

Table VIII

Underlayment/Insulation & Required Attachment Assemblies Up to 20 YR Warranty for TPO Adhered Roofing Systems

Other Requirements are Listed in Additional Design Considerations following this Table

All Carlisle Products listed for higher wind speed coverage can also be used for Warranties for a lower speed coverage. (i.e. 72 MPH underlayment may be used for 55 MPH underlayment)

Peak Gust Wind Speed Warranty	Minimum Membrane Underlayment*	Underlayment/Insulation Attachment			Metal Edging
		# of Fasteners per 4' x 8' board size (1)	Adhesive Ribbon Spacing for 4' x 4' size board		
			Field	Perimeter	
55 MPH	1-1/2" (20 psi) Polyisocyanurate	10	12" (6)(7)	6" (6)	Carlisle Drip Edge, SecurEdge™ 200
	2"(20 psi) Polyisocyanurate	8	12" (6)(7)	6" (6)	
72 or 80 MPH	1/4" Dens-Deck Prime (2)	12	12" (6)(7)(8)	6" (6)(8)	Carlisle Drip Edge, SecurEdge 200 may be fastened with ring shank nails staggered 4" on center. Carlisle HP or HP-X Fasteners may also be used fastened 12" on center.
	1/4" Securock				
	1/2" HP Recovery Board (2)	16	12" (6)(7)(8)	6" (6)(8)	
	1/2" SecurShield HD (3)				
	1/2" SecurShield HD Plus (3)	8	12" (6)(7)(8)	6" (6)(8)	
	1-1/2" (25-psi) Polyisocyanurate	10	12" (6)(7)(8)	6" (6)(8)	
2" (25 -psi) Polyisocyanurate	8	12" (6)(7)(8)	6" (6)(8)		
90 MPH	1/2" Dens-Deck Prime (2)	12	6" (10)	6" (8)(9)	Carlisle Drip Edge (4), SecurEdge 200 (4)(5) or SecurEdge 2000 or 3000.
	1/2" Securock				
	1/2" SecurShield HD (3)	24	6" (10)	6" (8)(9)	
	1/2" SecurShield HD Plus (3)	12	6" (10)	6" (8)(9)	
	1-1/2" (20-psi) SecurShield Polyiso	16	6" (10)	6" (8)(9)	
	2" (20-psi) SecurShield Polyiso	8	6" (10)	6" (8)(9)	
	2" SecurShield HD Composite	8	6"(10)	6"(8)(9)	
1-1/2" Insulfoam HD Composite	16	6"(10)	6"(8)(9)		
100 MPH	5/8" Dens Deck Prime (2)	16	FS	FS	Carlisle Drip Edge (4), SecurEdge 200 (4)(5) or SecurEdge 2000 or 3000.
	5/8" Securock				
	1/2" SecurShield HD Plus (3)	17	FS	FS	
	7/16" Oriented Strand Board (OSB) (2)				
	2" (25-psi) SecurShield Polyiso (1)				
2" SecurShield HD Composite	16	FS	FS		
110 MPH	5/8" Dens Deck Prime (1)(2)	16	FS	FS	SecurEdge 2000 or 3000
	5/8" Securock (1)				
	1/2" SecurShield HD Plus (3)				
	7/16" Oriented Strand Board (OSB) (2)	17	FS	FS	
120 MPH	5/8" Dens Deck Prime (2)	24	FS	FS	SecurEdge 2000 or 3000
	5/8" Securock				
	1/2" SecurShield HD Plus (3)	17	FS	FS	
	7/16" Oriented Strand Board (OSB) (1)(2)				

FS = Full Spray or Ribbons @ 4" O.C.

*For Direct Application over Wood Decks and Lightweight Cellular Concrete, Refer to Roof Deck & Substrate Criteria Table.

(1) For Building heights between 51-100', enhance 12'-wide perimeter with 50% more fasteners and plates.

