



# Thermoplastic Single Ply and Multi-Ply Roofing Systems

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## **FLEX TPO PLUS MECHANICALLY ATTACHED ROOF SYSTEMS PERIMETER SHEET REQUIREMENTS AND FASTENER GUIDE**

### **Perimeter Sheets**

Flex TPO mechanically attached roof systems require the installation of ½ (half) sheets along the roof perimeter. The roof perimeter is defined as the edges of each roof section. Situations that involve multi-level roof areas that meet at a common wall, the adjacent edge of the upper roof is treated as a roof perimeter if the height difference is greater than 3 (three) feet. A perimeter sheet is not required at the base of the wall.

The height of the building and the wind uplift pressure requirements of the project are factored to determine the number of perimeter sheets to install. A minimum of one perimeter sheet is required. Sloped roof assemblies equal to or greater than a 2: 12 slope require a minimum of one perimeter sheet to be installed centered over the roof ridge.

Buildings that have canopies or overhangs or large openings in the walls require the additional installation of perimeter sheets in these areas. Contact Flex Technical Services for assistance in determining the number of perimeter sheets to install in these roof areas.

The following chart is provided to act as a general guide to assist in calculating the perimeter sheets required for most installations. The project specifications, Building Code requirements or Factory Mutual approval may dictate fastener/plate placement options and the installation of additional rows of perimeter sheets with enhanced membrane securement.

<b><u>Wind Velocity</u></b>	<b><u>Building Height</u></b>	<b><u>Number of Perimeter Sheets Required</u></b>
≤ 100 mph	≤ 50'	1 or 2 *
	50' to 75'	2
100 to 129 mph	≤ 75'	2 **
≥ 130 mph	≤ 75'	4

Notes:

1. Fastener assembly spacing for perimeter sheets is the same as required for the fastener spacing of the roof field area sheets.
- \* Installation of 12' wide membrane requires 2 rows of perimeter sheets fastened 12" o.c.
- \*\* Gypsum or Cementitious Wood Fiber Decks in the 100 to 129 mph wind zone require installing 3 rows of perimeter sheets.

The following chart is provided to act as a general guide to assist in determining the fastener density required for most installations. The project specifications, Building Code requirements or Factory Mutual approval may dictate fastener/plate placement options other than those listed below.

<b><u>Wind Velocity</u></b>	<b><u>Building Height</u></b>	<b><u>Roof Deck</u></b>	<b><u>Field Membrane</u></b>	<b><u>Fastener Density</u></b>
≤ 100 mph	≤ 40'	Steel, Lightweight Concrete, Structural Concrete, Wood Plank	12' wide	12" o.c.
	≤ 75'	Steel, Lightweight Concrete, Structural Concrete, Wood	10' wide	12" o.c.
	≤ 75'	Cementitious Wood Fiber , Gypsum	8' wide	12" o.c.
100 to 119 mph	≤ 40'	Steel, Lightweight Concrete, Structural Concrete, Wood Plank	12' wide	6" o.c. or 12" o.c.
	≤ 50'	Steel, Lightweight Concrete, Structural Concrete, Wood	10' wide	12" o.c.
	≤ 40'	Structural Concrete	12' wide	12" o.c.
	≤ 75'	Structural Concrete	10' wide	12" o.c.
	≤ 50'	Cementitious Wood Fiber , Gypsum	8' wide	12" o.c.
120 to 129 mph	≤ 75'	Steel, Lightweight Concrete	8' wide	12" o.c.
	≤ 50'	Structural Concrete	10' wide	12" o.c.
≥ 130 mph	≤ 75'	Steel, Lightweight Concrete	10' wide	6" o.c.
	≤ 50'	Structural Concrete	8' wide	12" o.c.

Notes:

1. Lightweight Insulating Concrete Decks must be installed over a steel deck. The fasteners must penetrate through the steel deck.
2. Cementitious Wood Fiber, Gypsum, and Wood Decks are not acceptable for a mechanically attached roof system installation in the ≥ 130 mph wind zone.

### **Fastener Pullout Requirements**

It is recommended that withdrawal resistance tests be performed when considering specifying a mechanically attached roof system. If the installation is to be a retrofit or recover project the existing roofing material must be removed to the deck and the pullout test performed to the uncovered deck. The test is to be performed by a qualified and experienced individual certified by the fastener manufacturer.

Fastener installations must be tested in various locations of the roof including corner and perimeter areas.

A roof plan should be included with the submittal documenting the location of each pullout test and the associated values. The following values are the minimum withdrawal resistant required for the roof system installation.

<b><u>Deck Type</u></b>	<b><u>Min. Pullout Value</u></b>	<b><u>System</u></b>
Steel 22 gauge or heavier Fastened	500 lbs.	Mechanically
	360 lbs.	Adhered
Steel lighter than 22 gauge	300 lbs.	Adhered only
Lightweight Concrete on Steel Fastened	360 lbs.	Mechanically
		Adhered
Structural Concrete Fastened	800 lbs.	Mechanically
Wood Fastened	360 lbs.	Mechanically
	250 lbs.	Adhered
Cementitious Wood Fiber or Gypsum Fastened	300 lbs.	Mechanically