



# TeifsAirtight Wall System Specification

Expanded Language

## CSI SECTION 07 24 00

### CSI SECTION 07 24 00 - Exterior Insulation & Finish System (EIFS) - Class PB (Teifs, EIFS TeifsAirtight Class PB)

#### SYSTEM OVERVIEW

The TeifsAirtight Wall System is a Class PB EIF System distinguished by application over a water-resistive barrier coating. TeifsAirtight Wall System is qualified for use on:

- noncombustible construction
- combustible non-residential construction
- fire resistance rated walls

This system is not qualified for use on wood-frame residential construction, including multi-unit. (Refer to Teifs Permadrain and Grade D building paper for wood-frame residential construction.)

- The system is not qualified for application to OSB (oriented strand board) sheathing.
- Some jurisdictions may require special inspections.
- The system does not contribute structural strength to the wall. It depends on the substrate wall for support and attachment.
- Substrate construction must resist all design loads. Sheathing attachment to framing must resist design negative windloads because it transfers those loads to the framing. Appropriate safety factors must be applied.
- All penetrations and terminations of the system must be made weather-tight, typically by sealants and/or flashings.

#### PART 1 - GENERAL

##### 1.01 SUMMARY

A. Section Description: Section includes exterior insulation and finish system (EIFS - Class PB).

B. Products Installed But Not Supplied Under This Section:

1. EIFS Joint Sealant: Refer to Division 7 Joint Treatment (Sealants) Section. Installation of EIFS Joint Sealant shall be by EIFS applicator or a separate installer under direct supervision and control of EIFS applicator. EIFS Joint Sealant installer shall be experienced and competent in the installation of elastomeric construction sealants.



## 1.02 SYSTEM DESCRIPTION

EDITOR NOTE: MODIFY BELOW IF TEIFS AIRTIGHT WALL SYSTEM WITH ACRYLIC BASE COAT IS USED FOR PROJECT.

### A. Description of Teifs Airtight Wall System:

1. Teifs Airtight Wall System: An Exterior Insulation and Finish System (EIFS) consisting of Expanded Polystyrene Insulation (EPS) Board, Adhesive, Cementitious Base Coat with embedded Reinforcing Fabric Mesh, Primer (Optional), and Finish Coat. This system is installed over a secondary water-resistant barrier consisting of Teifs Weatherseal Liquid Membrane and Flashing Membrane applied over Glass Mat Sheathing, exterior gypsum sheathing and cement board.

### B. Teifs EIF System Functional Criteria:

1. General:
  - a. Insulation Board: At system termination, completely encapsulate insulation board edges by mesh reinforced base coat, substrate or Teifs track. The use of and maximum thickness of insulation board shall be in accordance with applicable building codes and ParexLahabra requirements.
  - b. Flashing: Flashing shall be continuous and watertight. Primary flashing shall be designed and installed to prevent water infiltration behind the EIFS. Refer to Division 7 Flashing Section for specified flashing materials.
2. Substrate Systems:
  - a. Shall be engineered to withstand applicable design loads including required safety factor.
  - b. Maximum deflection under positive or negative design loads of substrate system shall not exceed 1/240 of span except as otherwise approved in writing by ParexLahabra prior to installation.
  - c. Substrate Dimensional Tolerances: Flat within 1/4 in (6.4 mm) within any 4 ft. (1,219 mm) radius.
  - d. Surface irregularities: Sheathing not over 1/8 in. (3 mm); masonry not over 3/16 in. (4.8 mm).
  - e. EPS board shall be separated from the interior of the building by 1/2 in. (12.7 mm) gypsum board or equivalent approved 15 minute thermal barrier.

EDITOR NOTE: COORDINATE BELOW IMPACT RESISTANCE CLASSIFICATION REQUIREMENTS RECOMMENDED BY EIMA INDUSTRY MEMBERS ASSOCIATION TEST METHOD AND STANDARD 101.86 - "STANDARD TEST METHOD FOR RESISTANCE OF EXTERIOR INSULATION FINISH SYSTEMS TO THE EFFECTS OF RAPID DEFORMATION (IMPACT)."