- (2) Cover boards must be installed over a min. 1" thick approved Carlisle Insulation.
- (3) 1/2" SecurShield HD limited to 72 mph.
- (4) Carlisle HP or HP-X Fasteners must be used to secure Carlisle Drip Edge or SecurEdge 200 Metal Fascia to perimeter wood nailers.
- (5) Membrane securement is required at the base of the SecurEdge 200 waterdam.
- (6) Gravel Surface BUR - Field @ 6" O.C. / Perimeter @ 4" O.C.
- (7) Steel Decks - Field & Perimeter @ 6" O.C.
- (8) Cementitious Wood Fiber - Field @ 6" O.C. / Perimeter @ 4" O.C.
- (9) Smooth BUR - Field @ 6" O.C. / Perimeter @ 4" O.C.
- (10) Gravel Surface BUR - FS

Additional Design Considerations (Up to 20 YR Warranty)

- 1 – Refer to Table I paragraph 1.05 for warranty options available with various membrane thickness.
- 2 - Building height shall not exceed 100'
- 3 - Local Wind Zone per ASCE 7 shall not exceed 130 mph*
- 4 - Acceptable decking: 22-gauge or heavier steel, structural concrete, 1-1/2" wood plank, or 3/4" plywood.

* Projects where building height exceeds 100' or wind speed exceeds 130 mph, shall be submitted to Carlisle for review.

Underlayment/Insulation & Required Attachment Assemblies Up to 20 YR Warranty for TPO SAT Adhered Roofing Systems

Table IX

Other Requirements are Listed in Additional Design Considerations following this Table

All Carlisle Products listed for higher wind speed coverage can also be used for Warranties for a lower speed coverage. (i.e. 72 MPH underlayment may be used for 55 MPH underlayment)

Peak Gust Wind Speed Warranty	Minimum Membrane Underlayment	Insulation Attachment			Metal Edging
		# of Fasteners per 4' x 8' board size (1)	Adhesive Ribbon Spacing for 4' x 4' size board		
			Field	Perimeter	
55 MPH	1-1/2" (20 psi) Polyisocyanurate	11	12" (4)(5)	6" (4)	Carlisle Drip Edge, SecurEdge 200
	2" (20 psi) Polyisocyanurate	8	12" (4)(5)	6" (4)	
	2" (1.25 lb/density) Insulfoam SP*	12	12" (4)(5)	6" (4)	
72 or 80 MPH	1/4" Dens-Deck Prime (2)	12	12" (4)(5)(6)	6" (4)(7)	Carlisle Drip Edge, SecurEdge 200 may be fastened with ring shank nails staggered 4" on center. Carlisle HP or HP-X Fasteners may also be used fastened 12" on center.
	1/4" Securock				
	1/2" SecurShield HD (3)	16	12" (4)(5)(6)	6" (4)(6)	
	1/2" SecurShield HD Plus (3)	8	12" (4)(5)(6)	6" (4)(6)	
	1-1/2" (25-psi) Polyisocyanurate	11	12" (4)(5)(6)	6" (4)(6)	
	2" (25 -psi) Polyisocyanurate	8	12" (4)(5)(6)	6" (4)(6)	
	2" (1.25 lb/density) Insulfoam SP**	16	6" (4)(5)(6)	6" (4)(6)	
1-1/2" Insulfoam HD Composite*	12	12"(8)	6"(6)(7)		

FS = Full Spray or Ribbons @ 4" O.C.

- (1) For Building heights between 51-100', enhance 12'-wide perimeter with 50% more fasteners and plates.
- (2) Cover boards must be installed over a min. 1" thick approved Carlisle Insulation.
- (3) 1/2" SecurShield HD limited to 72 mph.
- (4) Gravel Surface BUR - Field @ 6" O.C. / Perimeter @ 4" O.C.
- (5) Steel Decks - Field & Perimeter @ 6" O.C.
- (6) Cementitious Wood Fiber - Field @ 6" O.C. / Perimeter @ 4" O.C.
- (7) Smooth BUR - Field @ 6" O.C. / Perimeter @ 4" O.C.
- (8) Gravel Surface BUR - FS

*Maximum warranty available 20 year.

** Maximum warranty available 15 year.

Additional Design Considerations (Up to 20 YR Warranty)

- 1 - Minimum membrane thickness 60-mil TPO SAT
- 2 - Building height shall not exceed 100'
- 3 - Local Wind Zone per ASCE 7 shall not exceed 130 mph*
- 4- Acceptable decking: 22-gauge or heavier steel, structural concrete, 1-1/2" wood plank, or 3/4" plywood.
- 5- All "T-joints" must be overlaid with appropriate flashing material or Carlisle "T-Joint" Covers.

