001 cfm/ft ² @ 1.57 psf (0.0007 l/s.m ²) @ 75 Pa positive / post conditioning 0.0003 cfm/ft ² @ 1.57 psf (0.0014 l/s.m ²) @ 75 Pa negative / post conditioning
Air Permeance of Building Materials	ASTM E2178	0.004 cfm/ft ² @ 1.57 psf (0.02 l/(s.m ²) @75 Pa)	0.00098 cfm/ft ² @ 1.57 psf (0.0049 l/s.m ²) @ 75 Pa)
Rate of Air Leakage	ASTM E283	Report value	0.0037 cfm/ft ² @ 1.57 psf (0.0185 l/s.m ²) @ 75 Pa)
Water Vapor Transmission	ASTM E96 Method B	Report value	18 Perms (grains/Hr. in Hg. ft ²) @ 10 mils wet film thickness 14 Perms (grains/Hr. in Hg. ft ²) @ 20 mils wet film thickness
Pull-Off Strength of Coatings	ASTM D4541	Min.15.9 psi (110 kPa) or substrate failure	Pass - Tested over exterior gypsum sheathing, ASTM C1177 glass-mat sheathing, cement board, OSB, plywood; pvc and galvanized flashing
Nail Sealability (without Sheathing Fabric)	ASTM D1970	No water penetration at galvanized roofing nail penetration under 5" 9127 mm) head of water after 3 days at 40°F (4°C)	Pass
Surface Burning	ASTM E84	Flame Spread < 25 Smoke Development < 450	Meets Class A: Flame spread = 15 Smoke developed = 95
Radiant Heat Multi-Story Tests	NFPA 268 NFPA 285	No increase in fire hazard	Pass using many wall designs; including Finestone EIFS cladding with 12" EPS insulation Reference technical bulletin NFPA 285 Compliant Wall Systems and Assemblies
Water-resistive barrier coatings used under EIFS	ASTM E2570		Pass (Meets all criteria in the standard)
Compound Stability (Elevated Temperature)	ASTM D5147 Section 15		No flowing, dripping, or drop formation up to 350°F (177°C)
Fire Resistance	ASTM E119/UL 263	Maintain fire resistance of existing rated assembly	Will not add or detract from the rating of a fire resistive wall assembly
Drainage Efficiency	ASTM E 2273	90% Minimum	99%
% Solids	Lab method	Report value	74%

ICC-ES AC 212 Acceptance Criteria for Water-Resistive Coatings used as Water-Resistive Barriers over Exterior Sheathing

TEST	METHOD	CRITERIA	RESULTS
Sequential Testing:			
1. Structural	1. ASTM E 1233 Procedure A	No cracking at joints or interface of flashing	Pass - Tested over OSB and gypsum sheathing
2. Racking	2. ASTM E 72		
3. Restrained Environmental Conditioning	3. ICC-ES AC-212	No water penetration after 15 min	No water penetration after 90 min
4. Water Penetration	4. ASTM E 331	@ 2.86 psf (137 Pa)	@ 6.24 psf (299 Pa)
Sequential Testing - Weathering			
1. UV Light Exposure	1. ICC-ES AC-212	No cracking or bond failure to substrate	Pass
2. Accelerated Aging	2. ICC-ES AC-212		
3. Hydrostatic Pressure Test	3. AATCC 127-1985	No water penetration after 21.7 in (550 mm) water for 5 hours	
Freeze-Thaw	ASTM E 2485 (Method B)	No sign of deleterious effects after 10 cycles	Pass - Tested over exterior gypsum sheathing, ASTM C1177 glass-mat sheathing, cement board, OSB, plywood
Water Resistance	ASTM D2247	No deleterious effects after 14-day exposure	Pass - Tested over exterior gypsum sheathing, ASTM C1177 glass-mat sheathing, cement board, OSB, plywood
Tensile Bond	ASTM C 297	Minimum 15 psi (103 kPa)	Pass - Tested over exterior gypsum sheathing, ASTM C1177 glass-mat sheathing, cement board, OSB, plywood, CMU; pvc and galvanized flashing
Tensile Bond (after freeze-thaw)	ASTM C 297	Minimum 15 psi (103 kPa) avg; no failure after 10 cycles freeze-thaw	Pass (Tested over various substrates)

ICC-ES AC 148 Acceptance Criteria for Flexible Flashing Materials

TEST	METHOD	CRITERIA	RESULTS
Sequential Testing - Weathering			
1. UV Light Exposure	1. ICC-ES AC 148	No cracking or bond failure to substrate	Pass
2. Accelerated Aging	2. ICC-ES AC 148		
3. Hydrostatic Pressure Test	3. AATCC 127-1985	No water penetration after 21.7 in (550 mm) water for 5 hours	
Peel Adhesion	ASTM D 3330 Method F	After UV Exposure After Accelerated Aging After Elevated Temperature Exposure After Water Immersion	Pass - tested over ASTM C1177 glass-mat sheathing, OSB, plywood, PVC and uncoated aluminum
Nail Sealability after Thermal Cycling	ASTM D 1970 (Modified), AAMA 711	No water penetration at galvanized roofing nail penetration under 1.2" (31 mm) head of water after 24 hours at 40°F (4°C)	Pass
Tensile Strength after UV Exposure	ASTM D 5034, AAMA 711	Minimum 20 lbs./in (3.5 N/mm)	Pass
Cold Temperature Pliability	ASTM D 1970, AAMA 711	No cracking after bending around a 1" (25 mm) mandrel after 2-hour exposure to 0°F (-18°C)	Pass
Resistance to Peeling	AAMA 711	No signs of distress or failure after 24 hours of exposure at room temperature, 122°F (50°C), 149°F (65°C), 176°F (80°C)	Pass

CCMC Tech Guide 07240 and CAN/ULC-S716.1

Joint Disruption Resistance	No cracking, delamination or other deleterious effects at L/180 deflection.
Joint Relaxation Resistance	Pass Max water transmission rate. $2 \times 10^{-7} \text{ kg/m}^2 \cdot \text{s}$ ($4.1 \times 10^{-8} \text{ lbs/ft}^2 \cdot \text{s}$) after extension and environmental cycling.
Adhesive/Cohesive Bond	Pass Min 0.3 MPa (43.5 psi) in dry state, 0.1 MPa (14.5 psi) after 48 hour water immersion.
Nail Popping Resistance	No cracking or delamination around nail head following 1 mm (0.04") protrusion.
Water Absorption	Pass Maximum $0.004 \text{ kg/m}^2 \cdot \text{s}$ ($0.0008 \text{ lbs/ft}^2 \cdot \text{s}$).
Accelerated Weather Resistance	No visible effects (cracking, flaking, other deleterious effects) after 334 total hours.

