TREMCO

Roofing & Building Maintenance Division

TPA/TPA FB Single Ply Installation Guidelines

An RPM Company

6688 RV 7/07

TREMCO

TABLE OF CONTENTS

Tremco Roofing
3735 Green Rd.
Beachwood, OH 441
216-292-5000

The Tremco Incorporated Tri-Polymer Alloy (TPA) Roof System is a Thermoplastic, high reflective, lightweight, Energy Star and California Title 24 compliant roof system. The TPA Roof System can be mechanically attached or fully adhered. This handbook should be used as a reference to provide general application procedures and product information, and should not replace the project specifications.

PRE-JOB CHECKLIST

1. Product Specifications

The TPA Roof System can be used in a wide variety of roof applications. As with any roofing installation, application requirements can change from project to project. The project specification is the primary document for directions as to the proper installation of the TPA roof system. Specifications for TPA may be obtained from your local Field Representative.

Compare the details and specifications in the submittals with current specification and details. Any deviation or modification to approved details or specifications must be submitted to the local Field Representative for approval prior to application.

In any case where a deviation from approved installation techniques becomes necessary due to unforeseen job conditions, contact the local Field Representative for approval prior to initiating any changes.

2. Technical Assistance

Tremco encourages the use of our Technical Service personnel for project start-ups, in-progress inspections, and final project inspections. Tremco Technical Service personnel will conduct the final inspection utilizing the current manual, project specifications, and published Tremco standards.

Tremco reserves the right to require project start-up assistance. Tremco reserves the right to ensure contractor compliance with project specification, as well as all additional terms and conditions that pertain to warranty issuance. Tremco reserves the right to withhold warranty issuance until all terms, conditions and project specification are met.

INSTALLATION EQUIPMENT
HAND and POWER TOOLS

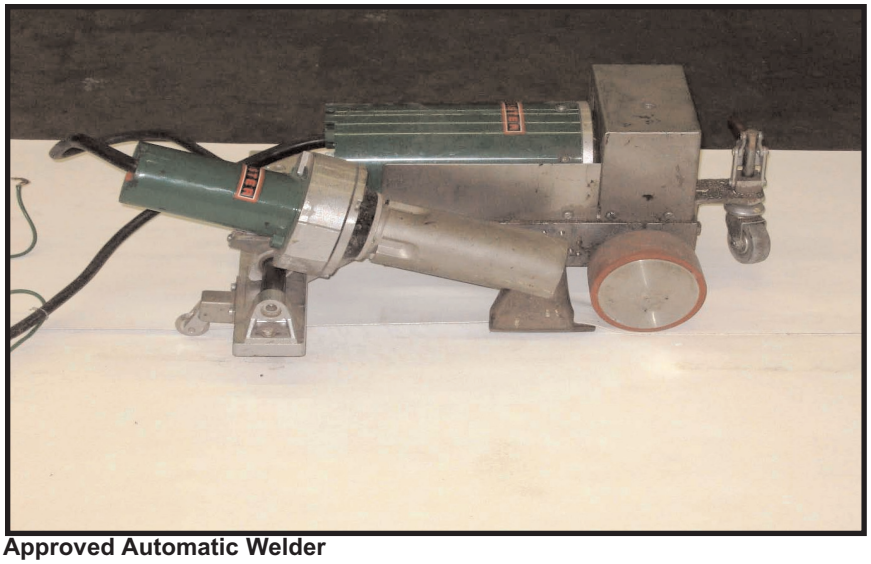
For Installation of Insulation and Roof Membrane:

To prevent work interruption, it is important to have all the necessary tools and equipment on the job-site when you begin. Depending on the specific job requirements, certain special equipment may be required, but the following basic equipment will be needed on all jobs for installation of the insulation and the roof membrane:

Equipment to handle materials:

- Scissors
- Utility Knives
- Nail Aprons
- #12 wire extension cords
- Variable speed drills and/or hammer drills
- 1/8” x 125’ chalk line with blue chalk
- 100’ and 20’ tape measures
- Approved fasteners and stress plates
- Torque adjusting screw guns with bits to match fasteners
- Lumber crayons for marking seams
- Chalk box
- Wire brush for welder tip cleaning
- Hammers
- Screwdrivers
- Trowels and spreaders for mastic
- Caulking gun
- Brush/Roller
- Metal shears
- Power saw (Skilsaw or equiv.)
- Hack saw
- Clean white cotton rags
- Approved cleaners or solvents (Acetone)
- Broom

INSTALLATION EQUIPMENT
HOT AIR WELDING EQUIPMENT

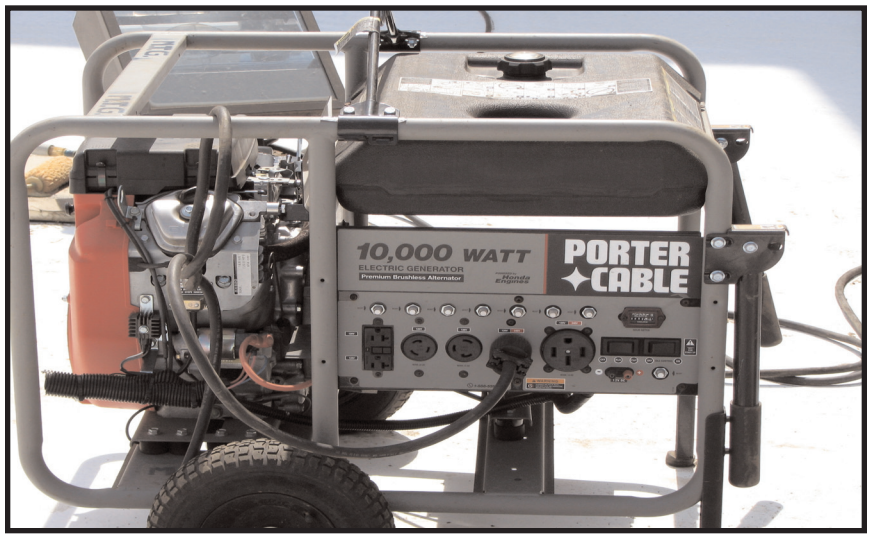


Approved Automatic Welder
(Power supply: 220 volts, 30 amps, 7500 watts single phase)

- #10 power cord (up to 150') with 3-prong twist-lock plugs
- Extra plugs, male and female
- Element; 4500 watts
- Metric Allen wrenches, metric open end wrenches, screwdriver for adjusting automatic welder (40mm nozzle)
- Wire brush for cleaning tip
- Lumber crayon for marking seams

Approved Hand Held Welder with silicone roller, assorted tips and #12 power cord (power supply: 115 volts, 15 amp, 1800 watts single phase)

INSTALLATION EQUIPMENT
GENERATOR



Power generator: If required automatic welder should generate a minimum of 220 volt, 30 amps, 7500 watts. If additional items are used such as hand welder, screw guns or other equipment, increased generator capacity will be required. A 220 volt 30 amp, 10000 watts generator is recommended.

WARNING: Overloading the generator with other equipment while the welders are in use can damage the heating elements of the welding equipment. If you plan to draw power from the generator for additional equipment, be sure to include a step-up transformer between the generator and the automatic welder.

MATERIAL HANDLING
STORAGE & DELIVERY

A. Deliver all materials and/or packages to the jobsite in the manufacturer's original unopened containers with legible labels. Protect material from moisture.

B. Always store TPA membrane on its side. Never store the membrane on end; to prevent edge damage.

C. Protect all materials from temperature extremes. Do not allow solvent containing materials to be exposed to high temperatures, open flames, or sparks.

D. Store liquid materials in their original undamaged containers in a clean, dry, protected location.

E. Conform to manufacturer's recommendations and material handling and storage specifications. Be sure not to store rolls in such a manner as to exceed structural live loads. Place equipment in a manner to avoid permanent deflection of deck.

F. Ensure all Federal, Provincial, State, and Local regulations are followed in application of this roof system.

G. Follow instructions on product label and MSDS for proper handling.

H. Avoid prolonged inhalation of vapors or contact with eyes and skin. See MSDS or label for instructions. **PROPERLY DISPOSE OF EMPTY CONTAINERS.**

Roll Weights Standard:
45 mil / 78" x 108' 220 lbs.
60 mil / 78" x 90' 240 lbs.
80 mil / 78" x 75' 255 lbs.

Roll Weights Fleece Back:
45 mil / 76" x 90' 180 lbs.
60 mil /76" x 90' 258 lbs.
80 mil / 76" x 75' 250 lbs.

I. Store and transport rolls in such a manner as to prevent bending of the inner core.

J. Deliver material in sufficient quantity to allow for continuity of work.

K. Select and operate material handling equipment so as not to damage existing construction or newly installed roofing.

L. Provide continuous water protective covering for all materials which require protection against the weather.

INSPECTION OF SURFACES

A. The general contractor shall be responsible for providing a smooth acceptable surface for the proper installation of the roof insulation membrane and specified components on all new construction projects.

B. The roofing contractor shall be responsible for the inspection of the deck surface as to suitability for roofing and notify the general contractor and architect of any defects that require correction prior to roof application.

C. Retrofits require the removal of all loose aggregate (gravel) by power brooming and/or vacuuming.

D. Examine surfaces for inadequate anchorage, low areas that will not drain properly, foreign material, ice, wet insulation, and unevenness or any other defect which would prevent the execution and quality application of the membrane roofing as specified.

E. Remove all asphalt, rust, paint and dirt at flashing areas and termination points where there will be direct contact with the membrane, mastic or sealant.

F. If the existing roof is coal tar pitch or has been repaired with cold tar pitch, a vapor retarder may be required.

G. **DO NOT PROCEED WITH ANY PART OF THE APPLICATION UNTIL ALL DEFECTS AND PREPARATION WORK HAVE BEEN CORRECTED AND COMPLETED.**

WOOD NAILERS

- Treated lumber shall be used for all wood nailers and must conform to all Federal Standards / regulations.

- Install treated lumber at the same height as the insulation layer. Wood nailers shall be installed at all perimeters and penetrations as shown in the approved details. The surface under wood nailers shall be FREE OF ALL GRAVEL and shall be as even as possible. Where wood nailers are installed directly on the substrate, the substrate shall be carefully examined to confirm that the entire area provides a suitable fastening surface. All defects shall be repaired by the appropriate trade prior to installation.

- In all conditions, fastening shall provide minimum linear pullout strength of 360 lbs. See fastener specification for approved fasteners and spacing.

