

EPDM

System 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	N/A	8 hrs
		60-mil	20 YR	120 mph	1 inch	16 hrs
		75-mil	30 YR	120 mph	2 inch	32 hrs
Sure-White	60-mil	25 YR	120 mph	1 inch	N/A	
	90-mil	30 YR	120 mph	2 inch	32 hrs	
Self Adhered Sheet	Sure-Seal (Non-Reinforced) SAT	60-mil	20 YR	100 mph	1 inch	N/A
		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	2 inch	16 hrs
145-mil		30 YR	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	2 inch	16 hrs
Adhered with RapidLock	FleeceBACK RL EPDM	115-mil	20 YR	90 mph	2 inch	16 hrs
		145-mil	30 YR	120 mph	3 inc	32 hrs
Ballasted	Sure-Seal (Non-Reinforced)	45-mil	25 YR	80 mph	1 inch	N/A
		60-mil	30 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	N/A	8 hrs
		60-mil	20 YR	90 mph	N/A	16 hrs
		75-mil	30 YR	90 mph	N/A	32 hrs
	FleeceBACK EPDM (Sure-Seal)	100-mil	15 YR	72 mph	N/A	8 hrs
		115-mil	15 YR	72 mph	N/A	16 hrs
		145-mil	15 YR	72 mph	N/A	32 hrs
	FleeceBACK EPDM (Sure-White)	115-mil	15 YR	72 mph	N/A	16 hrs
		145-mil	15 YR	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. ½" thick DensDeck Prime or DensDeck StormX or min. ½" 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").

Carlisle's Accidental Puncture Warranty covers labor hours and material used during the repair. Maximum labor and material hours are dependent upon system design. Refer to the above column for coverage.

TPO

System 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
		135-mil	30 YR	120 mph	3 inch	32 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	20 YR	72 mph	2 inch*
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. 1/2" thick DensDeck Prime or DensDeck StormX or min. 1/2" 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").

Carlisle's Accidental Puncture Warranty covers labor hours and material used during the repair. Maximum labor and material hours are dependent upon system design. Refer to the above column for coverage.

*Follow seam detail FR-2.1 to obtain hail warranty coverage

PVC

System 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
		135-mil	30 YR	120 mph	3 inch	32 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").

Carlisle's Accidental Puncture Warranty covers labor hours and material used during the repair. Maximum labor and material hours are dependent upon system design. Refer to the above column for coverage.

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	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
			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	15 YR	55 mph
			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

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
		Sure-Tough (Reinforced)	90-mil	20 YR	55 mph
			60-mil	20 YR	55 mph
		Sure-White	75-mil	20 YR	55 mph
			60-mil	20 YR	55 mph
		TPO	Sure-Weld	90-mil	20 YR
	60-mil			20 YR	55 mph
	PVC	Sure-Flex PVC	80-mil	20 YR	55 mph
			60-mil	20 YR	55 mph
	KEE HP	Sure-Flex KEE HP	80-mil	20 YR	55 mph
60-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
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	20 YR	55 mph
Adhered with RapidLock	EPDM	FleeceBACK RL EPDM	155-mil	20 YR	55 mph
			115-mil	20 YR	55 mph
Adhered with RapidLock	TPO	FleeceBACK RL TPO	115-mil	20 YR	55 mph
			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
			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	20 YR	55 mph
			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.