PRODUCT CONSIDERATIONS AND JOB CONDITIONS

- Cold temperature application less than 40°F (4°C) down to 25°F (-4°C): expect extended dry time. Final air/water-resistive properties and film durability rely on temperatures rising above freezing (32°F/0°C).
- Walls shall be capped to prevent moisture and precipitation from entering wall during construction.
- Dry/cure times of adhered EPS insulation board installed over Finestop RA may be prolonged, particularly in cool and/or damp weather. Non-cementitious adhesives are not recommended for EPS insulation board attachment to Finestop RA. Proper application is the responsibility of the user.
- A minimum of two 10-mil wet coats of Finestop RA is required over OSB, plywood and CMU. Finestop RA may be sprayed to a 20-mil thickness over OSB, plywood and CMU in one wet application. Backrolling may be needed to produce a pinhole-free film.
- Punched studs in rough openings must be treated with MasterSeal AWB 970 NP flashing membrane.
- Ensure all fasteners are spotted with Finestop RA or MaxFlash.
- Prior to application of claddings, visually inspect the Finestop RA for voids, pinholes, surface deficiencies, etc. Repair deficiencies and areas that are not intact. Apply additional Finestop RA as necessary, such that the barrier is free of voids, pinholes, etc. All sheathing joints, terminations, inside and outside corners

must be reinforced with Sheathing Fabric embedded in Finestop RA, MaxFlash or MasterSeal AWB 970 NP.

- Treat expansion joints with MasterSeal AWB 970 NP flashing membrane, provide sufficient slack in MasterSeal AWB 970 NP at joint to allow for movement.

SURFACE PREPARATION

- Substrate shall be of a type acceptable by Master Builders Solutions and shall be installed per substrate manufacturer's instructions and local code requirements.
- Substrate shall be dry, clean, sound and free of release agents, paint/coatings, other residue or other deleterious conditions before application of cladding. Verify substrate is flat, free of fins or planar irregularities greater than 1/4" in 10' (6.4 mm in 3 m). Unsatisfactory conditions shall be reported to the general contractor and corrected before application of Finestop RA and claddings.

EQUIPMENT

- For roller application, use a 3/4" (20mm) nap roller. Prewet the synthetic roller pad with water and spin out the excess. The prewetting only needs to be done once, at the start of application.
- For spraying application instructions and equipment reference Spray Application technical bulletin.

MIXING

1. Use directly from original packaging or prepare in a container that is clean and free of foreign substances. Do not use a container which has contained or been

cleaned with a petroleum-based product.

2. Mix Finestop RA with a clean, rust-free paddle and drill until thoroughly blended. Dilution of Finestop RA is not recommended.
3. Additives are not permitted.
4. Close container when not in use.
5. Clean tools and equipment with water immediately after use. Dried material can only be removed mechanically.

APPLICATION

FLASHING ROUGH OPENINGS

Using MaxFlash

1. Apply a bead of MaxFlash in each corner of the rough opening, ensuring that corners are fully sealed. Where wood bucks are used, apply a bead of MaxFlash into gaps between bucks and between the buck and building structure.
2. Apply additional MaxFlash in a zigzag pattern onto head, sill, jambs and exterior substrate. Spread MaxFlash evenly across the rough opening to form a uniform, continuous, void and pinhole-free membrane with a 12-20 mil thickness. Extend MaxFlash at a minimum 4" onto the exterior wall, maintaining 12 to 20-mil thickness.
3. Allow MaxFlash to skin before applying Finestop RA to sheathing. Lap the air/water-resistive barrier a minimum of 2" onto MaxFlash, creating a continuous, monolithic air/water-resistive barrier membrane.
4. Allow MaxFlash to cure prior to the installation of windows, doors and other wall assemblies.

Using Sheathing Fabric

1. Cut Sheathing Fabric to desired size. Apply a generous amount of mixed Finestop RA receiving coat across rough opening and out onto the substrate. Immediately embed Sheathing Fabric, ensure complete saturation. An additional coat of Finestop RA may be necessary to ensure a complete, void and pinhole-free membrane.
2. Extend Sheathing Fabric a minimum 2" onto the exterior wall. Reference Finestop RA published details for step by step application details.

SHEATHING JOINT REINFORCEMENT

Using MaxFlash

Apply a thick bead of MaxFlash to sheathing joints, inside and outside corners as well as knot holes and check cracks that may exist in plywood or OSB. Spread evenly a minimum of 1" beyond the joint on either side, maintaining 20-mils across the sheathing joint. Allow MaxFlash to skin before applying Finestop RA to sheathing. See the MaxFlash product bulletin for coverages and additional product highlights.

Note: MaxFlash can be used to treat sheathing joints up to 1/2" wide, not for use in expansion joints.

Using Sheathing Fabric

1. Precoat sheathing joints, inside and outside corners as well as knot holes and check cracks that may exist in plywood or OSB with mixed Finestop RA.
2. Immediately place and center Sheathing Fabric over wet Finestop RA. Ensure Sheathing Fabric extends evenly on both sides of the sheathing joint. Completely saturate Sheathing Fabric with Finestop RA.
3. Lap Sheathing Fabric 2 1/2" (63.5 mm) minimum at intersections.
4. If using roller or brush application, allow to dry to the touch before applying Finestop RA to entire wall surface. If spraying, "wet on wet" application is acceptable.

Note: Sheathing Fabric can be used to treat sheathing joints up to 1/4" wide, not for use in expansion joints.