INSTALLATION OF INSULATION

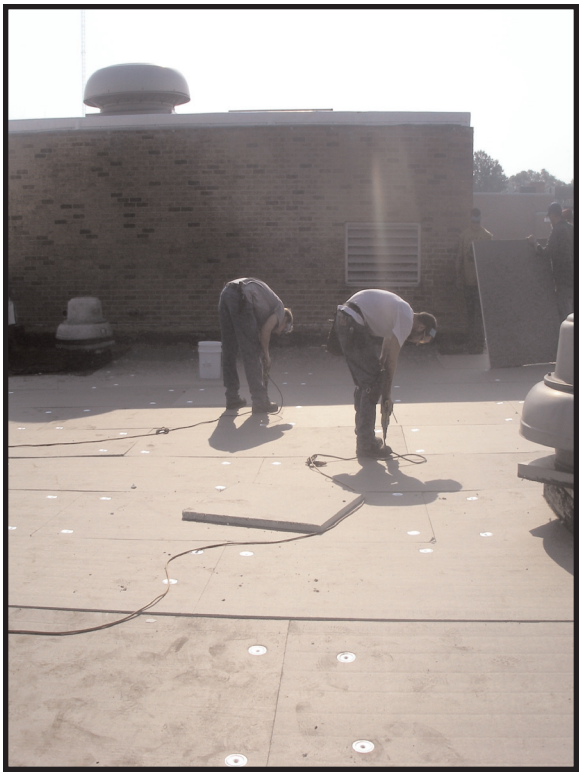
- Roof insulation shall be mechanically fastened or adhered in accordance with the roof insulation manufacturer's recommendations and must be approved by Tremco Inc. All insulation boards must be attached by a Factory Mutual/Tremco Inc. approved stress plate.

- Install roof insulation in parallel courses with tightly butted and staggered joints. Boards must be cut accurately to fit neatly around all penetrations. Small pieces and scraps of insulation will not be allowed.

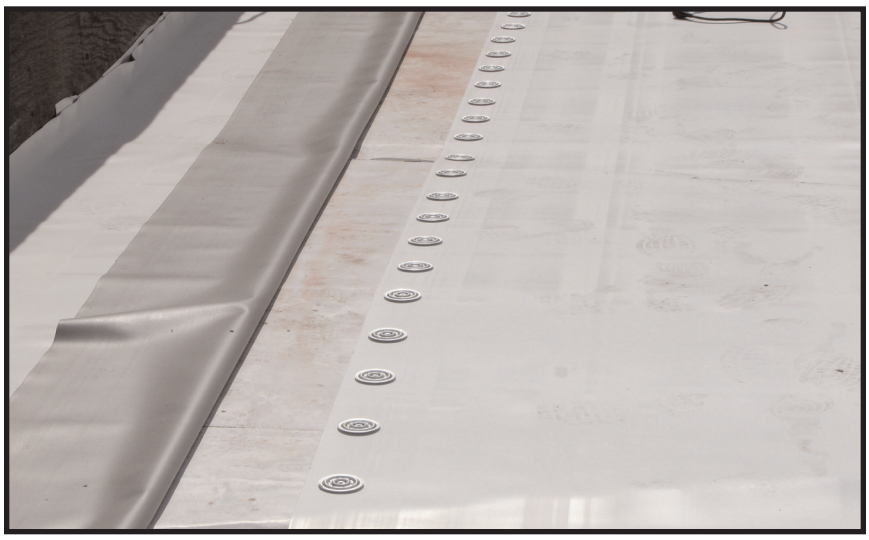
- Install no more insulation than can be covered during the same working day.

- Taper roof insulation to drain sumps using tapered edge strips. If insulation layer is 1 ½" or less, taper 12" from the drain bowl. If insulation thickness exceeds 1 ½", taper 18" from the drain bowl. Mechanically fasten all tapers using two fasteners per board.

- At the end of each work day, provide a watertight cover on all unused insulation to avoid moisture penetration.



MECHANICAL FASTENERS



A. For roof membrane fastening, stress plates shall be two inch (2 3/8”) O.D. barbed round, G-90 hot dipped galvanized stress plates with a recessed .260” I.D. center hole as supplied by Tremco Inc. Fasteners shall be as listed on the current approved fastener specifications and as indicated on spec data sheet.

B. All stress plates must set completely on the membrane allowing a minimum of ½” in from the edge of the underlying membrane.

Also allow a minimum of two inches from the edge of the stress plate to the edge of the overlapping membrane to allow sufficient room to apply the automatic welded field seam.

C. Insulation fasteners and stress plates shall be as listed on the current Approved Fastener Specifications and as indicated on the Request for Warranty form. In most cases, it is recommended that only plastic, locking stress plates be used for insulation fastener assemblies.

D. **CONSULT THE FASTENER SPECIFICATION FOR APPROVED FASTENERS AND OTHER REQUIREMENTS.**

BONDING ADHESIVE APPLICATION

A. Surfaces receiving Bonding Adhesive must be clean, dry and free from oil, grease, or other contaminants.
B. Plan placement of the TPA FB Roof Membrane System to insure that water will flow over or along, but not against, membrane laps or side laps. *(No back water seams)*.
C. Mix Bonding Adhesive thoroughly before use.
D. Application to horizontal surfaces:
    1. Apply Bonding Adhesive to the substrate in full coverage and roll the the membrane into place.
    2. Application rate will very based upon substrate porosity. Typical coverage is 100 to 120

square feet per gallon (2.5 to 3.0 square meters per liter).

3. DO NOT ALLOW BONDING ADHESIVE TO FULLY DRY before rolling membrane into adhesive. Broom or roll the membrane into the adhesive to remove wrinkles and assure positive contact with the substrate.
4. Minimize foot traffic on freshly applied TPA FB until adhesive is fully cured. (Cure times will vary depending on ambient conditions)

E. Application to vertical surfaces.

1. Position TPA or TPA FB Flashing membrane in intended location and fold back onto field of roof.
2. Flashing shall extend six inches (6") (152 mm) onto the field of the roof from either the toe of the cant (when cants are specified) or the horizontal - vertical transition point, as appropriate.
3. While either TPA or TPA FB membranes can be used as flashing membranes, Tremco Inc. recommends the use of non-fleece back as the preferred flashing membrane to assure proper overlap for heat welding of vertical and horizontal flashing laps.
4. Apply Bonding Adhesive to the vertical substrate in full coverage and allow the adhesive to dry to touch.
5. Apply Bonding Adhesive to the back side of the flashing membrane in a full coverage and allow adhesive to dry to touch.
6. Application rate will vary based upon substrate porosity. Typical coverage is 100 to 120 square feet per gallon (2.5 to 3.0 square meters per liter). (Refer to spec data for coverage rates).
7. For flashing application NET COVERAGE will be 50 to 60 square feet per gallon when applied to both surfaces. (Refer to spec data for coverage rates).
8. Allow adhesive to dry to touch. Do not transfer membrane to vertical surface until adhesive is dry – approximately 20 – 40 minutes, depending upon ambient conditions.
9. Place the flashing membrane onto the vertical surface and pressure roll to assure positive contact.
10. Do not allow Bonding Adhesive to contaminate lap areas. Remove adhesive from lap area with an approved solvent.
11. Heat weld overlap seams of flashing membrane to field membrane.
12. Heat weld flashing laps.
    i. If using TPA FB flashing membrane: butt ends of flashing membrane and heat weld a cover strip over the flashing end lap.

WATER BASED (WB) ADHESIVE APPLICATION

A. Surfaces to receive WB Adhesive must be clean, dry and free from oil, grease, or other contaminants.

B. Plan placement of the TPA FB Roof Membrane System to insure that water will flow over or along, but not against, membrane laps or side laps. (No back water seams).

C. Application to horizontal surfaces.

1. Apply WB Adhesive to substrate in full coverage.
2. Application rate will vary based upon substrate porosity. Typical coverage is 100 to 120 square feet per gallon (2.5 to 3.0 square meters per liter).

3. Broom or pressure roll membrane into the adhesive to remove wrinkles and assure positive contact with substrate.
4. Minimize foot traffic on freshly applied TPA FB until adhesive is fully cured.

D. Application to vertical surfaces:
1. Position TPA or TPA FB Flashing membrane in intended location and fold back onto field of roof.
2. Flashing shall extend six inches (6”) (152 mm) onto the field of the roof from either the toe of the cant (when cants are specified) or the horizontal - vertical transition point, as appropriate.
    i. While either TPA or TPA FB membranes can be used as flashing membranes, Tremco Inc. recommends the use of non-fleece back as the preferred flashing membrane to assure proper overlap for heat welding of vertical and horizontal flashing laps.
3. Apply WB Adhesive to the vertical substrate in full coverage and allow the adhesive to dry touch.
4. Apply WB Adhesive to the back side of the flashing membrane in full coverage and allow adhesive to dry to touch.
5. Application rate will vary based on substrate porosity. Typical coverage is 100 to 200 square feet per gallon (2.5 to 3.0 square meters per liter).
    i. For flashing application NET COVERAGE will be 50 to 60 square feet per gallon when applying to both surfaces.
6. Allow adhesive to dry to touch. **Do not transfer membrane to vertical surface until adhesive has dried approximately 10-15 minutes depending upon ambient conditions.**
7. Place the flashing membrane onto the vertical surface and pressure roll to assure positive contact.
8. Do not allow WB Adhesive to contaminate lap areas. Remove adhesive from lap area with an approved solvent.
9. Heat weld overlap seams of flashing membrane to field membrane.
10. Heat weld flashing laps.
    i. If using TPA FB flashing membrane: butt ends of flashing membrane and heat weld a cover strip over the flashing end lap.

HOT ASPHALT APPLICATION

A. Temperature of asphalt at point of application for membrane installation shall be EVT or 400° F, whichever is greater.
B. Adhesive application rate is 25 lbs per 100 square feet (1.25 kg per square meter).
C. Acceptable hot-melt adhesives include THERMastic 50, THERMastic, PowerPLY Modified Hot Melt Adhesive, Premium III or Premium IV, or Type III or Type IV asphalt.
D. Surfaces to receive Hot Melt Adhesive must be clean, dry and free from oil, grease, or other contaminants.
E. Plan placement of the TPA FB Roof Membrane System to insure that water will flow over or along, but not against, membrane laps or side laps. ***(No back water seams)***.

F. Application of horizontal surfaces:
    1. Apply specified hot melt adhesive to the substrate in full coverage.
    2. Broom or pressure roll the membrane into the adhesive to remove wrinkles and assure positive contact with the substrate.

