



# Thermo-Flex 1000

## GUIDE SPECIFICATIONS

### TF 1000 for TPO Installation

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## SECTION 1: GENERAL

### 1.01 GENERAL SYSTEM REQUIREMENTS

- A. The Huntsman Building Solutions TF 1000 is recommended for new or existing fully adhered and mechanically fastened TPO single-ply membrane roofs. Consult with an authorized Huntsman Building Solutions sales representative for;  
1) instructions for restoring white TPO membranes; 2) maintenance of an existing, previously restored project.

### 1.02 GENERAL SYSTEM DESCRIPTION

- A. This specification outlines Huntsman Building Solutions recommendations for applying the TF 1000 to single-ply TPO roofs. Please visit our website, [www.huntsmanbuildingsolutions.com](http://www.huntsmanbuildingsolutions.com), to see if an updated version of this specification is available. The restoration process will recondition, preserve, and extend the useful life of the roof by effectively waterproofing and otherwise protecting the roof from further degradation. Procedures include preparation, priming, and waterproofing all seams and flashings integrally related to the roof. In addition to life-cycle cost benefits significant energy savings will be realized as well.
- B. This document provides only general guidelines for application of Huntsman Building Solutions branded and ancillary materials. This general installation guide specification is not a project-specific specification and should not be used as such. Owners, architects, engineers, specifiers, consultants, contractors, and others may use and modify the information contained herein where necessary in preparing specifications for a particular roofing project. It is the responsibility of the owner, project manager, and contractor to ensure that this general installation guide specification is consistent with the contractual and construction requirements relating to the project. fully adhered and mechanically fastened TPO single-ply membrane roofs. Consult with an authorized Huntsman Building Solutions sales representative for; 1) instructions for restoring white TPO membranes; 2) maintenance of an existing previously restored project.

### 1.03 QUALITY ASSURANCE

- A. General:
  - 1. Huntsman Building Solutions shall manufacture, supply, and/or approve all materials used to complete the TF 1000 for single-ply TPO roofs.
  - 2. An authorized Huntsman Building Solutions representative shall approve, in writing, any material substitutions, deviations from, and/or addendums to this specification.
- B. Contractor:
  - 1. All work shall be performed, or directly supervised, by a Huntsman Building Solutions Coatings “Approved Applicator 1”.
  - 2. Contractor shall furnish verification of local, state, professional or other valid licenses necessary to operate and permits necessary to perform work.
  - 3. Contractor shall furnish proof of insurance covering liability, property damage, workers compensation, auto insurance, and other coverage requested by the Owner or Project Manager.
  - 4. Contractor shall observe accepted NRCA roofing practices and governing building codes when performing work excluded from this general installation guide specification. (i.e. Replacement of roof accessories such as drains, gutters, vents, other penetrations, and other structural repair). 1 “Approved Applicator” status is required for warranty eligibility. 1 “
- C. Products:
  - 1. Huntsman Building Solutions TF 1000 100% Acrylic Elastomeric Roof Coating, specified herein is;
    - a) certified by independent third-party tests to meet or exceed the physical properties set forth in ASTM D6083, “Standard Specification for Liquid Applied Acrylic Coating Used in Roofing”;
    - b) listed on Energy Star’s Roof Products Qualified Product List;
    - c) listed on the Cool Roof Rating Council’s (CRRC) Rated Products Directory;
    - d) certified by independent third-party tests to meet emittance standards for LEED certification. ASTM E408-71 (reapproved 2002), Method A; and

- e) certified by independent third-party tests for compliance with the State of California, California Energy Commission 2005 Building Energy Efficiency Standards for Residential and Non-Residential Buildings (Effective Date October 1, 2005), Section 118: Section (i) Mandatory Requirements for Cool Roofs, Paragraph 1, and Table 118-C Minimum Performance Requirements for Liquid Applied Roof Coatings. (Title 24).
2. Technical advice on application and suitability of Huntsman Building Solutions products is available from authorized Huntsman Building Solutions sales representatives or by contacting:

Technical Director  
Huntsman Building Solutions  
3315 E Division St  
Arlington, Texas 76011  
817-640-4900

#### 1.04 SUBMITTALS

- A. Roof Survey: Contractor shall submit a roof survey identifying the total area of the roof to receive the TF 1000 along with pictures depicting the general condition of the roof, seams, penetrations, mechanical equipment, and other areas specified for detail.
- B. Manufacturer Approval: Contractor shall submit current written verification of “applicator approval” from Huntsman Building Solutions as noted in Section 1.03.B.1.
- C. Licenses & Permits: Contractor shall submit verification of licenses and permits as noted in Section 1.03.B.2.
- D. Insurance: Contractor shall submit certificates of insurance as noted in Section 1.03.B.3.
- E. Product Literature: Contractor shall submit descriptive literature, Technical Data Sheets, and Material Safety Data Sheets for all materials specified for use on the project.
- F. Warranty: Contractor shall submit a copy of warranties, if any, offered upon successful completion of the project. (See Section 4.0 - Warranty).

