energex® wall systems

1. Product Name

energex® Wall Systems

2. Manufacturer

ENERGEX Wall Systems
2690 Woodridge Avenue
Edison, NJ 08837-3406
888-EIFS-INC (888-343-7462)
E-mail: info@energexwallsystems.com
www.energexwallsystems.com

3. Product Description

Steinway Piano Condominium Building, Astoria, New York

BASIC USE

energex® Wall Systems are used as outer cladding for exterior building walls. These energy-efficient systems provide the building structure with decorative, lightweight and resilient weather protection.

The energex® Standard System includes the attachment, insulation, reinforcement, basecoat and finish. The energex® Water Management System includes the same components as the Standard System, but with an added weather barrier component. These adhesive and mechanically attached systems are suitable for both new and retrofit construction and can be customized to meet specific thermal and impact resistance requirements.

COMPOSITION & MATERIALS

See Tables 1, 2 and 4.

SIZES

Expanded polystyrene (EPS) insulation board maximum dimensions are 2' x 4' x 4" (610 x 1219 x 102 mm). Minimum thickness is 3/4" (19.1 mm).

The minimum pitch of sloped surfaces is 6"/12" (152/305 mm), with the run of the slope not to exceed 12" (305 mm). Contact ENERGEX Technical Services for larger runs.

TYPES

energex® Standard System

The energex® Standard System is offered with a selection of wet basecoat, dry basecoat and mechanical attachments. These are detailed in Table 1.

The insulation board is flat type 1 pcf (16.02 kg/m^3) expanded polystyrene conforming to ASTM C578, Type 1. It is listed and labeled under a third party quality control and follow-up program for surface burning characteristics, with flamespread not exceeding 25 (class A), and smoke developed not exceeding 450. Maximum board dimensions are 2' x 4' x 4" (610 x 1219 x 102 mm). Minimum thickness is 3/4" (19.1 mm). EPS is aged 6 weeks or receives equivalent accelerated cure for dimensional stability.

Reinforcements are made of glass fiber fabric mesh. They are treated for protection from alkali and are compatible with energex® basecoats. Available in Standard, Intermediate, High Impact, Ultra High Impact, Detail, Adhesive and Corner Mesh styles, they also provide added tensile strength and impact resistance to the system. See Table 2 for details.

Reinforced basecoats form the system's primary weather and impact resistant layer. They are applied to the EPS insulation in order to embed and coat over the glass fiber mesh reinforcements. See Table 3 for details.

Finishes are 100% acrylic copolymers, factory mixed to provide color and texture for exterior or interior applications. They are resistant to cracking, UV rays, mildew, freeze/thaw cycling and abrasion.

energex® Water Management System

The energex® Water Management System is available in 3 different types according to the type of weather barrier used:

- Water Management with Roll-On Membrane
- Water Management with Grooved Back EPS
- Water Management with drainage wrap

The EPS board is mechanically attached over the weather barrier when used with the Water Management with drainage wrap and Water Management with Grooved Back EPS systems. A nylon or polyolefin washer with an expanding shaft anchor is used to attach the EPS board to masonry and concrete substrates, and self-drilling corrosion resistant screws are used to attach the EPS to framed substrates.

The Water Management with Grooved Back EPS system uses the grooved EPS insulation board. The Water Management with drainage wrap and Water Management with Roll-On Membrane systems use the flat type 1 pcf (16.02 kg/m^3) EPS board that is used in the Standard System.

Each energex® Water Management System uses the same reinforcements, basecoats and finishes as are used in the Standard System. See Table 4 for product comparison details.

COLOR

A variety of standard and custom color options are available. Visit the ENERGEX web-

TABLE 1 ENERGEX STANDARD SYSTEM COMPOSITION & MATERIALS, PHYSICAL PROPERTIES

Attachments	energex® Enermix	energex® Enerdry	energex® NON CEM	energex® Enerfast	energex® Enershield	Mechanical Fasteners
Uses	Wet basecoat; embed and coat glass fiber reinforcements	Dry basecoat; embed and coat glass fiber reinforcements	Basecoat and adhesive; embed and coat glass fiber reinforcements	Basecoat; embed and coat glass fiber reinforcements	Liquid weather resistive membrane	For all substrates that use adhesive
Adheres EPS to						
Exterior grade gypsum sheathing	Yes	Yes	No	No	No	Yes
Glass fiber faced gypsum sheathing	Yes	Yes	No	Yes	No	Yes
Masonry	Yes	Yes	No	No	No	Yes
Concrete	Yes	Yes	No	No	No	Yes
Cement board	Yes	Yes	No	No	No	Yes
Dragon Board	Yes	Yes	Yes	No	No	Yes
Paper faced gypsum sheathing	No	No	Yes	Yes	No	Yes
Wood-based sheathings	No	No	Yes	Yes	No	Yes
Plywood	No	No	No	Yes	No	Yes
Material	100% acrylic polymer based	100% acrylic copolymer based	100% acrylic copolymer based	Full-acrylic	100% acrylic based liquid membrane	Plastic
Mixing location	Mixed onsite	Mixed onsite	Factory	Factory	Factory	N/A
Mixing components	Type 1 or Type II Portland Cement	Water	1 component	1 component	1 component	N/A
Test standard	To ASTM C150	To ASTM C150	To ASTM C150	To ASTM C150	To ASTM C355	N/A
Insulation board to ASTM C578						
Fire performance, 1 lb EPS, Type 1, to ASTM E108	Class A	Class A	Class A	Class A	Class A	Class A
Flamespread	25 maximum	25 maximum	25 maximum	25 maximum	25 maximum	25 maximum
Smoke developed	450 maximum	450 maximum	450 maximum	450 maximum	450 maximum	450 maximum
Reinforcements	See Table 2	See Table 2	See Table 2	See Table 2	See Table 2	See Table 2
Basecoats	See Table 3	See Table 3	See Table 3	See Table 3	See Table 3	See Table 3
Finishes	100% copolymers	100% copolymers	100% copolymers	100% copolymers	100% copolymers	100% copolymers

site at www.energerxwallsystems.com to view color selections online or consult ENERGEX to request color samples.

BENEFITS

- Design versatility
- Wide selection of standard and custom finishes
- Class A fire performance
- Readily forms contours and architectural features

LIMITATIONS

- Framing deflection is limited to L/240 or less
- Proper flashing, sealant and roofing detail must be in place for a successful EIFS installation

ACCESSORIES

- energex® Finishing Tracks are extrusions of exterior grade, UV-resistant rigid vinyl used to encase insulation board at system terminations, form straight, crisp edges and provide flat, uniform surfaces for sealant application
- energex® drainage options are available to meet local code requirements
- energex® Sheathing Tape
- energex® finishes
- energex® Primer

4. Technical Data

APPLICABLE STANDARDS

energex® Wall Systems are classified in accordance with the EIFS Industry Members Association (EIMA). The energex® Standard. System and energex® Water Management Systems are classified as PB (Polymer Based) EIF systems.

ASTM International

- ASTM B117 Standard Practice for Operating Salt Spray (Fog) Apparatus
- ASTM C79/C79M Standard Specification for Gypsum Sheathing Board (Withdrawn 2005)
- ASTM C150 Standard Specification for Portland Cement
- ASTM C355 Test Methods for Test for Water Vapor Transmission of Thick Materials (Withdrawn 1982)
- ASTM C578 Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation
- ASTM C1177 Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing
- ASTM D897 Standard Test Method for Tensile Properties of Adhesive Bonds
- ASTM D2015 Standard Test Method for Gross Calorific Value of Coal and Coke by the Adiabatic Bomb Calorimeter (Withdrawn 2000)
- ASTM E72 Standard Test Methods of Conducting Strength Tests of Panels for Building Construction
- ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials
- ASTM E96 Standard Test Methods for Water Vapor Transmission of Materials
- ASTM E108 Standard Test Methods for Fire Tests of Roof Coverings
- ASTM E330 Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference
- ASTM E331 Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference
- ASTM G23 Practice for Operating Light-Exposure Apparatus (Carbon-Arc Type) With and Without Water for Exposure of Nonmetallic Materials (Withdrawn 2000)

TABLE 2 ENERGEX® REINFORCEMENTS COMPOSITION & MATERIALS, PHYSICAL PROPERTIES

Reinforcements	Standard Mesh	Intermediate Impact Mesh	High Impact Mesh	Ultra High Impact Mesh	Detail Mesh	Adhesive Mesh	Corner Mesh
Uses	Tensile strength, impact resistance, 2nd layer reinforcement over High Impact and Ultra High Impact meshes	Supplemental impact resistance in base coat	High impact classification	Ultra high impact classification	Back wrapping details and shapes	Self-attaching for intricate shapes	Reinforcing outside corners
Composition	Glass fiber fabric	Glass fiber fabric	Glass fiber fabric	20 mesh glass fiber fabric	Glass fiber fabric	Glass fiber fabric	Pre-folded glass fiber
Weight	4.5 oz/yd^2 (153 g/m^2)	10 oz/yd^2 (476 g/m^2)	14 oz/yd^2 (476 g/m^2)	20 oz/yd^2 (678 g/m^2)	4.5 oz/yd^2 (153 g/m^2)	4.5 oz/yd^2 (153 g/m^2)	7.2 oz/yd^2 (245 g/m^2)

- ASTM G53 Practice for Operating Light- and Water-Exposure Apparatus (Fluorescent UV-Condensation Type) for Exposure of Nonmetallic Materials (Withdrawn 2000)

Federal Test Method Standard 141, Method 6201, Humidity Test

FED TT-C-555B Coating, Textured (For Interior and Exterior Masonry Surfaces) - Wind Driven Rain

ICC-ES EIFS Freeze-Thaw Criterion #219

New York State Impact Load Test, Section 805.5 of Part 805 of Subtitle #8 - New York State Division of Housing & Community Renewal

Underwriters Laboratories, Inc. (UL) - UL 723 Tests for Surface Burning Characteristics of Building Materials

Uniform Building Code (UBC)
- UBC 17-2 (NFPA Std 259) Standard Test Method for Potential Heat of Building Materials
- UBC 17-6 Multi-Story Fire Evaluation

University of Pittsburgh (UPITT) - UPITT Test for Combustion Product Toxicity

APPROVALS, LISTINGS

Building Officials and Code Administrators International, Inc. (BOCA) - BOCA Evaluation Service Research Report 89-15

City of Los Angeles, CA

City of New York, NY

City of Phoenix, AZ

International Conference of Building Officials (ICBO) - ICBO Evaluation Report No. ER-4655

Miami Dade County, FL

SBCCI Compliance Report No. 8678

State of New York

Town of Huntington, NY

U.S. Department of Housing and Urban Development (HUD)

NOTE - The above reports are subject to reexamination, revisions and possible cancellation.

PHYSICAL/CHEMICAL PROPERTIES

See Tables 1, 2, 4 and 5.

FIRE PERFORMANCE

EPS insulation board meets Class A requirements for surface burning characteristics when tested to ASTM E84 (UL 723) and ASTM E108:
- Flamespread - 25 maximum
- Smoke developed - 450 maximum

There is no lateral spread of flame from compartment of fire origin to adjacent spaces when tested to UBC 17-6.

5. Installation

PREPARATORY WORK

Deliver products in manufacturer's original unopened, undamaged ENERGEX containers with identification labels intact.

energex® Standard System

Ambient and surface temperatures must be 40 degrees F (4 degrees C) or higher during shipment and storage. Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer.

Inspect substrates for suitable type, condition and securement. Surfaces must be sound, dry, free of irregularities, paint and other foreign matter that can affect adhesive bonds. Do not proceed with installation until unacceptable conditions are corrected.
- Gypsum based sheathings should conform to ASTM C79 or ASTM C1177
- Concrete must be cured a minimum of 28 days

energex® Water Management Systems

Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer. Inspect substrates for suitable type, condition, securement, irregularities and other factors that may affect the attachment of the Water Management System or performance of weather barrier. Do not proceed with installation until unacceptable conditions are corrected.

METHODS

energex® Standard System

Ambient and surface temperatures must be 40 degrees F (4 degrees C) or higher during application and drying of wet materials. Install energex® Finishing Tracks as required and fiberglass mesh for back wrapping. Apply adhesives by notched trowel as specified. Install insulation board gap-free in a running bond pat-

TABLE 3 ENERGEX® BASECOAT/ADHESIVE SELECTION

Substrate type [1]	Substrate	Basecoat/Adhesive
Masonry (CMU)	Concrete masonry units	Enermix and Enerdry
	Poured and precast concrete [2]	Enermix and Enerdry
	Brick [1]	Enermix and Enerdry
Sheathed	Exterior gypsum sheathing	Enermix, Enerdry, Non Cem and Enerfast (adhesive only)
	Exterior fiber-faced gypsum sheathing	Enermix, Enerdry, Non Cem and Enerfast (adhesive only)
	Cement board	Enermix, Enerdry, Non Cem and Enerfast (adhesive only)
	Wood based sheathing	Enermix, Enerdry, Non Cem and Enerfast (adhesive only)
	Metal siding	Enermix, Enerdry, Non Cem and Enerfast (adhesive only)
	Dragon Board	Enermix, Enerdry, Non Cem and Enerfast (adhesive only)

[1] For glazed masonry units, glass blocks and similar surfaces, contact Energex Technical Services.
[2] For detailed information about available mechanical fasteners and options, contact Energex Technical Services.

TABLE 4 ENERGEX® WATER MANAGEMENT SYSTEM COMPOSITION & MATERIALS, PHYSICAL PROPERTIES

Types	Water Management with Grooved Back EPS	Water Management with Drainage Wrap	Water Management with Roll-On Membrane
Weather barrier	Drainage wrap with Standard House Wrap	Drainage wrap	energex® Enershield with drainage wrap
Attachments	EPS board mechanically attached over weather barrier	EPS board mechanically attached over weather barrier	Flat EPS board adhesively attached
Attachment method			
For masonry and concrete substrates	Nylon or polyolefin washer with expanding shaft anchor	Nylon or polyolefin washer with expanding shaft anchor	Enermix or Enerdry Adhesive; ribbons vertically oriented
For framed substrates	Self-drilling corrosion resistant screws	Self-drilling corrosion resistant screws	Enermix or Enerdry Adhesive; ribbons vertically oriented
Insulation board	Grooved EPS insulation board	Flat EPS insulation board	Flat EPS insulation board
Reinforcements	Glass fiber mesh; see Table 2	Glass fiber mesh; see Table 2	Glass fiber mesh; see Table 2
Basecoats	Enermix, Enerdry, energex® NON CEM	Enermix, Enerdry, energex® NON CEM	Enermix, Enerdry, energex® NON CEM
Finishes	Any energex® finish and Primer	Any energex® finish and Primer	Any energex® finish and Primer

tern, offsetting insulation board joints from joints of any sheathing boards. Interlock corners and offset board joints 8" (203 mm) minimum from the corners of openings. Allow adhesive to cure.

Level irregularities in insulation board and coat entire surface with basecoat. Embed fiberglass mesh in wet basecoat, lapping fabric edges a minimum of 2 1/2" (64 mm). Apply sufficient basecoat to hide the pattern of the mesh and provide a total basecoat thickness of 1/16" - 3/32" (1.6 - 2.4 mm). Butt fabric edges of heavy duty reinforcing meshes without overlaps. Apply a layer of energex® Standard Mesh and basecoat over the specified heavy duty mesh, staggering fabric edges a minimum 6" (152 mm). Apply sufficient basecoat to hide the pattern of the Standard Mesh. Apply primer to the cured basecoat when specified and allow to dry. Apply finish coat and texture with trowel or float to match approved project sample.

TABLE 5 PHYSICAL PROPERTIES OF ENERGEX® WALL SYSTEMS

Property and Test	Standard System	Water Management Systems
EPS insulation board R-value, ASTM C177	R-3.85 (0.68)	R-3.85 (0.68)
Full-scale multi-story, UBC 17-6 fire test with additions	Complies with all acceptance criteria	Complies with all acceptance criteria
Wind driven rain, Federal Standard TT-C-555B	No dampness on rear of panel	No dampness on rear of panel
Negative wind load resistance, ASTM E330	150 psf (7182 Pa)	150 psf (7182 Pa)
Impact resistance, ASTM E72	Passes	Passes
Structural performance, ASTM E330	Negative presssure 195 psf (9337 Pa) Positive pressure 175 psf (8379 Pa)	Negative presssure 195 psf (9337 Pa) Positive pressure 175 psf (8379 Pa)
Tensile bond strength, ASTM D897		
Concrete masonry	2556.8 psf (122,420 Pa), passed	2556.8 psf (122,420 Pa), passed
Structural clay tile block	3298 psf (157,909 Pa), passed	3298 psf (157,909 Pa), passed
Cement board	260 psf (12,449 Pa), passed	260 psf (12,449 Pa), passed
Plaster	2600 psf (124,489 Pa), passed	2600 psf (124,489 Pa), passed
Foam blocks	2727 psf (130,569 Pa), passed	2727 psf (130,569 Pa), passed
Plywood sheathing	3001 psf (143,688 Pa)	3001 psf (143,688 Pa)
Humidity resistance, Federal Test Method Standard 141, Method 6201	No change	No change
Accelerated weathering, ASTM G23 and ASTM G53	Passed 2000 hours	Passed 2000 hours
Water vapor transmission, ASTM E96	Exceeds requirements	Exceeds requirements
Salt spray/fog resistance, ASTM B117	300 hours, no deleterious effects	300 hours, no deleterious effects
Toxicity, UPITT test	Exceeds requirements	Exceeds requirements
Water penetration, ASTM E331	No water penetration on substrate plane	No water penetration on substrate plane
Impact load, New York State Impact Load Test	Complies with requirements	Complies with requirements
Heat value, oxygen bomb specimen, UBC 17-2 (NFPA Std 259)	15,272.46 Btu/lb	15,272.46 Btu/lb
Heat of combustion, ASTM D2015	17,894 BTu/lb	17,894 BTu/lb

Eagle Electric Condominium Building, Long Island City, New York

energex® Water Management Systems
Flash all rough openings with drainage wrap. Install energex® vented Finishing Tracks or fiberglass mesh back wrapping as required. Fasten the weather barrier over the substrate in accordance with manufacturer's instructions, using the Standard House Wrap for the Water Management System with Grooved Back EPS and the drainage wrap for the Water Management with Drainage Wrap System. Mechanically attach the EPS insulation board using the appropriate anchoring pattern and fastener for the substrate.

When using the Water Management System with Roll-On Membrane, treat exterior-grade gypsum sheathing, glass faced gypsum sheathing, i.e., Georgia Pacific Dens-Glass Gold®, and concrete board sheathing joints with Enershield and energex® Sheathing Tape. Apply Enershield to the entire substrate surface and allow to dry. Adhere flat EPS insulation board to the Enershield with energex® Enermix or Enerdry Adhesive. Ensure that the ribbons of adhesive are oriented vertically, parallel to the 2' (610 mm) dimension of the EPS board.

Rasp the entire EPS board surface to remove irregularities and coat it with energex® basecoat. Embed the fiberglass mesh in wet basecoat, lapping fabric edges a minimum of 2 1/2" (64 mm).

In areas where high impact meshes are used, butt the edges and cover with a second layer of Standard Mesh. Apply a basecoat that is sufficient to hide the mesh pattern.

Apply energex® Primer to the cured basecoat when specified. After drying, apply finish. Texture with trowel or float to match approved project sample.

PRECAUTIONS
- Provide temporary protection when permanent protection will be delayed
- ENERGEX recommends that a primer be used prior to applying a finish
- Colors with reflective value below 30% are not recommended on south and west facing walls
- Test sealants for compatibility with both the system and adjacent dissimilar materials
- All system terminations and penetrations require prompt closure to weather entry by sealants and/or flashings
- To conform to code requirements, insulation requires separation from interior spaces by a thermal barrier of 15 minutes or greater rating

BUILDING CODES
Installation must comply with the requirements of all applicable local, state and federal code jurisdictions.