3. Impact Resistance Classification: Teifs Airtight Wall System shall be classified in accordance with EIMA for EIFS classification and impact ranges as follows:
  - a. Standard Impact Resistance 25-49 in-lbs, Intermediate Impact Resistance 50-89 in-lbs, High Impact Resistance 90-150 in-lbs, and Ultra-High Impact Range >150 Impact Range.
4. Expansion Joints: Continuous expansion joints shall be installed at the following locations in accordance with manufacturer's recommendations.
  - a. At building expansion joints.
  - b. At substrate expansion joints.
  - c. At floor lines in wood frame construction.
  - d. Where Teifs EIF System panels abut one another.
  - e. Where Teifs EIF System abuts other materials.
  - f. Where significant structural movement occurs, such as at:
    - 1) Changes in roof line.
    - 2) Changes in building shape and/or structural system.

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- g. Where substrate changes. (For exceptions to joints at substrate changes, contact the ParexLahabra Technical Services Department)

EDITOR NOTE: INDICATE JOINT WIDTH ON DRAWINGS FOR MOVEMENT AND EXPANSION AND CONTRACTION CONDITIONS. CONSULT WITH SEALANT MANUFACTURER FOR JOINT DESIGN RECOMMENDATIONS AND WITH EIFS MANUFACTURER FOR COORDINATION OF EIFS MATERIALS.

- h. Substrate movement and expansion and contraction of Teifs EIF System and adjacent materials shall be taken into account in design of expansion joints, with proper consideration given to sealant properties, installation conditions, temperature range, coefficients of expansion of materials, joint width to depth ratios, and other material factors. Minimum width of expansion joints shall be as follows:
  - 1) 1/2 in. (12.7 mm) where EIFS abuts other materials.
  - 2) 3/4 in. (19.05 mm) when EIFS abuts the EIFS.
  - 3) Larger width where indicated on drawings.
- 5. Manufacturer's Details:
  - a. Teifs EIFS System latest published information shall be followed for standard detail treatments.
  - b. Non-standard detail treatments shall be as recommended by ParexLahabra, approved by Architect and be part of the Contract Documents.
- 6. Building Code Conformance: Teifs EIF System shall be acceptable for use on this project under building code having jurisdiction.

## 1.03 SUBMITTALS

- A. General: Submit Samples, Reports, Certificates and Manufacturer's Warranty in accordance with Division 1 General Requirements Submittal Section.

## 1.04 QUALITY ASSURANCE

- A. Qualifications:
  - 1. EIFS Manufacturer: Shall have marketed Exterior Insulation and Finish Systems in United States for at least ten years; at least 1,000 projects shall have been completed utilizing this exterior insulation and finish systems; Shall have completed projects of same building size and type as this project.
  - 2. Shall be experienced and competent in installation of plaster-like materials.
- B. Regulatory Requirements:
  - 1. Insulation Board: Shall be produced and labeled under a third party quality program as required by applicable building code.

## 1.05 DELIVERY, STORAGE AND HANDLING

- A. Delivery: Deliver EIFS and secondary weather barrier materials supplied by Teifs to site location in original unopened containers with labels intact. Upon arrival, materials shall be inspected for damage, and manufacturer notified of any discrepancies. Unsatisfactory materials shall not be used.
- B. Storage: Store materials supplied by Teifs in a cool, dry location, out of sunlight, protected from weather and other harmful environment, and at a temperature above 40 °F and below 110 °F in accordance with manufacturer's instructions. Store insulation board flat.



## **1.06 PROJECT / SITE CONDITIONS**

- A. General: Provide access to electric power and clean potable water at area where Teifs EIFS System materials are installed.
- B. Environmental Conditions: Comply with manufacturer's recommendations of environmental conditions affecting product performance:
  - 1. Ambient air temperature: Minimum 40 °F and rising, and remaining so for 24 hours thereafter.
  - 2. Do not apply Teifs EIF System or secondary weather barrier materials to substrates whose temperature is below 40 °F.
  - 3. Do not apply Teifs EIF System or secondary weather barrier during inclement weather unless appropriate protection is employed.
  - 4. Protect Teifs EIF System or secondary weather barrier materials from weather and other damage.