CONTINUOUS END LAP DETAIL

A. Overlap the previous membrane course of field membrane a minimum of 2” (51 mm).
B. TPA Membrane: heat weld lap.
    1. All surfaces must be clean and dry.
    2. For heat welding, allow the hot air welder to warm up. Insert the nozzle tip of the hot air welder into the seam area. Move nozzle at a steady speed along the seam area, immediately applying pressure behind the air nozzle with a neoprene roller or weighted wheel to ensure positive contact of the heated TPA Roof Membrane lap.
        i. Minimum width of welded lap shall be 2.0” (51 mm) when using an automatic welder.
        ii. Minimum width of welded lap shall be 1.5” (38 mm) when using a hand welder.
C. TPA FB Membrane: center TPA cover strip over the overlap area. Heat weld cover strip at lap area.
D. Field test heat welded laps to assure proper construction. Perform field test after lap area cools to ambient temperatures. Properly constructed laps will not separate at the lap interface when tested.

STAGGERED END LAP DETAIL

A. Offset staggered end laps a minimum of 5’ (1.5 meters).
B. Overlap the previous course of field membrane a minimum of 2” (51 mm).
C. TPA Membrane: heat weld lap.
    1. All surfaces must be clean and dry.
    2. For heat welding, allow the hot air welder to warm up. Insert the nozzle tip of the hot air welder into the seam area. Move nozzle at a steady speed along the seam area, immediately applying pressure behind the air nozzle with a neoprene roller or weighted wheel to ensure positive contact of the heated TPA Roof Membrane lap.
        i. Minimum width of welded lap shall be 2.0” (51 mm) when using an automatic welder.
        ii. Minimum width of welded lap shall be 1.5” (38 mm) when using a hand welder.
D. TPA FB Membrane: center TPA cover strip over the overlap area. Heat weld cover strip at lap area.
E. Field test heat welded to assure proper construction. Perform field test after lap area cools to ambient temperatures. Properly constructed laps will not separate at the lap interface when tested.

MATERIAL COVERAGE

Standard Rolls
45 mil / 78” x 108’ …….. 648 sq. ft. exposed
60 mil / 78” x 90’ …….. 540 sq. ft. exposed
80 mil / 78” x 75’ …….. 450 sq. ft. exposed

Fleece Back
45 mil / 76” x 90’ ……... 524 sq. ft. exposed
60 mil / 76” x 90’ ……... 524 sq. ft. exposed
80 mil / 76” x 75’ ……... 437 sq. ft. exposed

Roll goods “flashing material” will vary in coverage depending on the size used. Standard stock sizes are minimum 6”, 39”, or 78” x 108’ all flashing must be field cut to size.

FASTENERS REQUIRED for MEMBRANE FASTENING AS FOLLOWS

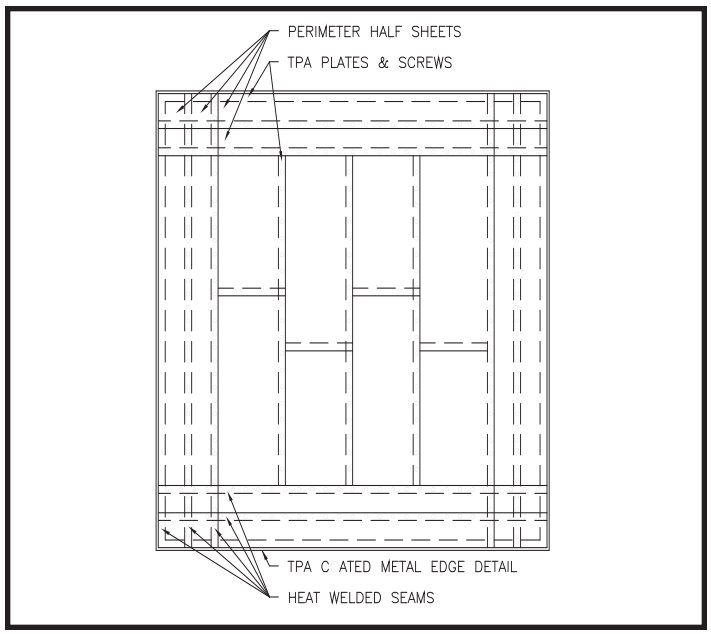
FM 1-90: 12" O/C

45 mil 78" x 108'..... 115/ per roll
60 mil 78" x 90' ..... 97/ per roll
80 mil 78" x 75' ..... 82/ per roll

HIGH WIND DESIGN: 6" O/C

45 mil 78" x 108' ..... 229/ per roll
60 mil 78" x 90' ..... 193/ per roll
80 mil 78" x 75' ..... 163/ per roll

FASTENER ESTIMATE INCLUDES ATTACHMENT OF SIDE LAP AND ONE TAIL.
ALL PERIMETER SHEET ATTACHMENTS ARE BASED ON WIND DESIGN.



Note: Refer to specifications for fastener spacing. Perimeter width is based on building height and dimension. Refer to FM 1-29 for perimeter width calculation.

White Sheeting Bond / Bonding Adhesive

Coverage will vary depending on the surface porosity. Sheeting Bond must be applied at least 1/8" thick for proper embedment of the membrane. Bonding Adhesive must be applied in full coverage to both the vertical substrate and back side of flashing membrane.

Sheeting Bond coverage will very depending on substrate porosity.

For wood surfaces:	45-50 sq. ft. per gallon
For concrete and brick:	35-40 sq. ft. per gallon

Bonding Adhesive coverage will very depending on substrate porosity.

For wood surfaces:	50-60 sq. ft. per gallon/per side
For concrete surfaces:	40-50 sq. ft. per gallon/per side

SEALANT FOR COUNTERFLASHINGS

TremSEAL D / TremSEAL GP

Coverage will vary depending on the size of the bead and the applicator.

TremSEAL D:
Approximately 27 linear feet per tube @ ¼” width and ¼” depth.

TremSEAL GP
Approximately 24.8 linear feet per tube @ ¼” width and ¼” depth.

(Refer to spec datas for application procedures).

Non-Reinforced Material

For most applications non-reinforced material is used where molding of the membrane is required.

WELDING

1. All field seams exceeding 10’ in length shall be welded with an approved automatic welder.

2. All field seams must be clean and dry prior to initiating any field welding.

3. Remove foreign materials from the seams (dirt, oils, etc.) with Acetone, or approved alternative. Use CLEAN cotton cloths and allow approximately five minutes for solvents to dissipate before initiating the automatic welder.

4. All welding shall be performed only by qualified personnel to ensure the continuity of the weld.

5. All furnished seams shall exhibit a homogeneous bond a minimum of 1.5” in width.

NOTE: The high temperatures generated by automatic and hand welding can cause injury. Care should be taken to avoid personal contact with the welder tips, generated hot air and weld sites along the seam until they are cooled.

Field test welded laps to assure proper construction. Perform field test after lap area cools to ambient temperatures. Properly welded laps will tear to expose the reinforcing scrim. If laps seperate at the rubber to rubber interface, the welding temperatures are likely not hot enough.

AUTOMATIC WELDING TIPS

- Always make test welds to ensure proper tip alignment, heat setting and speed of thermal unit before starting field welding. The roof membrane must be clean and dry to insure a proper weld. An acceptable weld exists when the top sheet will not separate from the bottom sheet without substrate destruction.

- Remember that changes in weather and air temperature may require a change in temperature and / or setting on the welder.

- Always watch to make sure a small bead is flowing from the edge of the membrane beneath the press wheel while welding.

- Align and guide the thermal welder to make sure the press wheel does not drift over the edge of the top membrane. Ensure that the edge of the top membrane does not creep up the inside shoulder of the welder nozzle.

- To prevent excessive weld distortion, allow 6” from the end of the roll to the point where the thermal unit is either started or stopped. Mark the area with a lumber crayon.

- Each time the welder tip is disengaged, be sure to clean it with a wire brush.

WELDER CHECKLIST AND ADJUSTMENT

Perform the following steps prior to each day’s welding:

- Check for proper power supply

- Check gears and drive belt

- Make sure drive wheel is tight

- Make sure press wheel is free-wheeling

- Tip placement: 40 mm back

- **Locked 1/8” above membrane**

- **All the way inserted**

- **MAKE WELD TESTS EACH DAY!**

TROUBLE SHOOTING THE AUTOMATIC WELDER

- **Scorching and / or charring**
  Cause: excessive heat, voltage fluctuation
  Solution: decrease temperature or increase speed of unit, check your power source.

- **Cold or Spotty Weld**
  Cause: insufficient heat, bad heating element, voltage fluctuation.
  Solution: increase temperature or decrease speed, replace element, check power source.

- **Scarring along seam edge**
  Cause: tip dragging or out of alignment
  Solution: remove welder and realign tip

TROUBLE SHOOTING

- **Pleating of the seam**
  Cause: membrane not installed snug, press wheel not free-wheeling
  Solution: free press wheel, pull slack out of membrane

- **TPA collecting on weld wheel**
  Cause: tip out of alignment, excessive heat, unit drifting
  Solution: realign tip, adjust temperature, hold the unit to steady course

- **Unit pulsating**
  Cause: insufficient power, voltage fluctuation, generator overload
  Solution: increase power or decrease cord length, increase size of generator

- **Unit Jerking**
  Cause: worn drive gears or belt, loose drive wheel
  Solution: replace worn parts, tighten drive wheel

- **Dead Unit**
  Cause: loss of power, damaged unit
  Solution: check all power connections, return unit to manufacturer for servicing

INSTALLATION OF TPA MEMBRANE

- It will be the responsibility of the roofing contractor to initiate a Q.C. program to govern all aspects of the installation of the new roof.

- The job foreman and the Tremco supervisor will be responsible for the daily execution of the Q.C. program which will include, but is not limited to, the inspection of all heat welding.

- If inconsistencies in the quality of the welds are found, all work shall cease until corrective actions are taken to ensure the continuity of all field welds.

ATTACHMENT

A. ATTACHMENT

1. All decking not listed as approved by Factory Mutual for mechanical attachment require documented pull out values for fastener resistance.

2. All testing is to be performed by the appropriate fastener manufacturer or an authorized representative.

3. CONSULT YOUR LOCAL REPRESENTATIVE FOR APPROVED FASTENERS AND OTHER REQUIREMENTS.

B. ROLL ATTACHMENT

1. The following are minimum FM 1-90 requirements for the attachment of the 78" x 109' rolls. Alternative spacing requirements may be required to achieve FM equivalency ratings due to deck type, building height, fastener resistance values and special geographical zone considerations.

a. Side laps
Install fasteners and barbed stress plates in a STRAIGHT LINE ON THE CENTER LINE 12" O/C.

b. Roll Ends
Install fasteners and barbed stress plates in a STRAIGHT LINE 12" O/C.