FINESTOP RA APPLICATION OVER ACCEPTABLE SUBSTRATES

For concrete, glass-mat sheathing (C1177), cement board (ASTM C1325 Type A Exterior), and gypsum sheathing (ASTM C79/ ASTM C1396); apply with roller, brush, stainless steel trowel or spray gun to a consistent, minimum 10 wet mil thickness that is free of voids and pin holes. If rolling, a fully loaded roller pad is required to obtain a consistent, minimum 10 wet mil thickness.

Note: Refer to Spray Application technical bulletin for spray application equipment and application instructions

For plywood, OSB or CMU substrate(s); apply with 3/4" (20 mm) nap roller a consistent, minimum 10 wet mil thickness. Prior to application of the second coat, visually inspect to assure sheathing surface is blister free and coating is free of voids and pinholes. Repair if needed and then apply a second coat after the initial coating is sufficiently dry.

Note: A minimum of two (2) 10-mil wet coats of Finestop RA are required over OSB, plywood and CMU

Applying with spray equipment, Finestop RA may be sprayed to a 20-mil thickness over CMU, OSB and plywood in one wet application. Backrolling may be needed to produce a pinhole-free film.

Note: Refer to Spray Application technical bulletin for spray application equipment and application instructions. Verify thickness using a wet film mil gauge.

COLD TEMPERATURE APPLICATION LESS THAN 40°F (4°C) DOWN TO 25°F (-4°C).

- Precondition material to a minimum 65°F (18°C).
- Substrate and ambient temperature must be 25°F (-4°C) and rising. Do not apply if temperature below 25°F (-4°C) is expected at any time during the application or drying period. Substrate surface must be frost free and remain dry.
- Install material in dry weather and protect from rain and temperatures below 25°F (-4°C) for a minimum of 24 hours and until dry. Actual drying time will vary depending

on ambient and substrate temperature, humidity and the ability of the substrate to absorb water. Final air/water-resistive properties and film durability rely on temperatures rising above freezing (32°F/0°C).

DRYING TIME

40°F (4°C) and rising: allow to dry completely, typically 2-10 hours before proceeding with cladding installation.

40°F (4°C) down to 25°F (-4°C): when applied at a 10-mil wet film thickness, typically dry in approximately 12 hours at 32°F (0°C) and 50% relative humidity (RH). When applied at a 20-mil thickness (single pass spray), typically dry in approximately 18 hours at 32°F (0°C) and 50% (RH). Allow to dry completely prior to proceeding with cladding installation.

Note: Actual drying time will vary depending on ambient and substrate temperature, humidity and the ability of the substrate to absorb water. Final air/water-resistive properties and film durability rely on temperatures rising above freezing (32°F/0°C).

SHIPPING & STORAGE

- Protect materials during transportation to avoid physical damage. Store in a cool, dry place protected from freezing, extreme heat and direct sun. Store at no less than 40°F (4°C) and below 120°F (49°C). Protect from extreme heat and direct sun.
- Do not stack pallets.

LIMITATIONS

- Limit the weather exposure of Finestop RA to a maximum of 180 days. If exposure limits are exceeded, clean and recoat with Finestop RA.
- Do not use on damp surfaces, below-grade applications or on surfaces subject to water immersion.
- Do not apply in ambient temperatures below 25°F (-4°C) or onto substrates below 25°F (-4°C). Do not apply in ambient temperature above 100°F (38°C) or surface temperature above 120°F (49°C).

- Ensure wood sheathings and lumber including fire and pressure treated are dry throughout the thickness of the material and free of any bond inhibiting materials prior to application of Finestop RA.
- Finestop RA is designed as a positive side water barrier and does not function as a negative side barrier product.

TECHNICAL SUPPORT

Consult Master Builders Solutions Technical Services Department at **+1 (800) 589-1336** for specific recommendations concerning all other applications. Consult the Wall Systems website at **finestone.master-builders-solutions.com/en**, for additional information about products and systems and for updated literature.

HEALTH, SAFETY AND ENVIRONMENTAL

Read, understand and follow all Safety Data Sheets and product label information for this product prior to use. The SDS can be obtained by visiting **finestone.master-builders-solutions.com/en**, e-mailing your request to **mbsbscst@mbcc-group.com** or calling **+1 (800) 433-9517**. Use only as directed.

IN CASE OF EMERGENCY: Call CHEMTEL +1 (800) 255-3924 or if outside the US or Canada, +1 (813) 248-0585.

LIMITED WARRANTY NOTICE

Master Builders Solutions Construction Systems US, LLC ("Master Builders") warrants this product to be free from manufacturing defects and to meet the technical properties on the current Technical Data Guide, if used as directed within shelf life. Satisfactory results depend not only on quality products but also upon many factors beyond our control. Master Builders MAKES NO OTHER WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO ITS PRODUCTS. The sole and exclusive remedy of Purchaser for any claim concerning this product, including but not limited to, claims alleging breach of warranty, negligence, strict liability or otherwise, is shipment to purchaser of product equal to the amount of product that fails to meet this warranty or refund of the original purchase price of product that fails to meet this warranty, at the sole option of Master Builders. Any claims concerning this product must be received in writing within one (1) year from the date of shipment and any claims not presented within that period are waived by Purchaser. Master Builders WILL NOT BE RESPONSIBLE FOR ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL (INCLUDING LOST PROFITS) OR PUNITIVE DAMAGES OF ANY KIND.

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For the most current version of this literature, please visit our website at **finestone.master-builders-solutions.com/en**.

Duration® Exterior Acrylic Flat

K32-Series


**SHERWIN
WILLIAMS®**

CHARACTERISTICS

Duration® Exterior Latex Coating is the result of advances in acrylic technology. **Duration** uses PermaLast® technology to provide you with the most durable and longest lasting coating available for protecting the outside of your home.

VinylSafe™ paint colors allow you the freedom to choose from 100 color options, including a limited selection of darker colors formulated to resist warping or buckling when applied to a sound, stable vinyl substrate.