6. Availability & Cost

AVAILABILITY
ENERGEX adhesives and basecoats, finishes, reinforcing meshes and accessories (seal tape, tracks) are available through ENERGEX distributors, which are located throughout the U.S. Contact ENERGEX for the nearest distributor, who will be able to provide references to currently listed applications.

COST
Consult the manufacturer for project-specific pricing information.

7. Warranty
ENERGEX offers a 5 year limited warranty for its Standard System and a 10 year limited warranty on the Water Management Systems. Contact ENERGEX for details.

8. Maintenance
energex® finishes have have low maintenance requirements relative to other siding products. Soiled surfaces can be washed with mild detergents and soft brushing. To change the color or brighten the surface, recoat with Enercoat, a rolled-on coating, or paint with high quality exterior grade water-based acrylic paint.

Timely repair of sealants, flashings or other construction that allows water to enter the system is essential. Damaged areas of the system can be replaced by new materials joined onto existing materials. For products and procedures, contact ENERGEX.

9. Technical Services
ENERGEX provides technical literature, educational seminars and instructional videos. Test data and reports concerning salt spray, abrasion, mildew, acid rain, impact, freeze/thaw cycling, wind driven rain, water vapor transmission, dew point analysis, moisture resistance and bond strength are available upon request. Full specifications and product details booklets are available for each system in print and electronically. ENERGEX technical staff is available for consultation and assistance on all aspects of energex® systems.

10. Filing Systems
- Reed First Source
- MANU-SPEC®
- Additional product information is available from the manufacturer upon request.

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6/02/08 PTC

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This MANU-SPEC® utilizes the Construction Specifications Institute (CSI) *Project Resource Manual* (PRM), including *MasterFormat*™, *SectionFormat*™ and *PageFormat*™. It has been numbered to meet the recommendation of the *MasterFormat* 2004 classification system. A MANU-SPEC is a manufacturer-specific proprietary product specification using the proprietary method of specifying applicable to project specifications and master guide specifications. Optional text is indicated by brackets [ ]; delete optional text in final copy of specification. Specifier Notes typically precede specification text; delete notes in final copy of specification. Trade/brand names with appropriate symbols typically are used in Specifier Notes; symbols are not used in specification text. Metric conversion, where used, is soft metric conversion.

This MANU-SPEC specifies exterior insulation and finish systems in a standard configuration and in a water management configuration. These products are manufactured by ENERGEX Wall Systems. Revise MANU-SPEC section number and title below to suit project requirements, specification practices and section content. Refer to *CSI MasterFormat* for other section numbers and titles.

SECTION 07 24 00
EXTERIOR INSULATION AND FINISH SYSTEMS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

Specifier Note: Select attachment method below. If both are being used, coordinate with drawings.

1. [Adhesively] [Mechanically] attached, PB (Polymer Based) system.

Specifier Note: Revise paragraph below to suit project requirements. Add section numbers and titles per CSI *MasterFormat* and specifier's practice.

B. Related Sections:

1. Drainage Wrap and House Wrap: Division 07 weather barrier sections.
2. Joint Sealants: Division 07 joint sealants sections.

Specifier Note: Article below may be omitted when specifying manufacturer's proprietary products and recommended installation. Retain Reference Article when specifying products and installation by an industry reference standard. If retained, list standard(s) referenced in this section. Indicate issuing authority name, acronym, standard designation and title. Establish policy for indicating edition date of standard referenced. Conditions of the Contract or Section 01 42 19 - Reference Standards may establish the edition date of standards. This article does not require compliance with standard, but is merely a listing of references used. Article below should list only those industry standards referenced in this section. Retain only those reference standards to be used within the text of this Section. Add and delete as required for specific project.

1.02 REFERENCES

A. ASTM International (ASTM):

1. ASTM B117 Standard Practice for Operating Salt Spray (Fog) Apparatus.
2. ASTM C578 Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation
3. ASTM C1397 Standard Practice for Application of Class PB Exterior Insulation and Finish Systems.
4. ASTM D897 Standard Test Method for Tensile Properties of Adhesive Blocks.

5. ASTM E72 Standard Test Methods of Conducting Strength Tests of Panels for Building Construction.
6. ASTM E96 Standard Test Methods for Water Vapor Transmission of Materials.
7. ASTM E108 Standard Test Methods for Fire Tests of Roof Coverings.
8. ASTM E330 Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
9. ASTM E331 Standard Test Method for Water Penetration of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
10. ASTM G23 Practice for Operating Light-Exposure Apparatus (Carbon-Arc Type) With and Without Water for Exposure of Nonmetallic Materials.
11. ASTM G53 Practice for Operating Light- and Water-Exposure Apparatus (Fluorescent UV-Condensation Type) for Exposure of Nonmetallic Materials.

B. Federal Standards (FS):
   1. TT-C-555B Coating, Textured (For Interior and Exterior Masonry Surfaces) - Wind Driven Rain.

C. Federal Test Methods:
   1. Standard 141, Method 6201, Humidity Test.

D. State of New York:
   1. Impact Load Test.

E. University of Pittsburgh (UPITT):
   1. Test for Combustion Product Toxicity.

1.03 PERFORMANCE REQUIREMENTS

Specifier Note: Verify that framing is being designed with a deflection limit of L/240 or less.

A. EPS Insulation Board Resistance to Heat Flow (ASTM C177): R-value of 3.85 (0.68) per inch, minimum.
B. Wind Driven Rain (FS TT-C-555B): No dampness on rear panel.
C. Negative Wind Load resistance (ASTM E330): 150 psf (7182 Pa), minimum.
D. Impact Resistance (ASTM E72): Passes.
E. Structural Performance (ASTM E330):
   1. Negative Pressure: 195 psf (9337 Pa), minimum.
   2. Positive Pressure: 175 psf (8379 Pa), minimum.
F. Tensile Bond Strength (ASTM D897): Passes.
G. Humidity Resistance (Federal Test Method 141, Method 6201): No change.
H. Accelerated Weathering (ASTM G23 and G53): Passed after 2000 hours.
I. Water Vapor Transmission (ASTM E96): Exceeds requirements.
J. Salt Spray/Fog Resistance (ASTM B117): No deleterious effects after 300 hours.
K. Combustion Product Toxicity (UPITT): Exceeds requirements.
L. Water Penetration (ASTM E331): No penetration of substrate plane.
M. Impact Load (New York State Impact Load Test): Complies with requirements.

Specifier Note: Article below includes submittal of relevant data to be furnished by Contractor before, during or after construction. Coordinate this article with Architect's and Contractor's duties and responsibilities in Conditions of the Contract and Section 01 33 00 - Submittal Procedures.

1.04 SUBMITTALS

A. General: Submit listed submittals in accordance with Conditions of the Contract and Section [01 33 00 - Submittal Procedures] [_____].

B. Product Data: Submit product data, including manufacturer's SPEC-DATA sheet and application instructions, for specified products.

C. Shop Drawings: Submit drawings showing joint layout and joint details.

D. Samples: Submit 8 1/2 inch by 11 inch samples of specified finish coating to show specified color and texture.

E. Warranty: Manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents.

1.05 DELIVERY, STORAGE & HANDLING

A. General: Comply with [01 61 00 - Common Product Requirements] [_____].

B. Delivery, Storage and Protection:

1. Deliver, store and handle in accordance with Section [01 61 00 - Common Product Requirements] [_____].

2. Deliver, store and handle materials in accordance with manufacturer's written instructions.

3. Deliver in original packaging with labels and identification intact.

4. Inspect items upon delivery to ensure that specified products have been received.

5. Store items in secure dry location, protected from weather until ready for installation.

C. Waste Management and Disposal:

Specifier Note: Environment: The disposal of packaging waste into landfill site demonstrates an inefficient use of natural resources and consumes valuable landfill space.

1. Separate waste materials for [reuse] [and] [recycling] [_____] in accordance with Section [01 74 19 - Construction Waste Management and Disposal] [_____].

2. Remove packaging materials from site and dispose of at appropriate recycling facilities.

3. Collect and separate for disposal [paper] [plastic] [polystyrene] [corrugated cardboard] [_____] packaging material [in appropriate onsite bins] [_____] for recycling.

Specifier Note: Coordinate article below with Conditions of the Contract and with Section [01 78 36 - Warranties] [_____].

1.06 WARRANTY

A. Project Warranty: Refer to Conditions of the Contract and Section [01 78 36 - Warranties] [_____] for project warranty provisions.

B. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents.

1. Warranty Period: 5 years commencing on Date of Substantial Completion.

PART 2 PRODUCTS

Specifier Note: Retain article below for proprietary method specification. Add product attributes, performance characteristics, material standards and descriptions as applicable. Use of such phrases as "or equal", or "or approved equal" or similar phrases may cause ambiguity in specifications. Such phrases require verification (procedural, legal and regulatory) and assignment of responsibility for determining "or equal" products.

2.01 EXTERIOR INSULATION AND FINISH SYSTEMS

A. Manufacturer: ENERGEX Wall Systems.

1. Contact: 2690 Woodridge Avenue, Edison, NJ 08837-3406; Telephone: (888) 343-7462; E-mail: info@energexwallsystems.com; website: www.energexwallsystems.com.

Specifier Note: Select system(s) below to conform to project requirements.

B. Energex Standard System:

Specifier Note: Select basecoat below; see manufacturer's SPEC-DATA® sheet.

1. Basecoat: [Enermix] [Enerdry] [NON CEM].
2. Insulation: Expanded polystyrene, ASTM C578, Type 1.

Specifier Note: Insert thickness below if not indicated on drawings; 3/4 inch (19.1 mm) is minimum.

a. Thickness: [__ inches (__ mm)] [As indicated on the drawings].
b. Surface Burning Characteristics, ASTM E108: Flamespread/smoke developed of 25/450.

Specifier Note: Select mesh below. If more than one is selected, create designators and coordinate with the drawings.

3. Reinforcing Mesh: [Standard - Enermite 4.5] [Intermediate - Enermite 10.0] [High Impact - Enermite 15.0] [Ultra High Impact - Enermite 20.0].

Specifier Note: Select finish below and indicate color and texture. If more than one is selected, create designators and coordinate with the drawings.

4. Finish: [Ener Blast 0.75] [Ener Blast 1.0] [Ener Sand 1.5] [Ener Sand 2.0] [Ener Free 1.0] [Ener Free 1.0] [Ener Free 1.5] [Ener Free 2.0] [Ener Style].
   a. Color: [_____] [As indicated on the drawings].
   b. Texture: [_____] [As indicated on the drawings].

C. Energex Water Management System:

Specifier Note: Retain type below to conform to project requirements.

1. Type: [Grooved back EPS board mechanically attached over weather barrier] [Flat EPS board mechanically attached over weather barrier] [Flat EPS board adhesively attached over roll-on weather barrier].

Specifier Note: Retain below only for adhesively attached system.

2. Roll-On Weather Barrier: Enershield.
3. Insulation: Expanded polystyrene, ASTM C578, Type 1.

Specifier Note: Retain type below to conform to project requirements.

a. Back: [Grooved] [Flat].

Specifier Note: Insert thickness below if not indicated on drawings; 3/4 inch (19.1 mm) is minimum.

b. Thickness: [__ inches (__ mm)] [As indicated on the drawings].
c. Surface Burning Characteristics (ASTM E108): Flamespread/smoke developed of 25/450.

Specifier Note: Select mesh below. If more than one is selected, create designators and coordinate with the drawings.

4. Reinforcing Mesh: [Standard - Enermite 4.5] [Intermediate - Enermite 10.0] [High Impact - Enermite 15.0] [Ultra High Impact - Enermite 20.0].

Specifier Note: Select basecoat below, see manufacturer's SPEC-DATA® sheet.

5. Basecoat: [Enermix] [Enerdry] [NON CEM].

Specifier Note: Select finish below; and indicate color and texture. If more than one is selected, create designators and coordinate with the drawings.

6. Finish: [Ener Blast 0.75] [Ener Blast 1.0] [Ener Sand 1.5] [Ener Sand 2.0] [Ener Free 1.0] [Ener Free 1.5] [Ener Free 2.0] [Ener Style].
   a. Color: [_____] [As indicated on the drawings].

b. Texture: [_____] [As indicated on the drawings].

2.02 ACCESSORIES

A. Mechanical Fasteners:

Specifier Note: Retain fastener(s) below to conform to project requirements.

1. Concrete and Masonry: Nylon or polyolefin washer with expanding shaft anchor.
2. Framing: Self-drilling corrosion resistant screws.

B. Finishing Tracks: Extruded, exterior grade, UV-resistant rigid vinyl in configurations to encase insulation board at terminations, form straight, crisp edges and provide flat, uniform surfaces for sealant application.

C. Sheathing Tape: Energex Sheathing Tape.

Specifier Note: Retain primer only if Water Management System is retained.

D. Primer: Energex Primer.

2.03 PRODUCT SUBSTITUTIONS

A. Substitutions: Substitutions in accordance with Section [01 25 13 - Product Substitution Procedures] [No substitutions permitted] [_____].

PART 3 EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

Specifier Note: Article below is an addition to the CSI *SectionFormat* and a supplement to MANU-SPEC. Revise article below to suit project requirements and specifier's practice.

A. Compliance: Comply with manufacturer's written data, including product technical bulletins, product catalog installation instructions, product carton installation instructions and [company name] SPEC-DATA® sheets for [product name].

3.02 EXAMINATION

A. Site Verification of Conditions:

1. Verify substrate conditions are acceptable for product installation in accordance with manufacturer's instructions.

3.03 INSTALLATION

A. In accordance with ASTM C1397.

3.04 CLEANUP

A. Proceed in accordance with Section [01 74 23 - Final Cleaning] [_____].

B. Upon completion and verification of performance of installation, remove surplus materials, rubbish, tools and equipment.

END OF SECTION

SECTION 07240

EXTERIOR INSULATION AND FINISH SYSTEM – CLASS PB WITH ROLL ON MEMBRANE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Exterior Insulation and Finish System. One hundred percent (100%) acrylic po lymer based exterior wall finish system with insulation board applied to an approved substrate.

1.02 RELATED SECTIONS

A. Section 03300 – Cast - in - Place Concrete

B. Section 03400 – Precast Concrete

C. Section 04200 – Unit Masonry

D. Section 05400 – Cold Formed Metal framing

E. Section 06100 – Rough Carpentry

F. Section 07900 – Joint Sealers

G. Section 09250 – Gypsum Board

1.02 REFERENCES

A. ANSI/EIMA 99-A-2001 – American National Standard for Exterior Insulation and Finish Systems, (EIFS).

B. ASTM C150-00 – Standard Specification for Portland Cement.

C. ASTM C1397-98 – Standard Practice for Application of Class PB Exterior Insulation and Finish Systems.

D. ASTM C578-00 – Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.

E. ASTM E2098-00 – Standard Test Method for Determining Tensile Breaking Strength of Glass Fiber Reinforcing Mesh for Use in Class PB Exterior Insulation and Finish Systems (EIFS), after Exposure to a Sodium Hydroxide Solution.

F. ASTM B117-97 – Standard Practice for Operating Salt Spray (Fog) Apparatus

G. ASTM C79/C79M-00 – Standard Specification for Treated Core and Nontreated Core Gypsum Sheathing Board

H. ASTM D968 (Federal Test Standard 141A Method 6191) Test Method for Abrasion Resistance of Organic Coatings by Falling Abrasive.

I. ASTM D2247 (Federal Test Standard 141A Method 6191) Practice for Testing Water Resistance of Coatings.

J. ASTM E84 Test Method for Surface Burning Characteristics of Building Materials.

K. ASTM E96 Test Methods for Water Vapor Transmission of Materials.

L. ASTM E108 (Modified) Method for Fire Tests of Roof Coverings.

M. ASTM E119 Method for Fire Tests of Building Construction and Materials.

N. ASTM E330 Test Method for Structural Performance of Exterior Windows, Cur tain Walls, and Doors by Uniform Static Air Pressure Difference.

O. ASTM E331 Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.

P. ASTM G23 (Federal Test Standard 141A Method 6151) Recomm ended Practice for Operating-Exposure Apparatus (Carbon-Arc Type) with and without water. For Exposure of Nonmetallic Materials. (Replaced by ASTM G153/G152).

Q. ASTM G152a - Standard Practice for Operating Open Flame Carbon Arc Light Apparatus for Exposure of Nonmetallic Materials.

R. ASTM G153-00a Standard Practice for Operating Enclosed Carbon Arc Light Apparatus for Exposure of Nonmetallic Materials.

S. ASTM G53 Practice for Operating Light – and Water – Exposure Apparatus (Fluorescent UV- Condensation Type) for Exposure of Nonmetallic Materials. (Replaced by ASTM G154-00a).

T. ASTM G154-00A – Standard Practice for Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials. (Replaced ASTM G53).

U. EIMA Std. 101.86 Standard Test Method for Resis tance of Exterior Insulation Finish Systems (EIFS), Class PB to the Effects of Rapid Deformation (Impact).

V. Federal Specification C-578-85 – Foam Insulation (Superceding HH-1-524C)

W. Mil Std. 810C Environmental Test Methods.

X. UBC Std. 26-4 (Formally UBC 17-6) Multi-Story Fire Evaluation of Exterior Non Load-bearing Foam Plastic Insulated Wall systems.

Y. ULC S101 Standard Methods of Fire Endurance Tests of Building Construction Materials.

1.03 SYSTEM DESCRIPTION

A. A field applied or panelized Exterior Insulation and Finish System, Class PB, consisting of an adhesively attached insulation board, fiberglass mesh, reinforced base coat, with integrally colored, textured finish and applicable accessories.

1.04 SUBMITTALS

A. Provide submittals in accordance with section 01340.

B. Submit product data including manufacturer's comprehensive product description marked to suit project requirements; include manufacturer's specification and installation recommendations

C. Submit for Architect approval a 24 inch by 24 inch sample panel constructed using proposed materials, color(s) and texture(s).

D. Test Reports – When requested, the Contractor shall submit to the owner/architect copies of selected test reports verifying the performance of the Exterior Insulation and Finish System.

1.05 QUALITY ASSURANCE

A. Applicator: Shall be knowledgeable in the proper installation of the Energex Therm PB System and shall be experienced and competent in the installation of Exterior Insulation and Finish Systems.

B. Manufacturer: Shall have manufactured Exterior Insulation and Finish System products in the United States for not less than twenty (20) years.

C. Approvals: System shall be recognized for its intended use by the applicable building code(s).

D. Field Samples: Samples constructed on jobsite by the actual applicator and approved by Architect shall be considered basis of quality for finished work.

1.06 DELIVERY, STORAGE AND HANDLING

A. Deliver products to job site in manufacturer's original containers, clearly labeled with product identification, batch number and color.

B. Upon arrival, materials shall be inspected for physical damage, freezing, or overheating. Questionable materials shall not be used.

C. Store fiberglass mesh, cementitious materials and moisture sensitive materials in a dry, clean, weather protected area.

D. Store insulation materials flat, away from heavy traffic areas, off the ground and under well ventilated cover.

E. Store adhesive, base coat and finish in tightly sealed containers out of direct sunlight, protected from temperatures below 40° ° Fahrenheit.

1.07 ENVIRONMENTAL REQUIREMENTS

A. Application of system shall not take place during inclement weather unless appropriate protection is employed.

B. Maintain ambient temperature of 40° ° Fahrenheit or higher for 24 hours after installation.

1.08 WARRANTY

A. Submit warranty in accordance with section 01740.

B. Submit Manufacturer's standard, limited five (5) year warranty covering replacement of defective materials.

PART 2 PRODUCTS

2.01 MANUFACTURER

A. Energex PB System with roll on membrane as manufactured by Energex.

2.02 MATERIALS

A. Weather Barrier

1. Enerseal: 100% acrylic polymer based dispersion with a quartz or silica aggregate. Product is used as a weather barrier for the Energex EIFS with drainage.

