

EPDM

Warranty Availability

Membrane Attachment Method	Membrane Type	Minimum Membrane Thickness	Maximum Warranty Duration	Maximum Warranty Wind Speed	Maximum Hail Diameter	Accidental Puncture	
Adhered	Sure-Seal (Non-Reinforced)	45-mil	15 YR	90 mph	N/A	N/A	
		60-mil	25 YR	120 mph	1 inch	N/A	
		90-mil	30 YR	120 mph	2 inch	32 hrs	
	Sure-Tough (Reinforced)	45-mil	15 YR	90 mph	90 mph	N/A	8 hrs
		60-mil	20 YR	120 mph	120 mph	1 inch	16 hrs
		75-mil	30 YR	120 mph	120 mph	2 inch	32 hrs
	Sure-White	60-mil	25 YR	120 mph	120 mph	1 inch	N/A
		90-mil	30 YR	120 mph	120 mph	2 inch	32 hrs
	Self Adhered Sheet	Sure-Seal (Non-Reinforced) SAT	60-mil	20 YR	100 mph	1 inch	N/A
Sure-White SAT		60-mil	20 YR	100 mph	1 inch	N/A	
Sure-Tough (Reinforced) SAT		60-mil	20 YR	100 mph	1 inch	16 hrs	
Adhered with Flexible FAST	FleeceBACK EPDM (Sure-Seal)	100-mil	15 YR	120 mph	1 inch	8 hrs	
		115-mil	25 YR	120 mph	2 inch	16 hrs	
		145-mil	30 YR	120 mph	3 inch	32 hrs	
	FleeceBACK EPDM (Sure-White)	115-mil	25 YR	120 mph	120 mph	2 inch	16 hrs
		145-mil	30 YR	120 mph	120 mph	3 inch	32 hrs
Adhered with Asphalt	FleeceBACK AFX EPDM (Sure-Seal)	90-mil	20 YR	90 mph	1 inch	8 hrs	
		105-mil	25 YR	90 mph	2 inch	16 hrs	
	FleeceBACK AFX EPDM (Sure-White)	105-mil	25 YR	90 mph	90 mph	2 inch	16 hrs
Adhered with RapidLock	FleeceBACK RL EPDM	115-mil	20 YR	90 mph	2 inch	16 hrs	
Ballasted	Sure-Seal (Non-Reinforced)	45-mil	20 YR	80 mph	1 inch	N/A	
		60-mil	25 YR	80 mph	2 inch	N/A	
		90-mil	30 YR	80 mph	3 inch	N/A	
Mechanically Fastened	Sure-Tough (Reinforced)	45-mil	15 YR	90 mph	90 mph	N/A	8 hrs
		60-mil	20 YR	90 mph	90 mph	N/A	16 hrs
		75-mil	30 YR	90 mph	90 mph	N/A	32 hrs
	FleeceBACK EPDM (Sure-Seal)	100-mil	15 YR	72 mph	72 mph	N/A	8 hrs
		115-mil	15 YR	72 mph	72 mph	N/A	16 hrs
		145-mil	15 YR	72 mph	72 mph	N/A	32 hrs
	FleeceBACK EPDM (Sure-White)	115-mil	15 YR	72 mph	72 mph	N/A	16 hrs
		145-mil	15 YR	72 mph	72 mph	N/A	32 hrs

Refer to Carlisle's EPDM or FleeceBACK Specification and Details for required design information for various warranty durations.

Hail coverage requires the use of an approved, adhered cover board: SecurShield HD or HD Plus, SecurShield HD Composite, StormBase Composite, EcoStorm VSH, min. 1/2" thick DensDeck Prime or DensDeck StormX or min. 1/2" thick Securock.

When adhering FleeceBACK EPDM using Flexible FAST in full coverage (or beads at 4" o.c.) an extra 4 man hours of Accidental Puncture and an extra 1" of Hail coverage may be available (to a max. of 4").