- Self-priming One Coat Protection
- Low temperature application down to 35° F.
- Easy application
- Excellent durability and hiding
- Resists Blistering and Peeling

Color: Most Colors

Coverage: 250-300 sq. ft. per gallon
5.3-6.4 mils wet 2.2-2.7 mils dry,
up to 7.0 mils wet; 3.0 mils dry

Drying Time, @ 50% RH:

	@ 35-45°F	@ 45°F +
Touch:	2 hours	1 hour
Recoat:	24-48 hours	4 hours

Drying and recoat times are temperature, humidity, and film thickness dependent

Finish: 0-5 units @ 85°

Tinting with CCE only:

Base:	oz per gallon	Strength:
Extra White	0-7	SherColor
Deep Base	4-14	SherColor
Ultradeep Base	10-14	SherColor
Light Yellow	4-14	SherColor

Extra White K32W00251

(may vary by color)

VOC (less exempt solvents):

less than 50 grams per litre; 0.42 lbs. per gallon
As per 40 CFR 59.406

Volume Solids:	43 ± 2%
Weight Solids:	58 ± 2%
Weight per Gallon:	11.43 lbs
Flash Point:	N/A
Vehicle Type:	Acrylic
Shelf Life:	36 months unopened
WVP Perms (US)	20.86 grains/(hr ft² in Hg)

Mildew Resistant

This coating contains agents which inhibit the growth of mildew on the surface of this coating film.

COMPLIANCE

As of 08/31/2020, Complies with:

OTC	Yes
OTC Phase II	Yes
SCAQMD	Yes
CARB	Yes
CARB SCM 2007	Yes
Canada	Yes
LEED® v4 & v4.1 Emissions	N.A.
LEED® v4 & v4.1 VOC	Yes
EPD-NSF® Certified	N.A.
MIR-Manufacturer Inventory	N.A.
MPI®	Yes

APPLICATION

When the air temperature is at 35°F, substrates may be colder; prior to painting, check to be sure the air, surface, and material temperature are above 35°F and at least 5°F above the dew point. Avoid using if rain or snow is expected within 2-3 hours. Do not apply at air or surface temperatures below 35°F or when air or surface temperatures may drop below 35°F within 48 hours.

No reduction necessary.

Brush: Use a nylon-polyester brush.

Roller: Use a high quality 3/8-3/4 inch nap synthetic roller cover.

For specific brushes and rollers, please refer to our Brush and Roller Guide on sherwin-williams.com

Spray—Airless 2000 p.s.i.
Pressure .015-.019 inch
Tip

APPLICATION TIPS

Make sure product is completely agitated (mechanically or manually) before use.

Thoroughly follow the recommended surface preparations. Most coating failures are due to inadequate surface preparation or application. Thorough surface preparation will help provide long term protection with **Duration coating**. On repaint work, apply one coat of **Duration coating**; on bare surfaces, apply two coats of **Duration**, allowing 4 hours drying between coats.

Do not paint in direct sun. Apply at temperatures above 35°F. During application at temperatures above 80°F, **Duration** sets up quickly. Some adjustment in your painting approach may be required. Paint from a dry area into the adjoining wet coating area. Dries to touch in 1 hour and is ready for service overnight.

On large expanses of metal siding, the air, surface, and material temperatures must be 50°F or higher.

SPECIFICATIONS

Duration Exterior Acrylic Latex is self-priming on most surfaces. Apply 2 coats on new, bare substrates or 1 coat for repaint.

Use on these properly prepared surfaces:

Aluminum & Aluminum Siding¹

Galvanized Steel¹

Concrete Block

Split face Block

Cement Composition Siding/Panels

Stucco

Concrete

Plywood

Wood

***Vinyl Siding**

Surfaces with a pH greater than 9 must be primed with a high pH-resistant coating such as Loxon Concrete & Masonry Primer.

Standard latex primers cannot be used below 50°F. See specific primer label for that product's application limitations.

Concrete masonry units (CMU) - Surface should be thoroughly clean and dry. Air, material and surface temperatures must be at least 50°F (10°C) before filling. Use Loxon Acrylic Block Surfacer. The filler must be thoroughly dry before topcoating.

Knots and some woods, such as redwood and cedar, contain a high amount of tannin, a colored wood extract. If applied to these bare woods, the first coat of **DURATION** may show some staining, but it will be trapped in the first coat. A second coat will uniform the appearance. If staining persists, spot prime severe areas with 1 coat of Exterior Oil-Based Wood Primer prior to using **DURATION**.

¹ On large expanses of metal siding, the air, surface, and material temperatures must be 50°F or higher.

Duration®

Exterior Latex Flat

SURFACE PREPARATION

WARNING! Removal of old paint by sanding, scraping or other means may generate dust or fumes that contain lead. Exposure to lead dust or fumes may cause brain damage or other adverse health effects, especially in children or pregnant women. Controlling exposure to lead or other hazardous substances requires the use of proper protective equipment, such as a properly fitted respirator (NIOSH approved) and proper containment and cleanup. For more information, call the National Lead Information Center at **1-800-424-LEAD** (in US) or contact your local health authority.

Remove all surface contamination by washing with an appropriate cleaner, rinse thoroughly and allow to dry. Existing peeled or checked paint should be scraped and sanded to a sound surface. Glossy surfaces should be sanded dull. Stains from water, smoke, ink, pencil, grease, etc. should be sealed with the appropriate primer-sealer. Recognize that any surface preparation short of total removal of the old coating may compromise the service length of the system.

Aluminum and Galvanized Steel:

Wash to remove any oil, grease, or other surface contamination. All corrosion must be removed with sandpaper, wire brush, or other abrading method.

Cement Composition Siding/Panels:

Remove all dirt, dust, grease, oil, loose particles, laitance, foreign material, and peeling or defective coatings. Allow the surface to dry thoroughly. If the surface is new, test it for pH, if the pH is higher than 9, prime with Loxon Concrete & Masonry Primer. After power washing, previously painted masonry may still have a powdery surface that should be sealed with Loxon Conditioner and then apply 1 coat of **DURATION**.

Caulking:

Gaps between windows, doors, trim, and other through-wall openings can be filled with the appropriate caulk after priming the surface. Allow proper drying time before application of the finish.