## **1.07 WARRANTY**

- A. Warranty: Upon request, at completion of installation, provide Teifs Airtight Wall System Limited Warranty.

## **1.08 MAINTENANCE**

- A. Maintenance Instructions: At completion of EIFS installation, provide manufacturer's maintenance instructions for EIFS installed.
  - 1. Refer to Division 1 General Requirements for requirements for submitting maintenance documentation.

## **PART 2 - PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Manufacturer: ParexLahabra Inc. 4125 E. La Palma Ave, Suite 250, Anaheim CA 92807
  - 1. System: Teifs Exterior Insulation & Finish System (EIFS) Teifs Airtight Wall System.
    - a. Secondary Water-Resistive Barrier:
      - 1) Teifs Weatherseal or other ParexLahabra approved weather barrier.
      - 2) Teifs Sheathing Tape
      - 3) Teifs Flashing Membrane
      - 4) Teifs Joint Reinforcing Fabric
    - b. Adhesive: Teifs Base, Base DB, Base FR, or Teifs Adheez
    - c. Insulation Board: In compliance with manufacturer's requirements for Teifs Airtight Wall System.
    - d. Base Coat: TeifsBase, Base DB, Base FR (cementitious) or Structure Base Coat and Adhesive.

EDITOR NOTE: COORDINATE BELOW WITH PROJECT REQUIREMENTS.

- e. Mesh Reinforcement: Locations to achieve impact strength shall be as follows:
  - 1) Locations (Not Otherwise Noted): EIMA Impact Classification: Standard.

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EDITOR NOTE: RETAIN BELOW AND SPECIFY LOCATIONS TO RECEIVE EIFS WITH HIGHER THAN STANDARD IMPACT RESISTANCE CLASSIFICATION.

2) Locations: \_\_\_\_\_ EIMA Impact Classification: \_\_\_\_\_

EDITOR NOTE: CONSULT WITH PAREXLAHABRA AND COORDINATE BELOW TRACKS AND BACKWRAPPING WITH REQUIREMENTS FOR PROJECT CONDITIONS.

f. Track: Vented Track, as required for EIFS.

2. Teifs System Finish:

EDITOR NOTE: SPECIFY BELOW TYPES FROM MANUFACTURER'S TEXTURE FINISHES AND COLORS.

a. Type: \_\_\_\_\_

b. Texture: \_\_\_\_\_

c. Color: \_\_\_\_\_

3. Product Performance Requirements: Refer to Product Performance Sheet as attached herein.

## B. Materials

1. Secondary Water-Resistive Barrier:

a. Teifs Weatherseal Liquid Membrane: Vapor permeable trowel-applied flexible coating for Glass Mat Sheathing, plywood, gypsum sheathing, or cement fiber sheathing to provide a secondary weather barrier.

b. Joint Reinforcing Fabric: 4-inch strips of open weave fiberglass mesh tape.

c. Teifs Sheathing Tape: Non-woven synthetic fiber tape to reinforce liquid membrane at sheathing board joints.

d. Teifs Flashing Membrane: Self-sealing, polyester backed, non-woven mat- rubberized asphalt membrane, 30 mils (0.76 mm) thick.

2. EIFS Insulation Board: Expanded Polystyrene (EPS) Insulation Board:

a. Produced by and labeled under a third party quality program as required by applicable building code; and produced by a manufacturer approved by ParexLahabra.

b. Shall conform to ASTM C-578, Type I and the ParexLahabra specification for Molded Expanded Polystyrene Insulation board.

c. Maximum size shall be 2 ft x 4 ft. (0.61 m x 1.22 m)

d. Thickness: 3/4 in. (19.05 mm), minimum.

3. Adhesive:

a. Teifs Adheez: 100% acrylic polymer based; ready to use, applied without the addition of cement; used as an adhesive to laminate EPS Insulation Board to appropriate substrates.

b. TeifsBase: 100% acrylic polymer base, requiring the addition of portland cement.

c. TeifsBase DB: Copolymer based, factory blend of cement and proprietary ingredients.