C. PERIMETER SHEETS

1. All perimeter sheets are to be installed by terminating the exterior edge to previously installed wood nailers by nailing with galvanized annular ring shank nails 6" O/C.

2. Subsequent perimeter sheets toward the interior of the roof are fastened with approved fasteners and barbed stress plates 12" O/C.

MECHANICALLY ATTACHED ROLLS

When job conditions necessitate the utilization of mechanically attached application procedures, follow all standard TPA Installation Specifications, in addition to the following:

a. Install rolls so that seams overlap 4.5” to the back line of the underlying adjacent roll.
b. Stagger the rolls so that the tails, or roll ends, do not line up.
c. Overlap at end lap 3” minimum.

FULLY ADHERED ROLLS

When job conditions necessitate the utilization of fully adhered application procedures, follow all standard TPA Installation Specifications, in addition to the following:

a. Install rolls so that rolls overlap at side lap 3” to the back line of the underlying adjacent roll.
b. Stagger the rolls so that the tails, or roll ends, do not line up.
c. Overlap at end lap 2” minimum

PERIMETER SHEETS (39” X 109’)

1. A minimum of two perimeter sheets shall be installed, parallel to all exterior roof perimeters, including parapet walls, expansion joints and other changes in the plane of the deck.

2. Install perimeter sheets square to chalk lines with proper shingling to avoid back water seams.

3. Adjoining rolls shall overlap the fastened edge a minimum of 4.5” maintaining proper shingling to avoid back water seams.

4. Factory Mutual I-90 classification may require more than two perimeter sheets at all exterior roof perimeters that are not bordered by a parapet, with a minimum height of 24” above the plane of the deck. FM always calls for a minimum perimeter of 4’.

FLASHING – (MEMBRANE)

Clean all vents, pipes, conduits, walls and stacks to bare metal. All protrusions must be properly secured to the roof deck. Remove and properly discard all lead, pipe and drain flashings. Flash all penetrations according to approved details.

A. Remove all cant strips and loose wall flashings.

B. Flash all curbs, parapets and interior walls in strict accordance with approved TPA Details.

C. All flashing shall be totally adhered to approved substrate with Bonding Adhesive or White Sheeting Bond applied in sufficient quantity to ensure total adhesion. If flashing is carried over the top of a parapet, it is recommended that the top of the parapet receive a coat of mastic or an air seal to prevent wind from traveling beneath the membrane and potentially billowing the flashing.

D. The base of all membrane flashing shall extend out on to the plane of the deck, beyond the wood nailer to a maximum width of 8”.

E. Vertical flashing shall be terminated no less than 8” above the plane of the deck with approved termination bar or metal cap flashing.

F. Vertical wall flashing terminations shall not exceed 30” without additional parallel horizontal rows of termination bars between the deck and the termination point of the flashing. Spacing between horizontal rows shall not exceed 24”.

FLASHING (METAL)

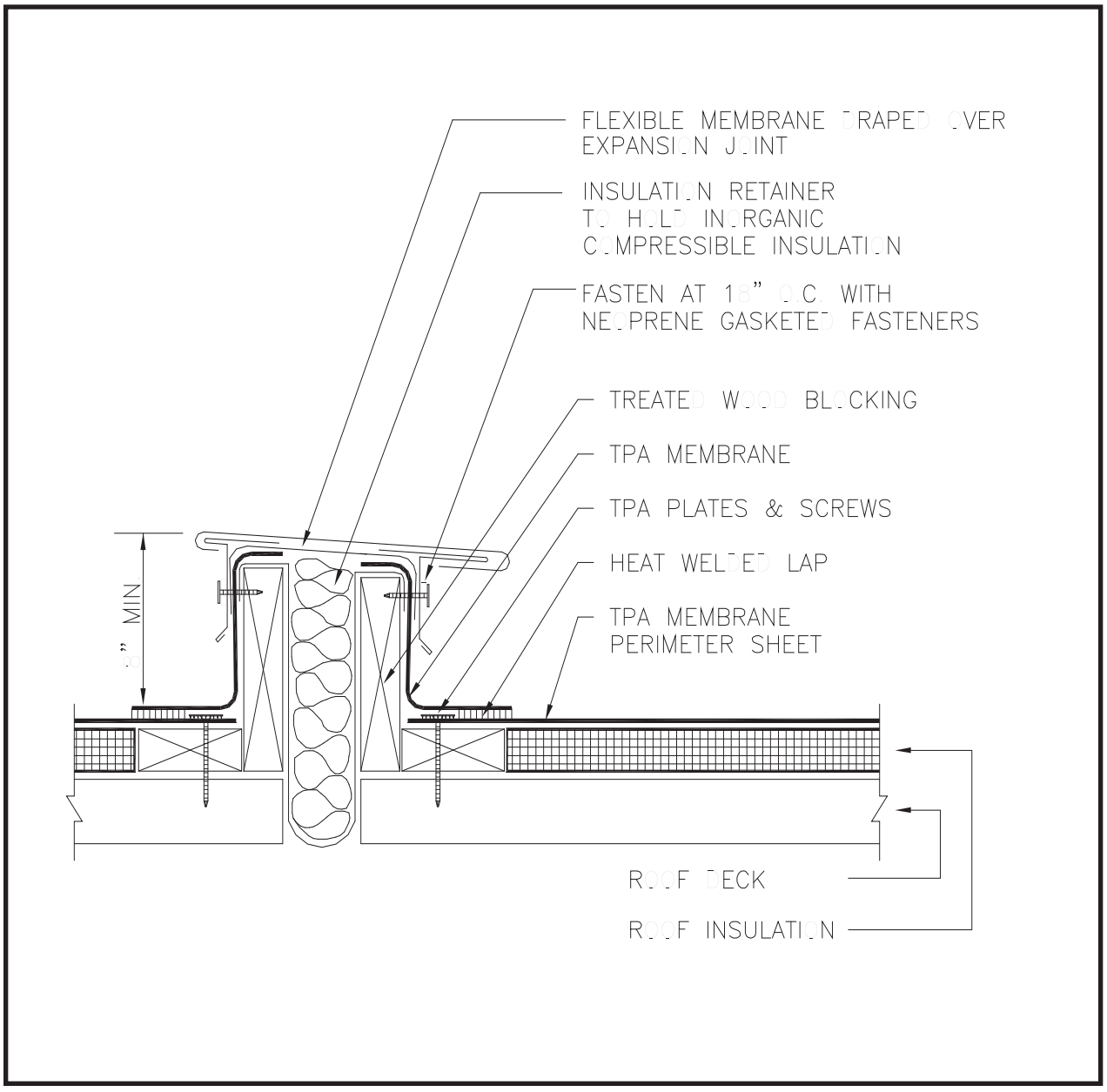
A. All perimeter edge details are to be fabricated from TPA Coated Metal or an approved two-piece locking metal fascia.

B. Ensure all fascias are 4” lower than the bottom of the wood nailers.

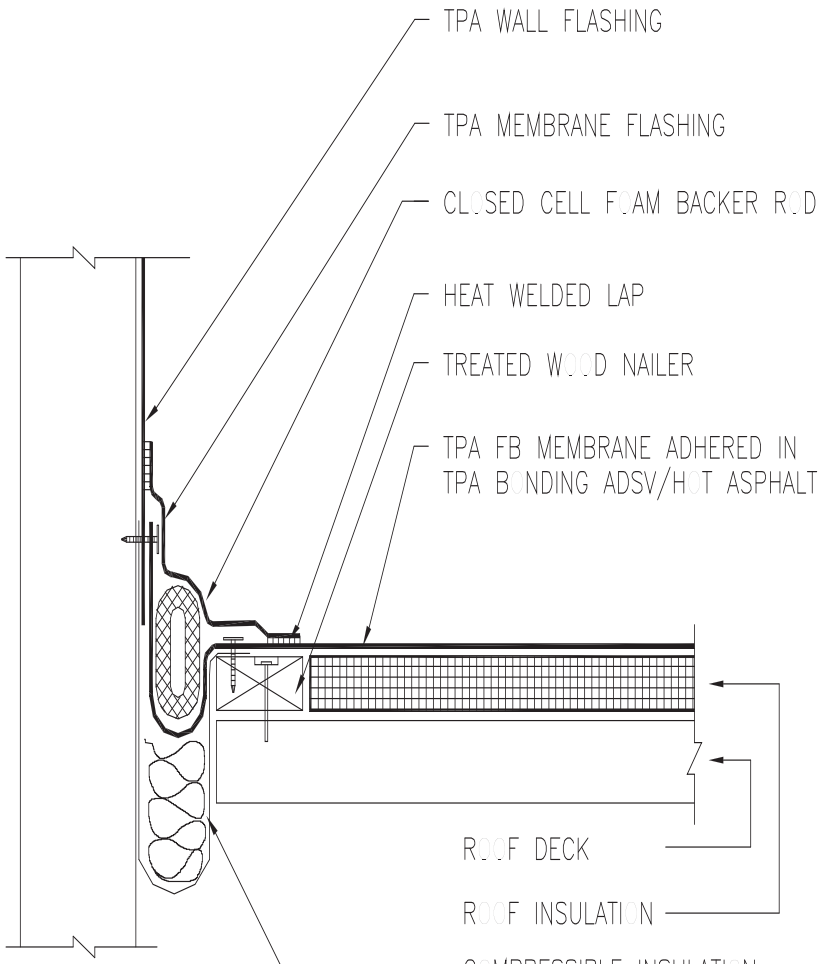
C. All flanged metal flashings must be fabricated from TPA Coated Metal.

ROOF EXPANSION JOINTS

Flash all expansion joints in strict accordance with approved details. Fasten all expansion joint material according to TPA specifications. Ensure the expansion material has sufficient material to expand to the widest point of expansion without causing undue stress on the expansion joint material.