TPO

Warranty Availability

Membrane Attachment Method	Membrane Type	Minimum Membrane Thickness	Maximum Warranty Duration	Maximum Warranty Wind Speed	Maximum Hail Diameter	Accidental Puncture
Adhered	Sure-Weld or Sure-Weld HS (High Slope)	45-mil	15 YR	90 mph	N/A	N/A
		60-mil	20 YR	120 mph	1 inch	N/A
		80-mil	30 YR	120 mph	2 inch	16 hrs
		Sure-Weld HS (Special Color TPO)	60-mil	20 YR	120 mph	1 inch
80-mil			20 YR	120 mph	2 inch	16 hrs
Self Adhered Sheet	Sure-Weld SAT TPO	60-mil	20 YR	100 mph	1 inch	N/A
		80-mil	30 YR	100 mph	2 inch	16 hrs
Adhered with Flexible FAST	FleeceBACK TPO (Sure-Weld)	100-mil	15 YR	120 mph	1 inch	8 hrs
		115-mil	25 YR	120 mph	2 inch	16 hrs
		135-mil	30 YR	120 mph	3 inch	32 hrs
		FleeceBACK TPO (Sure-Weld Special Color)	115-mil	20 YR	120 mph	2 inch
Adhered with Asphalt	FleeceBACK AFX (Sure-Weld)	120-mil	15 YR	90 mph	1 inch	N/A
		135-mil	20 YR	90 mph	2 inch	16 hrs
		155-mil	25 YR	90 mph	2 inch	32 hrs
Adhered with RapidLock	FleeceBACK RL TPO (Sure-Weld)	115-mil	20 YR	90 mph	2 inch	16 hrs
Mechanically Fastened	Sure-Weld	45-mil	15 YR	90 mph	N/A	N/A
		60-mil	20 YR	90 mph	N/A	N/A
		80-mil	30 YR	90 mph	N/A	16 hrs
		FleeceBACK FR TPO (Sure-Weld Fire Rated)	115-mil	15 YR	72 mph	N/A
Induction Welded	Sure-Weld	45-mil	15 YR	90 mph	N/A	N/A
		60-mil	20 YR	90 mph	N/A	N/A
		80-mil	20 YR	90 mph	N/A	16 hrs

Refer to Carlisle's Thermoplastic (TPO/PVC/KEE HP) or FleeceBACK Specification and Details for required design information for various warranty durations.

Hail coverage requires the use of an approved, adhered cover board: SecurShield HD or HD Plus, SecurShield HD Composite, StormBase Composite, EcoStorm VSH, min. ½" thick DensDeck Prime or DensDeck StormX or min. ½" thick Securock.

When adhering FleeceBACK TPO using Flexible FAST in full coverage (or beads at 4" o.c.) an extra 4 man hours of Accidental Puncture and an extra 1" of Hail coverage may be available (to a max. of 3").

PVC

Warranty Availability

Membrane Attachment Method	Membrane Type	Minimum Membrane Thickness	Maximum Warranty Duration	Maximum Warranty Wind Speed	Maximum Hail Diameter	Accidental Puncture
Adhered	Sure-Flex PVC	50-mil	15 YR	90 mph	N/A	N/A
		60-mil	20 YR	120 mph	1 inch	N/A
		80-mil	25 YR	120 mph	2 inch	16 hrs
	Sure-Flex KEE HP	50-mil	20 YR	90 mph	N/A	N/A
		60-mil	25 YR	120 mph	1 inch	N/A
		80-mil	30 YR	120 mph	2 inch	16 hrs
Adhered with Flexible FAST	FleeceBACK PVC (Sure-Flex)	105-mil	15 YR	120 mph	1 inch	N/A
		115-mil	20 YR	120 mph	2 inch	16 hrs
		135-mil	25 YR	120 mph	3 inch	32 hrs
	FleeceBACK KEE HP (Sure-Flex)	105-mil	20 YR	120 mph	1 inch	N/A
		115-mil	25 YR	120 mph	2 inch	16 hrs
		135-mil	30 YR	120 mph	3 inch	32 hrs
Adhered with RapidLock	FleeceBACK RL PVC (Sure-Flex)	115-mil	20 YR	90 mph	2 inch	16 hrs
Mechanically Fastened	Sure-Flex PVC	50-mil	15 YR	90 mph	N/A	N/A
		60-mil	20 YR	90 mph	N/A	N/A
		80-mil	25 YR	90 mph	N/A	16 hrs
	FleeceBACK PVC (Sure-Flex)	105-mil	15 YR	72 mph	N/A	N/A
		115-mil	15 YR	72 mph	N/A	16 hrs
		135-mil	15 YR	72 mph	N/A	32 hrs
	Sure-Flex KEE HP	50-mil	20 YR	90 mph	N/A	N/A
		60-mil	25 YR	90 mph	N/A	N/A
		80-mil	30 YR	90 mph	N/A	16 hrs
	FleeceBACK KEE HP (Sure-Flex)	105-mil	15 YR	72 mph	N/A	N/A
		115-mil	15 YR	72 mph	N/A	16 hrs
		135-mil	15 YR	72 mph	N/A	32 hrs
Induction Welded	Sure-Flex PVC	50-mil	15 YR	90 mph	N/A	N/A
		60-mil	20 YR	90 mph	N/A	N/A
		80-mil	20 YR	90 mph	N/A	16 hrs
	Sure-Flex KEE HP	50-mil	15 YR	90 mph	N/A	N/A
		60-mil	20 YR	90 mph	N/A	N/A
		80-mil	20 YR	90 mph	N/A	16 hrs