#### 1.05 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Contractor shall deliver all Huntsman Building Solutions branded system components to the job site in their original, unopened packaging clearly marked with Huntsman Building Solutions logo, full product name, and lot or batch numbers. Contractor shall deliver ancillary project related materials to the job site in new condition, and where applicable, properly labeled.
- B. Storage: Contractor shall protect all materials from moisture, direct sunlight, excessive heat, or freezing. Furthermore, contractor shall store materials in accordance with Manufacturer’s printed recommendations as listed on each product’s Technical Data Sheet and/or product label.
- C. Handling: Contractor shall handle and install materials per Manufacturer’s printed instructions and standard industry practices for safeguarding against damage and contamination.
- D. Damaged Materials: Contractor shall not use materials damaged or contaminated in shipping, handling, or storage and must immediately remove them from the job site upon discovery.
- E. Documentation: Contractor shall maintain on premises the Manufacturer’s Material Safety Data Sheet and product Technical Data Sheet for each product delivered to the job site. Workers are to review all such documents before work commences.

#### 1.06 FIELD QUALITY CONTROL

- A. Installation / Environmental Conditions: Contractor shall not install any system component when environmental conditions on the job site exceed those published on the Manufacturer’s Technical Data Sheet and/or product label. When requested by Huntsman Building Solutions or the Project Manager, the Contractor, at designated time intervals, shall record surface temperature, ambient temperature, relative humidity, and wind velocity on a Daily Quality Control Report Form.

- B. Verification of Protective Coating Thickness: When requested by Huntsman Building Solutions or the Project Manager, the Contractor shall measure and record the wet film thickness of coating applications on a Daily Quality Control Form along with the quantity used, batch numbers, and total square feet covered.
- C. Protection of Unrelated Work: Contractor shall take all measures necessary to protect unrelated work surfaces and personal property from coating overspray, spills, and other damage.

## SECTION 2: PRODUCTS

### 2.01 SYSTEM DESCRIPTION

- A. Huntsman Building Solutions TF 1000 is a fluid applied, 100% acrylic elastomeric roof coating membrane with reinforced seams and flashing details. The fully adhered, seamless system exhibits outstanding adhesion, strength, flexibility, and water resistance.

### 2.02 MATERIALS

- A. Primer: Huntsman Building Solutions Therm O-SIL SP 15 Primer or THERMO-PRIME MULTI-SUBSTRATE Primer for TPO single-ply membranes
- B. Acrylic Sealant: Huntsman Building Solutions Therm-O-Caulk 100% Acrylic Elastomeric Sealant
- C. Reinforcement Fabric: 100% Polyester Reinforcing Fabric from Huntsman Building Solutions
- D. Self-Adhesive Seam Tape: Hardcast™ CRT-1602 or Eternabond™ WebSeal Coating-Ready Seam Sealing Tape
- E. Protective Elastomeric Coating: Huntsman Building Solutions TF 1000 100% Acrylic Elastomeric Roof Coating

## SECTION 3: EXECUTION

### 3.01 INSPECTION & REPAIR

- A. General
  - 1. The TPO membrane and all roof assembly components, (i.e. insulation, seams, drains, penetrations, terminations, and other flashings), must be structurally sound, stable, well secured, and watertight. Repair or replace roof components that are deteriorated, damaged, or not functioning properly. If Contractor cannot assure a sound, stable, well-secured surface, the roof is not acceptable to receive TF 1000.
- B. Drains
  - 1. The roof shall allow positive drainage of all water. Roof surfaces that pond more than 36 square feet of water, greater than 1/4" deep, in any area 48 hours after a rain are unacceptable. Small birdbaths cannot account for more than 5% of the entire roof surface.
    - a) Contractor shall install additional drains or make other corrective measures to eliminate ponding water.
- C. Seams
  - 1. Check all seams to ensure they are not delaminated and subject to water intrusion.
  - 2. If delaminated, clean and repair per the manufacturer's instructions.
- D. Fasteners
  - 1. Inspect fasteners on mechanically attached systems for tenting.
  - 2. Replace as necessary per the original manufacturers repair guidelines or accepted NRCA practices.
- DI. Transitions
  - 1. Inspect all transitions to ensure the membrane is adhered and not pulling from any walls, curbs, or other vertical surfaces.