B. Adhesive

1. Energex Enermix Adhesive/Basecoat: 100% acrylic polymer dispersion with a quartz or silica aggregate that is field blended with type I or type II Portland Cement 1:1 by weight. Product is used as both an adhesive and a basecoat for the Energex EIF Systems.

2. Energex Enermix Dry Adhesive/Basecoat: 100% acrylic polymer based dry bagged Adhesive/Basecoat with Type I or Type II Portland Cement and a quartz or silica aggregate that is field blended with 1 ½ to 2 gallons of potable water. Product is used as both an adhesive and basecoat for the Energex EIF System.

C. Portland Cement: Type l or ll, Complying with ASTM C 150

D. Insulation Board

1. Expanded Polystyrene (EPS) Board: Molded, aged, complying with ASTM C 578 and Federal Specification C-578-85, 3/4 inch to 4 inch thickness with an average density of 1.0 pounds per cubic foot, flame spread rating of less than 25, smoke developed rating of less than 450, K = 0.23 at 40° ° Fahrenheit, K = 0.26 at 75º Fahrenheit, edges square within 1/32 inch per foot, thickness tolerance plus or minus 1/16 inch; manufacturer approved by Energex, meets EIMA Guideline Specifications and is accepted with an established third party inspection program approved by the applicable code bodies.

E. Reinforcing Fabric: Balanced, open weave, glass fiber fabric made from twisted, multi -end strands treated for compatibility with synthetic coating and adhesives. Manufacturer approved by Energex.

1. Standard Mesh: 4.5-ounce mesh +/- 10% per square yard weight mesh used to reinforce wall areas, architectural foam shapes, aesthetic grooves and termination/penetration edges of the wall. Standard mesh provides a system that meets 50-89 force inch pound impact resistance ranges when tested in accordance with EIMA Test Method and Standard 101.86. This system will achieve the EIMA Standard Impact Classification.
2. Enermite 6 Mesh: Optional, 6 ounce +/- 10% per square yard weight mesh used when specified to reinforce wall areas. Enermite 6 mesh provides a system that meets the 50-89-force inch pound impact resistance range when tested in accordance with EIMA Test Method and Standard 101.86.

3. Enermite 10 Mesh: Optional, 10 ounce +/- 10% per square yard weight mesh used when specified to reinforce wall areas. Enermite 10 mesh provides a system that meets the 90-150-force inch pound impact resistance range when tested in accordance with EIMA Test Method and Standard 101.86. This system will achieve the EIMA Medium Impact Classification.

4. Enermite 15 Mesh: Optional, 15 ounce +/- 10% per square yard weight mesh used when specified with Standard Mesh applied over it in a second layer to provide additional impact resistance to ground floor applications, abnormal stress areas or areas exposed to deliberate impacts. Enermite 15 Mesh with Standard Mesh applied over it in a second layer provides a system that meets the over 150 -force inch pound impact resistance range when tested in accordance with EIMA Test Method and Standard 101.86. This system will achieve the EIMA Ultra High Impact Classification.

5. Enermite 20 Mesh: Optional, 20.0 ounce +/- 10% per square yard weight mesh used when specified with Standard Mesh applied over it in a second layer to provide additional impact resistance to ground floor applications, abnormal stress areas or areas exposed to deliberate impacts. Enermite 20 Mesh with Standard Mesh applied over it in a second layer provides a system that meets the over 300-force inch pound impact resistance range when tested in accordance with EIMA Test Method and Standard 101.86. This system will exceed the EIMA Ultra High Impact Classification.

6. Corner Mesh: Optional, Used when specified to provide additional impact resistance on corners.

EIMA Mesh Impact Classification

EIMA CLASIFICATION	IMPACT RANGE J (in-lbs.)	ENERGEX REINFORCING MESH(ES)
Standard	3-6 (50-89)	Enermite 4.5 Mesh
Medium	10-17 (90-150)	Enermite 10 Mesh
Ultra High	>17 (>150)	Enermite 15 Mesh
Ultra High	>17 (>150)	Enermite 20 Mesh

F. Base Coat *(Choose one)*

1. Energex Enermix Adhesive/Basecoat: 100% acrylic polymer dispersion with a quartz or silica aggregate that is field blended with type I or type II Portland cement 1:1 by weight.

2. Energex Enermix Dry Adhesive/Basecoat: 100% acrylic polymer based dry bagged Adhesive/Basecoat with Type I or Type II Portland cement and a quartz or silica aggregate that is field blended with 1 ½ to 2 gallons of potable water.

3. Energex Non Cem Basecoat: Ready mixed 100% Acrylic polymer dispersion of hardening air-cured materials with a quartz or silica aggregate.

4. Enertite Adhesive/Basecoat: 100% acrylic polymer based, fiber reinforced dispersion that is field blended with Type I or Type II Portland cement 1:1 by weight. enertite Adhesive/Basecoat is specially formulated for its waterproof properties and is recommended wherever water exposure is high as in below grade applications, splash areas, parapets and windowsills. A 1/8” thickness of enertite Adhesive/Base Coat has been shown by testing to withstand up to an 8-foot head of water.

5. Energex Enermix Plus Base/Leveler: 100% acrylic polymer based, fiber reinforced dispersion that is field blended with Type I or Type II Portland cement 1:1 by weight. Enermix Plus Base/Leveler is specially formulated for less shrinkage when drying and can be applied up to ½" thick in one coat.

G. Finish: Energex Finishes are factory mixed, water based, UV, weather resistant, integrally colored, textured, 100% Acrylic polymer finishes with time tested resistance to weather and accumulation of dirt.

1. Energex Standard Finish: 100% acrylic polymer dispersion of hardening air-cured materials with a quartz and/or marble aggregate. Finishes available are; Sand (fine, medium, course), Worm/Riled (fine, medium, course), and Sprayplaster (fine, medium, course). Color as selected from manufacturer's standard range or other color as selected.

3.01 MIXES

A. Energex Enermix Adhesive/Basecoat: Combine fresh Portland cement with Adhesive/Basecoat in a ratio of 1:1 by weight. Mix in a clean container free of foreign matter. Properly dispose of hardened or partially hardened material.

B. Energex Enermix Plus Base/Leveler: Combine fresh Portland cement with Energex Enermix Plus Base/Leveler
in a ratio of 1:1 by weight. Mix in a clean container free of foreign matter. Properly dispose of hardened or partially hardened material.

C. Energex Enermix Dry Adhesive/Basecoat: Combine 1 to 2 gallons of potable water with each 50-pound bag of Energex Enermix Dry Adhesive/Basecoat. Mix in a clean container free of foreign matter. Properly dispose of hardened or partially hardened material.

D. Enertite Adhesive/Basecoat: Combine fresh Portland cement with Enertite Adhesive/Basecoat in a ratio of 1:1 by weight. Mix in a clean container free of foreign matter. Properly dispose of hardened or partially hardened material.

E. Energex Non Cem Adhesive/Basecoat: Factory blend finish material is ready to use direct from the container after stirring. Small quantities, maximum 8 ounces per pail, of potable water may be added to adjust workability.

F. Enerseal Adhesive: Factory blend material is ready to use direct from the container after stirring.

G. Energex Acrylic Finish Coat: Open finish container and mix with a rust free high speed mixer taking care to avoid excessive up and down motion with blade. To much vertical motion will introduce air into the finish and may inhibit proper curing. A maximum of 6 ounces of clean potable water may be added to improve workability.

3.02 SOURCE QUALITY CONTROL

A. The system shall meet or exceed the following performance standards when tested by methods shown.

DURABILITY

TEST	METHOD	CRITERIA	RESULTS
Accelerated Wheathering	ASTM G-23 replaced by ASTM G153/G152	No Deleterious effects at 2000 hours when viewed under 5x magnification.	No change after 2000 hours exposure.

Accessory Performance—Starter Track

TEST	METHOD	CRITERIA	RESULTS
Specification for Rigid PVC	ASTM D-1784	Meets cell classification 13244C	Pass

PART 3 EXECUTION

3.01 EXAMINATION

A. Substrate

1. Inspect surfaces to receive Exterior Insulation and Finish system for planar irregularities in excess of 1/4” in four feet in any direction, areas that are unsupported, areas of high alkalinity, and areas with releasing agents and other residue. Notify Architect if these or other detrimental conditions exist prior to starting work.

2. Wall sheathings must be securely fastened per applicable building code requirements.

B. Flashings

1. Head, jambs and sills of all openings must be flashed with a minimum 230 mm (9") strip of Secondary Moisture Barrier prior to window/door, HVAC, etc. installation.

2. Windows and openings shall be flashed according to design and Building Code Requirements.

3. Individual windows that are ganged to make multiple units require continuo us head flashing and/or the joints between the units must be fully sealed.

C. Utilities

1. The system must be properly terminated (back -wrapped, sealed, flashed) at all lighting fixtures, electrical outlets, hose bibs, dryer vents, etc.

D. Air/ Weather Barrier

1. Verify that the Energex Seal with 4" Reinforcing Mesh is installed on every sheathing joint and Energex seal is applied to the entire substrate.

2. Verify that the Tyvek Flex Wrap is installed around all opening, according to Tyvek Specifications.

E. Roof

1. Verify that all roof flashings have been installed in accordance with the guidelines set by the Asphalt Roofing Manufacturers Association (ARMA).

2. Kick-out flashing must be leak proof and angled (min 100o) to allow for proper drainage and water diversion.

F. Air Seals

1. Install between the primary air/weather barrier and other wall components (penetrations, etc.) in order to maintain continuity of the air barrier system

G. Unsatisfactory conditions shall be reported to the General Contractor and/or Builder and /or Architect and/or Owner. Do not proceed until all unsatisfactory conditions have been corrected

3.02 PREPARATION

A. Prepare surfaces in accordance with manufacturer's instructions.

3.03 INSTALLATION – Must be installed in accordance to Energex installation instructions and complies with ASTM C 1397

A. Accessories

1. Attach Starter Track level and per manufacturer's instructions.

2. Air/Weather Barrier

    a. All sheathing joints and windows/openings must be protected and the Air/ Weather Barrier applied according to Energex Installation guidelines.

    b. Substrate shall be of a type approved by Energex.

    c. Substrate shall be dry, clean, sound, and free of releasing agents, paint, or other residue or coatings. Verify substrate is flat, free of fins or planar irregularities greater than 6.4 mm in 3 m (1/4" in 4').

    d. Unsatisfactory conditions shall be reported to the General Contractor and corrected before application of the Energex PB System With Trowel on membrane is started.

    e. Installed materials should be checked before final system application.

    f. Ensure [4" Reinforcing Mesh] [EnerSeal] overlaps the top flange of the drainage track.

B. Insulation Board – Method of attachment shall be in accordance with applicable building codes.

1. Use a ½” x ½” x 2” notched trowel to apply adhesive vertically over entire back surface of insulation boards.

2. Apply insulation board horizontally, beginning at the base from a firm, permanent or temporary support. Stagger all vertical joints and interlock corners. Insulation board joints shall be offset from substrate joints. Cut insulation board as required to fit openings, projections and corners.

3. Press boards to substrate and apply equal pressure over entire surface to ensure proper bonding. If insulation boards do not abut tightly and there is a gap in the joint, the joint shall be filled with a piece of insulation board.

4. Allow a minimum of 12 hours adhesive cure before proceeding.

5. EPS board shall be rasped or sanded smooth. Use a 4-foot straight edge to check wall uniformity and smoothness. The entire wall area must be sanded/rasped.

6. Cut all aesthetic grooves (reveals) in EPS board as detailed on drawings, using appropriate router and bit or special EPS cutting grooving equipment. EPS boards may be pre grooved at the factory, if grooved to ensure other foam board installation requirements are met.

7. Foam shaped (pop outs), as detailed on the drawings, shall be ad hered directly to the face of the installed insulation board by applying applicable Energex adhesives to the back of the foam shape and pressing it firmly into position.

C. Edge, Termination and Penetration Details: Apply basecoat material to system edges or terminations and penetrations. Embed Energex Standard Mesh onto this basecoat over edge and onto insulation board face. Installer shall ensure that water cannot penetrate behind insulation boards at edges and shall ensure that edge -reinforcing mesh is adhered tightly to insulation board edges and wraps not less than 3” onto the insulation board face.

D. Expansion Joints: Joints between different substrates and areas of the substrate where structural movement has been concentrated by separating the substrate into independent units shall have a separation continued through the Energex PB System. Both sides of this separation shall have the Energex PB System installed as described for Edges in Section 3.03C of this specification. The gap remaining at this locati on shall be bridged by installation of backer rod and joint sealer. Installation of backer rod and joint sealer shall be the responsibility of the joint sealer applicator and done in accordance with Section 07900.

E. Reinforced Base Coat:

1. Apply base coat material to the entire outer surface of insulation boards to a uniform thickness or approximately 1/16 inch.

2. Immediately place reinforcing mesh against the wet basecoat material and trowel from center to edge to fully embed mesh into basecoat. Apply mesh co ntinuous at all surface corners or use optional Energex Corner Mesh. Avoid wrinkles while embedding mesh. Mesh pieces shall overlap at least 3” minimum with adjoining pieces. Mesh pieces adjoining edge reinforcing mesh shall overlap edge reinforcing mesh 3 ” minimum.

3. All Installed reinforcing mesh shall be completely covered with base coat material. If necessary apply a second coat of basecoat to achieve compete embedding of mesh.

4. Allow sufficient time for drying to a hard surface before applying finish, b ut not less than 12 hours.

F. Enermite Mesh or High Impact Enermite Mesh System

1. Install optional Enermite Mesh where detailed and/or specified. Energex Enermite Mesh’s are installed by embedding them into basecoat material as described for Standard Mesh in section 3.03E, of this specification EXCEPT that Energex Enermite Mesh pieces butt together and shall not overlap.

2. Base Coat material must be allowed sufficient time to dry to a hard surface before proceeding with Standard Mesh installation, but not less than 12 hours drying time.

3. Energex Standard Mesh embedded in a second coat of base coat material shall be installed over all areas where Energex Enermite Mesh has been installed. Install this Standard Mesh layer as described in Section 3.03E

G. Finish

1. Inspect reinforced base coat layer to ensure that it is dry and hard before proceeding with finish application. Remove irregularities by sanding.

2. Apply specified Energex Finish directly over reinforced base coat to the thickness of the largest aggregate or approximately 1/16" with a clean steel trowel. Some Energex Finishes may also be applied by use of spray equipment.

3. Maintain wall surface in a wet state and finish from corner to corner to joint to avoid cold joints or staging marks.

4. Finish shall be applied in accordance with Architects approved sample(s).

3.04 CLEANING

A. Remove all residue and excess items resulting from the work.

END OF SECTION

energex®
wall systems

WATERPROOFING SYSTEM
ROLL ON MEMBRANE
SUGGESTED DETAILS

Energex® Wall Systems

NOTICE

The suggested details which follow, also any related notes and/or text contained thereon are based upon typical requirements of ENERGEX® W all Systems exterior insulation and finish systems. These are published strictly as a guide for architectural and construction industry professionals in order to illustrate typical and/or general design conditions.

Do not use these details by themselves. These details do not constitute design instructions for exterior insulation and finish applications. Use these details in conjunction with ENERGEX® Wall Systems current product specifications, product data sheets and application instructions.

Any details described are strictly for the purpose of illustrating typical system applications. Any other materials shown in any details are included only for the clarity of the system detail. These are incidental to the details. Please consult with the manufacture rs and/or suppliers of any separate material for their product specifications and application instructions. When site and/or design conditions not shown in these details are present, or if any unusual design is involved, and for a list of compatible sealan ts, please consult with ENERGEX® Wall Systems technical support for assistance.

CAUTION AND DISCLAIMER

The following information should be obvious to design professionals, contractors, builders, installers, purchasers and users of Energex® materials but please take a moment to review this information and to take an opportunity to remember the importance of sound design and construction practices, methods and materials.

Energex® materials are components of construction assemblies and are not consumer products. Serious damage to Energex® materials and to the buildings and building components and assemblies into which they are incorporated can result from

(1) improper use, application or installation,

(2) use as part of improperly designed or constructed assemblies or buildings or with defective adjacent materials or assemblies,

(3) failure to follow applicable specifications, instructions and construction details, or

(4) other design or construction defects, deficiencies and failures. Any resulting accumulation of water and moisture in wall assemblies may cause damage to building components including delamination of wall coverings Incorporating Energex® materials, deterioration of internal wall components and mold.

Energex® sells its materials "as is" and disclaims all liability and warranties express or implied except for explicit limited written warranties issued to building owners in accordance with Energex® approved warranty program offerings from time to time. Energex® undertakes no responsibility for the quality of itsmaterials except as otherwise provided in its approved warranty program offerings. Energex® assumes no responsibility that its materials will be fit for any particular purpose, except as otherwise provided in Energex® approved warranty program. Energex® will not be liable for any direct, incidental, consequential, or indirect damages (including lost profits) arising out of use of its materials.

Please note that some jurisdictions may not allow the exclusion of implied warranties , so some of the above exclusions may not apply to you. Energex® component materials are intended for application by qualified installers as specified by qualified design professionals. Energex® component materials should be installed in accordance with written specifications, instructions, details and applicable code organization evaluation reports under supervision of qualified builders, general contractors, design professionals or independent inspectors. Please see the relevant guide . Although every effort is made to ensure that the information is timely and correct, it is provided solely as a guide to assist the designer, specifier, builder, general contractor and/or installer. The responsibility remains with the designer, specifier, builder, general contractor and/or installer to apply the information provided by Energex® properly to specific installations. Energex® component materials should be installed only using suitable design and construction methods and with non-defective properly installed and constructed adjacent materials and assemblies.

Performance of the completed building components into which Energex® component materials have been installed should be verified by testing and inspection as appropriate, carried out only by qualified persons. It is the user responsibility and obligation to provide for such inspection and testing. Energex® component materials are not designed or intended to be able to correct or prevent damage from faulty design or workmanship such as the absence or improper integration of flashing, nor are they designed or intended to correct or prevent damage from other defective components of construction that leak anywhere into the wall assembly. Flashing should always be integrated with the cladding to direct water to the exterior, not into the wall assembly, particularly at potential leak sources. The design/construction professional must take material compatibility and construction sequencing into account when designing a building exterior. Flashings, windows, roofs, doors and other building penetration and termination locations and adjacent materials should be fully evaluated, properly selected and constructed to prevent water entry into building assemblies. The accumulation of moisture behind Energex® component materials may result in building damage. Qualified design and construction professionals should strictly comply with specified procedures for mixing, application and integration to avoid causing or contributing to potential water intrusion problems.

Energex® disclaims, and assumes no liability for on-site inspections, for improper application, assembly, installation or use of Energex® materials or any assemblies into which they are incorporated, for incorporation as part of an improperly designed or constructed building, for the nonperformance of adjacent building components or assemblies, for all on-site construction activities (being beyond Energex® control), or for any damage including water or moisture intrusion or delamination resulting in whole or in part because of any such occurrences.

Before use, design professionals, owners and contractors should fully investigate Energex® materials and assemblies into which they are to be incorporated to enable informed choices as to suitability for a particular project and proper design and implementation.

Purchasers of Energex® component materials should share this Caution and Disclaimer information with purchasers or owners of buildings into which Energex® materials are incorporated.

Details shown are *suggested* details and should be reviewed by design professionals for your specific application.