EDITOR NOTE: RETAIN BELOW STANDARD MESH FOR TEIFS AIRTIGHT WALL SYSTEM FOR STANDARD IMPACT RESISTANCE CLASSIFICATION.

4. Teifs Reinforcing Mesh:

a. TeifsMesh: Weight 4.8 oz. per sq. yd (163 g/m<sup>2</sup>); coated for protection against alkali. Standard reinforcement of Teifs EIFS, or for use with TeifsMAT 15, or TeifsMAT 20.

b. Teifs Bakrap: Reinforcing mesh for backwrapping and details

c. Self Adhesive Detail Mesh: Reinforcing mesh used for complex details



EDITOR NOTE: RETAIN BELOW MESH REQUIREMENTS AFTER DETERMINATION OF IMPACT RESISTANCE CLASSIFICATION.

- d. TeifsMesh XL: Weight 12 oz per sq. yd. (408 g/ m<sup>2</sup>). Reinforcing mesh used with Teifs Airtight Wall System to achieve EIMA intermediate impact strength.
  - e. TeifsMAT 15: Weight 15 oz. per sq. yd. (510 g/ m<sup>2</sup>). Reinforcing mesh used with Teifs Airtight Wall System; to achieve EIMA high impact strength.
  - f. TeifsMAT 20: Weight 20 oz. per sq. yd. (679 g/ m<sup>2</sup>) Reinforcing mesh used with Teifs Airtight Wall System; to achieve ultra-high impact strength.
  - g. Teifs KORNERAP: Reinforcing mesh used as a corner reinforcement; required with TeifsMAT 20.
5. Teifs Base Coat:
- a. TeifsBase: 100% acrylic polymer base, requiring the addition of portland cement.
  - b. TeifsBase DB: Copolymer based, factory blend of cement and proprietary ingredients.
  - c. Structure Base Coat and Adhesive: 100% acrylic polymer base; ready to use, applied without the addition of cement.
6. Teifs Primers:
- a. TeifsPrime: 100% acrylic based coating to prepare surfaces for Teifs finishes.
  - b. Sanded Primer: 100% acrylic based coating to prepare surface for Teifs Earthstone finish.
7. Teifs Finish Coat: Factory blended, 100% acrylic polymer based acrylic finish, integrally colored. Finish type, texture and color as selected by Architect.
8. Teifs Vinyl Track: PVC plastic accessory, used for termination of Teifs EIFS in lieu of backwrapping; provides straight termination and joint lines; facilitate sealant maintenance; Vented Track as required for EIFS.
9. Water: Clean, cool, potable water.
10. Portland Cement: ASTM C 150, Type I-II Portland Cement.

## 2.02 RELATED MATERIALS

### A. Sheathing:

1. Glass Mat Sheathing conforming to ASTM C1177, as manufactured.
2. Cement Fiber Sheathing conforming to ASTM C 1186.
3. Exterior grade gypsum sheathing conforming to ASTM C 79.
4. Unit Masonry
5. Concrete which has been cured for at least 28 days.
6. Minimum 1/2 in 4-ply, APA Exposure 1, Grade C-D or better plywood, with the C side or better, facing the exterior. The plywood shall be installed according to APA guidelines and shall be plane to within a 1/4 in over a 4-ft. radius.

### B. Flashing: Refer to Division 7 Flashing Section for flashing materials.

### C. Sealant System:

1. Sealant for expansion joints between panelized Teifs EIFS System sections shall be ultra-low modulus designed for minimum 100% elongation and minimum 50% compression and as selected by Architect.
2. Sealant for perimeter seals around window and door frames and other wall penetrations shall be low modulus, designed for minimum 50% elongation and minimum 25% compression, and as selected by Architect.
3. Sealants shall conform to ASTM C 920, Grade NS.