2. Repair all areas where the TPO membrane is not adhered per the original manufacturers repair guidelines or accepted NRCA practices.

F. Insulation

1. If soft insulation is identified, it should be examined further and if necessary core cuts should be taken to determine if moisture is present.
2. If wet insulation is found, remove and replace with compatible material of the same thickness.

G. Flashings

1. Inspect all flashing details, (penetrations, roof mounted equipment, curbs, walls, parapets, drains, roof edge, etc.), to ensure they are well secured and functioning properly.
2. Correct as necessary to ensure a watertight seal prior to 3.02 Surface Preparation procedures.

### 3.02 SURFACE PREPARATION

All surfaces must be clean, dry, and sound; free of loose and peeling coatings, grease, oil, dirt, mildew, rust, and other detrimental foreign matter that will adversely affect adhesion and product performance of system components being applied. Manually or mechanically remove excessive amounts of deteriorated patching, flashing, or caulking materials before cleaning commences. Observe responsible trade practices during performance of all work.

A. Clean

1. Power wash the TPO membrane and auxiliary components using a minimum 2,500 psi to remove all existing dirt, biological growth, and other foreign debris.

### 3.03 SEAM AND FLASHING FORTIFICATION

Fully intact and structurally sound seams and flashing details do not require fortification. Reinforce seams or flashings that reveal any degree of delamination with one of the following methods:

A. Reinforcing Fabric

1. Apply a base coat of approximately 1 gallon per 100 square feet or approximately 16 wet mils of Huntsman Building Solutions TF 1000 over the detail area.
  - a) Immediately embed 4" reinforcing Fabric from Huntsman Building Solutions into the coating centered over the interface.
  - b) Without stretching the fabric, smooth with a brush or roller to remove any wrinkles, air pockets, or fishmouths.
  - c) Apply additional coating as necessary during embedment to conceal the fabric. Allow to dry before proceeding.
2. After application of the base coat and fabric, apply an additional 1 gallon or approximately 16 wet mils of TF 1000 along and several inches beyond the detail.

B. Self-Adhesive Seam Tape

1. Apply 4" CRT-1602 or WebSeal seam tape or equal over the detail area.
  - a) Center tape over the interface.
  - b) Hold tape roll slightly above the surface and peel back several inches of release liner. Adhere tape into place keeping it centered on the seam. Rub or roll tape down firmly and evenly to remove any wrinkles, air pockets, or fishmouths. A wallpaper seam roller is helpful to secure the tape to the substrate. Peel back several more inches of release liner and continue taping as described. Do not stretch the tape during installation.
  - c) Do not overlap intersecting lengths of tape. Cut and adhere tape so it forms a tight seam at all intersections.

2. After application of seam tape, apply approximately 16 wet mils of TF 1000 over all taped interfaces. TF 1000 must completely encapsulate and extend several inches to either side of the seam tape. Allow to dry before proceeding.

### 3.04 MISCELLANEOUS FORTIFICATION

#### A. Flashing Materials and Drains

1. Apply a 24 wet mil base coat of Huntsman Building Solutions TF 1000 over the detail area.
  - a) Immediately embed reinforcing Fabric from Huntsman Building Solutions fabric into the coating.
  - b) Without stretching the fabric, smooth with a brush or roller to remove any wrinkles, air pockets, or fish-mouths.
  - c) Apply additional coating as necessary during embedment to conceal the fabric. Allow to dry before proceeding.
2. After application of the base coat and fabric, apply an additional 16 wet mils of TF 1000 along and several inches beyond the detail.

### 3.05 PROTECTIVE COATING APPLICATION

All previously applied materials must be thoroughly dry before proceeding. Sweep, vacuum, or blow off any dirt, dust, or other contaminants that may have accumulated on substrates to be coated. Protect unrelated work areas from coating overspray and spills. Close or protect air conditioning and air intake vents.

A: Apply THERMO-SIL SP 15-Primer at a rate of 1 gallon per 200 square feet or THERMO-PRIME MULTI-SUBSTRATE Primer - Applied at 1 Gallon per 100 Sq/Ft.

B. Base coat as noted

C. Top coat as noted

#### A. Base Coat

1. Apply a TF 1000 base coat to the entire roof substrate at a minimum rate of 1.4 gallons per 100 square feet. (22 wet mils / 12 dry mils).
  - a) Apply using a medium nap roller or airless spray using a multi-pass spray technique to ensure even application.
  - b) Extend TF 1000 up on vent pipes, parapets and other protrusions to terminate a minimum of 3" above the substrate, creating a self-terminating flashing, and to provide an aesthetically pleasing appearance.
  - c) Inspect the roof surface after the base coat has cured for splits, tears, or other damage in the TPO membrane that may have been missed in the surface preparation process. Such areas will be easier to detect on the coated surface. Repair any deficiencies as described in Section 3.04.A-B before proceeding.

