



# Teifs NuTech ACF Stucco Specification

## CSI SECTION 09 25 13

### SECTION 09 25 13 Acrylic Plastering

#### Teifs NuTech ACF Stucco

#### SYSTEM OVERVIEW

This overview in italics is explanatory for the designer and specifier and is not part of the specification that follows.

*Teifs NuTech™ ACF is an exterior coating system for application to cement board wall coverings and soffits.*

*Substrate and a water-resistive barrier are required behind the NuTech Stucco Assembly*

*The NuTech ACF has four components:*

- 1) Cementitious acrylic base coat, approximately 1/16" thick*
- 2) Fiberglass reinforcing mesh embedded in the base coat, over an additional strip of fiberglass mesh placed over cement board joints*
- 3) Acrylic Primer*
- 4) Acrylic or elastomeric textured, colored finish*

*The NuTech ACF is for coating cement board on above grade vertical walls and soffits of buildings up to three stories. A water-resistive barrier and sheathing are required behind the cement board on vertical surfaces. Under some environmental conditions, thermal conduction of fasteners and framing can become evident in the finish as "telegraphing" or "ghosting", and efflorescence can occur from hydration products of the cement. These are natural phenomena which occur through no fault in the products. Also, planar irregularities in framing can be reflected as planar irregularities in the wall surface. Coarser finish textures and interruptions of plane by projecting decorative elements can make such irregularities less evident. As with other cementitious materials, minor cracking may occur, but can be reduced by control joints, just as in conventional portland cement plaster.*

*Fire-resistance rated walls of up to 4 hours are listed in UL Design No. V438. The Design covers noncombustible, nonbearing walls with PermaBase® cement board.*

#### PART 1 - GENERAL

##### 1.1 SECTION INCLUDES

- A. Installation of Teifs base coat, reinforcing mesh and finish installed over on National Gypsum PermaBase cement board or other approved by Parex USA

##### 1.2 RELATED SECTIONS

- A. Section 03 00 00 - Concrete
- B. Section 07 90 00 - Joint Protection
- C. Section 08 50 00 - Windows

### 1.3 REFERENCES

- A. ASTM B117 - Test Method for Salt Spray (Fog) Testing.
- B. ASTM D2247 - Practice for Testing Water Resistance of Coatings in 100 Percent Relative Humidity.
- C. ASTM E84 - Test Method for Surface Burning Characteristics of Building Materials.
- D. ASTM E331 - Test Method for Water Penetration by Uniform Static Air Pressure Difference.
- E. ASTM E695 - Method for Measuring Relative Resistance to Impact Loading.
- F. ASTM E2485 - Standard Test Method for Freeze/Thaw Resistance of Exterior Insulation and Finish Systems (EIFS) and Water-resistive Barrier Coatings
- G. ASTM E2486 - Standard Test Method for Impact Resistance of Class PB and PI Exterior Insulation and Finish Systems (EIFS)
- H. ASTM G155 and G153 - Accelerated Weathering for Exposure of Nonmetallic Materials.

### 1.4 SYSTEM DESCRIPTION

- A. Description of Teifs NuTech Stucco
  - 1. An exterior coating system consisting of Base Coat with embedded Reinforcing Fabric Mesh, Primer (Optional), and Finish Coat.
- B. Teifs NuTech Stucco Functional Criteria:
  - 1. General:
    - a. Height is limited to three stories without prior project-specific approval by Parex USA, Inc. Efflorescence can occur from hydration products in the cement board. Under some environmental conditions, thermal conduction of fasteners and framing can become evident in the finish as “telegraphing” or “ghosting” and efflorescence can occur from hydration products of the cement. These are natural phenomena which occur through no fault in the products. Planar irregularities in framing will be reflected in planar irregularities in the wall surface and minor cracking of the finish can occur.
    - b. Substrate wall design deflection shall be limited to no greater than L/360.
    - c. The coating system and cement board sheathing do not form a weather barrier. A continuous water-resistive barrier, installed to the exterior of the sheathing that is behind the cement board, and flashed to shed water to the exterior, is required.
    - d. Openings in the wall must be flashed to the water-resistive barrier or to the exterior.
    - e. Building code conformance: The construction shall be acceptable for use under the building code in force in the jurisdiction of the project.
    - f. Install expansion joints at floor lines of wood framed construction, substrate changes and substrate expansion joints. Install vertical cement board control joints not more than 50 feet (15.24 m) apart. The cement board on each side of vertical joints shall be backed by a framing stud.
    - g. Pitch of sloped surfaces shall be 6/12 minimum. The maximum horizontal run of sloped surface shall be 8 inches (203 mm). For larger dimensions, consult Parex USA Technical Services.
  - 2. Performance Requirements
    - a. Shall meet the testing requirements of the Teifs Product Performance Sheet.