Refer to Carlisle's Thermoplastic (TPO/PVC/KEE HP) or FleeceBACK Specification and Details for required design information for various warranty durations.

Hail coverage requires the use of an approved, adhered cover board: SecurShield HD or HD Plus, SecurShield HD Composite, StormBase Composite, EcoStorm VSH, min. ½" thick DensDeck Prime or DensDeck StormX or min. ½" thick Securock.

When adhering FleeceBACK PVC or KEE HP using Flexible FAST in full coverage (or beads at 4" o.c.) an extra 4 man hours of Accidental Puncture and an extra 1" of Hail coverage may be available (to a max. of 3").

Traditional Roof Garden Systems

Extensive / Shallow Systems Warranty Availability

Membrane Attachment Method	Membrane Type	Minimum Membrane Thickness	Maximum Warranty Duration	Maximum Warranty Wind Speed	
Adhered	EPDM	Sure-Seal (Non-Reinforced)	60-mil	15 YR	55 mph
			90-mil	20 YR	55 mph
		Sure-Tough (Reinforced)	60-mil	15 YR	55 mph
			75-mil	20 YR	55 mph
	Sure-White	60-mil	15 YR	55 mph	
		90-mil	20 YR	55 mph	
	TPO	Sure-Weld	60-mil	15 YR	55 mph
			80-mil	20 YR	55 mph
	PVC	Sure-Flex PVC	60-mil	15 YR	55 mph
			80-mil	20 YR	55 mph
	KEE HP	Sure-Flex KEE HP	60-mil	15 YR	55 mph
			80-mil	20 YR	55 mph
Self Adhered Sheet	EPDM	Sure-Tough (Reinforced) SAT	60-mil	15 YR	55 mph
	TPO	Sure-Weld SAT TPO	60-mil 80-mil	15 YR 20 YR	55 mph 55 mph
Adhered with Flexible FAST	EPDM	Sure-Seal FleeceBACK	115-mil	15 YR	55 mph
			145-mil	20 YR	55 mph
		Sure-White FleeceBACK	115-mil	15 YR	55 mph
			145-mil	20 YR	55 mph
	TPO	Sure-Weld FleeceBACK	115-mil	15 YR	55 mph
			145-mil	20 YR	55 mph
	PVC	Sure-Flex PVC FleeceBACK	115-mil	15 YR	55 mph
			135-mil	20 YR	55 mph
	KEE HP	Sure-Flex KEE HP FleeceBACK	115-mil	15 YR	55 mph
			135-mil	20 YR	55 mph
Adhered with Asphalt	EPDM	Sure-Seal FleeceBACK AFX	105-mil	20 YR	55 mph
	TPO	Sure-Weld FleeceBACK AFX	135-mil 155-mil	15 YR 20 YR	55 mph 55 mph
Adhered with RapidLock	EPDM	FleeceBACK RL EPDM	115-mil	15 YR	55 mph
	TPO	FleeceBACK RL TPO	115-mil	15 YR	55 mph

Note: Refer to Carlisle's Traditional Roof Garden Specification and Details for required design information for various warranty durations.