Concrete, Masonry, Cement, Block:

All new surfaces must be cured according to the supplier's recommendations—usually about 30 days. Remove all form release and curing agents. Rough surfaces should be filled to provide a smooth surface. If painting cannot wait 30 days, allow the surface to cure 7 days and prime the surface with Loxon Concrete & Masonry Primer. Cracks, voids, and other holes should be repaired with an elastomeric patch or sealant. **Concrete masonry units (CMU)** - Surface should be thoroughly clean and dry. Air, material and surface temperatures must be at least 50°F (10°C) before filling. Use Loxon Acrylic Block Surfer. The filler must be thoroughly dry before topcoating.

Composition Board/Hardboard:

Because of the potential for wax bleeding out of the substrate, apply 1 coat of Exterior Oil-Based Wood Primer and then topcoat.

Stucco:

Remove any loose stucco, efflorescence, or laitance. Allow new stucco to cure at least 30 days before painting. If painting cannot wait 30 days, allow the surface to dry 7 days and prime with Loxon Concrete & Masonry Primer. Repair cracks, voids, and other holes with an elastomeric patch or sealant.

SURFACE PREPARATION

Mildew:

Prior to attempting to remove mildew, it is always recommended to test any cleaner on a small, inconspicuous area prior to use. Bleach and bleaching type cleaners may damage or discolor existing paint films. Bleach alternative cleaning solutions may be advised.

Mildew may be removed before painting by washing with a solution of 1 part liquid bleach and 3 parts water. Apply the solution and scrub the mildewed area. Allow the solution to remain on the surface for 10 minutes. Rinse thoroughly with water and allow the surface to dry before painting. Wear protective eyewear, waterproof gloves, and protective clothing. Quickly wash off any of the mixture that comes in contact with your skin. Do not add detergents or ammonia to the bleach-water solution.

Previously Painted Surfaces:

Spot prime bare areas with **DURATION**, wait 4 hours, and paint the entire surface. Some specific surfaces require specialized treatment.

Steel:

Rust and mill scale must be removed using sandpaper, wire brush, or other abrading method. Bare steel must be primed the same day as cleaned.

Unpainted Surfaces:

DURATION can be used as a self-priming coating on many bare surfaces. When used this way, the first coat of **DURATION** acts like a coat of primer and the second coat provides the final appearance and performance.

***Vinyl or other PVC Building Products:**

Clean the surface thoroughly by scrubbing with warm, soapy water. Rinse thoroughly, if needed prime with appropriate white primer. Do not paint vinyl with any color darker than the original color or having a Light Reflective Value (LRV) of less than 56 unless VinylSafe® Colors are used. If VinylSafe colors are not used the vinyl may warp. Follow all painting guidelines of the vinyl manufacturer when painting. Only paint properly installed vinyl siding. Deviating from the manufacturer's painting guidelines may cause the warranty to be voided.

Wood, Plywood, Composition Board:

Sand any exposed wood to a fresh surface. Patch all holes and imperfections with a wood filler or putty and sand smooth. All patched areas must be primed.

Knots and some woods, such as redwood and cedar, contain a high amount of tannin, a colored wood extract. If applied to these bare woods, the first coat of **DURATION** may show some staining, but it will be trapped in the first coat. A second coat will uniform the appearance. If staining persists, spot prime severe areas with 1 coat of Exterior Oil-Based Wood Primer prior to using **DURATION**.

CAUTIONS

For Exterior use only

Protect from freezing

Non-photochemically reactive

Not for use on floors.

Before using, carefully read **CAUTIONS on label**

CRYSTALLINE SILICA, ZINC: Use only with adequate ventilation. To avoid overexposure, open windows and doors or use other means to ensure fresh air entry during application and drying. If you experience eye watering, headaches, or dizziness, increase fresh air, or wear respiratory protection (NIOSH approved) or leave the area. Adequate ventilation required when sanding or abrading the dried film. If adequate ventilation cannot be provided wear an approved particulate respirator (NIOSH approved). Follow respirator manufacturer's directions for respirator use. Avoid contact with eyes and skin. Wash hands after using. Keep container closed when not in use. Do not transfer contents to other containers for storage. **FIRST AID:** In case of eye contact, flush thoroughly with large amounts of water. Get medical attention if irritation persists. If swallowed, call Poison Control Center, hospital emergency room, or physician immediately. **DELAYED EFFECTS FROM LONG TERM OVEREXPOSURE.** Abrading or sanding of the dry film may release crystalline silica which has been shown to cause lung damage and cancer under long term exposure. **WARNING:** This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. **DO NOT TAKE INTERNALLY. KEEP OUT OF THE REACH OF CHILDREN.**

HOTW 08/31/2020 K32W00251 20 45
FRC, SP

CLEANUP INFORMATION

Clean spills, spatters, hands and tools immediately after use with soap and warm water. After cleaning, flush spray equipment with compliant cleanup solvent to prevent rusting of the equipment. Follow manufacturer's safety recommendations when using solvents.

Loxon®**Concrete and Masonry Primer-Sealer**

US LX02W0050, Canada LX02WQ050 White

**SHERWIN
WILLIAMS®****CHARACTERISTICS**

Loxon Concrete & Masonry Primer-Sealer is an acrylic coating specifically engineered for interior and exterior, above grade, masonry surfaces requiring a high-performance primer. It is highly alkali and efflorescence resistant and can be applied to a surface with a pH of 6 to 13.

Loxon Concrete and Masonry Primer-Sealer: Seals and adheres to concrete, brick, stucco and plaster.

Conditions porous masonry surfaces.

Use on above grade masonry surfaces for a long-lasting finish.

Apply to masonry and concrete surfaces that are at least 7 days old.

Prevents harm to subsequent coatings by alkalies in the substrate.

For use on these surfaces:

Concrete, Concrete Block, Brick, Stucco, EIFS Fiber Cement Siding, Plaster, Mortar, Exterior Wall Cladding, Tilt-Up/Pre-Cast Concrete

Finish: 0-10 units @ 85°
Color: White

Coverage:

Wet mils: 5.3-8.0
Dry mils: 2.1-3.2
Coverage: 200-320 sq. ft. per gallon
Coverage on porous & rough stucco 80 square feet per gallon.

Coverage (thin-mil primer application to new construction tilt-up/precast concrete):

Wet mils: 2.7-4.0
Dry mils: 1.1-1.6
Coverage: 400-600 sq. ft. per gallon

Drying Schedule 77°F @ 50% RH:

To touch 4 hours
To recoat 24 hours

Air and surface temperatures must not drop below 40°F for 48 hours after application.