EDITOR NOTE: COORDINATE BELOW IMPACT RESISTANCE CLASSIFICATION REQUIREMENTS ACCORDING TO ASTM E 2486 - STANDARD TEST METHOD FOR IMPACT RESISTANCE OF CLASS PB AND PI EXTERIOR INSULATION AND FINISH SYSTEMS (EIFS)

- 3. Impact Resistance Classification: For EPS trim installed in addition to Teifs NuTech Stucco shall be classified in accordance with EIMA classification and impact ranges as follows.
  - a. Standard Impact Resistance, 25-49 in-lbs (2.8 – 5.6 J) Impact Range
  - b. Medium Impact Resistance, 50-89 in-lbs (5.7–10.1 J) Impact Range
  - c. High Impact Resistance, 90-150 in-lbs (10.2–17.0 J) Impact Range
  - d. Ultra High Impact Resistance, >150 in-lbs (> 17.0 J) Impact Range

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.

### **1.5 SUBMITTALS**

- A. Samples: Submit samples for approval. Samples shall be of materials specified and of suitable size as required to accurately represent each color and texture used on project. Prepare each sample using same tools and techniques for actual project application. Maintain and make available, at job site, approved samples.
- B. Manufacturer's Warranty: Submit sample copies of Manufacturer's Warranty indicating Single Source Responsibility.

### **1.6 QUALITY ASSURANCE**

- A. Qualifications:
  - 1. Manufacturer: Shall have marketed Exterior Insulation and Finish Systems Coatings in United States for at least ten years.
    - a. Shall have completed projects of same building size and type as this project.
  - 2. Applicator:
    - a. Shall have attended a Parex USA Educational Seminar for installation of system.
    - b. Shall be a Parex USA Currently Listed Applicator.
    - c. Shall be experienced and competent in installation of plaster-like materials.

### **1.7 DELIVERY, STORAGE, AND HANDLING**

- A. Delivery: Deliver Teifs NuTech Stucco products in original packaging with manufacturer's identification.
- B. Storage: Store materials supplied by Parex USA in a cool, dry location, out of sunlight, protected from weather and other harmful environments, and at a temperature above 40 °F (4.4 °C) and below 110 °F (43 °C) in accordance with manufacturer's instructions.

### **1.8 PROJECT / SITE CONDITIONS**

- A. Installation Ambient Air Temperature: Minimum of 40°F (4°C) and rising, and remain so for 24 hours thereafter.
- B. Substrate Temperature: Do not apply Teifs materials to substrates whose temperature are below 40°F (4.4°C) or contain frost or ice.
- C. Inclement Weather: Do not apply Teifs materials during inclement weather, unless appropriate protection is employed.
- D. Sunlight Exposure: Avoid, when possible, installation of the Teifs materials in direct sunlight. Application of Teifs Finishes in direct sunlight in hot weather may adversely affect aesthetics.
- E. Teifs materials shall not be applied if ambient temperature exceeds 120°F (49°C) or falls below 40°F (4.4°C) within 24 hours of application. Protect stucco from uneven and excessive evaporation during hot, dry weather.
- F. Prior to installation, the wall shall be inspected for surface contamination, or other defects that may adversely affect the performance of the Teifs materials and shall be free of residual moisture.

### **1.9 COORDINATION AND SCHEDULING:**

- A. Coordination: Coordinate Teifs NuTech Stucco installation with other construction operations.

### **1.10 WARRANTY**

- A. Warranty: Upon request, at completion of installation, provide Teifs NuTech Stucco Limited Warranty. See Teifs's warranty schedule for available Teifs Warranties.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS**

- A. Manufacturer: Parex USA, Inc., 4125 E. La Palma Ave., Suite 250, Anaheim, CA 92807
- B. Components: Obtain components of Teifs NuTech Stucco from authorized distributors. No substitutions or additions of other materials are permitted without prior written permission from Parex USA for this project.

## 2.2 MATERIALS

### A. Base Coats:

1. TeifsBase Coat and adhesive: 100% acrylic polymer base, requiring the addition of portland cement.
2. TeifsBase DB : Copolymer based, factory blend of cement and proprietary ingredients requiring addition of water.

EDITOR NOTE: RETAIN BELOW STANDARD MESH FOR TEIFS ARCHITECTURAL COATINGS AND FINISHES FOR MASONRY FOR STANDARD IMPACT RESISTANCE CLASSIFICATION.

