TPO Membrane Fastening Criteria (All Warranties) for Mechanically Fastening Roofing Systems 22 GA. Steel Deck or Structural Concrete Only

Table II

Caution: Projects with 25 or 30 year warranties an additional perimeter sheet is required beyond those listed in the table below. Projects with 25 or 30 year warranties the use of 12' wide sheets is **NOT PERMITTED**

	Max. Building Height	Min. Number of Perimeter Sheets					Fastening Density* (Field & Perimeter Sheets)	
Peak Gust Wind Speed Warranty		Building Distance from Coastline			Field* Membrane Width	Perimeter* Sheet Width		
		Greater than 7 miles	3 to 7 miles	Less than 3 miles				
	Lin to CO!	4	2	2	12' or 10'	6'	12" O.C.	
55 MPH	Up to 60'	1	2	3	8'	4'	12" O.C.	
33 WFH	0414 4001	2	2	3	10'	6'	** See Note	
	61' to 100'	2			8'	4'	12" O.C.	
	1 la 1 a 00 l	2	2	3	12' or 10'	6'	12" O.C.	
72 MPH	Up to 60'				8'	4'	12" O.C.	
72 WIFT	61' to 100'	3	4	4	10'	6'	** See Note	
					8'	4'	12" O.C.	
	Lin to COI)' 3	3	4	10'	6'	** See Note	
80 MPH	Up to 60'	3	3	4	8'	4'	12" O.C.	
80 MPH	61' to 100'	3	4	4	10'	6'	** See Note	
	61 10 100	3	4		8'	4'	12" O.C.	
		Jp to 60' 3	4	4	10'	6'	** See Note	
OO MDU	Op to 60'				8'	4'	12" O.C.	
90 MPH	61' to 100'	4	5	5	10'	6'	** See Note	
					8'	4'	12" O.C.	

^{*}Using HP-X™ Fasteners for steel decks and HD 14-10 or CD-10 for structural concrete decks.

^{**} Structural Concrete Decks use 12" O.C. spacing utilizing HD 14-10 or CD-10. Steel Decks use 6" O.C. utilizing HP-X Fasteners. Steel Decks use 12" O.C. spacing utilizing HP-Xtra Fasteners.

PVC / KEE HP PVC Membrane Fastening Criteria (All Warranties) for Mechanically Fastening Roofing Systems 22 GA. Steel Deck or Structural Concrete Only

Table III

Caution: Projects with 25 or 30 year warranties an additional perimeter sheet is required beyond those listed in the table below.

Peak Gust	Max.		per of Perime		Field*	Perimeter* Sheet Width	Fastening Density* (Field & Perimeter Sheets)
Wind Speed	Building	Building D	istance from	Coastline	Membrane		
Warranty	Height	Greater than 7 miles	3 to 7 miles	Less than 3 miles	Width		
	Lin to CO!	1	2	3	10'	5'	12" O.C.
SS MOU	Up to 60'	'	2	3	81"	40.5"	12" O.C.
55 MPH	0414 4001				10'	5'	** See Note
	61' to 100'	2	2	3	81"	40.5"	12" O.C.
	LI- 1- 001	2	0	3	10'	5'	12" O.C.
70 MDU	Up to 60'	2	2		81"	40.5"	12" O.C.
72 MPH	61' to 100'	3	4	4	10'	5'	** See Note
					81"	40.5"	12" O.C.
	Lin to COI	3	3	4	10'	5'	12" O.C.
00 MPH	Up to 60'	3	3	4	81"	40.5"	12" O.C.
80 MPH			4		10'	5'	** See Note
	61' to 100'	3		4	4	81"	40.5"
90 MPH	11 / 001	3	4	4	10'	5'	6" O.C.
	Up to 60'	ა 	4		81"	40.5"	12" O.C.
	61' to 100'	4		5	10'	5'	** See Note
			5		81"	40.5"	12" O.C.

^{*}Using HP-X Fasteners for steel decks and HD 14-10 or CD-10 for structural concrete decks.

^{**} Structural Concrete Decks use 12" O.C. spacing utilizing HD 14-10 or CD-10. Steel Decks use 6" O.C. utilizing HP-X Fasteners. Steel Decks use 12" O.C. spacing utilizing HP-Xtra Fasteners.

Table IV

TPO Membrane Fastening Criteria (Up to 20 year Warranty) for Mechanically Fastening Roofing Systems Wood Decks

Peak Gust		Drainated	Perimete	mber of er Sheets Distance	Field	Perimeter	Fastening Density	
Wind Speed Warranty	Deck Type	Projected Pull-Out Values	Greater than 7 miles	Less than or equal to 7 miles	Membrane Width	Sheet Width	(Field & Perimeter Sheets)	
	7/16" OSB*	210 lbs	2	3	10'	6'	9" O.C.	
			2	3	8'	4'	12" O.C.	
55 MPH	15/32" 3-Ply Plywood	240 lbs	2	3	8'	4'	12" O.C.	
SS IVIPH	15/32" 5-Ply Plywood	530 lbs	1	1	10'	6'	12" O.C.	
	-/o# 00D#	310 lbs	2	3	10'	6'	12" O.C.	
	5/8" OSB*		2	3	8'	4'	12" O.C.	
	15/32" 3-Ply Plywood	240 lbs	2	3	8'	4'	12" O.C.	
72 MPH	15/32" 5-Ply Plywood	530 lbs	1	1	10'	6'	12" O.C.	
		310 lbs	2	3	10'	6'	12" O.C.	
	5/8" OSB*		2	3	8'	4'	12" O.C.	