Drying and recoat times are temperature, humidity, and film thickness dependent.

Tinting with CCE only:

For best topcoat color development, use the recommended "P"-shade primer. If desired, up to 4 oz. per gallon of ColorCast Ecotones can be used to approximate the topcoat color. Check color before use.

Extra White LX02W0050**V.O.C. (less exempt solvents):**

less than 50 grams per litre; 0.42 lbs. per gallon
As per 40 CFR 59.406

Volume Solids: 40 ±2%
Weight Solids: 55 ±2%
Weight per Gallon: 10.92 lbs
Flash Point: N.A.
Vehicle Type: Acrylic
Shelf Life: 36 months, unopened

COMPLIANCE

As of 07/19/2023, Complies with:

OTC	Yes
OTC Phase II	Yes
S.C.A.Q.M.D.	Yes
CARB	Yes
CARB SCM 2007	Yes
CARB SCM 2020	Yes
Canada	Yes
LEED® v4 & v4.1 Emissions	Yes
LEED® v4 & v4.1 V.O.C.	Yes
EPD-NSF® Certified	Yes
MIR-Product Lens Certified	Yes
MPI®	Yes

APPLICATION**Temperature:**

minimum 40°F

The following is a guide. Changes in pressures and tip sizes may be needed for proper spray characteristics. Always purge spray equipment before use with listed reducer. Any reduction must be compatible with the existing environmental and application conditions.

Reducer: No reduction necessary

Airless Spray:

Pressure 2000-2700 p.s.i.
Tip .19 inch

Brush: nylon-polyester

Roller Cover: ½ to 1½ inch nap synthetic cover

Spray and back roll on porous & rough stucco to achieve required film build and a pin-hole free surface.

For porous block, a coat of Loxon Acrylic Block Surfer is required to achieve a pinhole free surface.

Apply at temperatures above 40°F. When the air temperature is at 40°F, substrates may be colder; prior to painting, check to be sure the air, surface, and material temperature are above 40°F and at least 5°F above the dew point. Avoid using if rain or snow is expected within 4-6 hours.

Do not apply at air or surface temperatures below 40°F or when air or surface temperatures may drop below 40°F within 48 hours.

For best performance results, avoid painting in direct sun or painting substrates with elevated surface temperatures.

Do not reduce.

May be applied to damp but not to wet surfaces.

APPLICATION TIPS

Apply paint at the recommended film thickness and spreading rate as indicated on the page. Application of coating below minimum recommended spreading rate may adversely affect the coating systems performance.

When spot priming on some surfaces, a non-uniform appearance of the final coat may result, due to differences in holdout between primed and unprimed areas. To avoid this, prime the entire surface rather than spot priming.

For optimal performance, this primer-sealer must be topcoated with a latex, alkyd-oil, water-based epoxy, or solvent based epoxy coating on architectural applications.

For exterior use, this primer-sealer must be topcoated within 14 days to prevent degradation due to weathering.

RECOMMENDED SYSTEMS**Concrete, Masonry, Cement:**

1 coat Loxon Concrete & Masonry Primer
2 coats Appropriate Topcoat

Stucco, Fiber Cement Siding, EIFS:

1 coat Loxon Concrete & Masonry Primer
2 coats Appropriate Topcoat

Recommended Architectural Topcoats:

A-100 Exterior Latex
Duration Exterior & Duration Home Interior
Emerald Exterior & Interior
Loxon Masonry Coatings
SuperPaint Exterior & Interior
ProClassic Interior
ProMar Interior

Recommended Industrial Topcoats:

Industrial Enamels
Pro Industrial Series
Water Based Catalyzed Epoxy

Industrial finishes have been tested for architectural applications only. Loxon Concrete and Masonry Primer has not been tested in environments subject to chemical attack. Any recommendations for use in such areas must follow a thorough evaluation of the effects of the environment on the Loxon Concrete and Masonry Primer and topcoat system.

Loxon®

Concrete and Masonry Primer-Sealer

SURFACE PREPARATION

WARNING! If you scrape, sand or remove old paint, you may release lead dust. LEAD IS TOXIC. EXPOSURE TO LEAD DUST CAN CAUSE SERIOUS ILLNESS, SUCH AS BRAIN DAMAGE, ESPECIALLY IN CHILDREN. PREGNANT WOMEN SHOULD ALSO AVOID EXPOSURE. Wear a NIOSH-approved respirator to control lead exposure. Clean up carefully with a HEPA vacuum and a wet mop. Before you start, find out how to protect yourself and your family by contacting: US - National Lead Information Hotline at 1-800-424-LEAD or log on to www.epa.gov/lead; Canada - your local health authority.

Remove all surface contamination by washing with an appropriate cleaner, rinse thoroughly and allow to dry. Existing peeled or checked paint should be scraped and sanded to a sound surface. Glossy surfaces should be sanded dull. Stains from water, smoke, ink, pencil, grease, etc. should be sealed with the appropriate primer-sealer. Recognize that any surface preparation short of total removal of the old coating may compromise the service length of the system.

Masonry, Concrete, Stucco:

All new surfaces must cure for at least 7 days. Remove all form release and curing agents. Pressure clean to remove all dirt, dust, grease, oil, loose particles, laitance, foreign material, peeling and defective coatings, chalks, etc. Allow the surface to dry before proceeding. Repair cracks, voids, and other holes with an appropriate patching compound or sealant.

Concrete and mortar must be cured at least 7 days at 75°F. Moisture content must be 15% or lower. On tilt-up and poured-in-place concrete, commercial detergents and sandblasting may be necessary to remove sealers, release compounds, and to provide an anchor pattern. Fill bugholes, air pockets and other voids with an acrylic elastomeric patch or sealant.

Caulking:

Fill gaps between walls, ceilings, crown moldings, and other trim with the appropriate caulk after priming the surface

SURFACE PREPARATION

Mildew:

Prior to attempting to remove mildew, it is always recommended to test any cleaner on a small, inconspicuous area prior to use. Bleach and bleaching type cleaners may damage or discolor existing paint films. Bleach alternative cleaning solutions may be advised.