### B. Reinforcing Mesh:

1. 4.8 Standard Mesh: Weight 4.8 oz. per sq. yd. (162 g/sq m); coated for protection against alkali. Standard reinforcement or for use with High Impact 358.14 Mesh, or Ultra High Impact 358.20 Mesh.
2. 356 Short Detail Mesh: Reinforcing mesh used for backwrapping and details, and to embed in the Base Coat & Adhesive
3. 352 Adhesive Detail Mesh: Reinforcing mesh used for complex details

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

4. 358.10 Intermediate Impact Mesh: Weight 12 oz. per sq. yd. (407 g/sq m) Reinforcing mesh used to achieve EIMA intermediate impact strength.
5. 358.14 High Impact Mesh: Weight 15 oz. per sq. yd. (509 g/sq m) Reinforcing mesh to achieve EIMA high impact strength.
6. 358.20 Ultra High Impact: Weight 20 oz. per sq. yd. (678 g/sq m) Reinforcing mesh to achieve ultra-high impact strength.
7. 357 Corner Mesh: Reinforcing mesh used as corner reinforcement; required when using Ultra-High Impact 20 Mesh.

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

Locations: \_\_\_\_\_; EIMA Impact Classification: \_\_\_\_\_

### C. Teifs Primers:

1. TeifsPrime: 100% acrylic based coating to prepare surfaces for Teifs finishes.
2. Teifs Sanded Primer: 100% acrylic based coating to prepare surface for Teifs Cerastone and Spraystone finishes.

EDITOR NOTE: MODIFY BELOW TO SUIT REQUIREMENTS. CHOOSE ONE #1 FINISH TYPE

### D. Teifs Finish:

1. Teifs DPR Finish: Factory blended, 100% acrylic polymer based finish, integrally colored. Finish a. Finish type, texture and color as selected by Architect

-OR-

1. TeifsFlex Finish: Factory blended, 100% acrylic polymer based finish, integrally colored. Finish a. Finish type, texture and color as selected by Architect.

E. Water: Cool, clean, potable water

F. Portland Cement: ASTM C150, Type I or Type I-II.

## 2.3 RELATED MATERIALS AND ACCESSORIES

- A. Cement Board
  - 1. Minimum ½ in. (13 mm) thick PermaBase® Brand Cement Board complying with ASTM C 1325
  - 2. Other Approved by Parex USA in writing prior to the project
- B. Substrate Materials
  - 1. Sheathing shall be installed in accordance with its industry standards and applicable building code.
  - 2. Gypsum Sheathing shall conform to ASTM C79, C1396, or C1177 glass mat gypsum sheathing, minimum thickness 1/2 in. (12.7 mm).
  - 3. Plywood shall be not less than 15/32 in. (11 mm) thick, PS-1 Exposure 1 or Exterior grade.
  - 4. Oriented strand board (OSB) shall be not less than 7/16 in. thick (11.1 mm), PS-2 Exposure 1.
  - 5. For wood-based sheathing (Plywood and OSB), comply with APA-The Engineered Wood Association spacing recommendations for edge and end joints. Gap wood sheathing panels minimum 1/8 in.
  - 6. Sheathing shall be protected from weather before, and during application of Teifs NuTech Stucco.
- C. Flashing: Refer to Flashing: Refer to Division 07 Flashing Section for flashing materials.
- D. Water-resistive barrier:
  - 1. Parex USA WeatherSeal water-resistive barrier coating
    - a. Parex USA WeatherSeal™ Spray & Roll-On water-resistive barrier coating. Two coats are required on plywood and OSB
    - b. Parex USA WeatherSeal™ Trowel-On water-resistive barrier coating. Two coats may be required on plywood and OSB
    - c. Parex USA 396 Sheathing Tape: Non-woven synthetic fiber tape to reinforce Parex USA WeatherSeal roll on water-resistive barrier at sheathing board joints, into rough openings and other terminations into dissimilar materials available in 4 in, 6 in and 9 in widths
    - d. Parex USA WeatherSeal is covered by an intervening material such as building paper, See Section 2.3 C.
    - e. Dow Weathermate Sill Seal foam Gasket: Polyethylene drainage strips ¼ in. x 3.5 in. x 50 ft rolls
  - 2. DuPont Tyvek® StuccoWrap® or DrainWrap
- E. Accessories: Casing beads, expansion and control joints of exterior grade, rigid PVC in accordance with ASTM D1784 and ASTM D4216, as manufactured by Vinyl Corp. or Plastic Components, Inc
- F. Sealant System:
  - 1. 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.
  - 2. Sealants shall conform to ASTM C920, Grade NS.
  - 3. Perimeter seal joints shall be a minimum width of 1/2 in (12.7 mm).
  - 4. Sealant backer rod shall be closed-cell polyethylene foam.
  - 5. Apply sealant to tracks or base coat.
  - 6. Refer to Parex USA current bulletin for listing of sealants which have been tested and have been found to be compatible with Teifs
  - 7. Color shall be as selected by Architect.
  - 8. 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**