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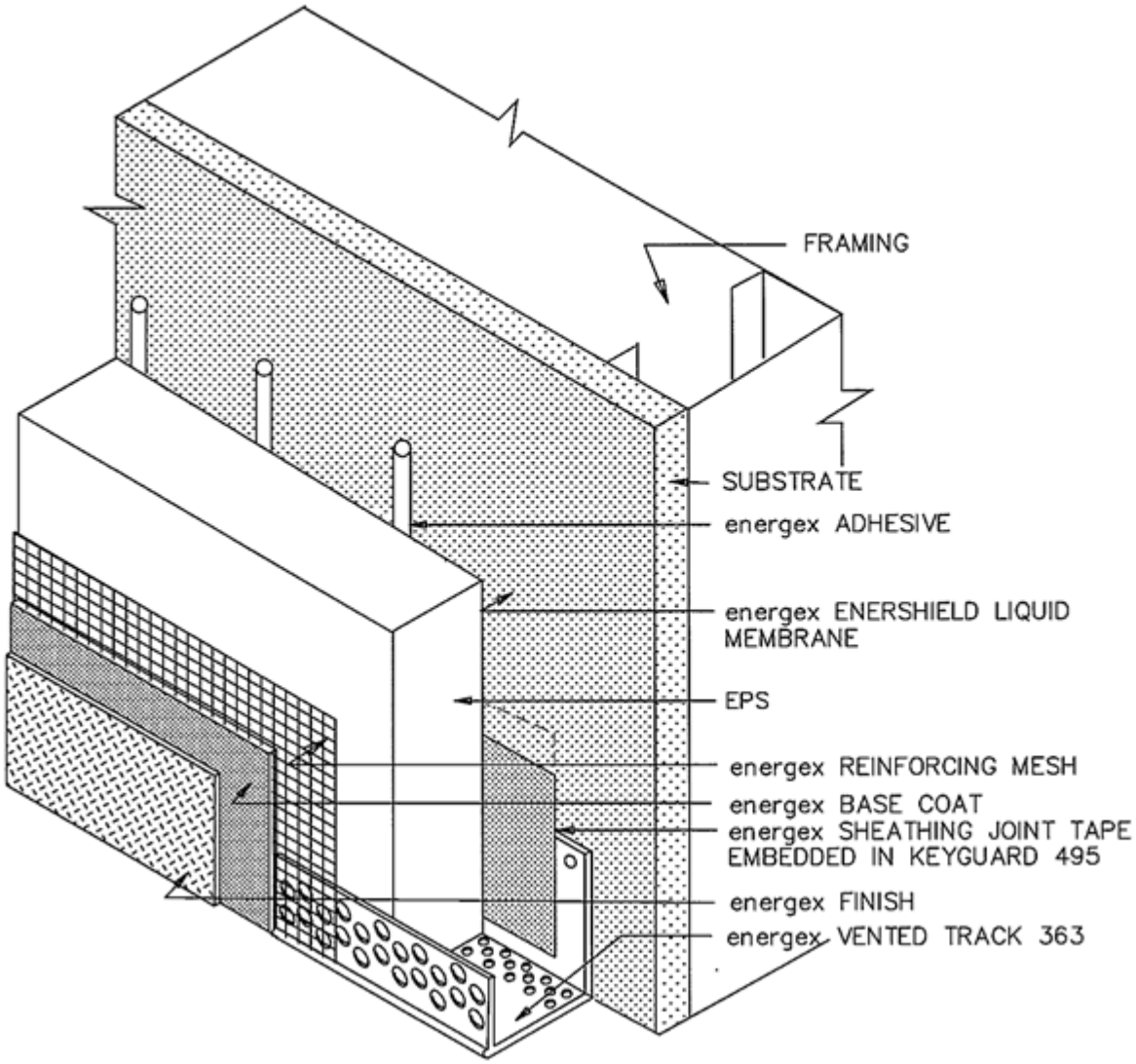
Details shown are *suggested* details and should be reviewed by design professionals for your specific application.

ROLL ON MEMBRANE

SYSTEM COMPONENTS



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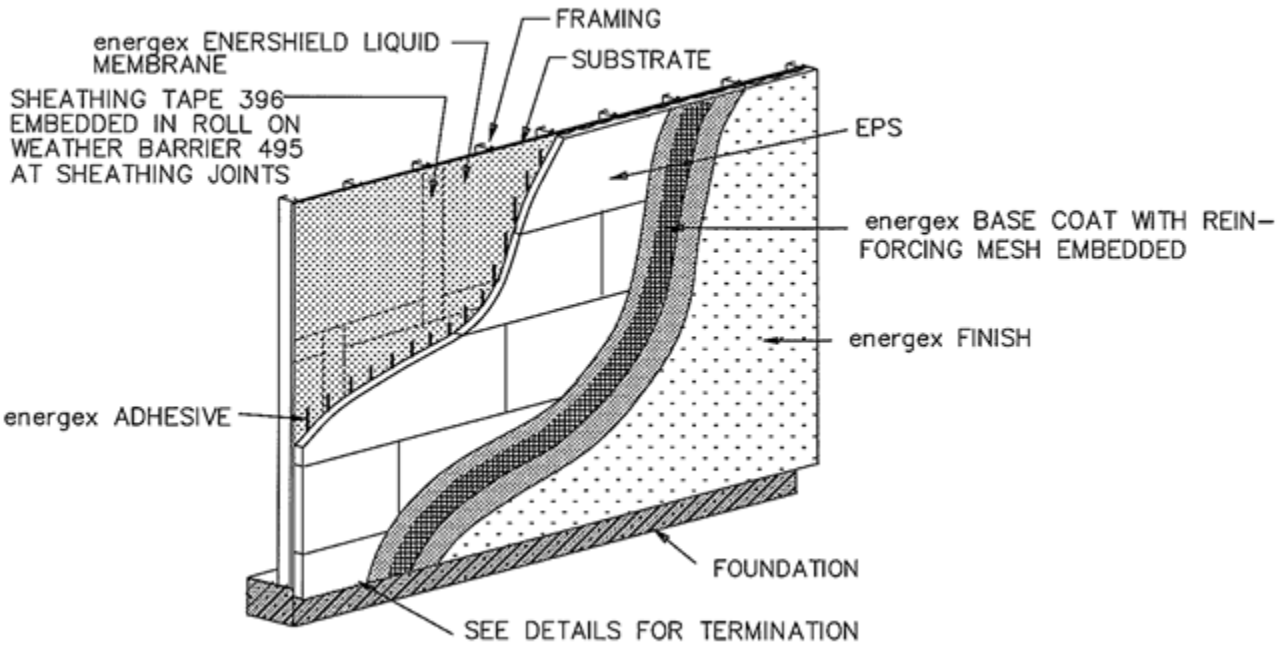
ROLL ON MEMBRANE

FRAMED WALL



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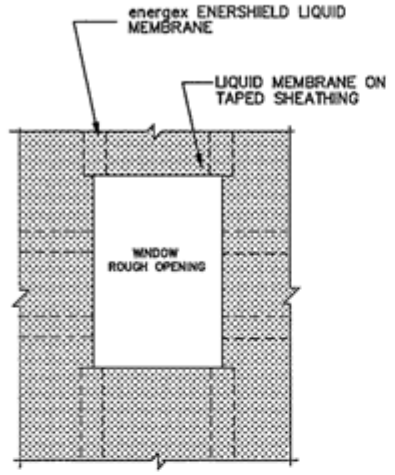
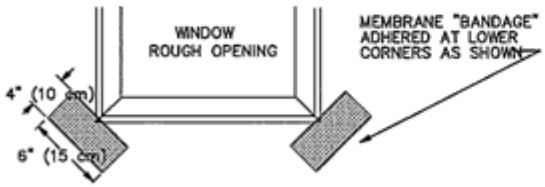
ROUGH WINDOW FLASHING – PART 1



STEP 1

Embed energex Sheathing Tape into energex wet Enershield Liquid Membrane over sheathing board joints. After the sheathing tape has been embedded, apply the Enershield Liquid Membrane to an area of 12" (305 mm) around the rough window opening, and allow to dry.

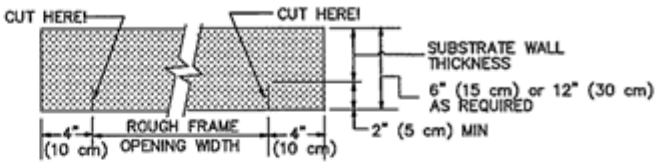


INSTALLING MEMBRANE "BANDAGES"

STEP 2

Cut "bandages" to approximate size indicated

Peel protective backer from membrane and install diagonally at sill corners as shown extending approximately 1/4" (6 mm) into opening. Push bandage membrane into corner of rough opening. Enershield must not be visible at the corners of the rough opening.

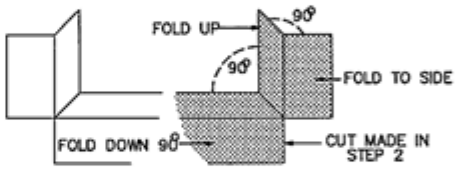


CUTTING FLASHING MEMBRANE

STEP 3

Cut a piece of energex Flashing Membrane 8" (20 cm) longer than the rough opening width. Make 2 small cuts through the membrane as shown.

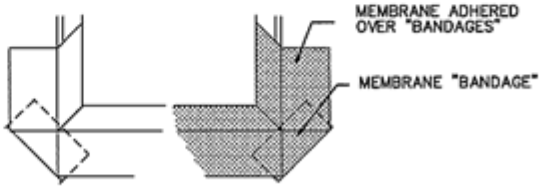
NOTE: Select flashing membrane width 6" (15 cm) or 12" (30 cm) at least 2" (5 cm) wider than thickness of substrate wall.



FOLDING FLASHING MEMBRANE

STEP 4

Fold membrane to conform with rough opening. Peel protective backer from membrane to expose adhesive.



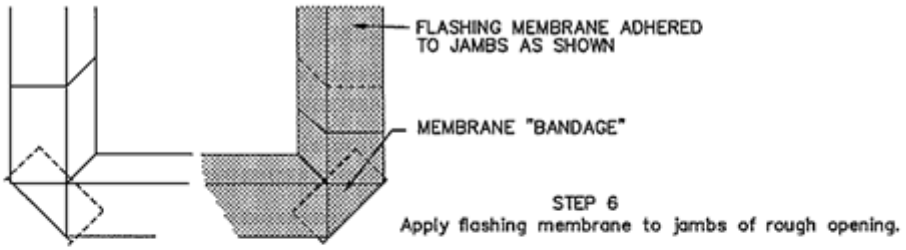
INSTALLING THE FLASHING MEMBRANE

STEP 5

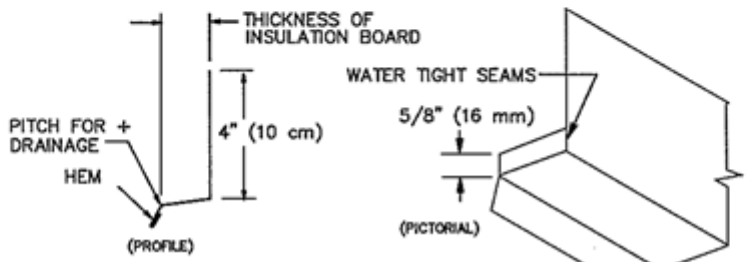
Install the "self sticking" membrane at the rough opening. Membrane should lap over the previously installed "bandages".

Details shown are *suggested* details and should be reviewed by design professionals for your specific application.

ROUGH WINDOW FLASHING – PART 2

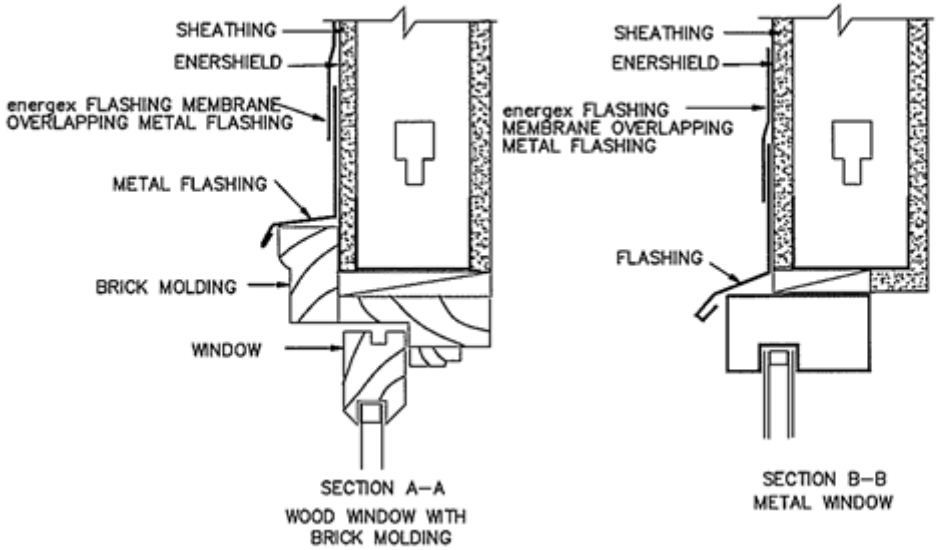


INSTALLING THE FLASHING MEMBRANE AT JAMBS



METAL FLASHING PROFILE

Flashing should be fabricated in the profile shown. Length of flashing is 1" longer than the width of the window frame. End dams should be turned upward 5/8" (16 mm) as shown.



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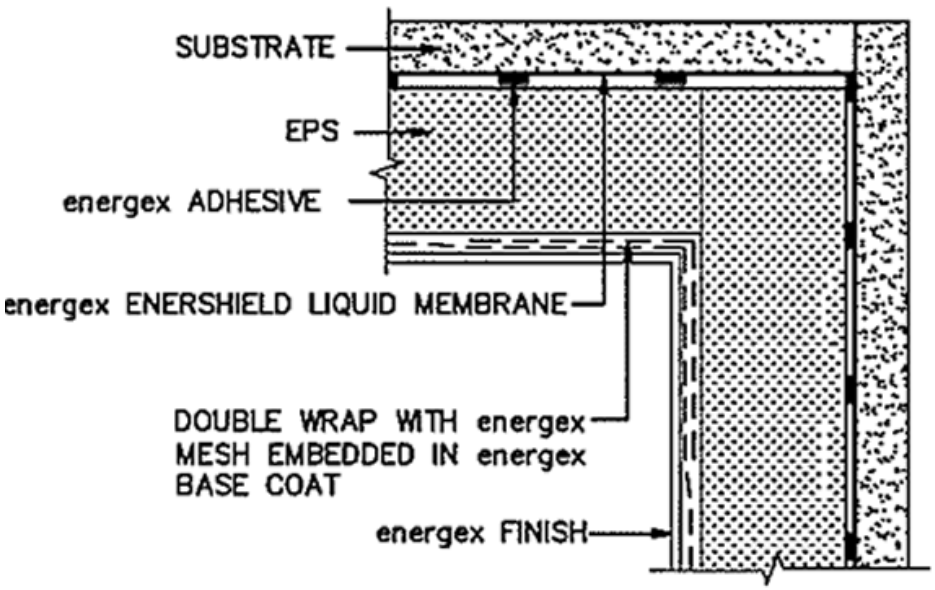
INSIDE CORNER



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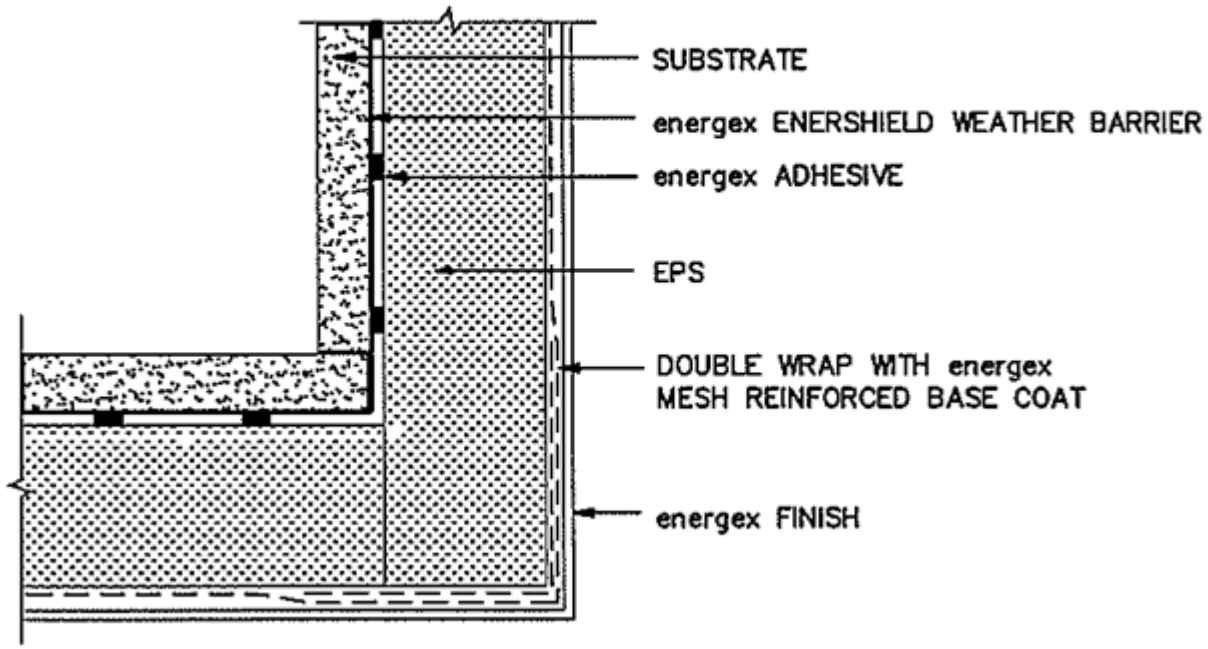
OUTSIDE CORNER



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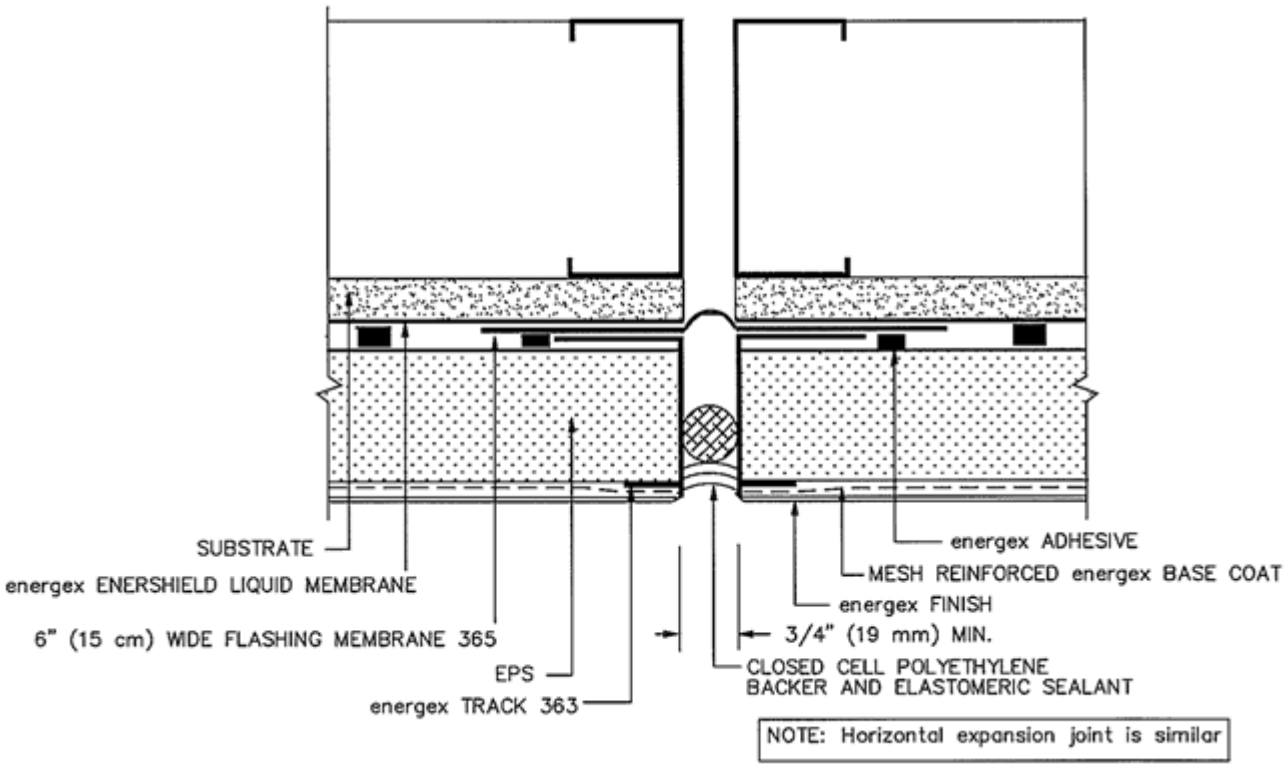
EXPANSION JOINT



