

# Teifs WALL SYSTEMS

## APPLICATION GUIDE FOR TEIFSPERMADRAIN®

### EXTERIOR INSULATION AND FINISH SYSTEM

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This is a step-by-step application manual for professional installation of TeifsPERMADRAIN® Exterior Insulation and Finish System.

Teifs believes the applicator is the most important element in producing a quality and long lasting Finish System.

We have designed this manual to be highly informative, concise, and easy to follow. Teifs' unsurpassed quality products, compiled with our licensed applicator program, provide owners with a combination unsurpassed in the Exterior Insulation and Finish System Industry.

## Teifs Check List Prior to Installation

*This section is intended as a checklist for the project manager, architect, and general contractor prior to the installation of the EIFS. Refer to TEIFS Details for examples of typical installations. It is not the responsibility of the EIFS installer to determine the proper installation for any materials other than the EIFS.*

### Job Conditions

- Ensure that the ambient temperature is above 4 °C (40 °F) until materials are dry.
- Teifs FINISH COAT shall be protected from any type of contamination and from weather until it is dry.

### Substrates

- Substrates should be clean, dry, structurally sound, unpainted, true to plane within 6.44 mm (1/4 in.) over a 1.22-m (4-ft.) radius and free of loose materials, voids, projections, etc. Teifs' materials should not be applied to any surface that will hold water or is frozen.
- Sheathing should be securely fastened in accordance to the building codes and the manufacturers' instructions.
- TeifsPERMADRAIN® Wall System shall be applied to the following substrates:
  1. Dens-Glass Gold Sheathing
  2. Exterior Grade Gypsum Sheathing with regular or Type X core
  3. Exterior Fiber Reinforced Cement Board
  4. Unglazed Brick
  5. Unit Masonry
  6. Concrete which has been cured for at least 28 days
  7. Portland Cement Plaster which contains no more than 10% lime
  8. Minimum 1/2 inch 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 inch over a 4-ft radius.
  9. Minimum 7/16 inch thick APA ratio exposure 1 Sheathing with 24/16 span rating installed according to APA Guidelines.

### Flashing/Drainage

- **Roofing**
  1. Check roof to make sure it has proper drainage that runs away from the structure.
  2. Check that the metal roof flashing has been installed as set forth by the Asphalt Roofing Manufacturers Association (ARMA).
  3. Where required, be sure that run-off diverters have been installed. Examples are kick-outs, crickets and saddles. Pay close attention to eaves/chimney intersections, as well as sloped roof/wall intersections.
- **Windows/Openings**
  1. Flashing shall be installed as required by the architect/designer.
  2. Make sure all heads of openings have continuous flashing. If windows or doors do not have integral flashing, you must install a field-applied flashing.
  3. If you have windows that are ganged to make multiple units, make sure the heads are continuously flashed and the joints between the units are fully sealed.
- **Decks**
  1. Make sure wood decks are properly flashed.
  2. Ensure the system terminates above poured decks, patios, landings, etc. and make sure they are sloped to drain water away from the walls.
- **Utilities** - Make sure the system terminates properly at all light fixtures, outlets, hose bibs, etc.
- **Sealant** - Sealant should be installed immediately after the completion of installation of the TeifsPERMADRAIN Wall System.

## Materials Needed for TeifsPERMADRAIN® Installation

- Window Flashing: Flashing Tape/Primer
- Sheathing Joint reinforcement: Minimum 4” strips of reinforcing fabric
- Air/Weather Barrier: TeifsWEATHERSEAL
- Insulation Adhesive: TeifsBASE, TeifsBASE FR, TeifsBASE DB, TeifsADHEEZ
- Insulation Board: TeifsBOARD
- Basecoat: TeifsBASE, TeifsBASE FR, TeifsBASE DB, TeifsSTRUCTURE
- Reinforcing Mesh: TeifsMESH, TeifsMESH 6, TeifsMESH 12, TeifsMAT 15, TeifsMAT 20, TeifsBAKRAP, TeifsKORNERAP
- Waterproof Basecoat for Parapets and Sills: TeifsBASE Staydry
- Finish Coat: TeifsFLEX CUARZO, TeifsFLEX FREEDOM, TeifsFLEX TEJAS, TeifsFLEX TEJAS FINE, TeifsFLEX PIEDRA GRANDE, TUFFSTONE, EARTHSTONE
- Portland Cement, gray or white, fresh and lump free: Type I or II
- Clean, potable water
- Airseal: Optional per designer