WALL EXPANSION JOINTS



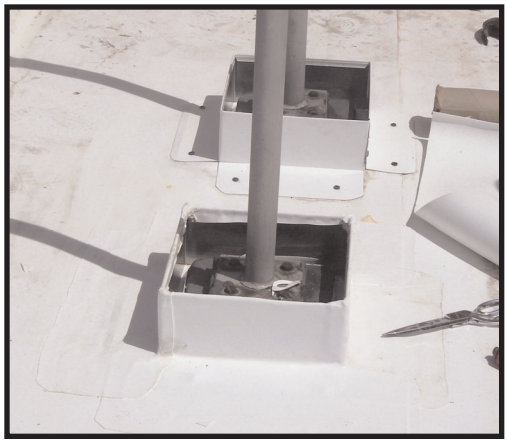
NOTES:

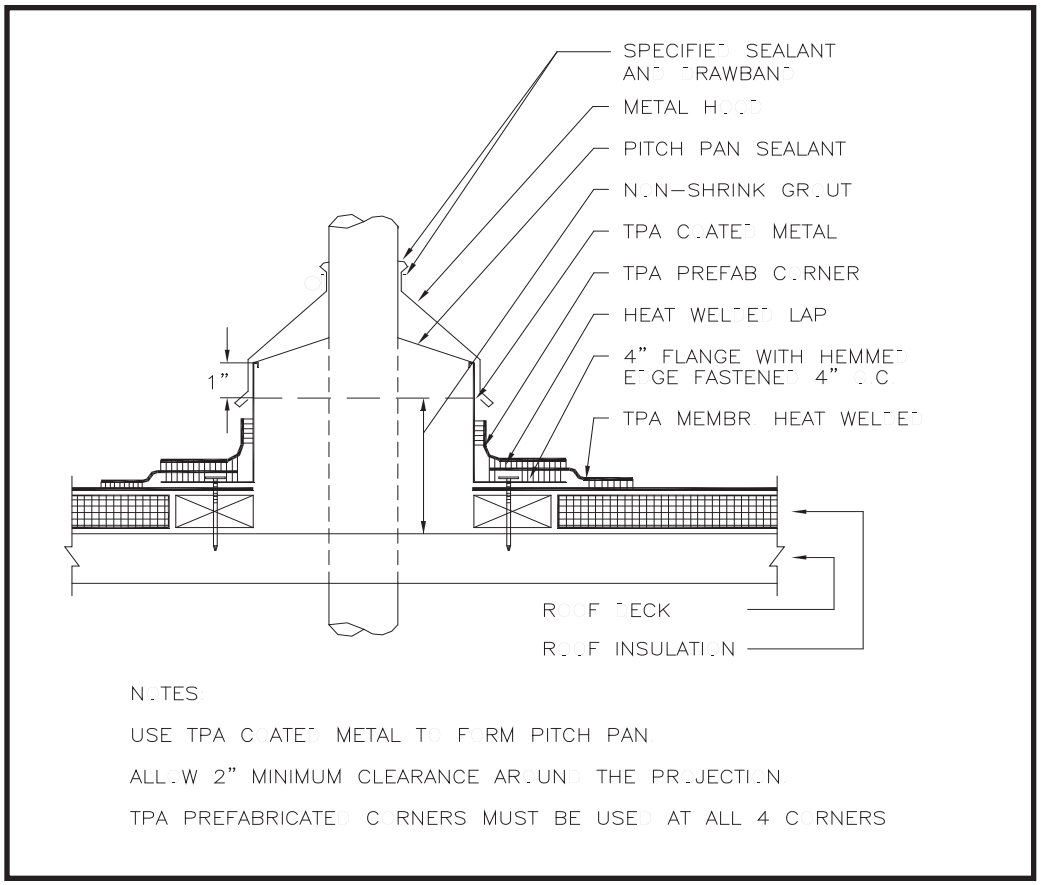
WOOD NAILER SECURED TO THE DECK PER FACTORY MUTUAL LOSS PREVENTION DATA 1-49

PITCH PANS

A. Every effort shall be made to eliminate the need for pitch pans, including the removal of existing pans. Contact your local representative for specific design recommendations.

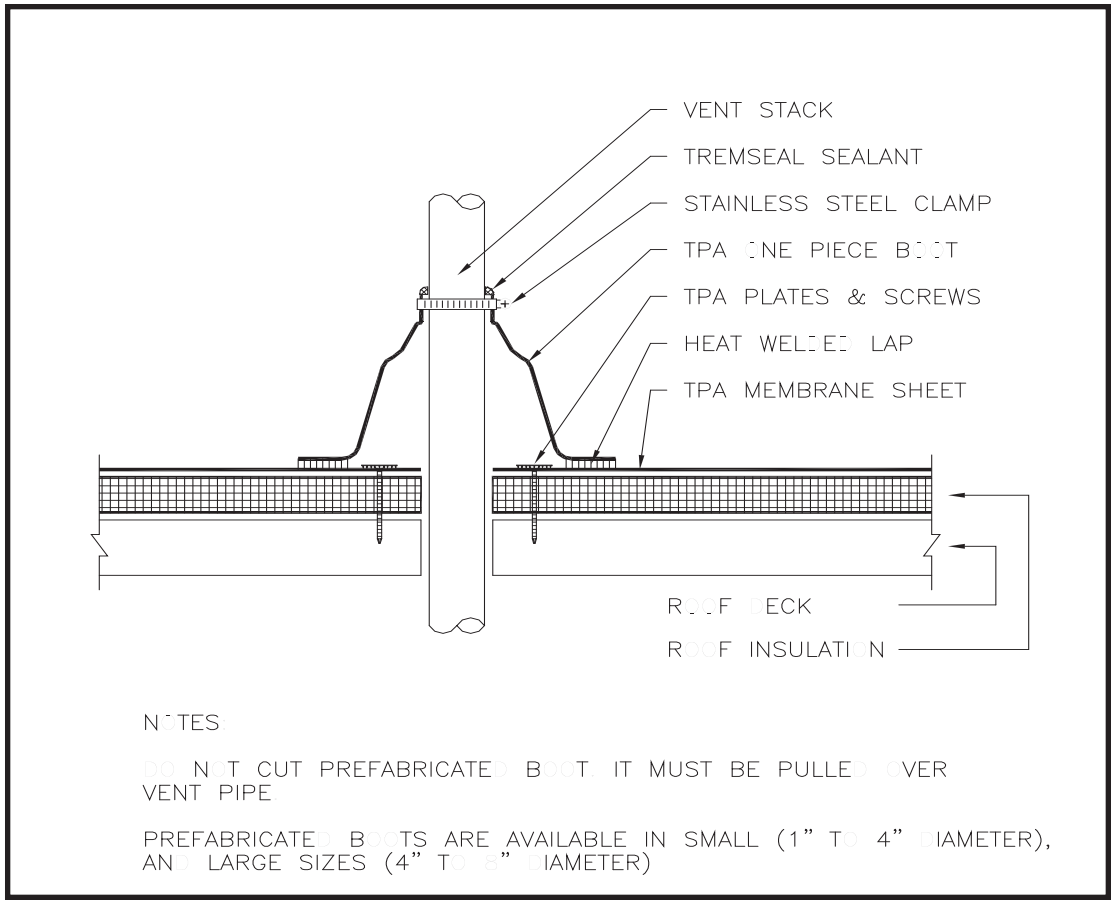
B. In the event of no viable alternative, fabricate pitch pans from TPA Coated Metal and install pitch pans in strict accordance with TPA details ensuring proper attachment, maintaining a minimum 2” clearance around the penetration, with proper depth of sealant.



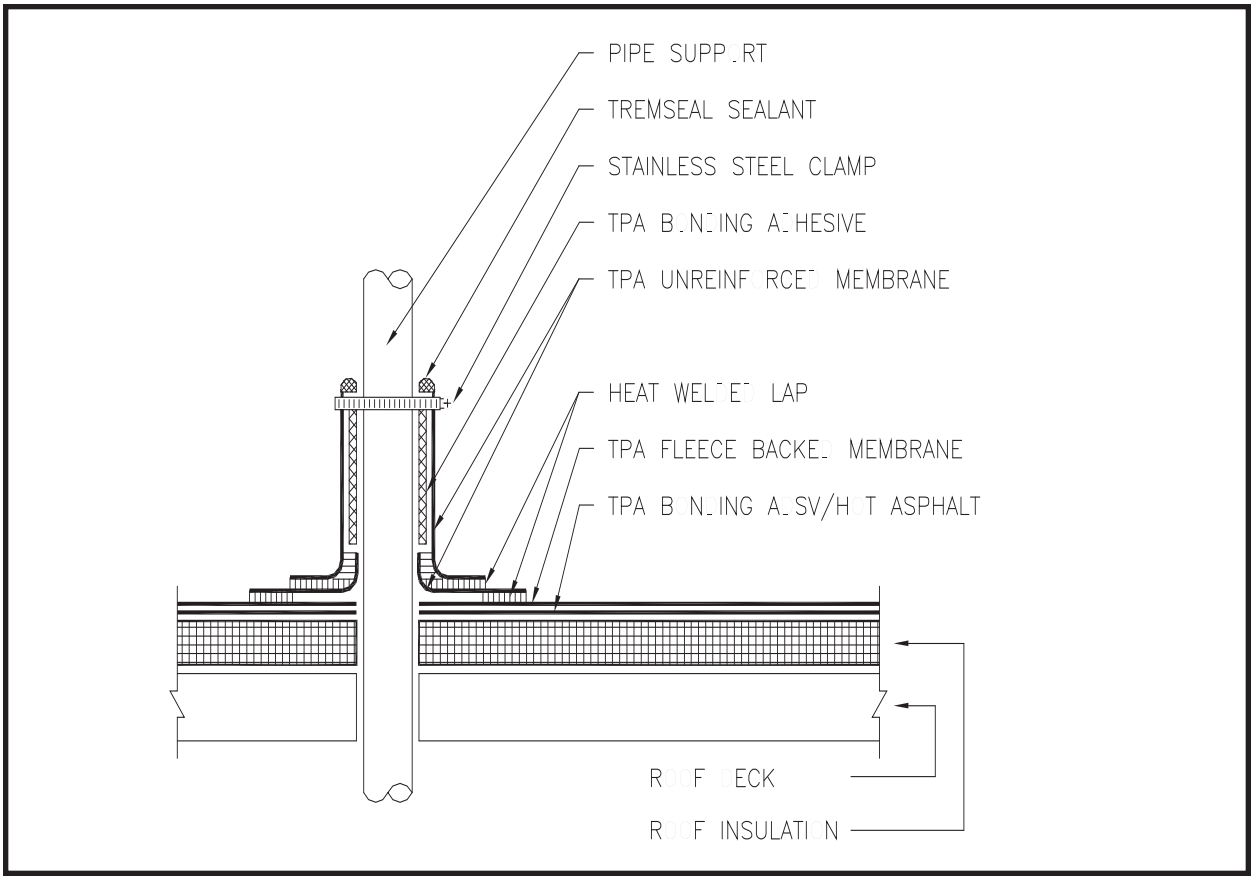


SOIL STACKS

Pre-formed stack:



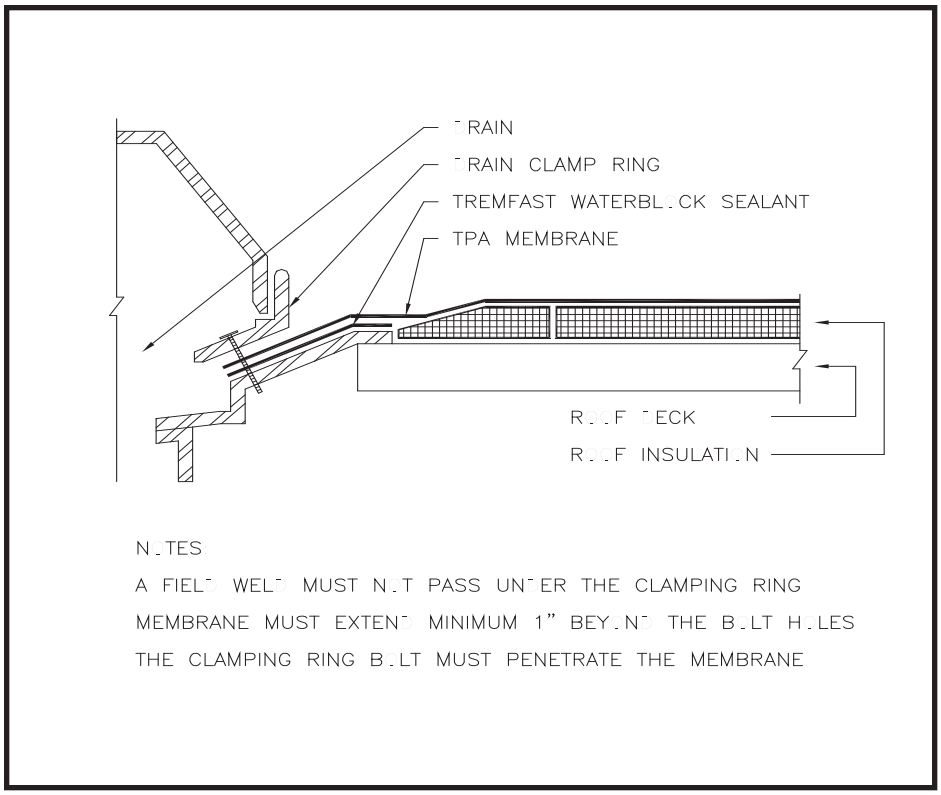
Field fabricated stack:



ROOF DRAINS

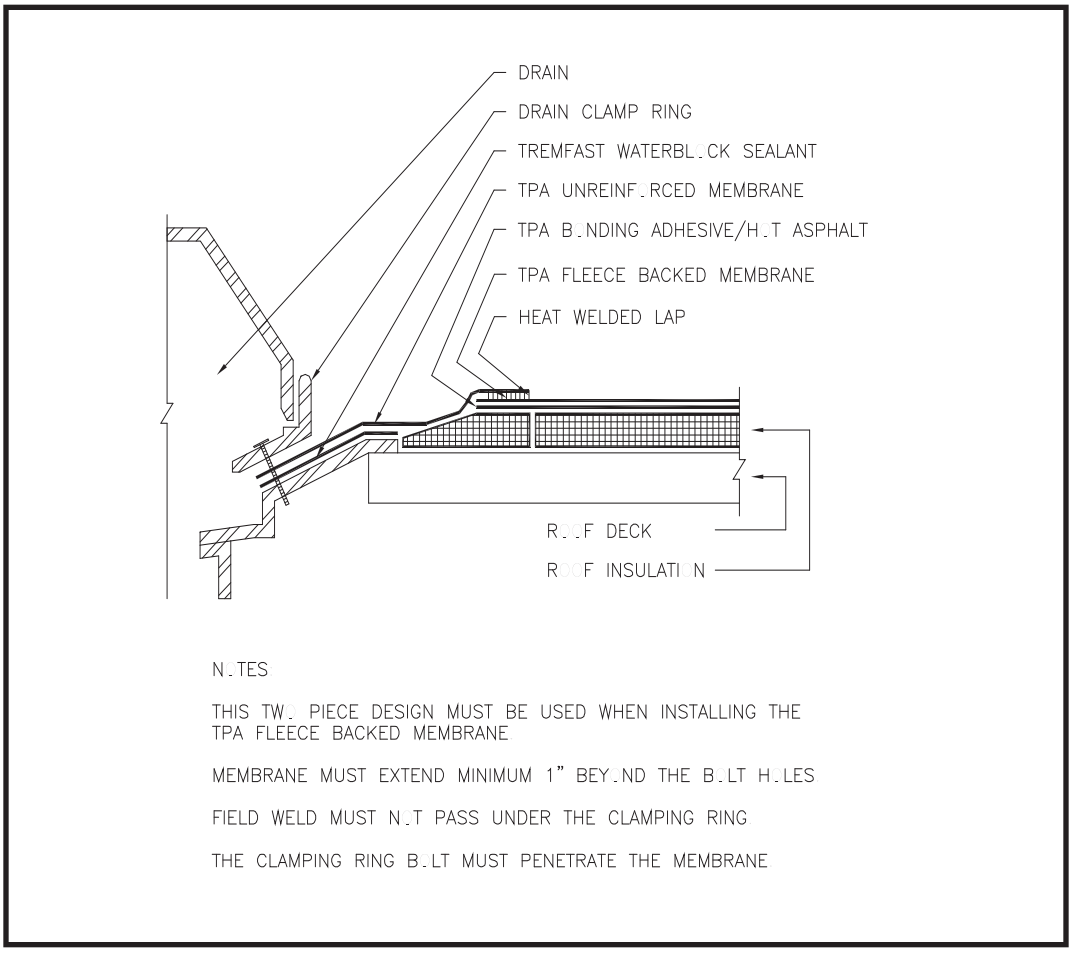
A. Flash all roof drains in strict accordance with TPA roof drain detail. Replace any worn drain parts that may cut the roofing membrane or prevent a watertight seal. Replace all drain bolts or clamps holding the clamping ring to the drain basin. Ensure all drain basins are free of debris prior to leaving the roof after each day. Replace all broken drain domes.

B. All drains shall have approved clamping rings.



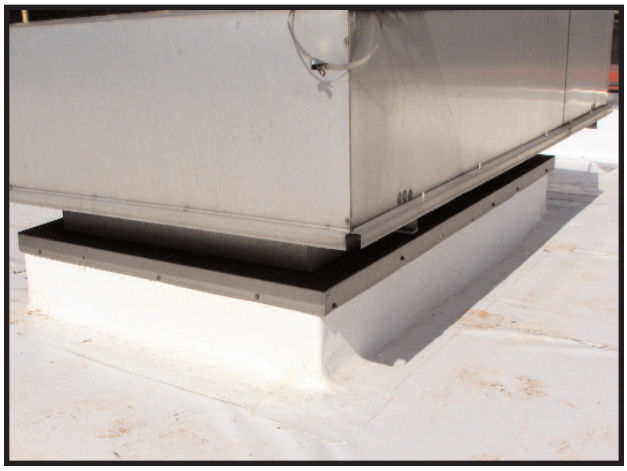
C. TPA Un-reinforced Flashing Membrane must be used as a target flashing on the TPA FB Membrane

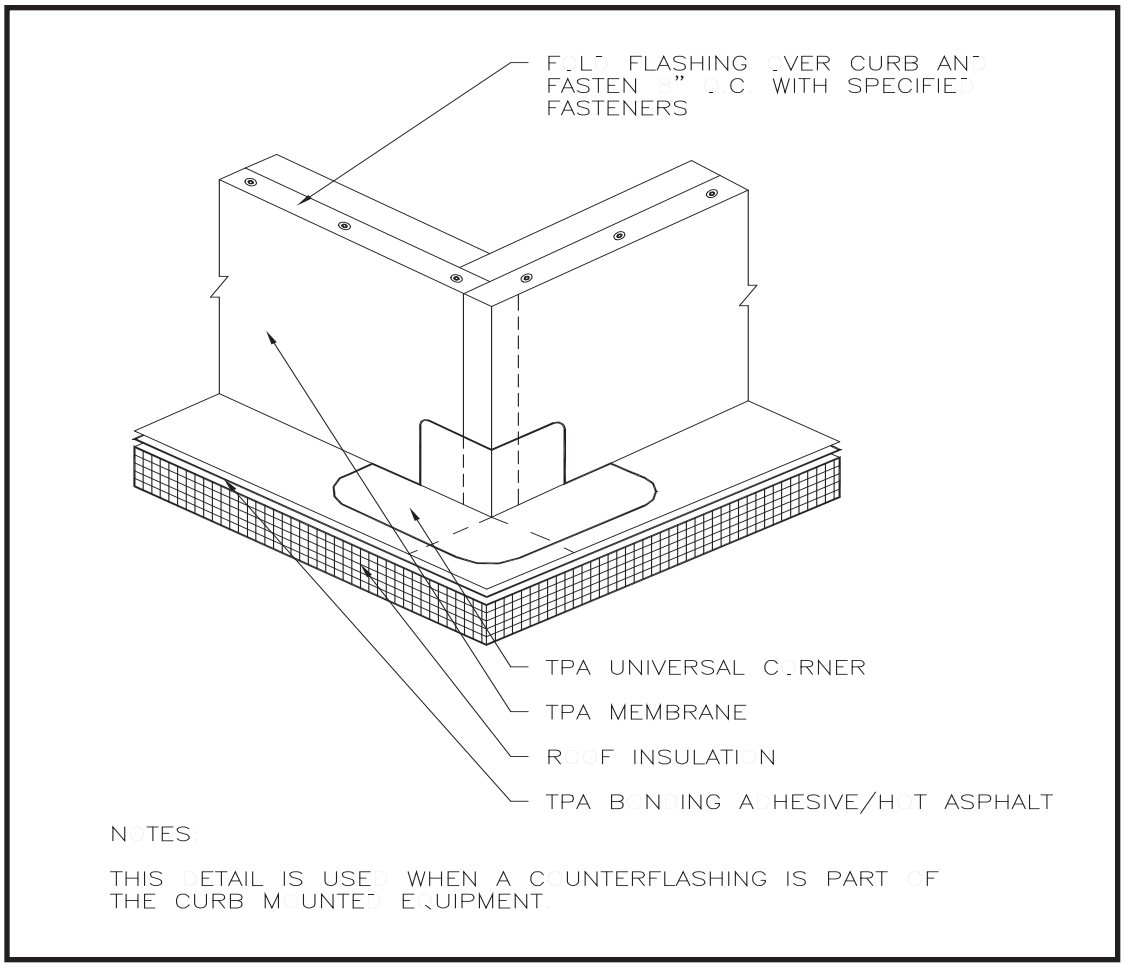
D. A field weld must not pass under clamping ring.