### **3.1 EXAMINATION**

- A. Verify project site conditions under provisions of Section 01 00 00.
- B. Compliance: Comply with manufacturer's instructions for installation of Teifs products.
- C. Substrate Examination: Examine prior to Teifs Base Coat installation as follows:
  - 1. Substrate shall be free of dust, dirt, laitance, efflorescence, and other harmful contaminants.
  - 2. Substrate construction in accordance with substrate material manufacturer's specifications and applicable building codes.
  - 3. Maximum deflection of the substrate shall be limited to L/240.
  - 4. Substrate shall be cured concrete (28 days minimum)
  - 5. Substrate shall have no irregularities greater than 1/4 in. (6.4 mm), and shall be sound and free of foreign substances, including paint, bond breakers, form oils, laitance, scaling and flaking.
  - 6. Unsatisfactory conditions shall be corrected before the application of the coatings.
  - 7. Painted surfaces shall have paint removed to achieve a substrate with 90% or more of the surface free of paint.
  - 8. Sanding surfaces shall be eliminated mechanically, then washed with clear water.
  - 9. Remove efflorescence using mechanical removal and/or a diluted acid solution followed by complete rinsing.
  - 10. Concrete surfaces shall be level and free of voids over 1/8 in. (3 mm) across. Glossy surfaces shall be dulled by chemical or mechanical means. Thoroughly remove all residues.
- D. Advise Contractor of discrepancies preventing installation of the Teifs Architectural Coatings and Finishes. Do not proceed with the Teifs Architectural Coatings and Finishes work until unsatisfactory conditions are corrected.

### **3.2 PREPARATION**

- A. Protection: Protect surrounding material surfaces and areas during installation of system.
- B. Clean surfaces thoroughly prior to installation.
- C. Prepare surfaces using the methods recommended by the Manufacturer for achieving the best result for the substrate under the project conditions.

### **3.3 MIXING**

- A. Mix Teifs proprietary products in accordance with Manufacturer's instructions.

### **3.4 APPLICATION**

- A. Water-resistive Barrier
  - 1. Parex USA Weatherseal
    - a. Flash all rough openings with Weatherseal water-resistive barrier and embedded Sheathing Tape or Peel and Stick Flashing Membrane.
    - b. Apply Parex USA Weatherseal Water-resistive barrier to the surface of the appropriate substrate (2 coats for Roll-on on plywood and OSB). Ensure that the Parex USA Weatherseal laps onto all tracks and flashing to allow for any water to be drained into the tracks/flashing.
    - c. Place Weathermate Sill Seal strips over the studs.
  - 2. Stuccowrap or Drainwrap
    - a. Protect the sheathing behind the cement board with StuccoWrap® or DrainWrap® and flash rough openings and any sloped surfaces in accordance with the flashing manufacturer's written instructions and the building code requirements.