### Weather Resistant Barrier Installation Instructions

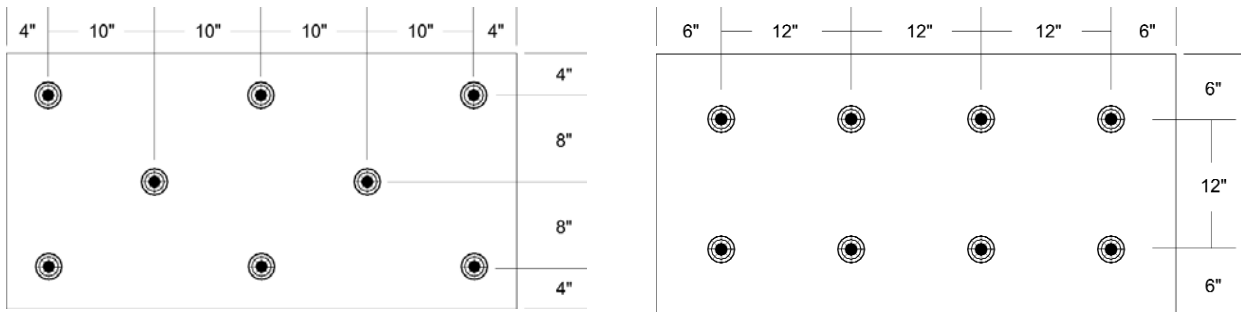
1. Apply Flashing Tape around exposed edges of sheathing per TeifsPERMADRAIN® Detail Drawings.
2. See current Teifs Window Flashing Technical Bulletin for proper window flashing details.
3. Starter Track shall be installed at base of wall areas, wall to roof intersections and heads of all openings. Butt sections of the starter track together. Miter cut all corners. Install according to manufacturers’ instructions.
4. Install weather resistant barrier from the bottom up, with the upper layer overlapping the lower layer at least 2-1/2" for building paper and 4" for Tyvek Stuccowrap. The weather barrier should overlap the starter track. Other weather resistant barriers may require a different overlap. Follow manufacturers’ installation instructions.

### Drainage Mat / Lath Installation Instructions

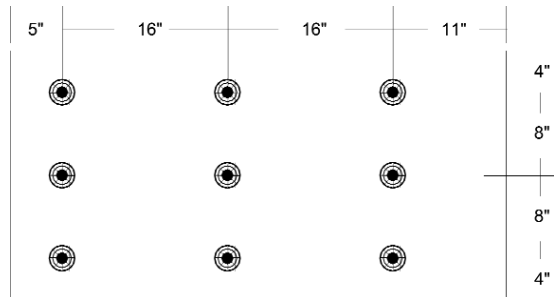
1. TeifsPERMADRAIN®: not required
2. TeifsPERMADRAIN DM®:
  - a. Pull the drainage mat tight so that it lays flat on the wall and staple in place. This is a temporary fastening, the insulation board fasteners will permanently hold the drainage mat in place.
  - b. Butt the ends of the drainage mat together. Do not overlap.
  - c. The mat should lap into the starter tracks.
3. TeifsPERMADRAIN ML®/PL®:
  - a. Fasten the metal or plastic lath to the framing with #6 pan head TEK screws every 6" o.c.
  - b. Butt the ends of the lath together. Do not overlap.
  - c. The lath should lap into the starter tracks.

**PERMADRAIN® & PERMADRAIN DM®  
Teifs Insulation Board  
Installation Instructions**

1. Apply TeifsBAKRAP at areas that do not terminate with Starter track.
2. Attach TeifsBOARD to the substrate with mechanical fasteners according to the fastener patterns below.
  - a. Install in a running bond pattern beginning at the base of the wall, make sure the corners are straight and plumb and all inside and outside corners shall be interlocked.
  - b. Start with a 12" x 48" piece of insulation board as a starter strip to minimize insulation board joints and sheathing joints coinciding.
  - c. "L" shaped pieces of insulation board shall be used at corners of openings.
3. Joints between insulation board shall be tight with no gaps. If gaps occur at intersections of insulation board, slivers of insulation shall be used to fill gaps.
4. Once insulation board is in place, the surface shall be rasped smooth so that all planer irregularities are removed. Care should be taken to ensure that any insulation board that has yellowed due to aging be sanded to remove the yellowed insulation board.
5. Install aesthetic joints at this time, ensuring that 3/4 -inch of flat insulation board is left at the base of the joint.
6. Spot coat the fastener heads with Teifs Base Coat and allow to cure overnight.