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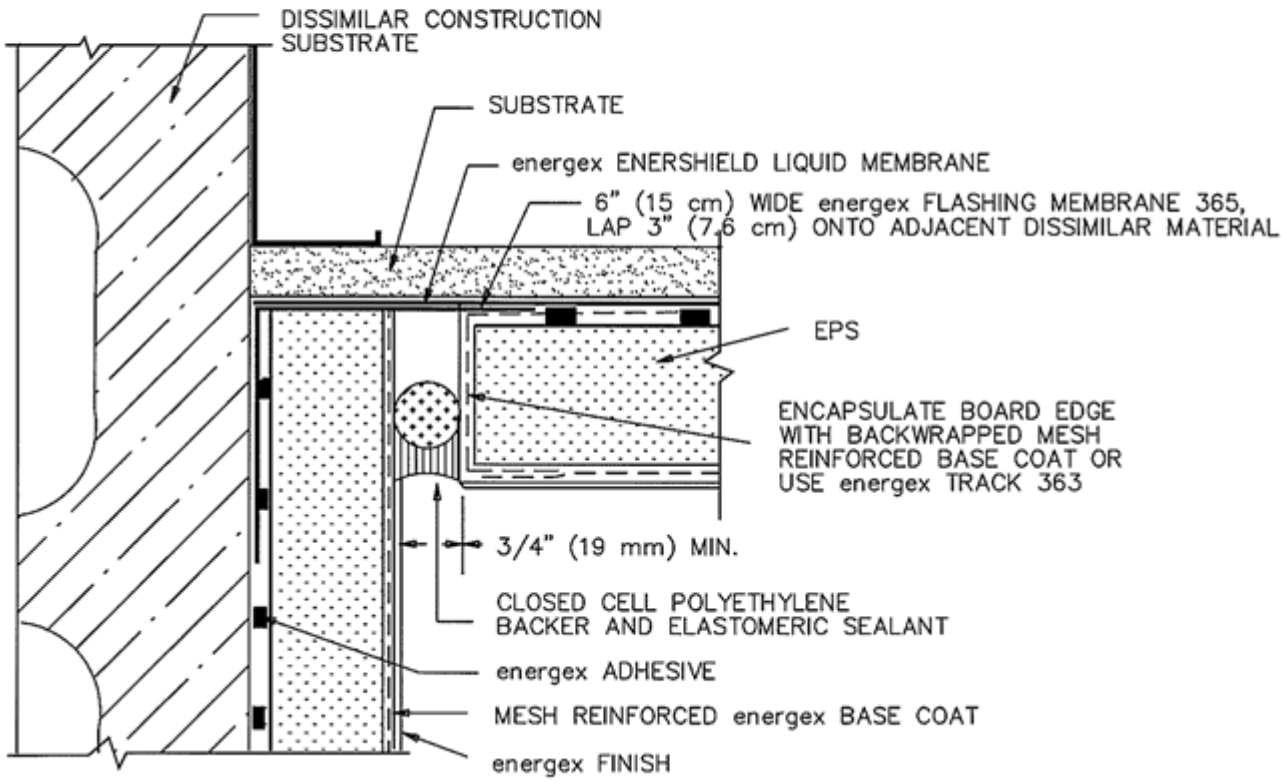
INSIDE CORNER/ DISSIMILAR SUBSTRATES



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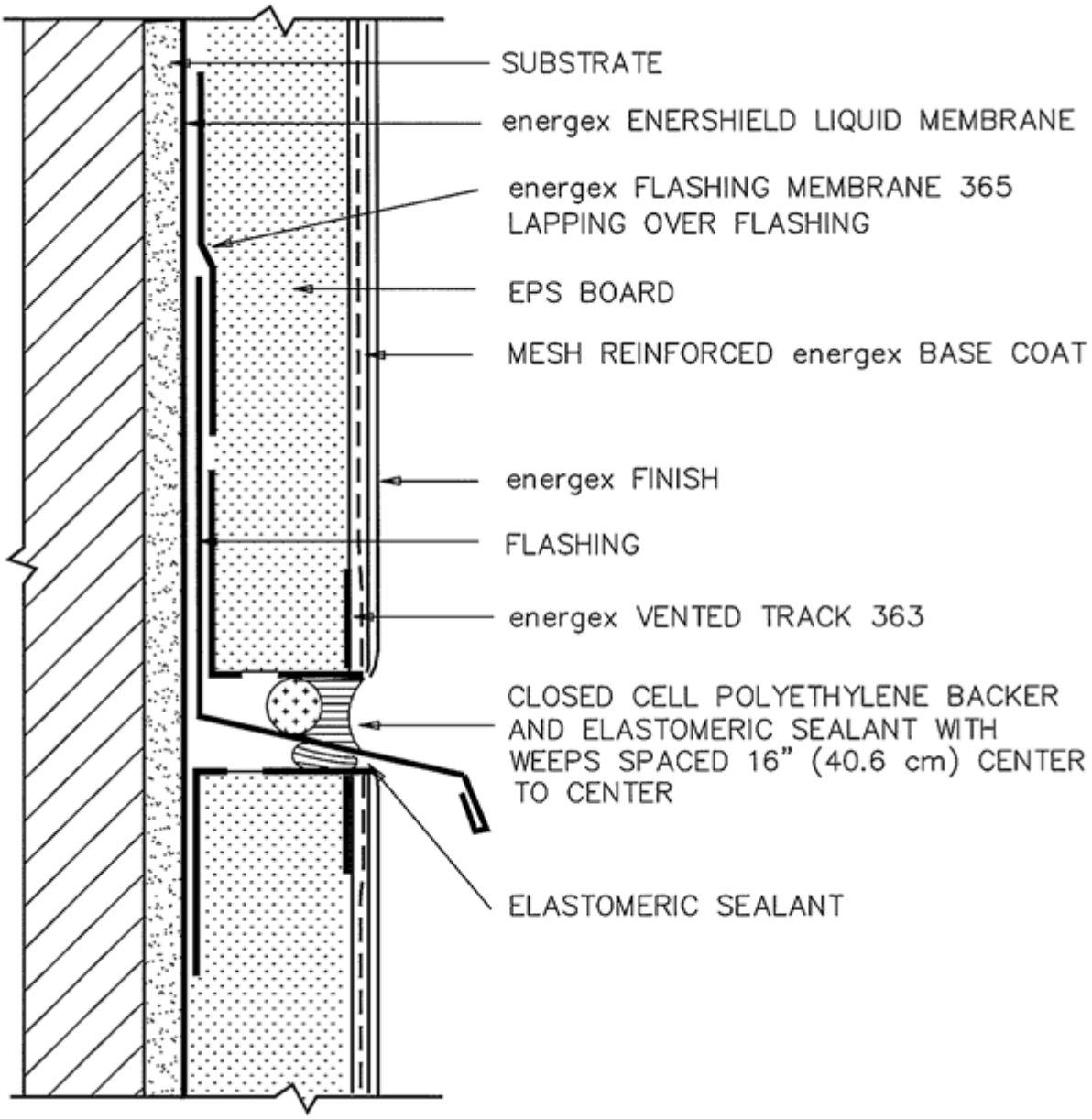
THRU-SYSTEM FLASHING WITH WEEPS



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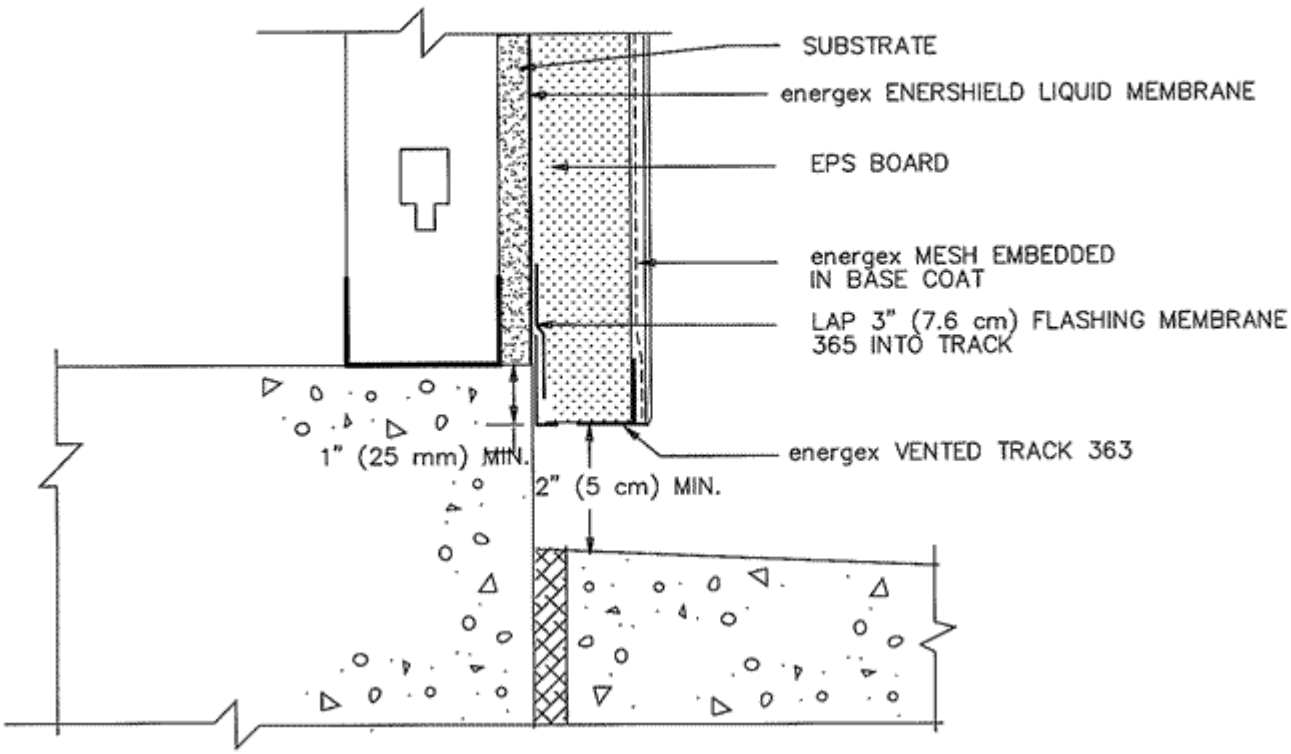
TERMINATION ABOVE PAVEMENT



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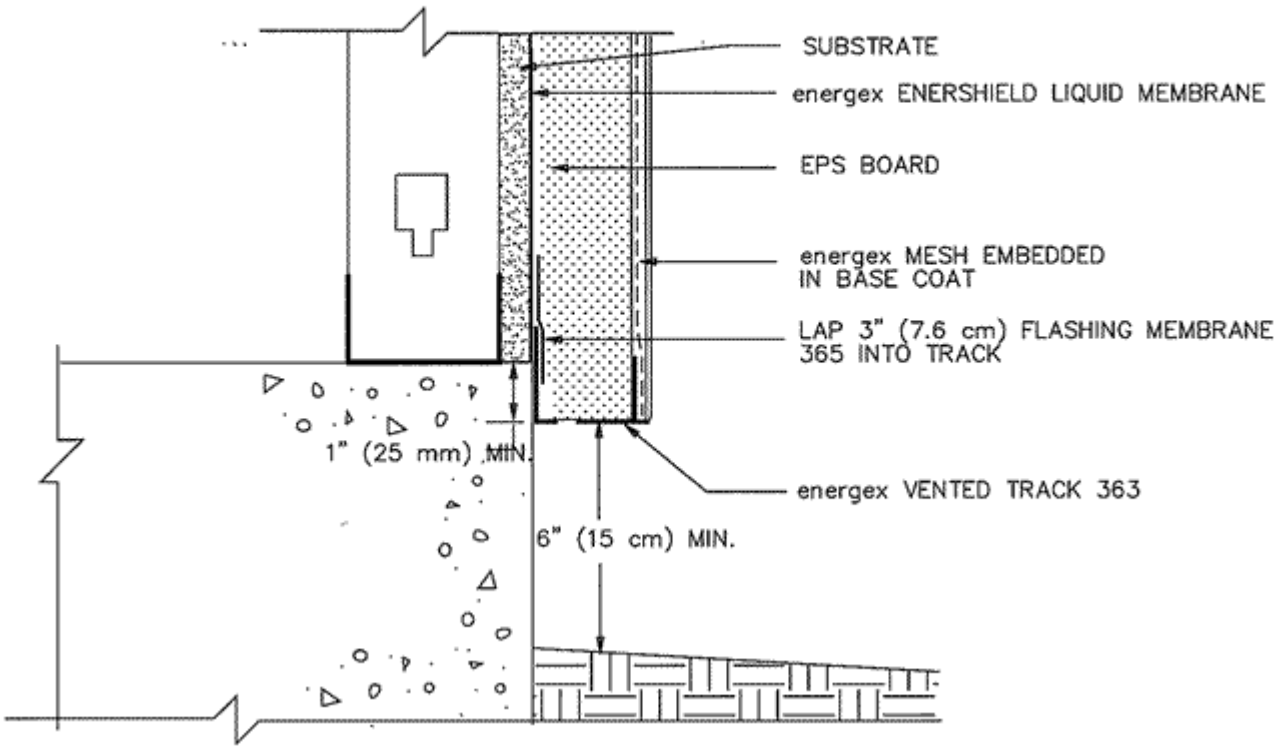
ROLL ON MEMBRANE

TERMINATION ABOVE GRADE



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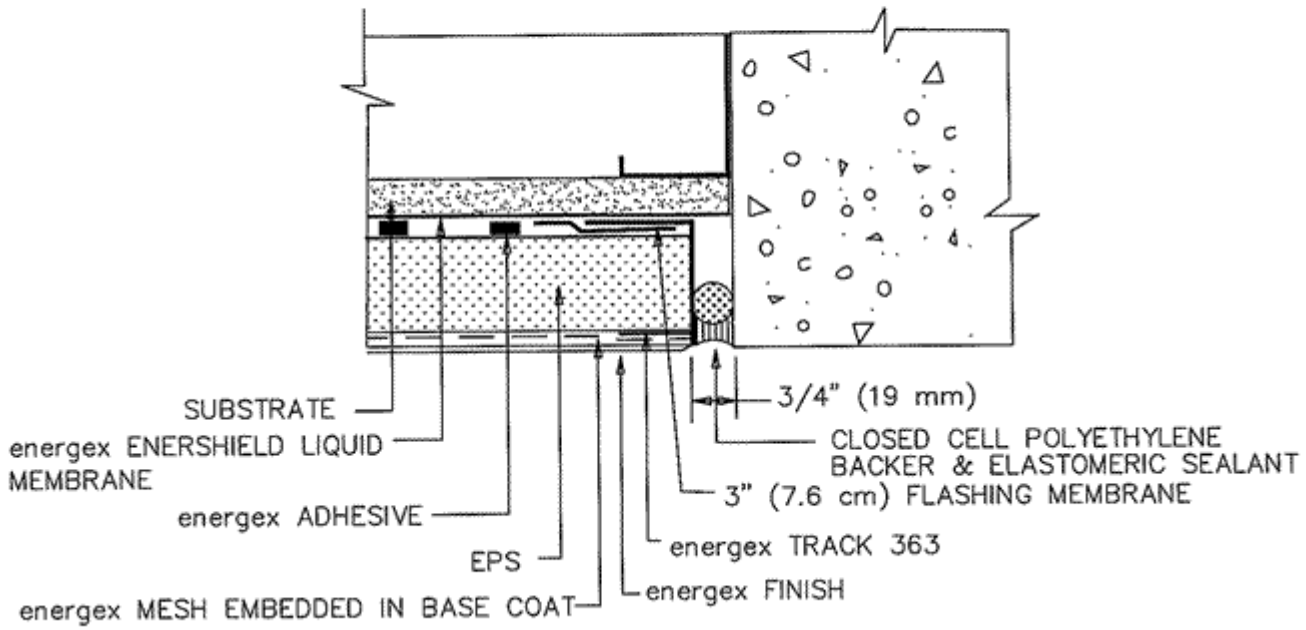
TERMINATION AT VERTICAL EDGE



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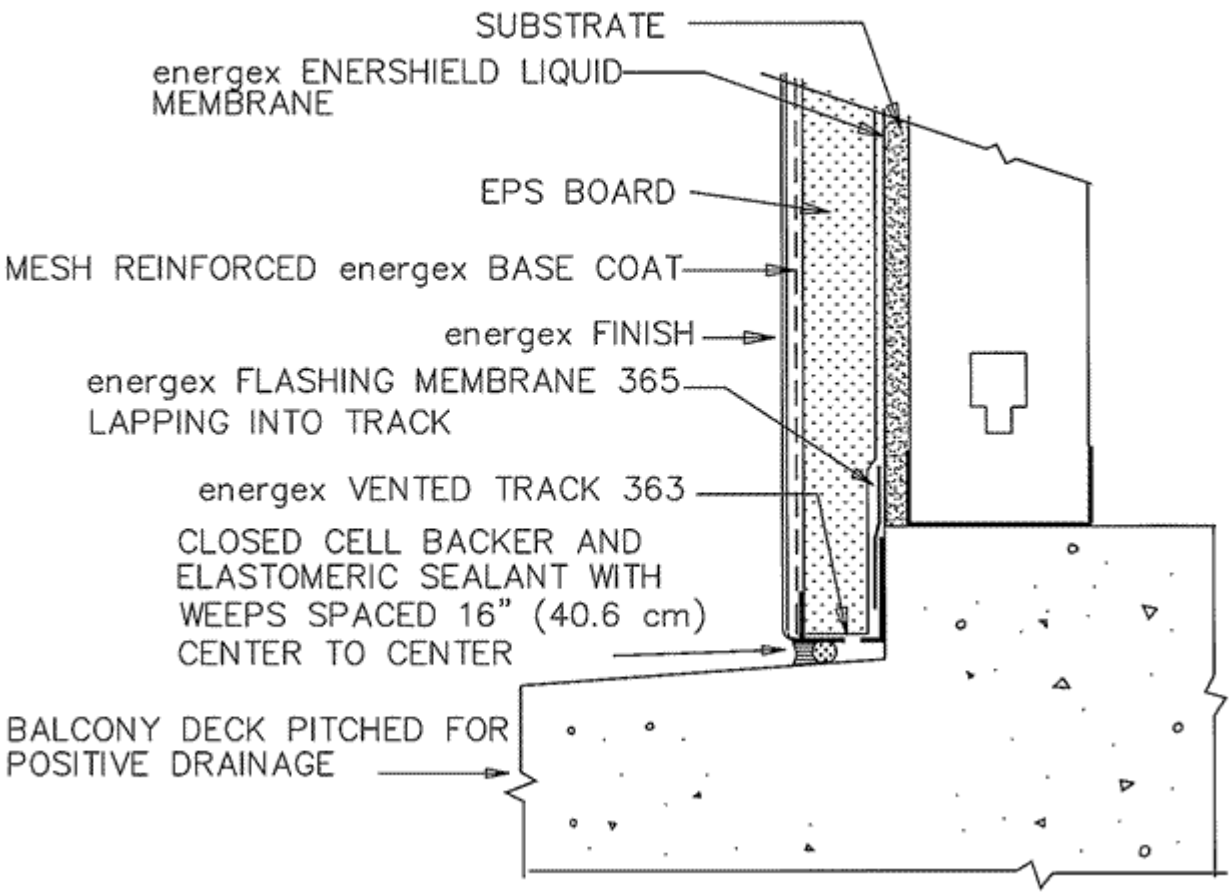
TERMINATION AT BALCONY DECK