Mildew may be removed before painting by washing with a solution of 1 part liquid bleach and 3 parts clean water. Apply the solution and scrub the mildewed area. Allow the solution to remain on the surface for 10 minutes. Rinse thoroughly with clean water and allow the surface to dry before painting. Wear protective eyewear, waterproof gloves, and protective clothing. Quickly wash off any of the mixture that comes in contact with your skin. Do not add detergents or ammonia to the bleach-water solution.

PHYSICAL PROPERTIES

Do not paint on wet surfaces.

LX02W0050

Water Vapor Permeance (US):

Method: ASTM D1653 (grains/(hr ft² in Hg)

Result: 25.79 perms

Flexibility:

Method: ASTM D522

Result: method B, 180° bend, 1/8 inch mandrel
Pass

Alkali Resistance:

Method: ASTM D1308

Result: Pass

Mildew Resistance:

Method: ASTM D3273/D3274

Result: Pass

Efflorescence:

Method: ASTM D7072-04

Result: Pass (None)

Wind-Driven Rain Test:

Method: ASTM D6904-03

Result: Pass

SAFETY PRECAUTIONS

For interior or exterior use.

Protect from freezing.

Do not apply at temperatures below 40°F. Air and surface temperatures must not drop below 40°F for 48 hours after application.

Before using, carefully read **CAUTIONS** on label.

ZINC Use only with adequate ventilation. To avoid overexposure, open windows and doors or use other means to ensure fresh air entry during application and drying. If you experience eye watering, headaches, or dizziness, increase fresh air, or wear respiratory protection (NIOSH approved) or leave the area. Avoid contact with eyes and skin. Wash hands after using. Keep container closed when not in use. Do not transfer contents to other containers for storage. **FIRST AID:** In case of eye contact, flush thoroughly with large amounts of water. Get medical attention if irritation persists. If swallowed, call Poison Control Center, hospital emergency room, or physician immediately. **WARNING:** This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. **DO NOT TAKE INTERNALLY. KEEP OUT OF THE REACH OF CHILDREN.**

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FRC, SP

CLEANUP INFORMATION

Clean spills, spatters, hands and tools immediately after use with soap and warm clean water. After cleaning, flush spray equipment with compliant cleanup solvent to prevent rusting of the equipment. Follow manufacturer's safety recommendations when using solvents.

Loxon® XP

Waterproofing Masonry Coating-Flat

LX11-50 Series


**SHERWIN
WILLIAMS®**

CHARACTERISTICS

Loxon XP is an exterior, high build coating that provides excellent flexibility, durability and weather resistance. This product will protect against wind-driven rain when used on concrete, CMU, stucco and shotcrete-gunite. It is highly alkali and efflorescence resistant. This may be applied to a surface with a pH of 6 to 13.

Apply directly to fresh concrete (at least 7 days old).

Shotcrete/gunite surfaces may be painted after 3 days.

Can be applied over high pH (up to 13) substrates, no primer required.

Can be applied down to 35°F.

Color: Most Colors

1 coat system, brush, roller, or spray applied, coverage per coat:

Wet mils: 14.5-18.5

Dry mils: 6.5-8.4

Coverage sq.ft. per gallon 85-110

Can be applied up to 40 mils wet.

Coverage will vary with the substrate and the texture. Coverage on porous & rough stucco 80 square feet per gallon.

Drying Schedule @ 50% RH: temperature and humidity dependent.

@35-45°F @ 45°F+

Touch: 6 hrs 4 hrs

Recoat: 24-48 hrs 24 hrs

Drying time is temperature, humidity, and film thickness dependent.

Finish: 0-10 units @ 85°

Tinting with CCE only:

Base	oz.per gallon	Strength
Extra White	0-6	SherColor
Deep Base	4-12	SherColor
Ultra Deep	10-12	SherColor
Light Yellow	0-12	SherColor

Extra White LX11W0051

(may vary by color)

V.O.C. (less exempt solvents):

less than 50 grams per litre; 0.42 lbs. per gallon

As per 40 CFR 59.406

Volume Solids: 45 ± 2%

Weight Solids: 61 ± 2%

Weight per Gallon: 11.46 lb

Flash Point: N.A.

Vehicle Type: Proprietary Acrylic

Shelf Life: 36 months, unopened

Mildew Resistant:

This coating contains agents which inhibit the growth of mildew on the surface of this coating film. Passes ASTM D3273/D3274

COMPLIANCE

As of 2/4/2022, Complies with:

OTC	Yes
OTC Phase II	Yes
S.C.A.Q.M.D	Yes
CARB	Yes
CARB SCM 2007	Yes
CARB SCM 2020	Yes
Canada	Yes
LEED® v4 & v4.1 Emissions	N.A.
LEED® v4 & v4.1 V.O.C.	Yes
EPD-NSF® Certified	No
MIR-Manufacturer Inventory	No
MPI®	Yes
SWRI®- Wall Coating	Yes

APPLICATION

Temperature:

minimum 35°F

The following is a guide. Changes in pressures and tip sizes may be needed for proper spray characteristics. Always purge spray equipment before use with listed reducer. Any reduction must be compatible with the existing environmental and application conditions.

Reducer: Do not reduce

Airless Spray:

Pressure 2300 p.s.i.

Tip .021 inch

Brush Use a nylon/polyester brush

Roller Cover Use a ½ to 1½ inch nap synthetic roller cover.

The substrate and its condition will determine the application procedure. Considerations to minimize pinholes:

- 2 coat application with overnight drying between coats
- Spray application with backrolling
- Power rolling

Spray and backroll on porous & rough stucco to achieve required film build and a pin-hole free surface.

When the air temperature is at 35°F, substrates may be colder. Prior to painting, check to be sure the air, surface, and material temperatures are above 35°F and at least 5°F above the dew point. Avoid using if rain or snow is expected within 2-3 hours.

Do not apply at air or surface temperatures below 35°F or when air or surface temperatures may drop below 35°F within 48 hours.

Do not reduce.

APPLICATION TIPS

For proper waterproofing performance and to resist alkalies, 2 coats of the coating **MUST** be applied between 14.5 -18.5 mils wet per coat.