*Exterior Grade Plywood or OSB board sheathing. Ensure fastener length is sufficient to penetrate substrate a minimum of 3/4".*



*16" O.C. Stud Pattern*

**PERMADRAIN ML® & PERMADRAIN PL®**  
**Teifs Insulation Board**  
**Installation Instructions**

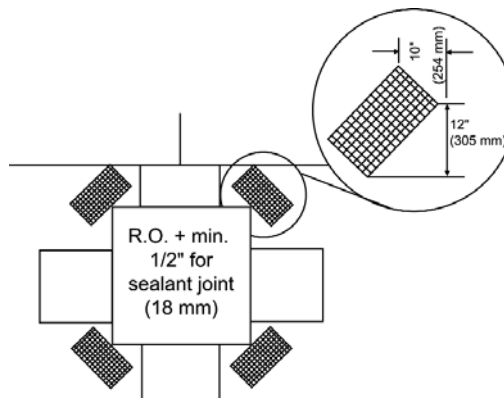
1. Apply TeifsBAKRAP at all terminations (windows, doors, etc.).
2. Mixing:
  - a. TeifsBASE and TeifsBASE FR: Mix with Type I or II Portland Cement 1:1 ratio by weight. A small amount of potable water may be added.
  - b. After mixing set aside for 10 minutes and re-mix adding a small amount of water to improve workability.  
**This step is critical in obtaining pot life.**  
- OR -
    - a. TeifsBASE DB: Place 5 quarts of clean, cool water into a clean mixing container. Slowly add the 50-pound bag of TeifsBASE DB to the water while mixing to a creamy consistency.
    - b. After mixing, set aside for 10 minutes and re-mix adding a small amount of water to improve workability.  
**This step is critical in obtaining pot life.**  
- OR -
      - a. TeifsADHEEZ: A small amount of potable water may be added.
3. Apply Teifs Base Coat to the backside of the Insulation Board using a 3/8-inch notched trowel.
4. Immediately install TeifsBOARD on the substrate.
  - a. Do not allow the Teifs Base Coat mixture to form a skin on the Insulation Board before installation.
  - b. Slide Insulation Board gently into position. Apply firm pressure over the entire board surface to ensure uniform contact.
  - c. Install in a running bond pattern beginning at the base of the wall and make sure the corners are straight and plumb and all inside and outside corners shall be interlocked.
  - d. “L” shaped pieces of Insulation Board shall be used at corners of openings.
5. Joints between Insulation Board shall be tight with no gaps. If gaps occur at intersections of Insulation Board, slivers of insulation shall be used to fill gaps.
6. Allow the adhesively applied Insulation Board to dry at least 12 hours before proceeding.
7. Once Insulation Board is in place and adhesive has cured, the surface shall be rasped smooth so that all planer irregularities are removed.
8. Install aesthetic joints at this time ensuring that 3/4 inch of Insulation Board is left at the base of the joint.