^{*}Maximum duration for OSB NOT to exceed 20 Years.

PVC / KEE HP PVC Membrane Fastening Criteria (Up to 20 year Warranty)
Table V for Mechanically Fastening Roofing Systems
Wood Decks

Peak Gust Wind	Deck Type	Projected Pull-Out	Perimete Building	mber of er Sheets Distance pastline	Field Membrane	Perimeter Sheet	Fastening Density (Field &	
Speed Warranty	, , , , , , , , , , , , , , , , , , ,	Values	Greater than 7 miles	Less than or equal to 7 miles	Width	Width	Perimeter Sheets)	
	7/16" OSB*	210 lbs	2	3	10'	5'	9" O.C.	
			2	3	81"	40.5"	12" O.C.	
55 MPH	15/32" 3-Ply Plywood	240 lbs	2	3	81"	40.5"	12" O.C.	
33 MIPH	15/32" 5-Ply Plywood	530 lbs	1	1	10'	5'	12" O.C.	
	5/01/ OOD#	310 lbs	2	3	10'	5'	12" O.C.	
	5/8" OSB*		2	3	81"	40.5"	12" O.C.	
	15/32" 3-Ply Plywood	240 lbs	2	3	81"	40.5"	12" O.C.	
70 MPH	15/32" 5-Ply Plywood	530 lbs	1	1	10'	5'	12" O.C.	
72 MPH	5/01/ OOD*	310 lbs	2	3	10'	5'	12" O.C.	
	5/8" OSB*		2	3	81"	40.5"	12" O.C.	

^{*}Maximum duration for OSB NOT to exceed 20 Years.

TPO Membrane Fastening Criteria Table VI Up to 20 Yr Warranty for Mechanically Fastening Roofing Systems Lightweight Insulating Concrete over Steel / Gypsum / Cementitious Wood Fiber

Peak	Building Height 50' Max.	Min. Numb	er of Perimet	er Sheets			Fastening Density (Field & Perimeter Sheets)
Gust	oo max.	Building D	istance from	Coastline	Field	Perimeter	
Wind Speed Warranty	Deck Type	Greater than 7 miles	3 to 7 miles	Less than 3 miles	Membrane Width	Sheet Width	
	Lightweight Concrete over Steel Deck	2	3 (1)	N/A	12'	6'	12" O.C.
		1	2	4	10'	6'	12" O.C.(2)
55 MPH		1	2	3	8'	4'	12" O.C.(3)
	Gypsum Deck or Cementitious Wood Fiber	2 (3)	3	N/A	10'	6'	9" O.C.
		2 (3)	3	4 (4)	8'	4'	12" O.C.

N/A is Not Acceptable

- (1) Fastening Density must be secured 6" O.C.
- (2) For Buildings 51' to 75' with 10' field sheets Fastening Density must be increased to 9" O.C.
- (3) Acceptable for Buildings up to 75' in height.
- (4) Fastening Density must be increased to 9" O.C.

Additional Design Considerations (Up to 20 YR Warranty)

- 1-Membrane configuration and fastening density in Table above is based on HP-X Fasteners penetrating metal pan below Lightweight Insulating Concrete and for Polymer Gyptec Fasteners engaging into Gypsum and Cementitious Fiber Decks.
- 2-See Design Reference DR-06-19 "Withdrawal Resistance Criteria" for more information.

PVC / KEE HP PVC Membrane Fastening Criteria Table VII **Up to 20 Warranty for Mechanically Fastening Roofing Systems**

Lightweight Insulating Concrete over Steel / Gypsum / Cementitious Wood Fiber

Peak Gust Wind Speed Warranty	Building Height 50' Max.	Min. Number of Perimeter Sheets					Fastening Density (Field
	JU WAX.	Local Wind Speed			Field	Perimeter	
	Deck Type	Greater than 7 miles	3 to 7 miles	Less than 3 miles	Membrane Width	Sheet Width	& Perimeter Sheets)
		1	2	4	10'	5'	12" O.C.(1)
55 MPH	Lightweight Concrete over Steel Deck	2	3	4	81" (3)	40.5"	12" O.C.(2)
	Gypsum Deck or Cementitious Wood Fiber	2	3	N/A	10'	5' or 6'	9" O.C.
		2	3	4	81"	4'	12" O.C.

N/A is Not Acceptable

- (1) For Buildings 51' to 75' with 10' field sheets Fastening Density must be increased to 9" O.C. for field and perimeter sheets.
- (2) Fasteners may be spaced at 18" O.C. in the field for buildings Up to 50' in height.
- (3) Building Height may be Up to 75' in height.

Additional Design Considerations (Up to 20 YR Warranty)

- 1- Membrane configuration and fastening density in Table above is based on HP-X Fasteners penetrating metal pan below Lightweight Insulating Concrete and for Polymer Gyptec Fasteners engaging into Gypsum and Cementitious Fiber Decks.
- 2-See Design Reference DR-06-19 "Withdrawal Resistance Criteria" for more information.