



# HOW TO LAY OUT TPO ROLLS (MECHANICALLY FASTENED)



## » Purpose

To correctly lay out TPO membrane for a mechanically fastened system before welding, with proper spacing, fastener layout, and Florida wind code compliance.

## Why This Matters

TPO must be laid out tight, clean, and ready to weld. Laying it out wrong can cause leaks, failure in wind events, or failed inspections. Getting this step right is key to a strong, watertight, code-compliant roof, especially in Florida.

## What is TPO?

TPO stands for “Thermoplastic Polyolefin” (that’s a big name, but don’t worry about it)!

**Thermoplastic** means a material that:

- Softens when heated
- Hardens again when cooled

This allows TPO roofing seams to be heat-welded, meaning the sheets are melted together instead of glued. When done correctly, the welded seam becomes one continuous, waterproof layer.

### Polyolefin

- Polyolefin refers to a family of oil-based plastic materials that are: Strong, flexible, water-resistant

TPO Roofing comes in large rolls and various other parts to create a waterproof roofing system.

TPO Comes in all sorts of different custom pieces to make roofing smoother!



“Unsupported” TPO or Detail TPO. This does not have the “scrim” of a roof roll so it is easier to mold for use on details, but less strong.

TPO Roof Roll. These come in 5'-12' wide rolls, reinforced with a heavy fabric scrim layer.



# 1

## Review the Roof Plan

- Talk to your **project manager** about layout direction and roll lengths.
- Know where to start: usually **at the low side of the roof or drain edge**.
- Check where **perimeter edge zones** and **field zones** begin and end. (This is how many perimeter shorter rolls are needed for wind requirements).



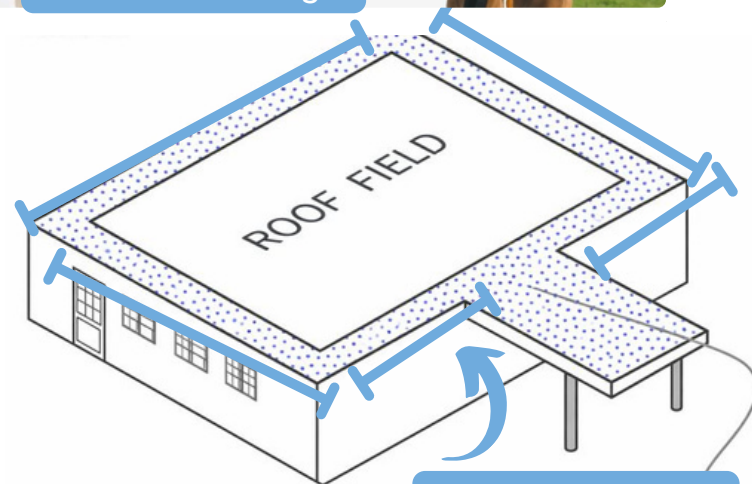
### What is a “Perimeter Zone” in Mechanically Fastened TPO?

A perimeter zone is the outer edge of a flat roof, all the way around the building.

This part of the roof is extra important because it gets hit the hardest by wind. When wind blows over it tries to lift the roof starting at the edges.

We install 5' rolls around the perimeter of the larger flat roofs in order to better strengthen this against the wind. Then we lay wider rolls usually 10 foot, the rest of the way. Smaller flat roofs we only use these less wide rolls.

Depending on how high and large the building is, as well as what wind risk zone it is in we may do 2, 3 or more “perimeter rolls” to start. Each project is unique and should have required perimeter rolls on its work order.



These edge sections would get 5' rolls and are the perimeter zone. This is also called creating a “picture frame” as it frames the roof in.

## 2

## Use Safe Lifting and Handling

- TPO rolls are heavy. Use a cart to move them or multiple crew members but **never solo**.
- Always bend your knees and keep your back straight when lifting.



## 3

## Start with Perimeter Rolls

- Place the first row of TPO overhanging the roof edge 1.5" and roll along.
- These rolls take the most wind pressure and must be a less wide roll in screwed down systems, the number of these rolls changes based off building size. Your project manager and job site sheet should always specify number of perimeter rolls.
- In Florida, install plates and screws every 6" on center in the seam area (where next roll overlaps). Plates should be located about **1/2" from roll edge**, never touching or overlapping the edge of the roll. Also Never too close to the overlap line so that there is room for the next roll to weld over the top.



## 4

# Lay Rolls Straight and Tight

- Unroll the membrane slowly and evenly.
- Start with a screw in one corner of the roll so that it stays in place.
- Keep your eye for any material on the insulation board or loose fasteners and handle these before rolling over.
- Pull out wrinkles or slack. The membrane should lay tight and flat without any big bubbles.
- If needed the roll can be kicked out two people from front to back. If weather permits letting the rolls “relax” for 30 minutes before installation will reduce potential wrinkles or bubbles even more.



## 5

# Keep the Weld Area Clean, Care for the TPO

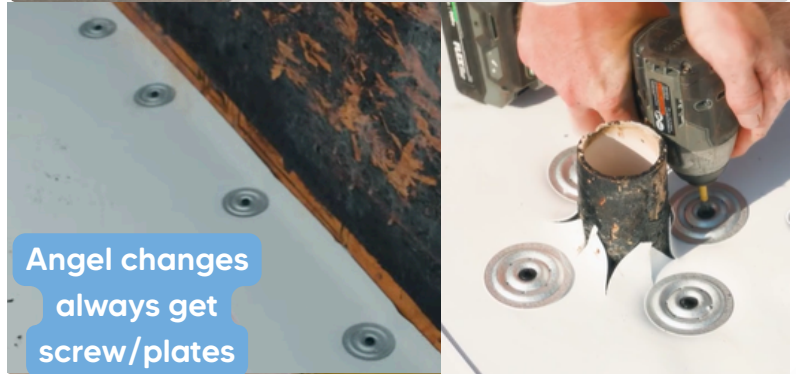
- The edge area (6 inches from the roll edge) is where you'll weld. Do not step or drop tools in this area. Keep this strip dry and free of dust or debris. It must be clean to weld properly.
- Do not drop tools on the TPO, keep your shoes clean of tar or other material from the old roof as this can scuff and dirty the new roof.



# 6

## Installing Fasteners and Plates

- Use TPO seam plates and approved screws (HD #14 or #15, these numbers show how heavy duty the screw is). Plates should be located about **1/2" from roll edge**, never on top of edge.
- On perimeter and edge rolls: fasteners every 6 inches on center.
- On field rolls: follow PM instructions (usually 6" or 12" OC or based on uplift zone).
- Install plates at angle changes (like at slope changes) to prevent TPO pullback.
- Also install plates and screws around any penetrations or pipes for reinforcement. (3 fasteners around pipes, every 6" on center against walls/square penetrations).



TPO Plates have sharp teeth to help hold the material. These always go down



#12 Fasteners are used for insulation board fastening



#14 HD Fasteners are used for TPO fastening



# Lay one roll out at a time, following this guide and you will have a great mechanically fastened TPO layout!

## ✓. Final Checks :

- ✓ Rolls are straight, tight, and square
- ✓ Perimeter rolls installed fastened 6" on center.
- ✓ Weld zones are clean and clear
- ✓ Plates installed at angle changes and penetrations
- ✓ TPO is ready for welding.

## ✗ What Not to Do

- Don't lay TPO loose or with wrinkles.
- Don't step on or drop tools in the weld zone.
- Don't skip perimeter fastening –Florida code requires it.
- Don't forget plates at wall curbs, angle changes, or pipes.



How to Lay Out TPO Rolls

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