CURBS AND CORNERS

All inside / outside corners shall be installed in strict accordance with TPA details.





TEMPORARY SEALS

- At the end of each working day or the sign of rain, install a temporary watertight seal where the exposed edge of the completed new roofing terminates at the uncovered deck or old, existing roof surface.

- If the old roof surface is covered with slag, spud back 6” from where the membrane will be fastened to the deck. Use a sufficient sized strip of TPA membrane to bridge the new membrane and the roof deck.

- If using TPA membrane, the strip must be welded to the new roofing membrane and cemented to the cleaned roof deck.

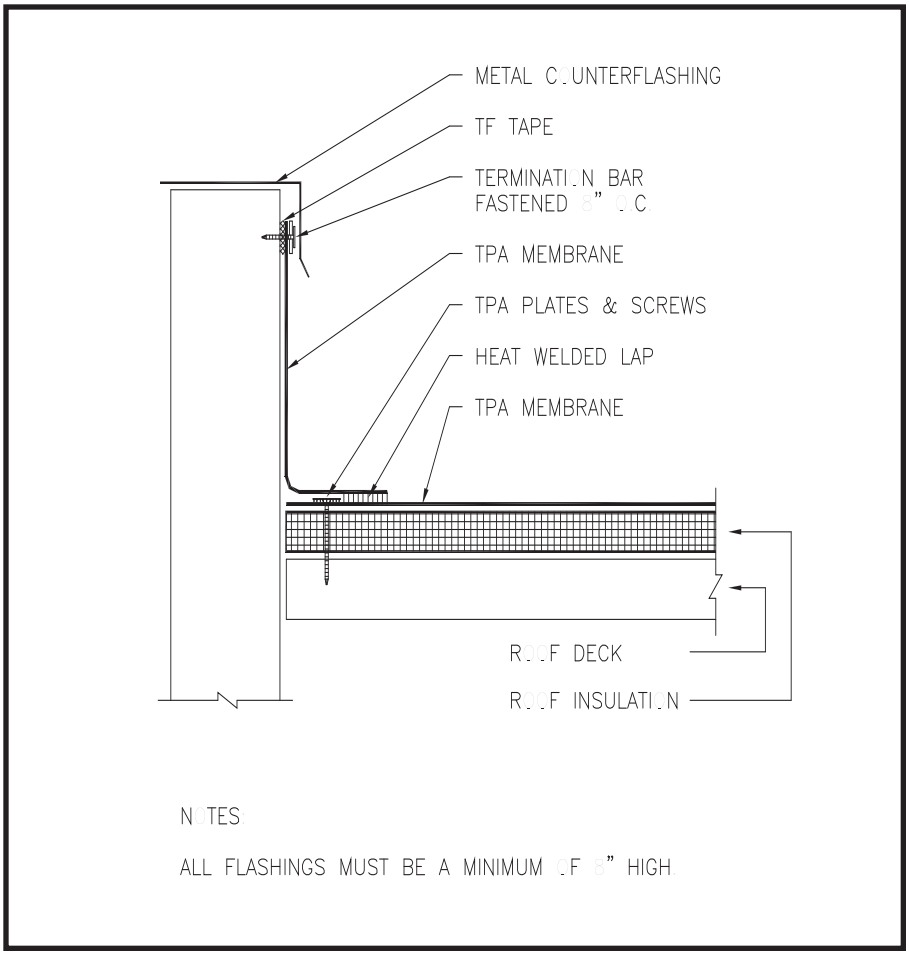
- Prior to the commencement of work, remove all temporary seals if they will cause water damage and any exposed roof cement if used. (DO NOT TRACK ROOF CEMENTS ONTO THE TPA ROOFING MEMBRANE).

INSPECTION

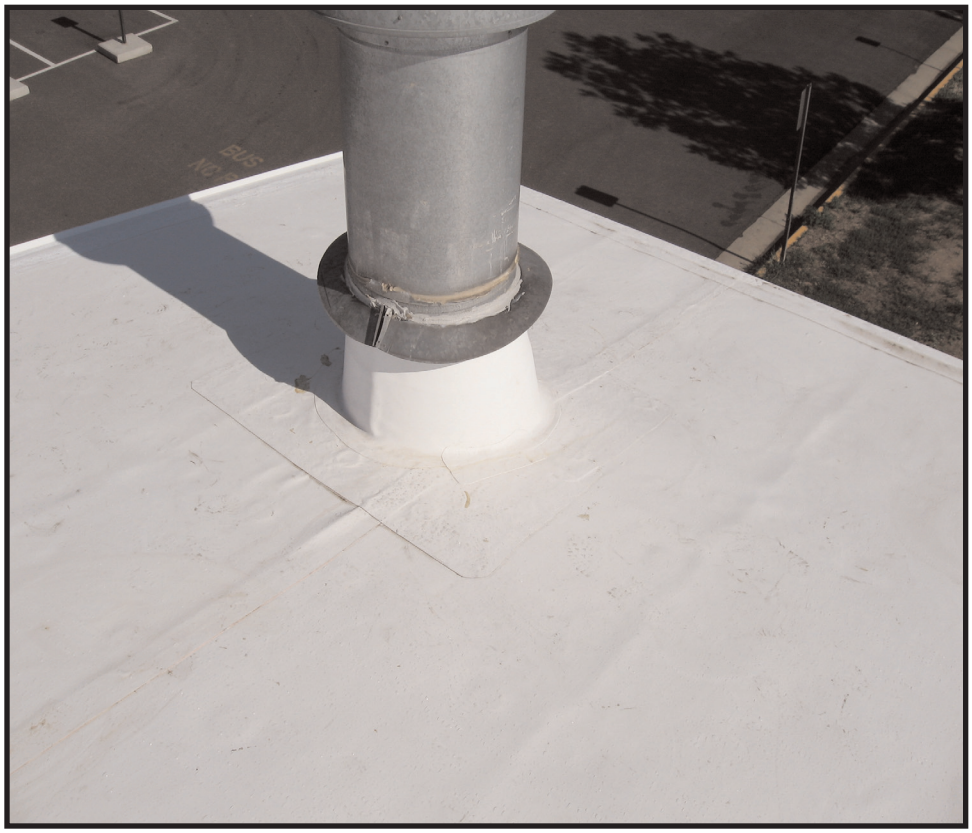
The following pages describe areas that will attract the attention of the Tremco Technical Representative during the warranty final inspection. Checking for proper welds and compliance with the job specifications will be their major concern. In general, they will be examining the roof to ensure that the contractor has executed the workmanship required to ensure the longevity of the system – not only for the full term of the warranty coverage but also for as many years as the system has the potential to provide. Unless the roof is “100%,” warranty must be withheld until all errors are corrected to the manufacturer’s specifications.

INSPECTION
FLASHING DETAILS

Install all flashing in a neat and uniform manner with a “rounding” of all exposed corners. Check to ensure that all flashing details are being installed in complete compliance with both the manufacturer’s and architect’s written specifications and detailed drawings. If there is any question or doubt on how to approach specific details, ask for clarification. Waiting until job completion is definitely the wrong time to discover the detail has been improperly installed.



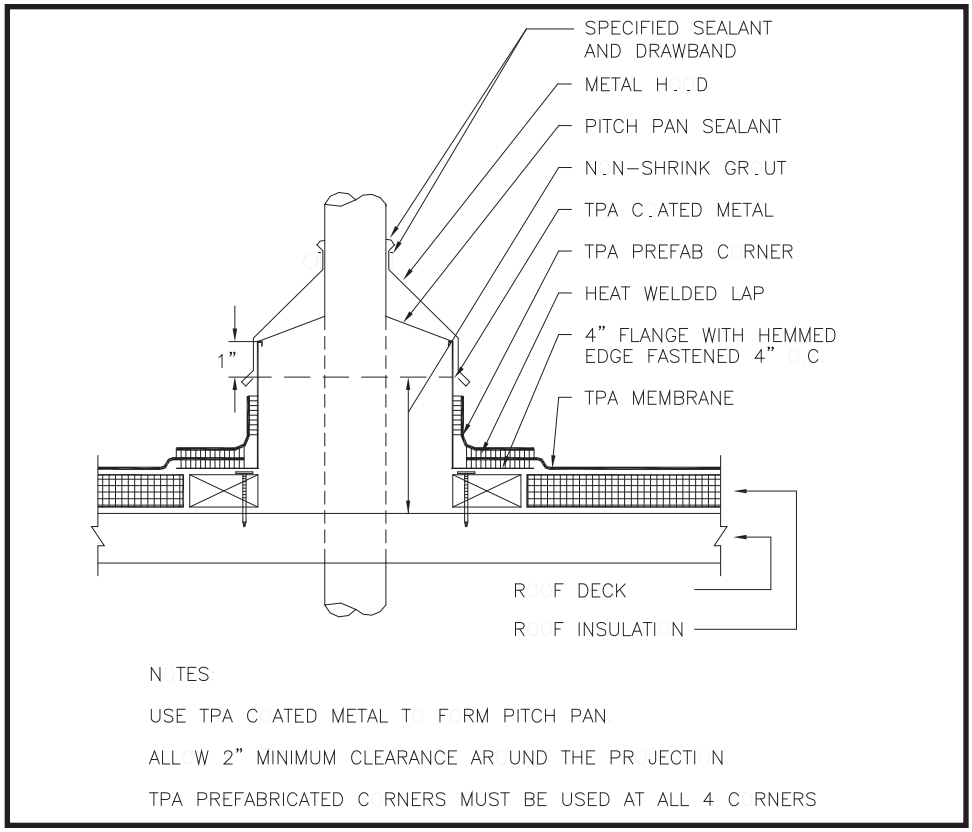
INSPECTION
STACKS



Inspect all the hand welds in the same manner as the field seams. Collars and / or prefabricated soil stack “boot’s” are to be tight fitting. Termination clamps are to be tight and properly caulked. If the stack is field fabricated, pay particular attention to the “fillets” that might be used to attach the collar to the flange. These fillets require a certain amount of expertise and are often times inadequately welded.