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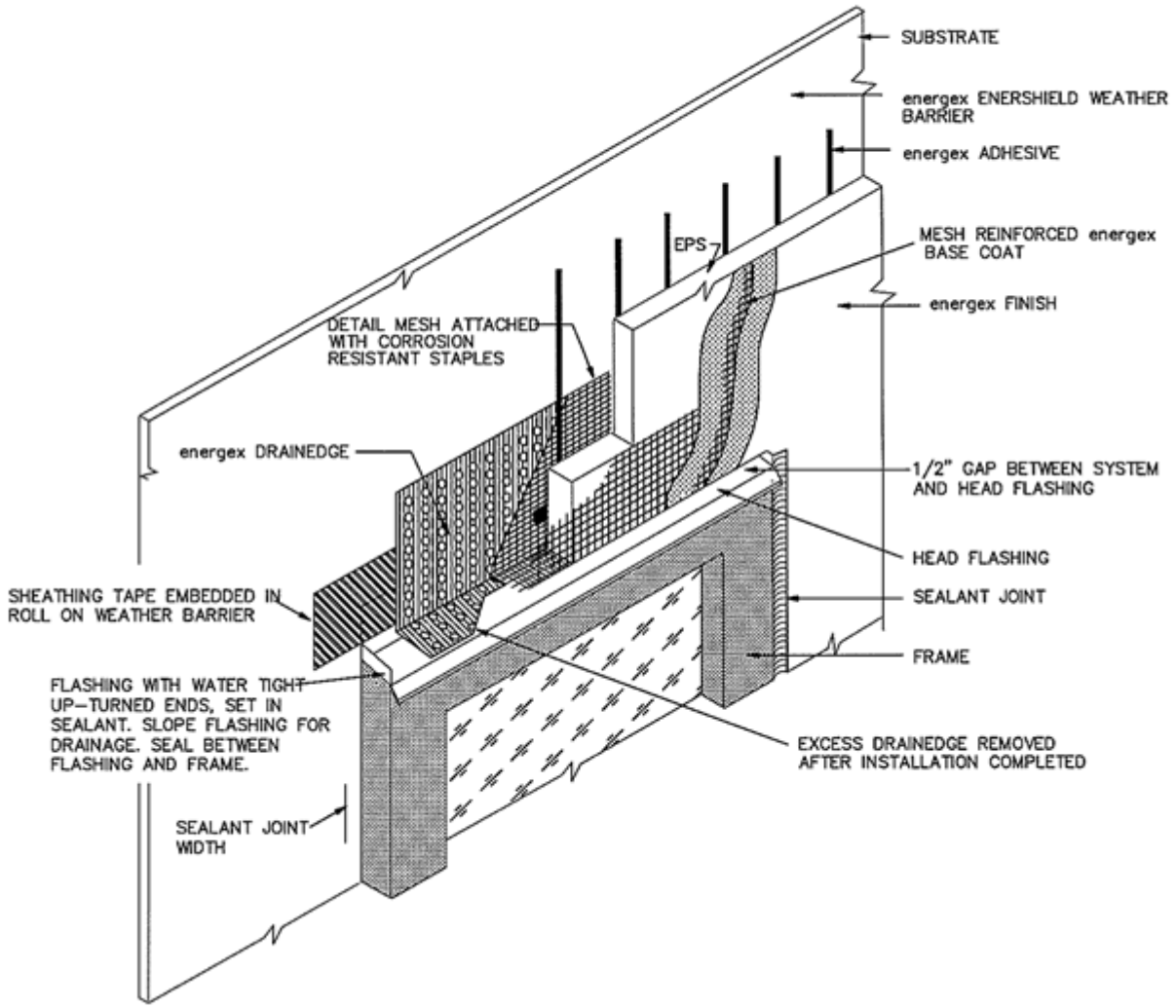
HEAD ASSEMBLY(WINDOWS, DOORS, LOUVERS, ET AL.)



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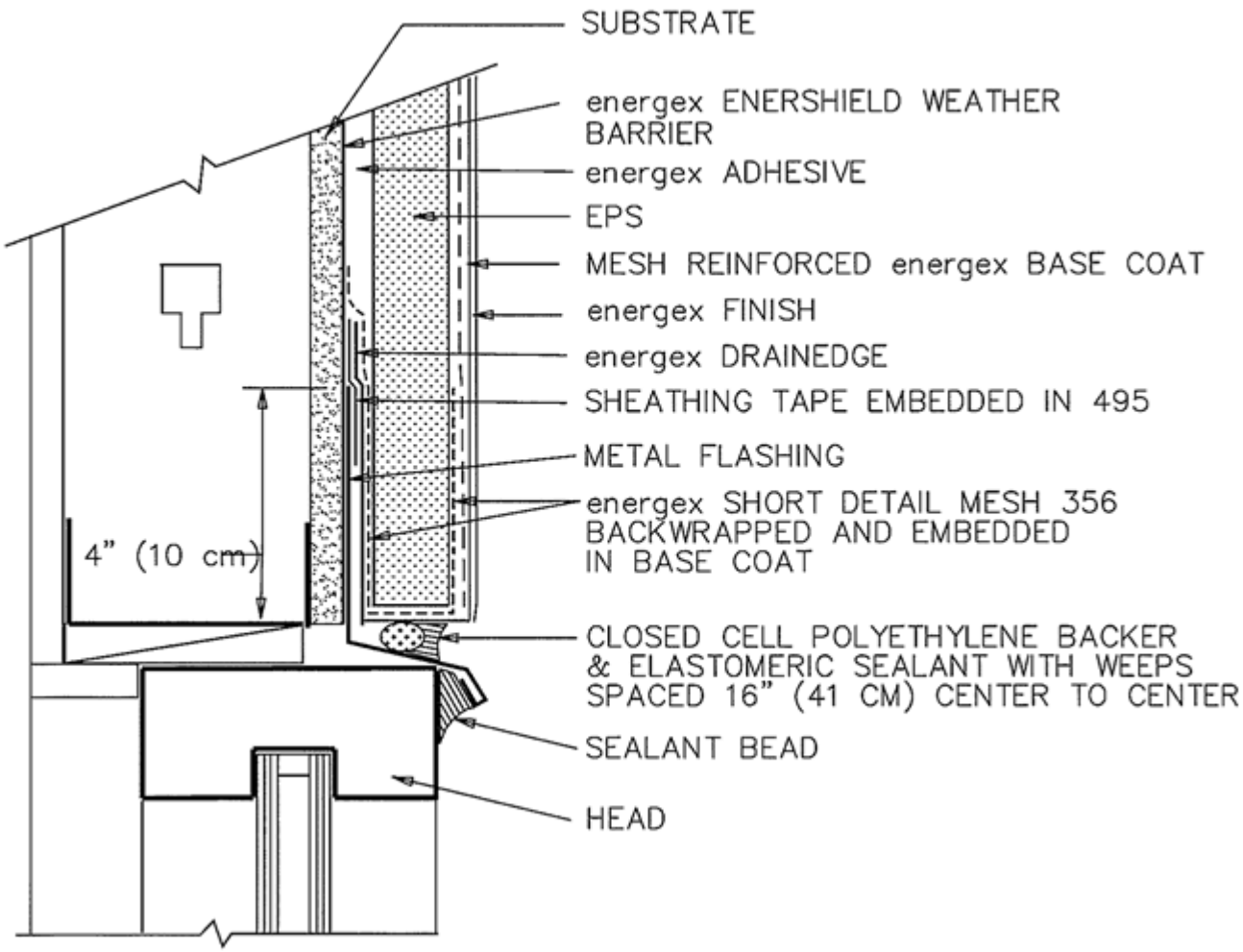
HEAD TERMINATION



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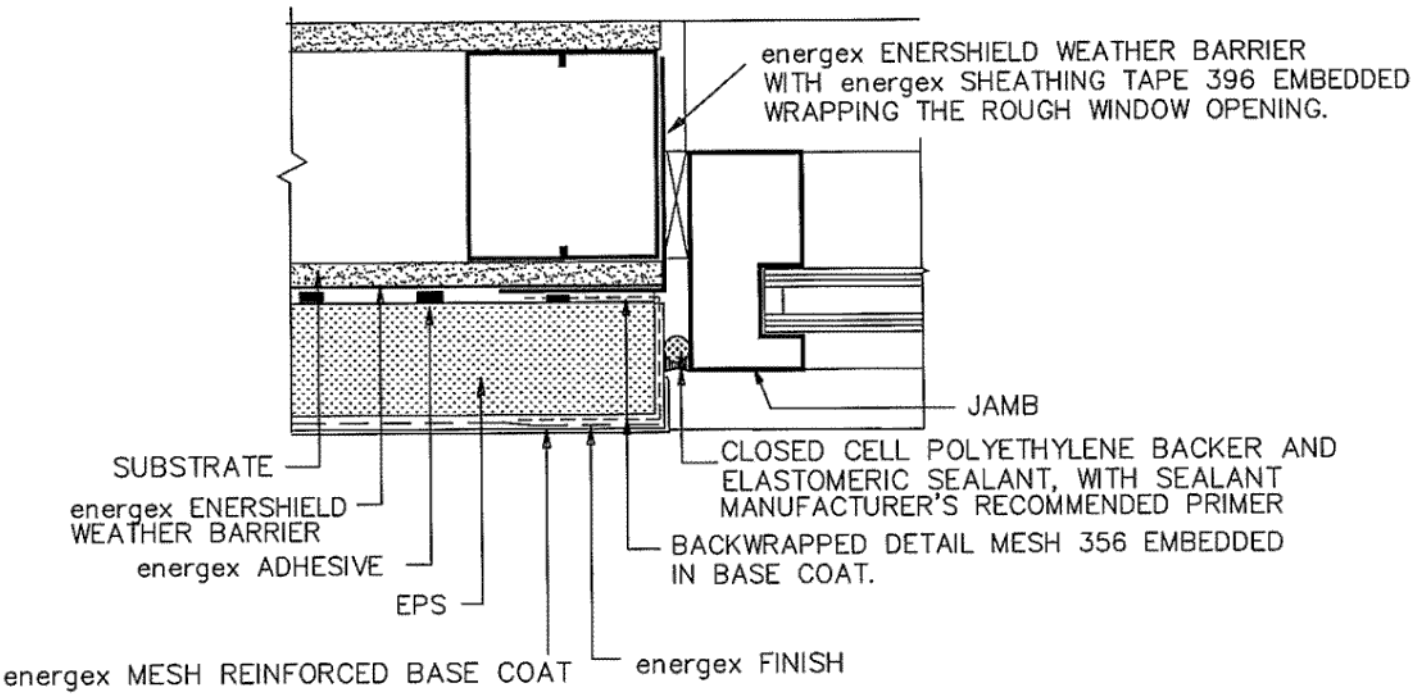
BACK WRAPPED JAMB



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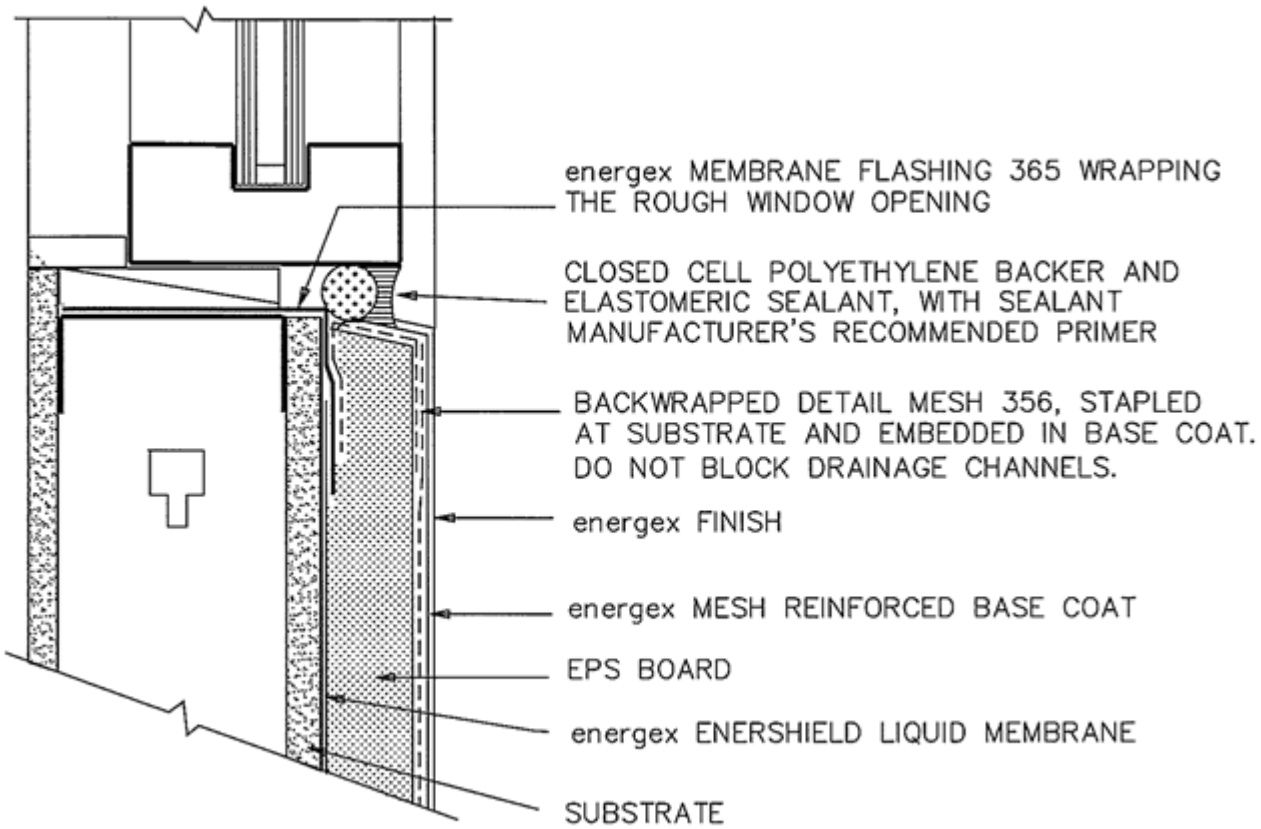
BACK WRAPPED SILL



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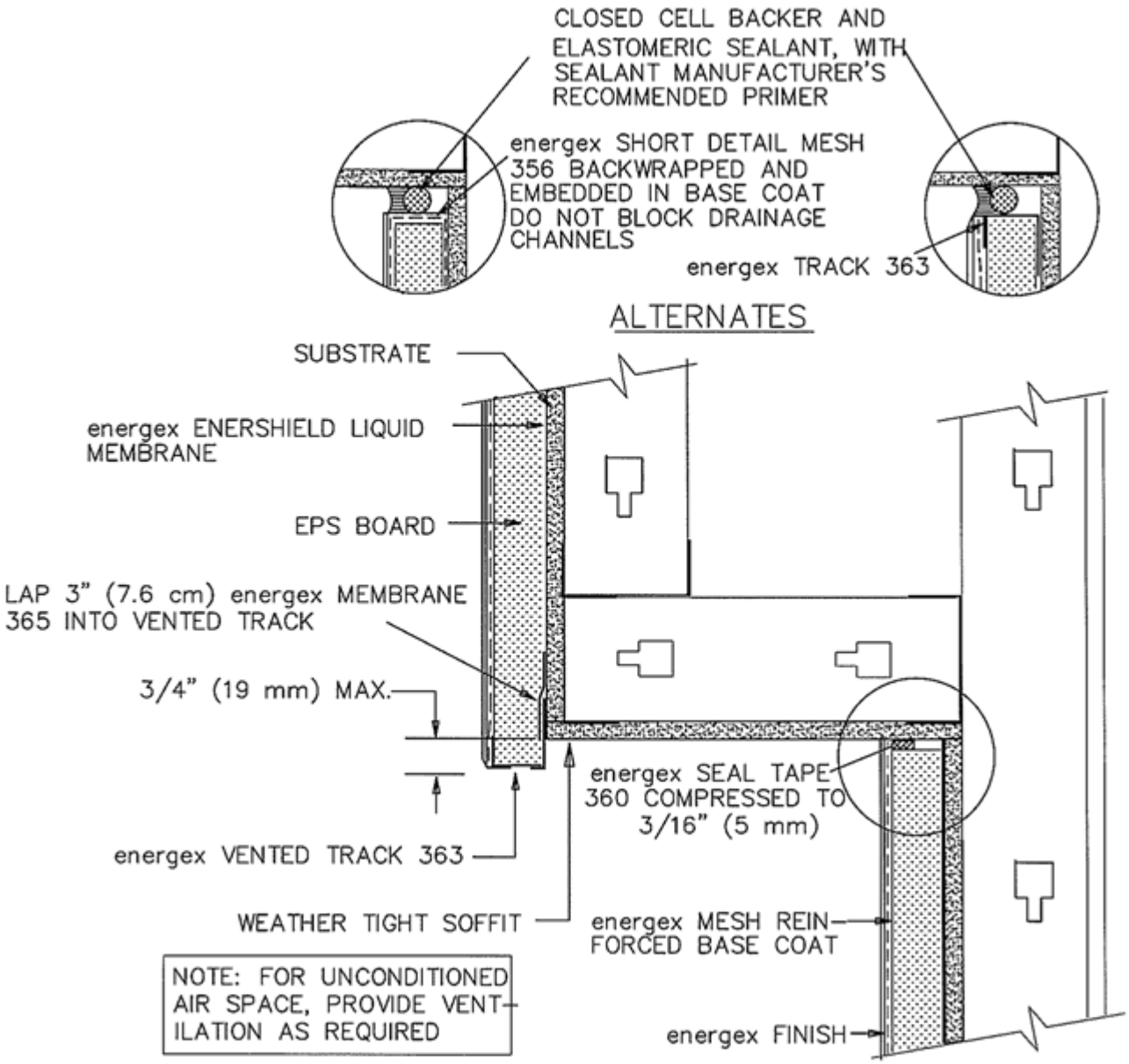
TERMINATION AT SOLID SOFFIT



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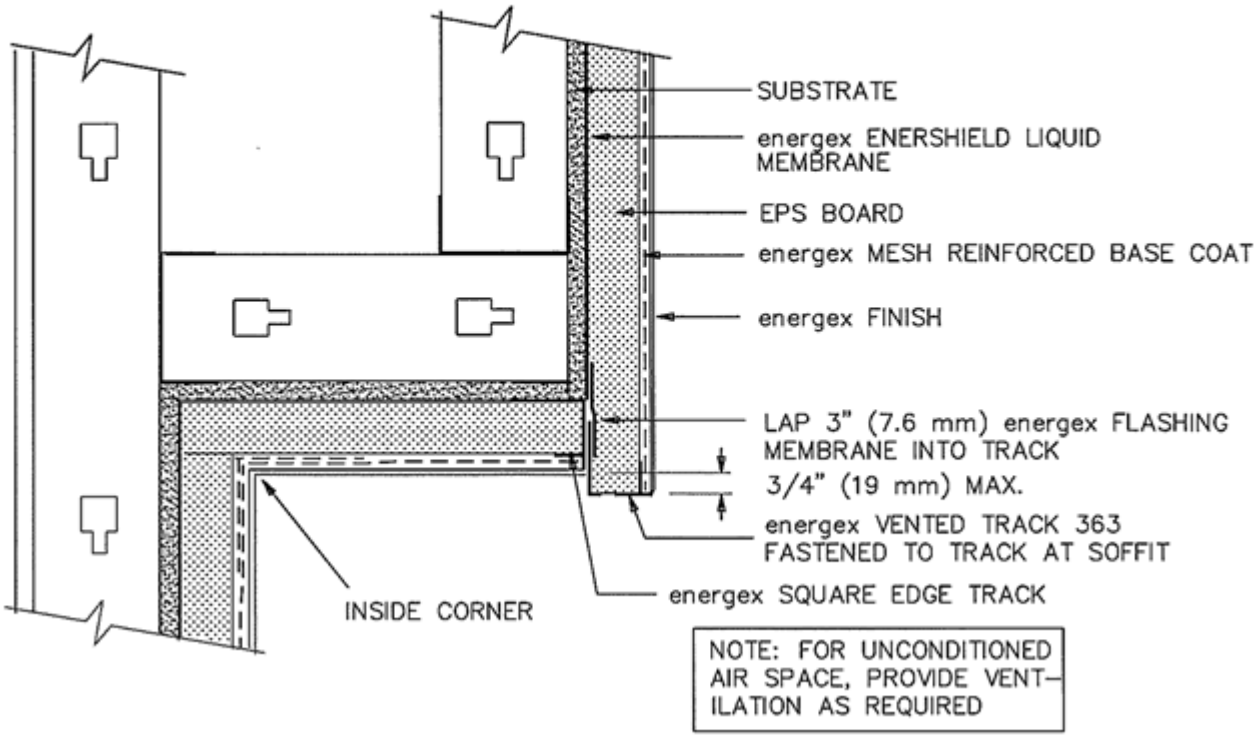
TERMINATION AT INSULATED SOFFIT