Traditional Roof Garden Systems

Semi-Intensive / Medium Systems Warranty Availability

Membrane Attachment Method	Membrane Type		Minimum Membrane Thickness	Maximum Warranty Duration	Maximum Warranty Wind Speed
Adhered	EPDM	Sure-Seal (Non-Reinforced)	90-mil	20 YR	55 mph
		Sure-Tough (Reinforced)	75-mil	15 YR	55 mph
		Sure-White	90-mil	20 YR	55 mph
	TPO	Sure-Weld TPO	80-mil	20 YR	55 mph
	PVC	Sure-Flex PVC	80-mil	20 YR	55 mph
	KEE HP	Sure-Flex KEE HP	80-mil	20 YR	55 mph
Adhered with Flexible FAST	EPDM	Sure-Seal FleeceBACK	115-mil	15 YR	55 mph
			145-mil	20 YR	55 mph
		Sure-White FleeceBACK	115-mil	15 YR	55 mph
			145-mil	20 YR	55 mph
	TPO	Sure-Weld FleeceBACK	115-mil	15 YR	55 mph
			135-mil	20 YR	55 mph
	PVC	Sure-Flex PVC FleeceBACK	115-mil	15 YR	55 mph
			135-mil	20 YR	55 mph
	KEE HP	Sure-Flex KEE HP FleeceBACK	115-mil	15 YR	55 mph
			135-mil	20 YR	55 mph
Adhered with Asphalt	EPDM	Sure-Seal FleeceBACK AFX	105-mil	20 YR	55 mph
			135-mil	15 YR	55 mph
	TPO	Sure-Weld FleeceBACK AFX	155-mil	20 YR	55 mph
Adhered with RapidLock	EPDM	FleeceBACK RL EPDM	115-mil	15 YR	55 mph
	TPO	FleeceBACK RL TPO	115-mil	15 YR	55 mph

Note: Refer to Carlisle's Traditional Roof Garden Specification and Details for required design information for various warranty durations.

Traditional Roof Garden Systems

Intensive / Deep Systems Warranty Availability

Membrane Attachment Method	Membrane Type		Minimum Membrane Thickness	Maximum Warranty Duration	Maximum Warranty Wind Speed
Adhered	EPDM	Sure-Seal (Non-Reinforced)	90-mil	20 YR	55 mph
		Sure-White	90-mil	20 YR	55 mph
	TPO	Sure-Weld TPO	80-mil	15 YR	55 mph
	PVC	Sure-Flex PVC	80-mil	15 YR	55 mph
	KEE HP	Sure-Flex KEE HP	80-mil	15 YR	55 mph
Adhered with Flexible FAST	EPDM	Sure-Seal FleeceBACK	115-mil	15 YR	55 mph
			145-mil	20 YR	55 mph
		Sure-White FleeceBACK	115-mil	15 YR	55 mph
			145-mil	20 YR	55 mph
	TPO	Sure-Weld FleeceBACK	115-mil	15 YR	55 mph
			135-mil	20 YR	55 mph
	PVC	Sure-Flex PVC FleeceBACK	115-mil	15 YR	55 mph
			135-mil	20 YR	55 mph
KEE HP	Sure-Flex KEE HP FleeceBACK	115-mil	15 YR	55 mph	
		135-mil	20 YR	55 mph	
Adhered with Asphalt	EPDM	Sure-Seal FleeceBACK AFX	105-mil	15 YR	55 mph
	TPO	Sure-Weld FleeceBACK TPO	135-mil	15 YR	55 mph
Adhered with RapidLock	EPDM	FleeceBACK RL EPDM	115-mil	15 YR	55 mph
	TPO	FleeceBACK RL TPO	115-mil	15 YR	55 mph

Note: Refer to Carlisle's Traditional Roof Garden Specification and Details for required design information for various warranty durations.