INSPECTION
PITCH PANS

The key here, which is true for all flashing details, is in their initial installation. Proper attachment to the deck, rounded corners on metal flanges, good welds and sufficient laps are essential elements for optimum pitch pan performance.



Inspect and probe all the hand welds. When flashing pitch pans, it's a sound practice to weld as much area of the flashing on the pitch pan as possible. Be certain that corner fillets provide adequate coverage and are tightly welded. Voids will most often occur in the recess of the 90 degree angle on both sides of the fillet. Exposing the void and rewelding or extending the fillet are two possible remedies.

Check for positive adhesion of the trowelable sealer to the protrusion and the sides of the pitch pan. Pans are to be topped off with the sealer sloping away from the protrusion to provide a positive water shed.

NOTE: Etching of the pan and the protrusion greatly assist in promoting strong adhesion between the sealants used and the pan.

INSPECTION

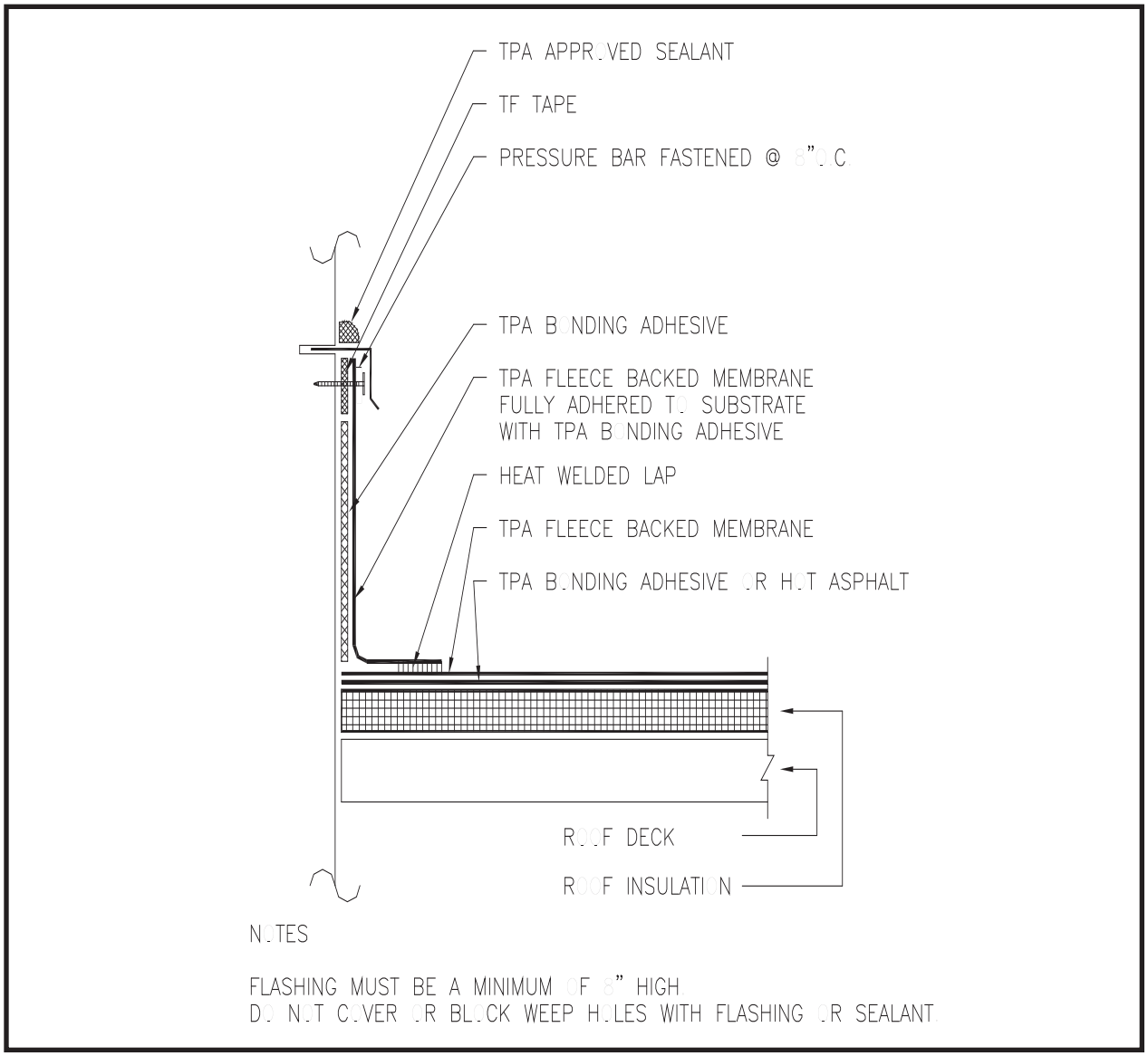
TERMINATION BARS, WALL AND CURB FLASHINGS

Terminations are to be made a minimum of eight inches (8”) above the roof deck when possible. Check all the hand welds, especially the inside / outside corners. If prefabricated corners are not utilized, be sure that corner fillets provide adequate coverage over the corner cuts.

1. At exposed flashing terminations, be sure that a continuous bead of caulking is applied between the wall and the FTR flashing membrane, directly behind the termination bar for a good compression seal.

2. Termination bars are to be prepunched with 9/32” or slots, securely anchored eight (8”) on center with a quarter inch (1/4”) spacing between bars.

3. When caulking the top of the termination bars, be sure to tool it in place and bevel it away from the wall over the termination bar to ensure a positive water shed over the termination.



INSPECTION
DRAINS & SCUPPERS

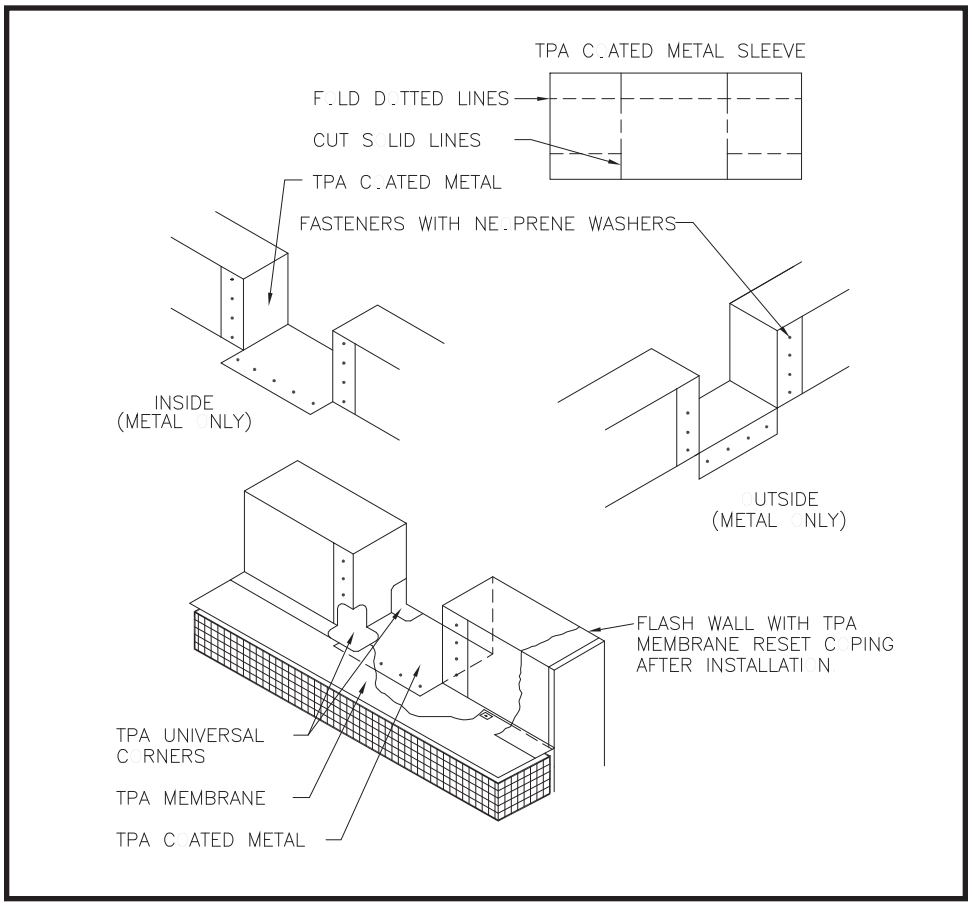
1. All drains are to be tapered twelve inches (12”) on all sides to provide positive drainage.

2. Lead flashings, if used, are to have a one inch (1”) lip extending into the drain bowl.

3. Apply a caulking bead of sealant between the drain flange and the TPA membrane and between the TPA membrane and the drain clamping ring.

4. Install the clamping ring tightly using the proper number of bolts required for the drain.

5. A minimum of one inch (1”) of TPA roof membrane should be visible around the inside perimeter of the clamping ring. This action ensures proper anchorage of the membrane to the drain system.



INSPECTION
CLAD METALS AND PERIMETER FLASHINGS

The metal is to be installed according to specifications, neatly and securely anchored. Check all the perimeter welds and be especially critical when inspecting clad welds as they are the roofing systems first line of defense against wind uplift. All the metal joints are to be stripped with TPA membrane.

INSPECTION
REPAIRS

- The physical properties of TPA membrane make it possible for it to be repaired by heat welding a patch at any time during its life. The following guidelines will assure a reliable, waterproof repair:

- Dirt, oils and other contaminants must be removed with a solvent such as Acetone. Use a clean white cotton rag and wipe the surface. Do not pour solvent directly on membrane as this may adversely affect the TPA membrane.

- Newly applied or slightly soiled membrane may be cleaned by using a good detergent like Spic and Span and a stiff bristle brush. Rinse well to remove detergent film before patching.

OBSERVE ALL PRECAUTIONARY INSTRUCTIONS ON THE LABELS OF THESE PRODUCTS FOR SAFE USE.

INSPECTION
PATCHES

When a patch is required, weld the entire patch if possible. After the weld cools, check the entire surrounding perimeter of the patch for any welding voids.

1. All areas to be patched must be clean and dry.

2. When patching over a seam, highlight the underlying seam edge.

3. Patches are to be uniform, rectangular with rounded corners and a minimum of four inches (4”) in width.

4. Whenever a seam requires multiple patches to the point where it becomes aesthetically displeasing, a minimum four (4”) wide capping or tape strip should be welded over the incorrectly welded seam.

5. Excessive patching of field seams because of inexperienced or poor workmanship will not be accepted at time of FINAL INSPECTION FOR WARRANTY.