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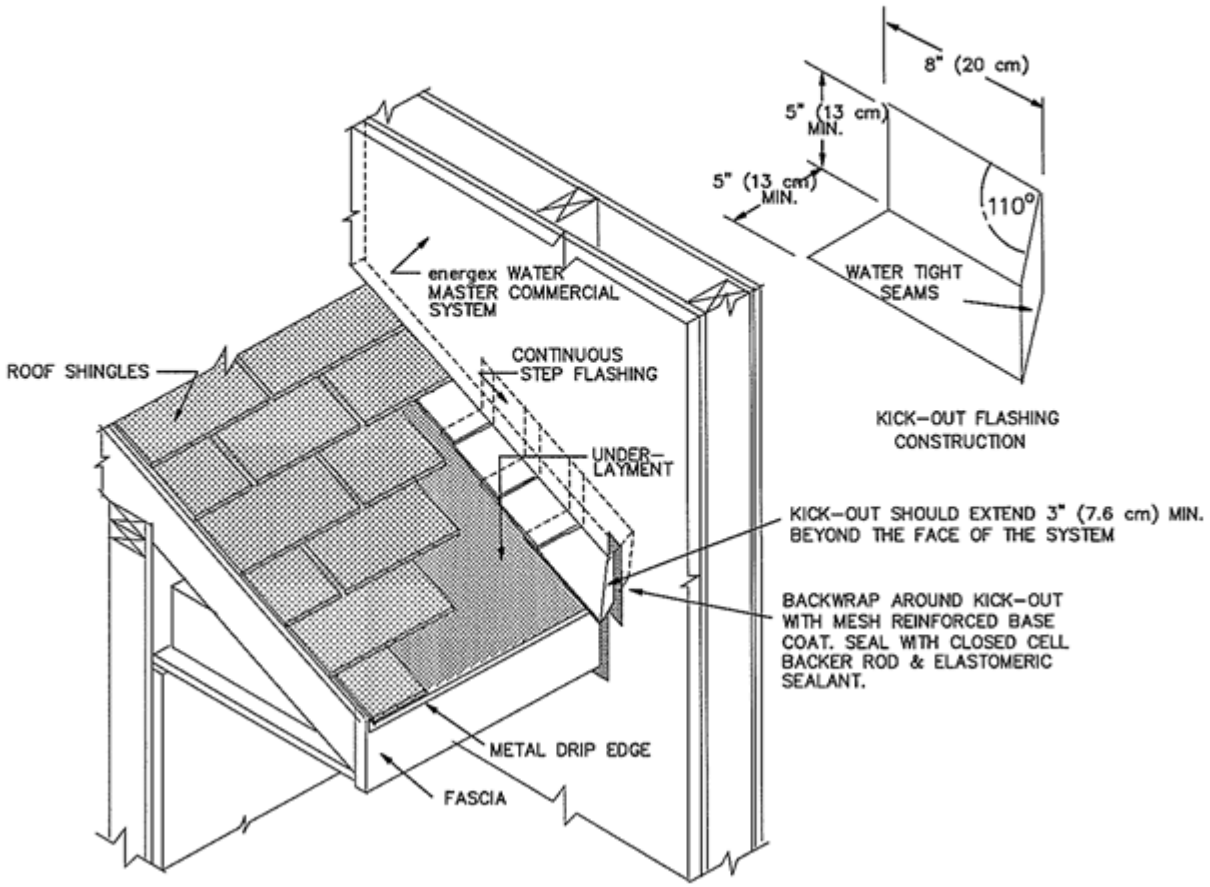
CORNICE MEETS SYSTEM WALL – PART A



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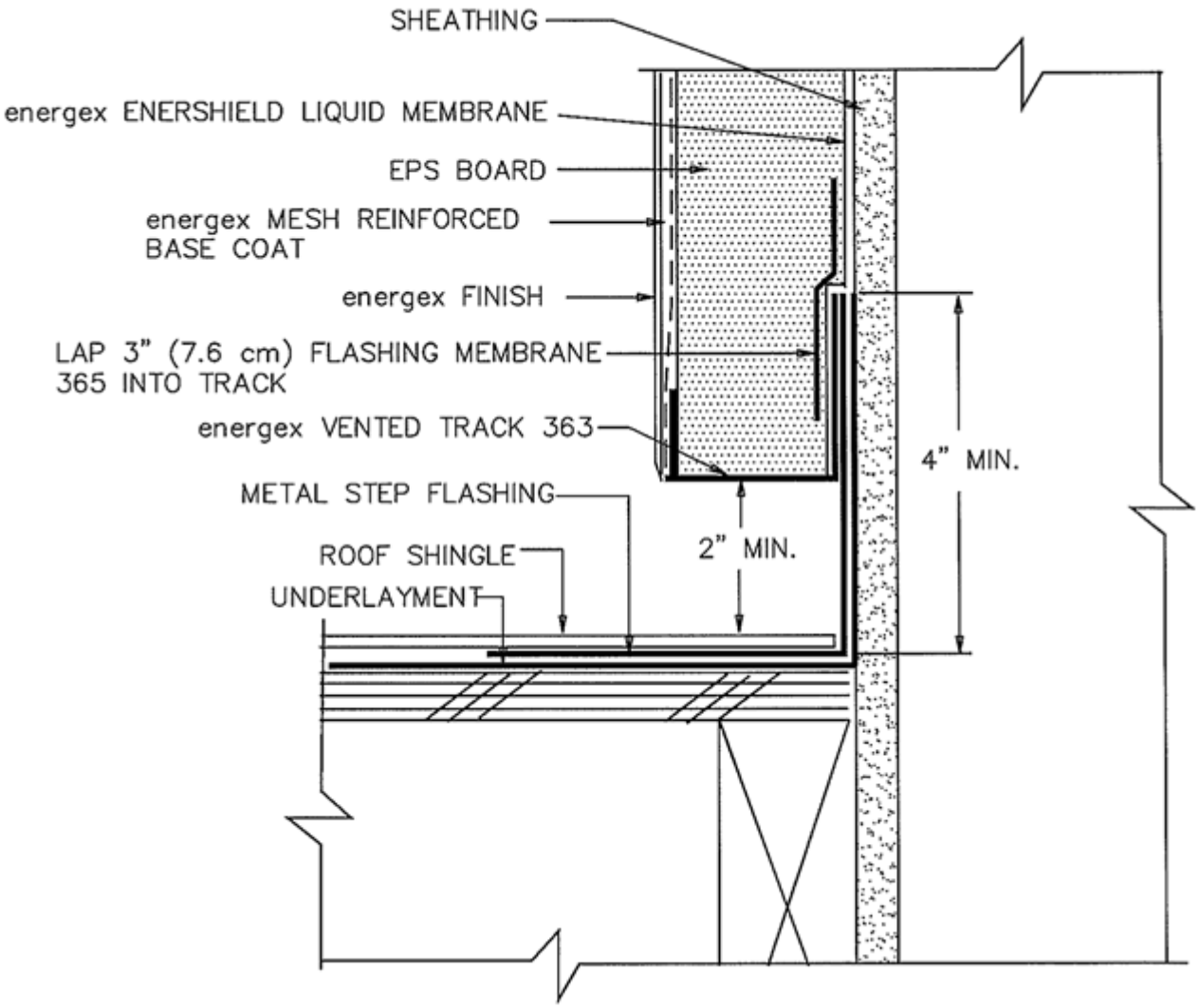
CORNICE MEETS SYSTEM WALL – PART B



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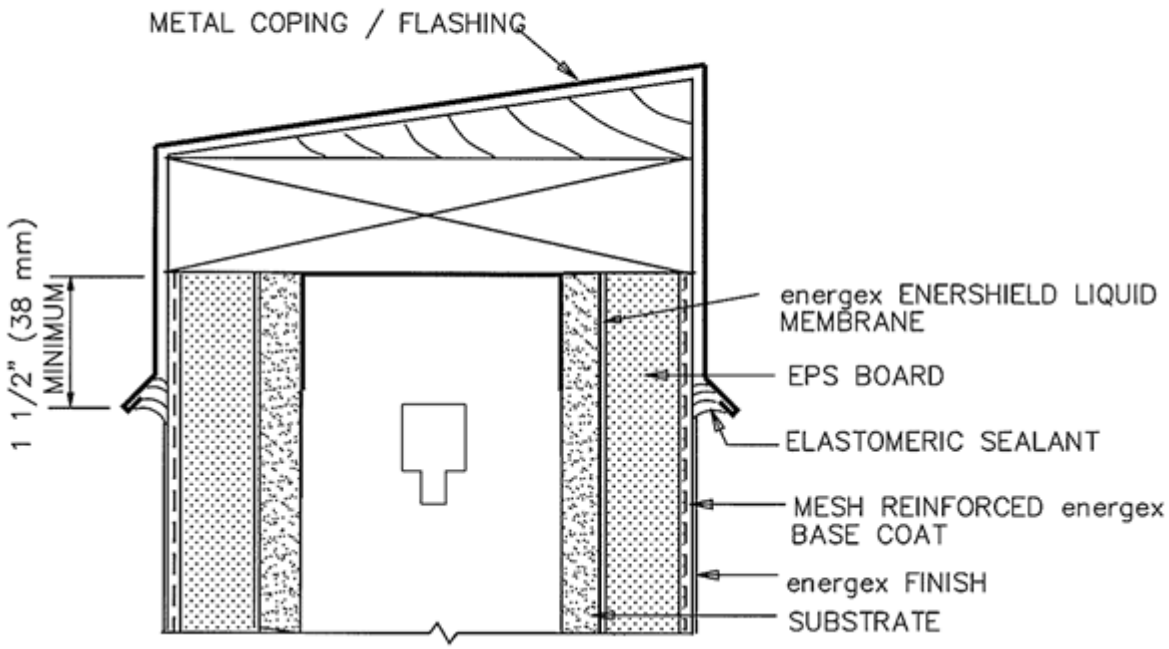
PARAPET



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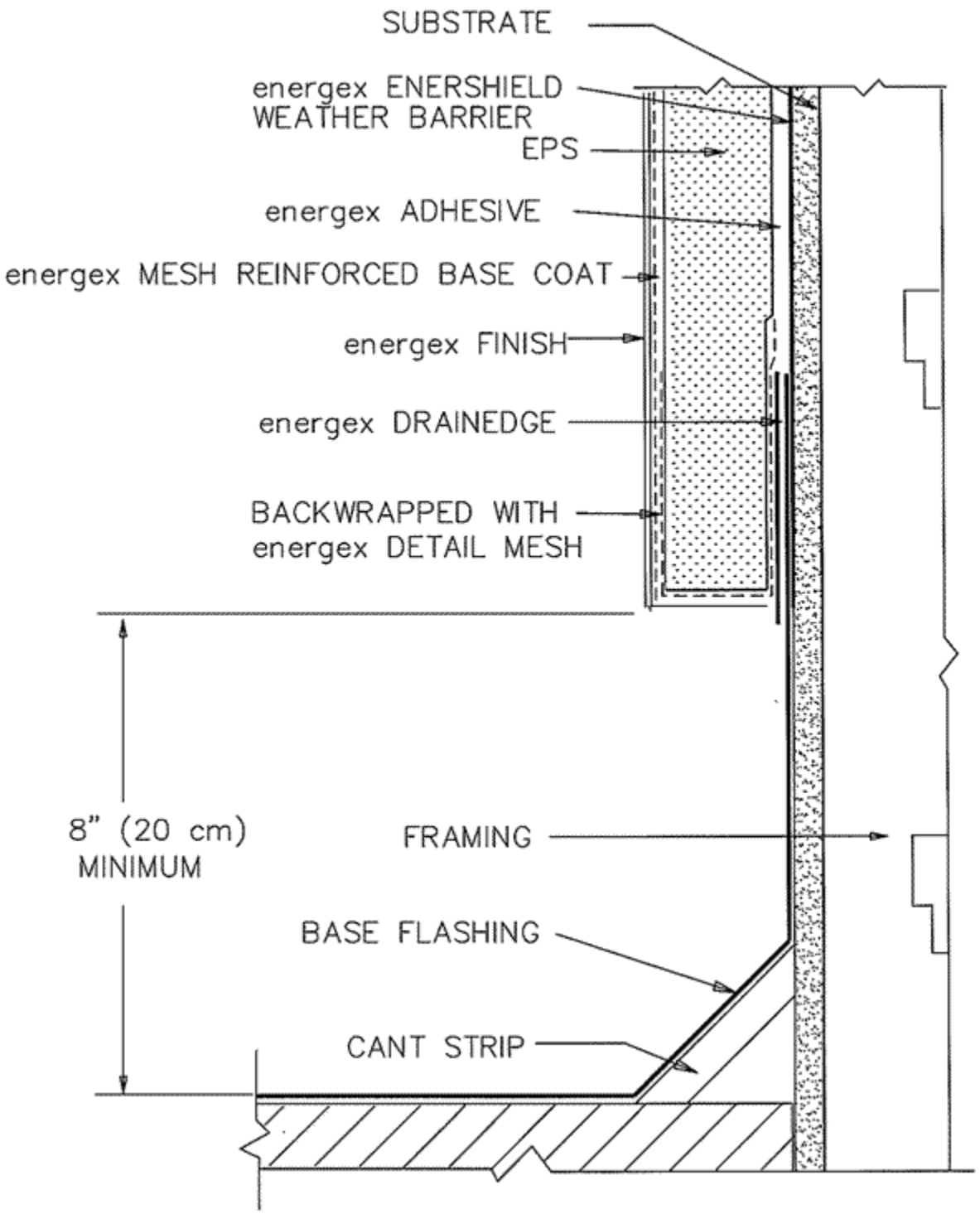
HI GH WALL AT LOW ROOF



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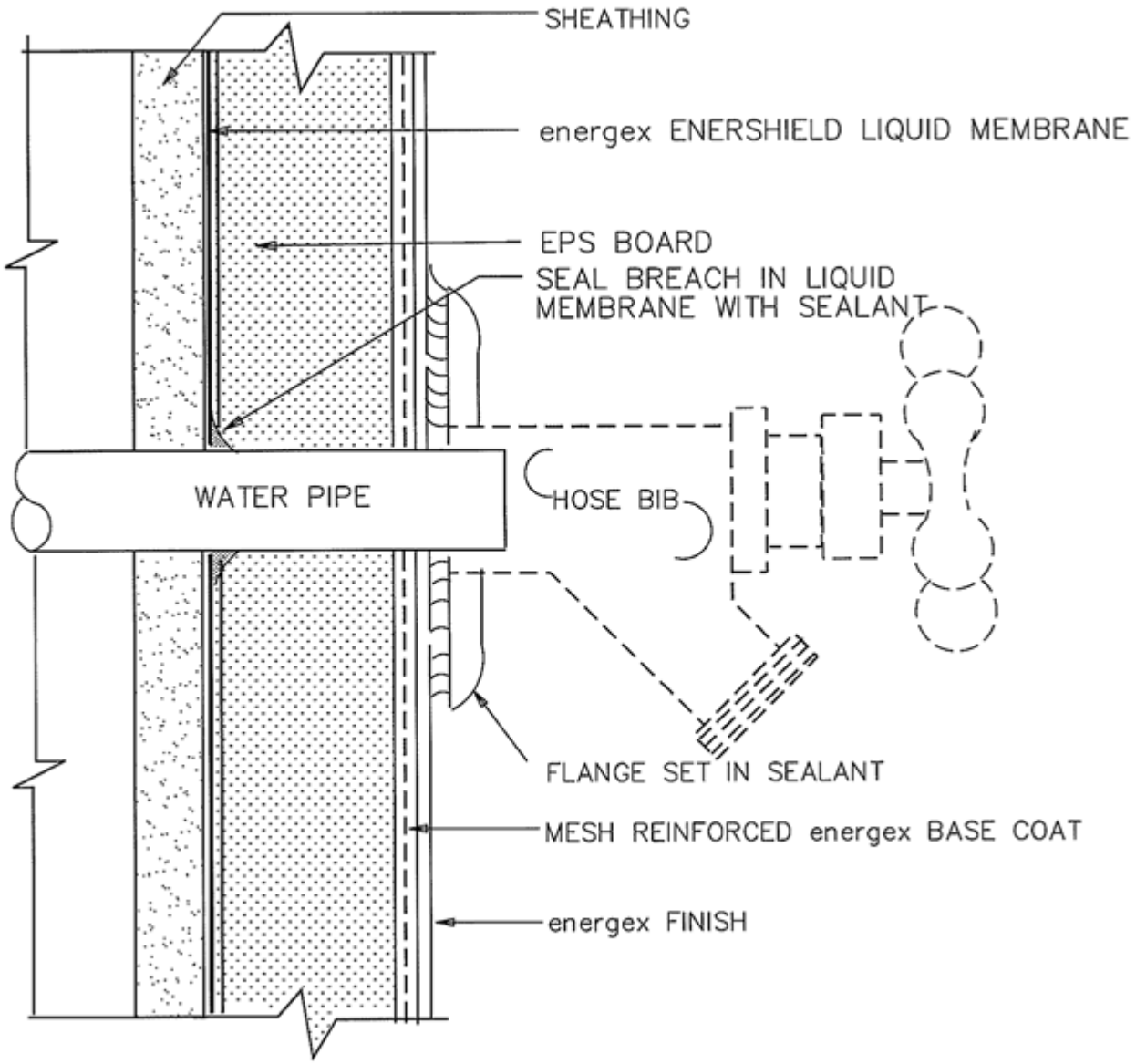
HOSE BIB