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4. Expansion joints between sections of Teifs EIF System shall have a minimum width of 3/4 in.
5. Perimeter seal joints shall be a minimum width of 1/2 in.
6. Sealant backer rod shall be closed-cell polyethylene foam.
7. Apply sealant to tracks or base coat of Teifs EIF System.
8. Refer to Teifs current bulletin for listing of sealants which have been tested and have been found to be compatible with Teifs EIF Systems.
9. Color shall be as selected by Architect.
10. Joint design, surface preparation, and sealant primer shall be based on sealant manufacturer's recommendations and project conditions.

EDITOR NOTE: PART 3 EXECUTION BELOW INVOLVES ONSITE WORK AND SHOULD INCLUDE PROVISIONS FOR INCORPORATING MATERIALS AND PRODUCTS INTO PROJECT. TYPICALLY, "CONDITIONS OF THE CONTRACT" ESTABLISH RESPONSIBILITY FOR "MEANS, METHODS, TECHNIQUES, AND SAFETY" REQUIREMENTS OF CONSTRUCTION WITH CONTRACTOR. SPECIFICATIONS SHOULD AVOID CONFLICTS WITH THIS CONTRACTUAL PRINCIPLE.

## **PART 3 - EXECUTION**

### **3.01 MANUFACTURER'S INSTRUCTIONS**

A. Compliance: Comply with manufacturer's instructions for installation of exterior insulation & finish system.

REMINDER: TEIFS AIRTIGHT WALL SYSTEM IS A WATER-RESISTIVE BARRIER TYPE OF SYSTEM. SYSTEM PERFORMANCE IS DEPENDENT UPON, AMONG OTHER FACTORS, IMPORTANCE OF PROPER FLASHING AND JOINT SEALING, AND ATTENTION TO PROPER FLASHING AND JOINT SEALANT DETAILS INDICATED ON DRAWINGS.

### **3.02 EXAMINATION**

A. Examination of Substrate:

1. Prior to installation of Teifs EIF System, examine substrate as follows:
  - a. Substrate shall be of a type approved by ParexLahabra.
  - b. Substrate shall be examined for soundness, such as tightness of connections, crumbling or looseness of surface, voids and projections, spacing of panels, and other conditions.
  - c. Substrate shall be examined for dimensional tolerances per this specification.
  - d. Substrate surface shall be free of foreign materials such as oil, dust, dirt, form release agents, paint, wax, water, frost, and other harmful materials.
2. Advise Contractor of discrepancies preventing installation of a manufacturer's warranty EIFS. Do not proceed with EIFS work until unsatisfactory conditions are corrected.
3. Correction of unsatisfactory conditions of substrates installed by other trades shall be responsibility of Contractor.



### **3.03 PROTECTION AND COORDINATION**

- A. Protection: Protect surrounding material surfaces and areas during installation of Teifs EIF System. Protect Teifs EIF System from weather and other damage immediately after installation and until installation of sealants and flashing.
- B. Coordination:
1. Coordinate installation of Teifs EIF System with other construction trades.
  2. Ensure a continuous EIFS operation, free of cold joints, scaffolding lines, texture variations, and other non-complying installation procedures.
  3. Promptly flash and/or seal system terminations to prevent water infiltration. Use temporary cover when permanent flashing or sealant installation is delayed.
  4. Immediately cover tops of walls to prevent water infiltration.
  5. Upon full cure of Teifs EIF System, promptly install sealant to surfaces to be sealed.

### **3.04 INSTALLATION**

- A. General: Installation shall conform to this specification and Teifs EIFS written instructions and drawing details.
1. Install tracks, back-wrap mesh, or edge-wrap mesh at system terminations. Treat all sheathing joints with Weatherseal Liquid Membrane and embed Teifs Sheathing Tape or Joint Reinforcing Fabric.
  2. Apply Weatherseal Liquid Membrane to surface of the appropriate substrate and flash all rough openings with Flashing Membrane or Reinforced WeatherSeal.
  3. Apply adhesive to backs of insulation boards with a notched trowel with ribbons of adhesive oriented in a vertical direction.
  4. Install insulation board without gaps in a running bond pattern and interlocked at corners.
  5. Rasp irregularities off insulation board.
  6. Apply base coat and fully embed mesh in base coat; include diagonal mesh patches at corners of openings and reinforcing mesh patches at joints of track sections. Apply multiple layers of base coat and mesh where required for specified impact resistance classification.
  7. Apply primer to base coat after drying. Primer may be omitted if it is not required by the manufacturer's product data sheets for the specified finish coat.
  8. Finish Coat: Apply finish coat to match specified finish type, texture, and color.
  9. Install sealant in accordance with Teifs details and instructions. Apply sealant to base coat.