- b. Flash all sloped surfaces, windows, doors, louvers and other openings, using appropriate flashing material and installation procedures, to ensure a weather tight seal with the StuccoWrap or DrainWrap water-resistive barrier
- B. Cement Board
1. When installing over Dow Weathermate Sill Seal foam strips the screws must be 1 7/8 in. to accommodate the thickness of the Sill Seal.
  2. The cement board shall be installed in accordance with this specification and the cement board manufacturer's written instructions.
  3. Cement board shall be fastened to framing by corrosion resistant steel screws.
  4. Locate screws 8 in. (203 mm) maximum on center along framing members or closer as required by design loads. Screws at board edges shall be placed 3/8 in. (9.5 mm) in from the edge. Fastener heads are to be driven flush with the face of the cement board.
  5. All vertical joints of the cement board shall be staggered in a running bond pattern and terminate on framing. All cement board joints shall be butted together.
  6. Offset horizontal cement board joints a minimum of 12 in. (300 mm) from horizontal sheathing joints. Offset vertical cement board joints a minimum of one stud space from vertical sheathing joints.
  7. Offset cement board joints a minimum of 8 in. (203 mm) from the corners of openings by "L" cutting the cement board around corners of openings
- C. Joint Treatment:
1. Embed Teifs Short Detail Fiberglass Mesh or Self Adhesive Detail Mesh in any Teifs Base Coat & Adhesive centered over all cement board joints, inside and outside corners, and as diagonal "butterflies" at corners of openings. Optional: Embed Teifs Corner Mesh and any Teifs Base Coat & Adhesive in at outside corners in place of Short Detail Mesh.
  2. Optional Insulation Board Trim and Features: Apply Teifs Adhesive to the entire back surface of the insulation board with a Teifs notched trowel. Press and slide insulation board into place for continuous adhesion.
  3. Using a stainless steel trowel, apply Base Coat approximately 1/16 in. (1.6 mm) thick to the entire cement board and insulation board exposed surfaces, including previously meshed joints and corners. Lap mesh joints 2 1/2 in. (64 mm) minimum.
  4. Apply diagonal mesh "butterflies" to corners of insulation board bands that surround openings. Embed Teifs Standard Mesh into the wet base coat on the entire base coated surface. Apply additional base coat if required to ensure mesh is completely embedded and to achieve a final nominal thickness of 1/16 in. (1.6 mm). The mesh shall not be visible and shall show no texture.
  5. Where indicated on the drawings, install Teifs Mesh for additional impact resistance. Follow Teifs Product Data Sheet application details for mesh installation.
  6. After the base coat has dried a minimum of 24 hours or longer as required by conditions, the surface shall be examined for any irregularities. The base coat shall have a smooth and continuous texture prior to proceeding to primer and finish coat application. Correct any irregularities to produce a flat surface. Base Coat: 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.
- D. Bond supplemental EPS shapes as indicated on the drawings. Bond shapes to EPS or to dry reinforced base coat using any Teifs Base Coat & Adhesive as an adhesive. Allow 24 hours to dry.
- E. Apply optional 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 or otherwise specified for the project.
- F. Finish Coat: Apply finish coat to match specified finish type, texture, and color. Do not apply finish coat to surfaces to receive sealant. Keep finish out of sealant joint gaps.

### 3.5 CLEAN-UP

- A. Removal: Remove and legally dispose of Teifs NuTech Stucco debris material from job site.
- B. Clean EIFS surfaces and work area of foreign materials resulting from EIFS operations.

### 3.6 PROTECTION

- A. Provide protection of installed materials from water infiltration into or behind them.
- B. Provide protection of installed stucco from dust, dirt, precipitation, and freezing during installation.
- C. Provide protection of installed finish from dust, dirt, precipitation, freezing and continuous high humidity until fully cured and dry.
- D. Clean exposed surfaces using materials and methods recommended by the manufacturer of the material or product being cleaned. Remove and replace work that cannot be cleaned to the satisfaction of the Architect/Owner.

END OF SECTION

Disclaimer: 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.

### PRODUCT PERFORMANCE SHEET

Test	Method	Results
Surface Burning Characteristics	ASTM E84	Flame Spread: 0 to 15    Smoke Developed: 0 to 15
Falling Ball Impact	ASTM D1037	92 to over 600 in-lbs
Gardner Impact Test	ASTM D2794	25 to 200 in-lbs
Impact Load	ASTM E695	30 lb Impact mass; no cracking of system
Abrasion Resistance	ASTM D968	500 liters: no deleterious effect
Accelerated Weathering	ASTM G153 ASTM G154	2000 hours; no deleterious effect 2000 hours: no deleterious effect
Freeze-Thaw Resistance	ASTM E2485	60 cycles: no deterioration 10 cycles: pass
Fungus Resistance	MIL STD 810B	28 days: no growth
Mildew Resistance	ASTM D3273	35 days: no growth
Moisture Resistance	ASTM D2247	14 days: no deleterious effect
Salt Fog Resistance	ASTM B117	500 hours: no deterioration
Water Penetration	ASTM E331	Pass
Wind-Driven Rain	F.S. TT-C-555B	24 hours: no penetration of water

\*No deleterious effects: no cracking, checking, crazing, erosion, rusting, blistering.

### REINFORCING MESH IMPACT RESISTANCE

Mesh Type	Classification	Impact Resistance Range (in-lbs)
Standard Mesh	Standard	25-49
Intermediate Impact 10 Mesh	Intermediate	50-89
High Impact 15 Mesh (Plus Standard Mesh)	High	90-150
Ultra High Impact 20 Mesh/Standard Mesh	Ultra High	>150

Where several tests on different materials are summarized, a range of values are 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. Parex USA will mail copies of original test reports at no charge on request. Please contact Parex USA if further information is required.



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