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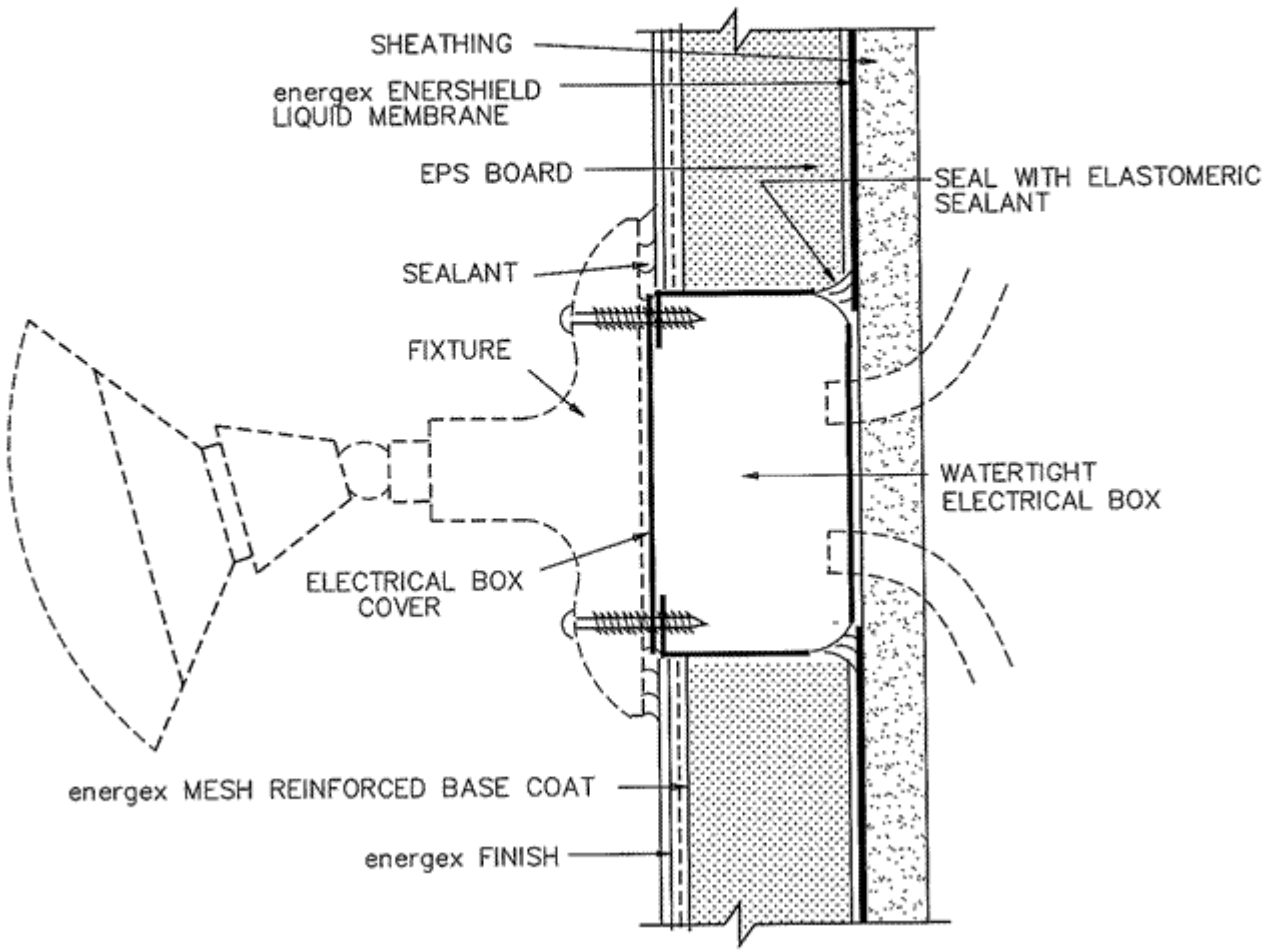
SMALL ELECTRICAL FIXTURE



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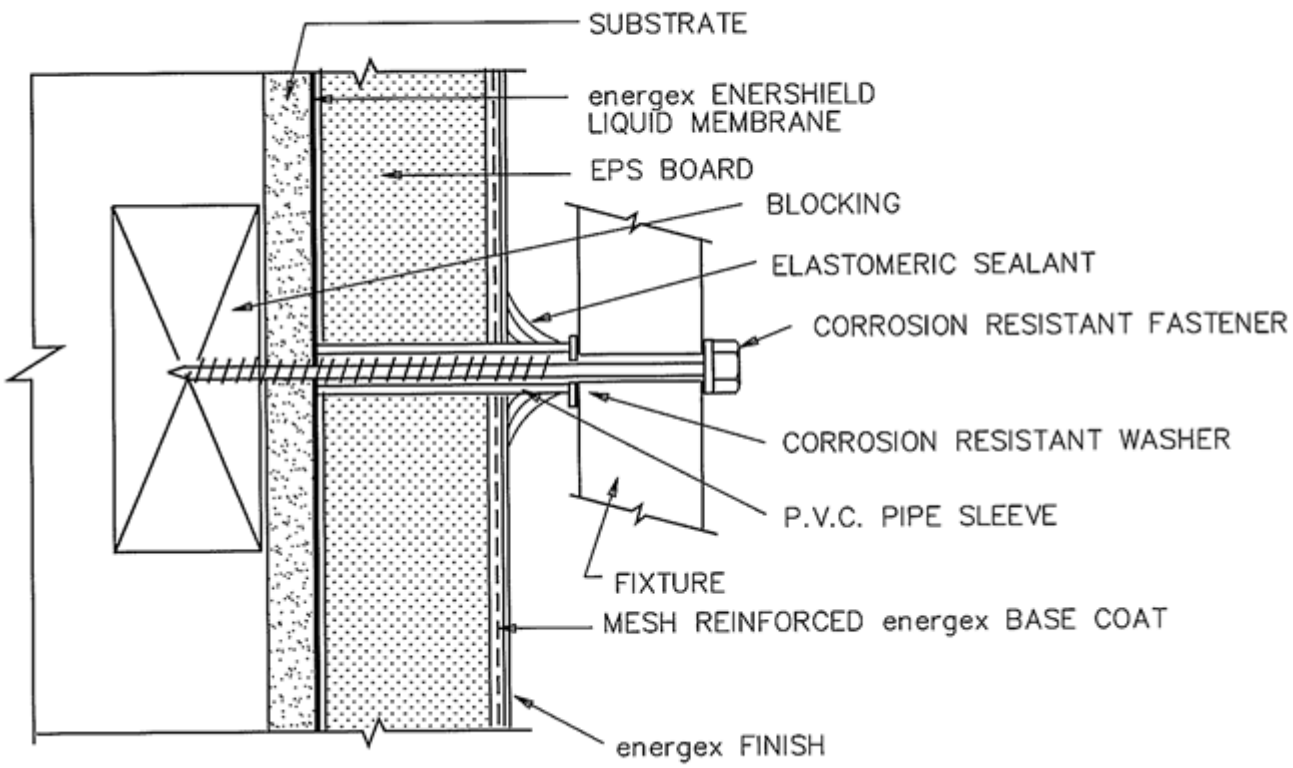
FIXTURE ATTACHMENT



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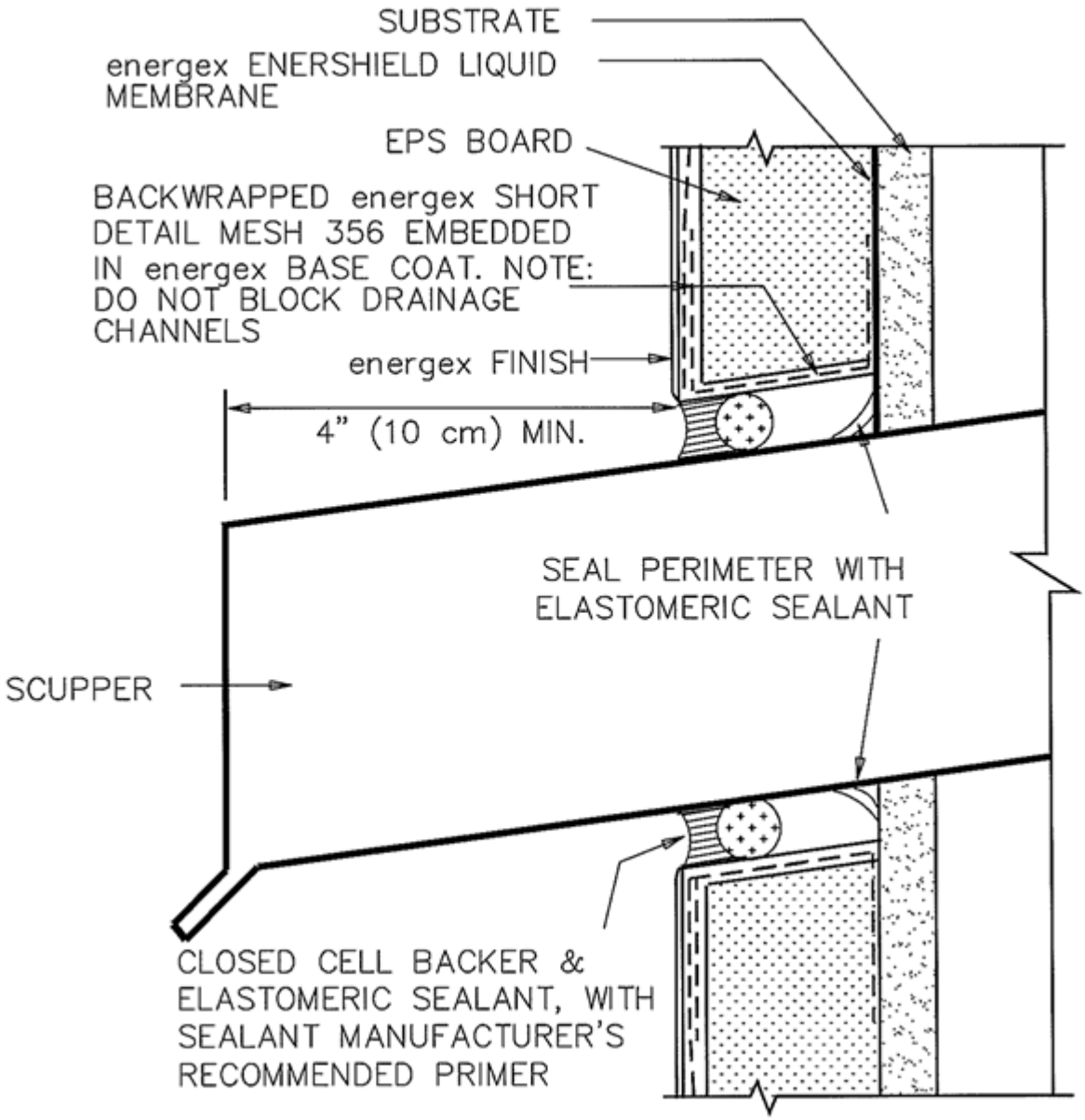
SCUPPER



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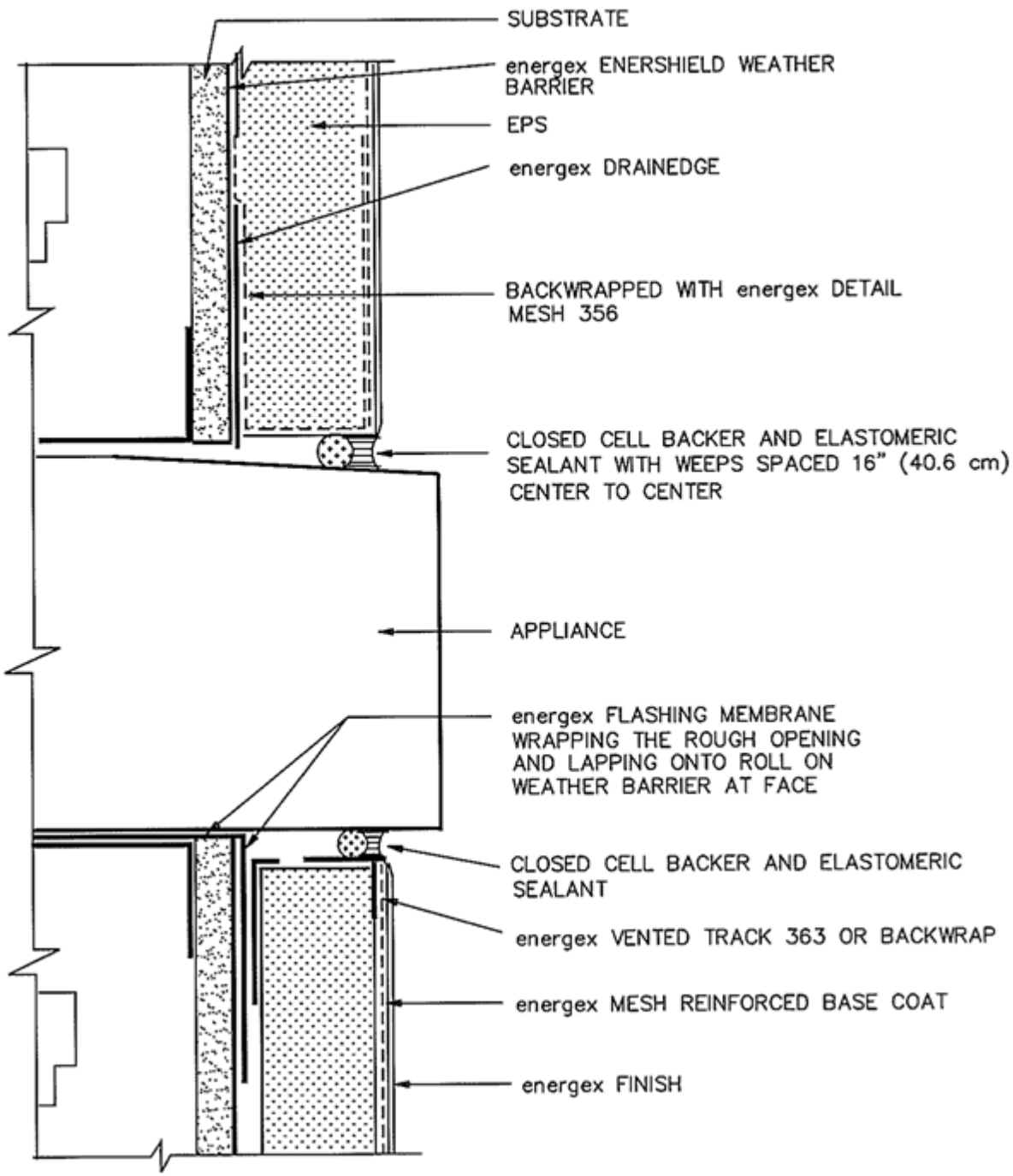
TERMINATION AT APPLIANCE



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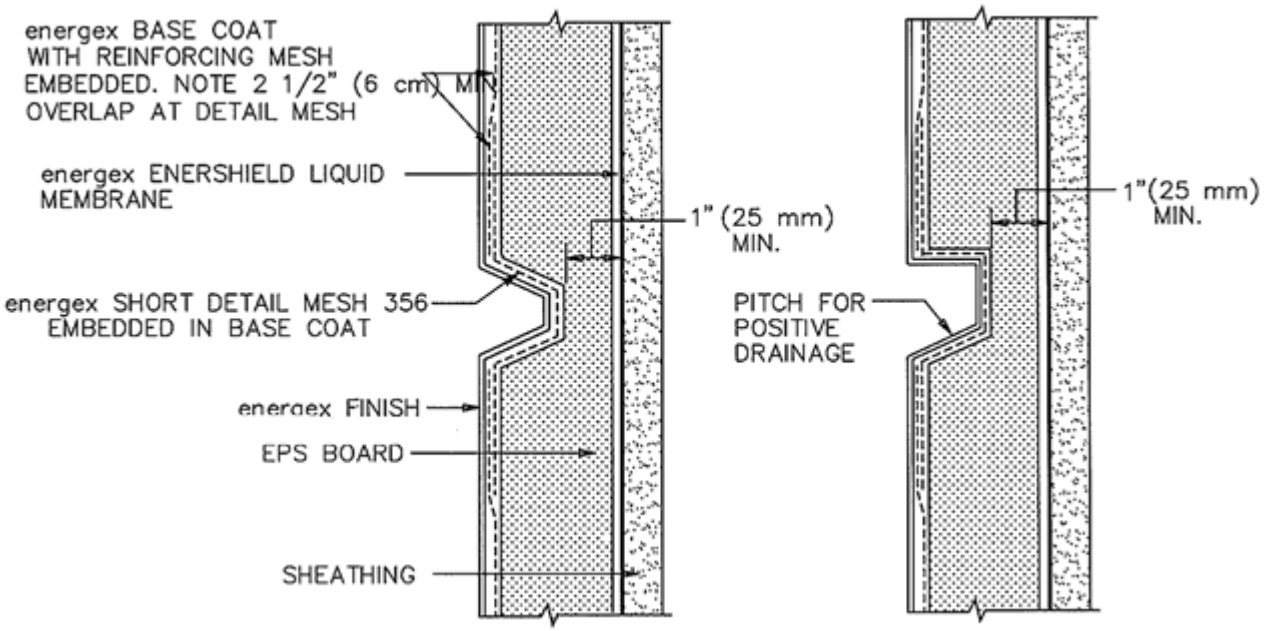
GROOVE/REVEAL



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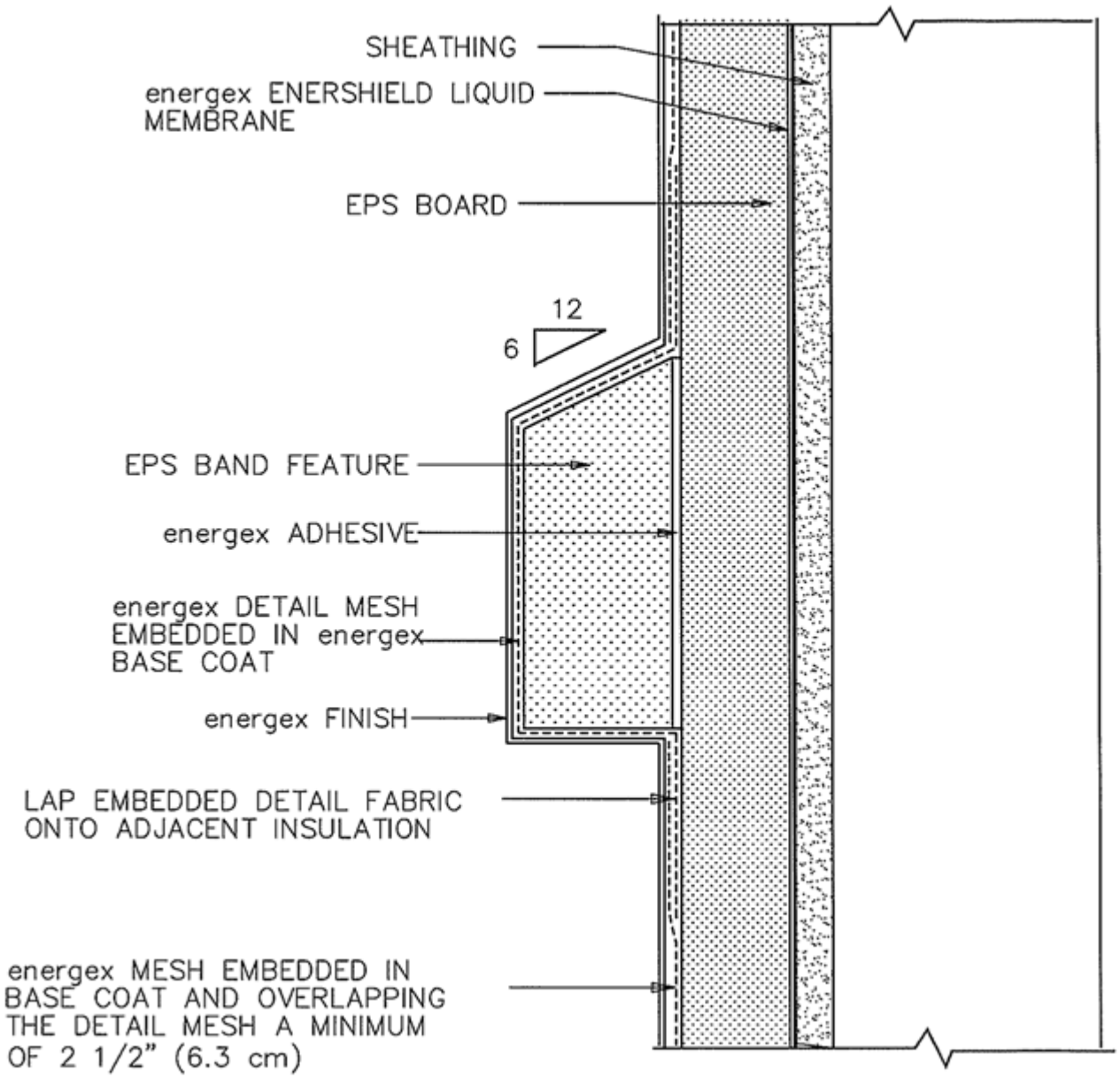
SMALL BAND/PROJECTION



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