### **3.05 CLEANUP**

- A. General: Remove excess and waste EIFS materials from job site.
1. Clean EIFS surfaces and work area of foreign materials resulting from EIFS operations.

### **END OF SECTION**

#### **Disclaimer Statement**

This guide specification is intended for use by a qualified designer. The guide specification is not intended to be used verbatim as an actual specification without appropriate modifications for the specific use intended. The guide specification must be integrated into and coordinated with the procedures of each design firm, and the requirements of a specific project.

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## PRODUCT PERFORMANCE SHEET TEIFS AIRTIGHT WALL SYSTEM

REINFORCING MESH	TEST RESULTS (IN-LB)	CLASSIFICATION	IMPACT RANGE (IN-LB)
TeifsMesh	40	Standard	25-49
TeifsMesh 6	52	Medium	50-89
TeifsMesh 12	104	High	90-150
TeifsMesh 12 w/TeifsMesh	148	High	90-150
TeifsMesh 12 w/TeifsMesh 12	200	Ultra-High	>150
TeifsMesh 15	240	Ultra-High	>150
Teifs Mesh 20	288	Ultra-High	>150

## FIRE PERFORMANCE

TEST	METHOD	TEIFSAIRTIGHT WALL SYSTEM
Intermediate Multi-Story Fire Evaluation	NFPA 285	Pass
Surface Burning Characteristics of Coatings	ASTM E 84	Flame Spread: 0 to 15, Smoke Developed: 0 to 15
Fire Resistance	ASTM E 119 1 hour assembly	Standard fire-resistive assembly rating maintained.
Radiant Heat Exposure	NFPA 268	Pass: 1" to 4" EPS

## STRENGTH

TEST	METHOD	TEIFSAIRTIGHT WALL SYSTEM
Transverse Wind Load Resistance	ASTM E 330	Contact ParexLahabra Technical Group for specific Windload results
Tensile Bond Strength	ASTM E 2134	Greater than 15 psi for all substrates

## ENVIRONMENTAL DURABILITY

TEST	METHOD	TEIFSAIRTIGHT WALL SYSTEM
Accelerated Weathering	ASTM G 23	5500 hours: no deleterious effect
Water Penetration	ASTM E 331 Section 1403.2, Exception 2, of the IBC	Pass No water occurred on the inner face of the specimen when tested to 12.0 psf.
Freeze-Thaw Resistance	ASTM E 2485	60 cycles: no deterioration 10 cycles: pass
Salt Fog Resistance	ASTM B 117	600 hours: no deterioration
Moisture Resistance	ASTM D 2247	28 days: no deleterious effect
Abrasion Resistance	ASTM D 968	600 liters: no deleterious effect
Water Vapor Transmission	ASTM E 2121 (E 96)	Permeable to water vapor
Mildew Resistance	ASTM D 3273	35 days: no growth
Water Resilience	F.S. TT-C-555B	Pass
Air Leakage	ASTM E 283	0.008 cfm/.004L/S
Accelerated Aging Cycling	ISS AC 212	Pass 25 cycles
Water Resistance	AATCC 127	Pass 55 cm, for 5 hours
Ultra Violet Exposure	ICC AC 220	Pass

Where several tests on different materials are summarized, a range of values is shown. This summary has been prepared to provide quick but partial information on how certain combinations of Teifs products perform during certain tests. It is not a complete description of the test procedures or of the results thereof. ParexLahabra will mail copies of original test reports at no charge on request. Please contact ParexLahabra if further information is required.



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