Modular Roof Garden Systems

Warranty Availability

Membrane Attachment Method	Membrane Type	Minimum Membrane Thickness	Maximum Warranty Duration	Maximum Warranty Wind Speed	
Adhered	EPDM	Sure-Seal (Non-Reinforced)	60-mil	20 YR	55 mph
			90-mil	20 YR	55 mph
		Sure-Tough (Reinforced)	60-mil	20 YR	55 mph
			75-mil	20 YR	55 mph
		Sure-White	60-mil	20 YR	55 mph
			90-mil	20 YR	55 mph
	TPO	Sure-Weld	60-mil	20 YR	55 mph
			80-mil	20 YR	55 mph
	PVC	Sure-Flex PVC	60-mil	20 YR	55 mph
			80-mil	20 YR	55 mph
	KEE HP	Sure-Flex KEE HP	60-mil	20 YR	55 mph
			80-mil	20 YR	55 mph
Self Adhered Sheet	EPDM	Sure-Tough (Reinforced) SAT	60-mil	20 YR	55 mph
	TPO	Sure-Weld SAT TPO	60-mil 80-mil	20 YR 20 YR	55 mph 55 mph
Adhered with Flexible FAST	EPDM	Sure-Seal FleeceBACK	115-mil	20 YR	55 mph
			145-mil	20 YR	55 mph
		Sure-White FleeceBACK	115-mil	20 YR	55 mph
			145-mil	20 YR	55 mph
	TPO	Sure-Weld FleeceBACK	115-mil	20 YR	55 mph
			145-mil	20 YR	55 mph
	PVC	Sure-Flex PVC FleeceBACK	115-mil	20 YR	55 mph
			135-mil	20 YR	55 mph
	KEE HP	Sure-Flex KEE HP FleeceBACK	115-mil	20 YR	55 mph
			135-mil	20 YR	55 mph
Adhered with Asphalt	EPDM	Sure-Seal FleeceBACK AFX	105-mil	20 YR	55 mph
	TPO	Sure-Weld FleeceBACK AFX	135-mil 155-mil	20 YR 20 YR	55 mph 55 mph
Adhered with RapidLock	EPDM	FleeceBACK RL EPDM	115-mil	20 YR	55 mph
	TPO	FleeceBACK RL TPO	115-mil	20 YR	55 mph

Note: Refer to Carlisle's Modular Roof Garden Specification and Details for required design information for various warranty durations.

Paver Systems

Warranty Availability

Membrane Attachment Method	Membrane Type	Minimum Membrane Thickness	Maximum Warranty Duration	Maximum Warranty Wind Speed	
Adhered	EPDM	Sure-Seal (Non-Reinforced)	60-mil	20 YR	55 mph
			90-mil	20 YR	55 mph
		Sure-Tough (Reinforced)	60-mil	20 YR	55 mph
			75-mil	20 YR	55 mph
		Sure-White	60-mil	20 YR	55 mph
			90-mil	20 YR	55 mph
	TPO	Sure-Weld	60-mil	20 YR	55 mph
			80-mil	20 YR	55 mph
	PVC	Sure-Flex PVC	60-mil	20 YR	55 mph
			80-mil	20 YR	55 mph
	KEE HP	Sure-Flex KEE HP	60-mil	20 YR	55 mph
			80-mil	20 YR	55 mph
Self Adhered Sheet	EPDM	Sure-Tough (Reinforced) SAT	60-mil	20 YR	55 mph
	TPO	Sure-Weld SAT TPO	60-mil	20 YR	55 mph
80-mil			20 YR	55 mph	
Adhered with Flexible FAST	EPDM	Sure-Seal FleeceBACK	115-mil	20 YR	55 mph
			145-mil	20 YR	55 mph
		Sure-White FleeceBACK	115-mil	20 YR	55 mph
			145-mil	20 YR	55 mph
	TPO	Sure-Weld FleeceBACK	115-mil	20 YR	55 mph
			145-mil	20 YR	55 mph
	PVC	Sure-Flex PVC FleeceBACK	115-mil	20 YR	55 mph
			135-mil	20 YR	55 mph
	KEE HP	Sure-Flex KEE HP FleeceBACK	115-mil	20 YR	55 mph
			135-mil	20 YR	55 mph
Adhered with Asphalt	EPDM	Sure-Seal FleeceBACK AFX	105-mil	20 YR	55 mph
			135-mil	20 YR	55 mph
	TPO	Sure-Weld FleeceBACK AFX	155-mil	20 YR	55 mph
Adhered with RapidLock	EPDM	FleeceBACK RL EPDM	115-mil	20 YR	55 mph
	TPO	FleeceBACK RL TPO	115-mil	20 YR	55 mph

Note: Refer to Carlisle's Modular Roof Garden Specification and Details for required design information for various warranty durations.