## Teifs Base Coat / Reinforcing Mesh Application Instructions

1. Mixing:
  - a. TeifsBASE and TeifsBASE FR: Mix with Type I or II Portland Cement 1:1 ratio by weight. Add cement slowly to TeifsBASE material.
  - b. A small amount of potable water may be added.
  - c. After mixing, set aside for 10 minutes and re-mix adding a small amount of water to improve workability.  
**This step is critical in obtaining pot life.**  
- OR -
  - a. TeifsBASE DB: Place 5 quarts of clean, cool water into a clean mixing container. Slowly add the 50-pound bag of TeifsBASE DB to the water while mixing to a creamy consistency.
  - b. After mixing, set aside for 10 minutes and re-mix adding a small amount of water to improve workability.  
**This step is critical in obtaining pot life.**  
- OR -
  - a. TeifsSTRUCTURE: Mix to a smooth, homogeneous consistency. A small amount of potable water may be added.
2. Increased impact resistance: Use TeifsMAT 15 or TeifsMAT 20 which shall be applied prior to TeifsMESH.
  - a. Apply Base Coat to areas specified to receive TeifsMAT 15 or TeifsMAT 20 and embed mesh using a “T” stroke.
  - b. The TeifsMAT shall be butted together and not overlapped, as this will result in a ridge in the lamina.
  - c. Allow the TeifsMAT/BASE Coat lamina to cure a minimum of 24-hours.
  - d. Apply TeifsMESH to the entire wall surface overlapping any joints 2-1/2 inches and 4-inches at inside/outside corners according to instructions below and in TeifsPERMADRAIN® Application Guide. All outside corners shall have two layers of TeifsMESH or TeifsKORNERRAP.
3. TeifsMESH:
  - a. Apply Base Coat to the Insulation Board using a stainless steel trowel to a uniform thickness of approximately 1.6-mm (1/16 inch).
  - b. Embed TeifsMESH for standard impact resistance. The reinforcing mesh shall be embedded such that the color of the reinforcing mesh is not visible. Take care to avoid cutting or creating wrinkles in the mesh.
  - c. The edges of the Insulation Board shall be edge wrapped with Teifs Base Coat and TeifsBAKRAP.
  - d. Once the reinforcing mesh is installed, there should be no area where Insulation Board is visible.
  - e. A damp brush may be used to flatten the areas where trowel marks are difficult to smooth out over the embedded mesh in the wet TeifsBASE.
  - f. Smooth any rough edges and apply more TeifsBASE to ensure that the mesh color is not visible.
  - g. Allow the reinforced Base Coat to cure for a minimum of 24 hours.

**NOTE:**

*Corners of openings (i.e. windows, doors) shall be strengthened with diagonal patches of TeifsBAKRAPMESH embedded on surface of foam.*



## **TeifsFLEX FINISH Installation Instructions**

1. Mix TeifsFLEX FINISH Coat thoroughly until a workable consistency is achieved. Do not overmix as this may cause air entrapment. A small amount of water may be added to improve workability. Always add the same amount of water to each pail to ensure consistent color and texture.
2. Apply the Teifs Finish Coat over the Reinforced Base Coat using a stainless steel trowel. Cuarzo and Piedra Grande finish shall be installed and leveled to a uniform thickness no greater than the largest aggregate. Tejas and Tejas Fine shall be applied at a thickness of 1 to 1-1/2 times the aggregate size.
3. Avoid applying finish in direct sunlight.
4. Texture is achieved by a uniform trowel motion to match the approved sample. All finishes should be installed continuously, maintaining a wet edge to prevent cold joints.
5. Do not introduce water to the wall before finish coat is dry, as this may affect color consistency. Each mechanic must use the same tools and motion to ensure a consistent texture. Remember, texture is color and color is texture.

### **NOTES:**

***Do not apply TeifsFLEX FINISH in any moving joint to receive sealant. Certain static joint applications utilizing fillet bead caulking may be applied to the finish coat. See the TeifsPERMADRAIN® Details for examples.***

TeifsFLEX Finishes may also be installed over concrete, masonry, or unpainted stucco. Contact Texas Wall System for application details.

## **Teifs Repair Procedures**

*Should the TeifsPERMADRAIN® Wall System be damaged, it may be repaired easily by following these steps:*

1. Remove all damaged areas of the TeifsPERMADRAIN® Wall System exposing the substrate.
2. Take off an additional area, approximately 3 inches of the TeifsFLEX Finish, around the area to be repaired. This is accomplished by using a disk grinder or belt sander to remove the finish.
3. Cut a piece of TeifsBOARD to fit snugly into the hole and attach it to the substrate using TeifsBASE.
4. Rasp the Insulation Board to ensure it is flush with the surrounding insulation.
5. Cut Reinforcing Mesh to cover the repair. Extend the Mesh to cover a minimum of 2 inches onto existing reinforced Base Coat.
6. Embed Reinforcing Mesh in TeifsBASE. Surface should be as flat and smooth as possible.
7. Allow Base Coat to cure a minimum of 12 hours. Sand off any irregularities.
8. Apply TeifsFLEX Finish being sure to feather edges of patched area to blend into existing finish.
9. A slight color variation will be noticeable between the patched area and the original wall. Over time, this difference should diminish.

FOR ADDITIONAL INFORMATION, CONTACT YOUR TEIFS DISTRIBUTOR.