#### B. Finish Coat

1. Apply a TF 1000 base coat to the entire roof substrate at a minimum rate of 1.4 gallons per 100 square feet. (22 wet mils / 12 dry mils).
  - a) Apply using a medium nap roller or airless spray using a multi-pass spray technique to ensure even application.
  - b) Extend TF 1000 up on vent pipes, parapets, and other protrusions to terminate a minimum of 3" above the substrate, creating a self-terminating flashing, and to provide an aesthetically pleasing appearance.
  - c) Protect coating from traffic and other abuse until fully cured.
  - d) Additional coats or applications may be required depending on the length of warranty to be requested for the application.
2. Inspection
  1. Upon completion, Contractor shall inspect his work for compliance with this specification.
  2. When the TF 1000 for TPO is completed as specified above;

- a) System should be fully adhered with no pinholes or blisters in the coatings, sealants, reinforcing fabric, or seam tape.
- b) TF 1000 dry film thickness (DFT) over reinforced seams and flashing details should be equal to or greater than 30 mils. (This does not include measurement of sealants, reinforcing fabric, or seam tape.);
- c) TF 1000 dry film thickness (DFT) over the general field of the roof should be equal to or greater than 24 mils.

3. Contractor shall correct all deficiencies, if any, and provide written verification that the project is complete, sound, and warrantable.

**3.06 CLEANUP**

- A. Contractor shall maintain a neat, clean, and safe work area at all times during system installation and remove trash daily.
- B. Upon completion of the project, Contractor shall clean all areas of operation, (work, storage, other), of all equipment, containers, packaging, drips, spills, and other construction related debris. The jobsite should be left in a clean and neat order.

**SECTION 4: WARRANTY**

**4.01 LIMITED PRODUCT WARRANTY**

- A. Huntsman Building Solutions is pleased to offer ten (10), fifteen (15) and twenty (20) year Limited Product warranties over foam insulation systems. These warranties are intended to protect the building owner from leaks due to product deterioration as a result of ordinary weather conditions. There is no fee for these warranties and the only requirement is the submittal of a Huntsman Building Solutions warranty request form. Third party inspections are not required. Specific conditions and limitations are identified in the warranty documents. Dry Film Thickness (DFT) and Huntsman Building Solutions product minimum requirements are as follows:

Minimum Coverage and Material Requirements

Ten Year Limited Product	Fifteen Year Limited Product	Twenty Year Limited Product
Acrylic 24 DFT/3.0 gal	Acrylic 32 DFT/4.0 gal	Acrylic 36 DFT/4.5 gal

**4.02 LIMITED SYSTEM WARRANTY**

Huntsman Building Solutions is also pleased to offer a ten (10), fifteen (15) and Twenty (20) year Limited System warranties for non-residential building projects. These warranties are intended to protect the building owner from leaks due to product deterioration as a result of ordinary weather conditions. There is a fee for these warranties and an inspection is required. Additionally, to be eligible for a system warranty, a Pre-Job Warranty Request Form must be filled out, submitted and approved by Huntsman Building Solutions prior to the start of the project. Minimum square footage eligible for a System Warranty is 15,000 square feet. Dry film thickness (DFT) and Huntsman Building Solutions product minimum requirements are as follows:

Minimum Coverage and Material Requirements

Ten Year Limited System	Fifteen Year Limited System	Twenty Year Limited System
Acrylic 32 Mils/4.0 gal	Acrylic 36 Mils/ 4.5 gal	Acrylic 40 Mils/5 gal

#### 4.03 Warranty Program for Acrylic Restoration Coatings

Huntsman Building Solutions offers a selection of Ten (10) year fifteen (15) and twenty (20) year Restoration Coating Limited Product and Limited System warranties for building owners. The following chart will assist you in choosing the appropriate warranty for your project.

Minimum Dry Film Thickness (mil) and HBS Product Quantity (gallon) Requirements. \*

Duration	10-YEAR Limited		15-YEAR Limited		20-YEAR Limited	
	PRODUCT/SYSTEM		PRODUCT/SYSTEM		PRODUCT/SYSTEM	
TPO	24	3.00	30	4.00	40	4.5

\*Minimum dry film thickness requirements do not include joints, seams, flashings, protrusions, drains other details. Gallons shown are approximate and do not include loss during application.

End of Section