A total dry film thickness of 13 - 16.8 mils of topcoat and a surface with 10 or less pinholes per square foot is required for a waterproofing system.

For extremely porous block a coat of Loxon Block Surfer may be required to achieve a pinhole free surface.

For rehabilitating existing concrete water tanks, additional products may be used.

RECOMMENDED SYSTEMS

Concrete, Stucco, Concrete Block, CMU, Split-face Block, and other Cementitious surfaces

1 coat Loxon Acrylic Block Surfer (if needed) or Loxon Conditioner (if needed)

1-2 coats Loxon XP

Previously Coated in good condition:

After power washing, apply 1 coat of Loxon XP over the surface.

Incidental Wood:

1 coat Exterior Latex Wood Primer1-2 coats Loxon XP

Incidental Metal:

(steel, galvanized, or aluminum):
1 coat Pro Industrial Pro-Cryl Primer
1-2 coats Loxon XP

Waterproofing System:

- Two coats of topcoat
- 6.5 to 8.4 mils d.f.t. per coat
- 13 to 16.8 mils total dry film thickness
- 10 or less pinholes per square foot

Loxon® XP

Waterproofing Masonry Coating-Flat

SURFACE PREPARATION

WARNING! Removal of old paint by sanding, scraping or other means may generate dust or fumes that contain lead. Exposure to lead dust or fumes may cause brain damage or other adverse health effects, especially in children or pregnant women. Controlling exposure to lead or other hazardous substances requires the use of proper protective equipment, such as a properly fitted respirator (NIOSH approved) and proper containment and cleanup. For more information, call the National Lead Information Center at 1-800-424-LEAD (in US) or contact your local health authority.

Remove all surface contamination by washing with an appropriate cleaner, rinse thoroughly and allow to dry. Scrape and sand peeled or checked paint to a sound surface. Sand glossy surfaces dull. Seal stains from water, smoke, ink, pencil, grease, etc. with the appropriate primer-sealer. Recognize that any surface preparation short of total removal of the old coating may compromise the service length of the system.

Concrete, CMU, Stucco:

On tilt-up and poured-in-place concrete, commercial detergents and sandblasting may be necessary to remove sealers, release compounds, and to provide an anchor pattern. Concrete and mortar must be cured at least 7 days at 75°F. Fill bugholes, air pockets, cracks, and other voids with an elastomeric patch or sealant. Rough surfaces can be filled to provide a smooth surface.

Incidental Metal:

Wash to remove any oil, grease, or other surface contamination. All corrosion must be removed with sandpaper, wire brush, or other abrading method. Primer required.

Incidental Wood:

Sand any exposed wood to a fresh surface. Patch all holes and imperfections with a wood filler or putty and sand smooth. All patched areas must be primed. Primer required.

Sealing and Patching—After cleaning the surface thoroughly, prime the concrete surface with Loxon XP, apply an elastomeric patch or sealant if needed, allow to dry, then topcoat.

To improve the performance, consider:

- Use caution when preparing the substrate to create a uniform surface.
- Cracks, crevices, and through-wall openings must be patched with an elastomeric patch or sealant.
- Fill voids and openings around window and doors with an elastomeric patch or sealant.
- Stripe coat all inside and outside corners and edges with 1 coat of Loxon XP coating.

SURFACE PREPARATION

Mildew:

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PHYSICAL PROPERTIES

Do not paint on wet surfaces.

LX11W0051

Wind-Driven Rain Test : Pass
Method: ASTM D6904 7 day cure
2 coats Loxon XP @ 8.1 mils d.f.t. per coat

Water Vapor Permeance:
(perms) 18.03 grains/h-ft²-in Hg.
Method: ASTM D1653 7 day cure @ 73°F & 50% RH: Method B, Condition A-Wet cup
2 coats Loxon XP @ 8.1 mils d.f.t. per coat

Elongation : 312%
Method: ASTM D412, 7 day cure @ 72°F & 50% RH 20 inch per minute
2 coats Loxon XP @ 8.1 mils d.f.t. per coat

Tensile Strength : 295 p.s.i.
Method: ASTM D412, 7 day cure @ 72°F & 50% RH 20 inch per minute
2 coats Loxon XP @ 8.1 mils d.f.t. per coat

Flexibility:
Method: ASTM D522, 9 mils d.f.t., 1 day cure
Result: Pass 1/8 inch

Alkali Resistance:
Method: ASTM D1308, 7 day cure,
11.25 mils d.f.t.
Result: Pass

Chloride Ion Permeability:
Result: 243 coulombs
Result: "Very Low" Permeability Class

CO₂ Diffusion (anti-carbonation):
Method: ASTM F2476
Result: 344 meters
equivalent air thickness >50 meters to pass
8.0 g/m²/24 hrs

Crack Bridging: Class A5 Pass
Method: EN 1062-7 Method A
Result: up to 2.5 mm @ -10°C

Efflorescence:
Method: ASTM D7072-19
1 coat, 1 day cure, 7.2 d.f.t.
Result: Pass

Adhesion:
Method: ASTM D4541
2 coats, 7 day cure, 7.2 d.f.t. per coat
Result: 375 average p.s.i.

CAUTIONS

For exterior use only.

Protect from freezing.

Non-photochemically reactive.

Not for use on horizontal surfaces (floors, roofs, decks, etc.) where water will collect.

Not for use below grade. Will not withstand hydrostatic pressure.

Before using, carefully read **CAUTIONS** on label.

ZINC. Use only with adequate ventilation. To avoid overexposure, open windows and doors or use other means to ensure fresh air entry during application and drying. If you experience eye watering, headaches, or dizziness, increase fresh air, or wear respiratory protection (NIOSH approved) or leave the area. Avoid contact with eyes and skin. Wash hands after using. Keep container closed when not in use. Do not transfer contents to other containers for storage. **FIRST AID:** In case of eye contact, flush thoroughly with large amounts of water. Get medical attention if irritation persists. If swallowed, call Poison Control Center, hospital emergency room, or physician immediately. **WARNING:** This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. **DO NOT TAKE INTERNALLY. KEEP OUT OF THE REACH OF CHILDREN.**

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FRC, SP

CLEANUP INFORMATION

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