* Projects where building height exceeds 100' or wind speed exceeds 130 mph, shall be submitted to Carlisle for review.

**Underlayment/Insulation & Required Attachment Assemblies
25 YR or 30 YR Warranty for Adhered TPO Roofing Systems**

Table X

Other Requirements are Listed in Additional Design Considerations following this Table

All Carlisle Products listed for higher wind speed coverage can also be used for Warranties for a lower speed coverage. (i.e. 72 MPH underlayment may be used for 55 MPH underlayment)

Peak Gust Wind Speed Warranty	Minimum Membrane Underlayment	Insulation Attachment			Metal Edging
		# of Fasteners per 4' x 8' board size (1)	Adhesive Ribbon Spacing for 4' x 4' size board		
			Field	Perimeter	
55 MPH	1-1/2" to 2-1/2" (25 psi) Polyisocyanurate	16	6" (3)(5)	6" (5)	Carlisle Drip Edge, SecurEdge 200
	1/2" HP Recovery Board (1)				
	1/4" Dens-Deck Prime (2)				
	1/4" Securock (2)				
72 or 80 MPH	1-1/2" to 2-1/2" (25-psi) SecurShield Polyisocyanurate	16	6" (4)(5)(6)	6" (5)(6)	Carlisle Drip Edge (7), SecurEdge 200 (7)(8) or SecurEdge 2000 or 3000
	1/2" Dens-Deck Prime (2)				
	1/2" Securock (2)				
90 or 100 MPH	5/8" Dens-Deck Prime (2)	16	FS	FS	SecurEdge 2000 or 3000
	5/8" Securock (2)				
	7/16" Oriented Strand Board (OSB) (2)	17	FS	FS	

FS = Full Spray or Ribbons @ 4" O.C.

- (1) For Building heights between 51-100', enhance 12'-wide perimeter with 50% more fasteners and plates.
- (2) Hail coverage offered with substrate.
- (3) Structural Concrete - Field @ 12" O.C. / Perimeter @ 6" O.C.
- (4) 80-mph over structural concrete - Field & Perimeter @ 6" O.C.
- (5) Cementitious Wood Fiber & Wood - FS
- (6) 80-mph warranty wind speed coverage over Gypsum Decks – Adhesive Ribbon spacing shall be at 4" O.C.
- (7) Carlisle HP or HP-X Fasteners must be used to secure Carlisle SecurEdge200 Metal Fascia to perimeter wood nailers.
- (8) Membrane securement is required at the base of the SecurEdge 200 waterdam.

Additional Design Considerations (25 YR or 30 YR Warranty)

- 1 - Minimum membrane thickness 80-mil TPO
- 2 - Building height shall not exceed 100'
- 3 - Local Wind Zone per ASCE 7 shall not exceed 130 mph*
- 4- Acceptable decking: 22-gauge or heavier steel, structural concrete, 1-1/2" wood plank, or 3/4" plywood.
- 5- All "T-Joints" must be overlaid with appropriate flashing material or Carlisle "T-Joint" Covers.
- 6 – New construction or complete tear-off of existing roofing material.

*Projects where building height exceeds 100' or wind speed exceeds 100 mph, shall be submitted to Carlisle for review.

Underlayment/Insulation & Required Attachment Assemblies Up to 20 YR Warranty for Adhered PVC Roofing

Table XI

Other Requirements are Listed in Additional Design Considerations following this Table

All Carlisle Products listed for higher wind speed coverage can also be used for Warranties for a lower speed coverage. (i.e. 72 MPH underlayment may be used for 55 MPH underlayment)

Peak Gust Wind Speed Warranty	Minimum Membrane Underlayment*	Insulation Attachment			Metal Edging
		# of Fasteners per 4' x 8' board size (1)	Adhesive Ribbon Spacing for 4' x 4' size board		
			Field	Perimeter	
55 MPH	1-1/2" (20 psi) Polyisocyanurate	10	12" (6)(7)	6"(6)	Carlisle Drip Edge, SecurEdge 200
	2"(20 psi) Polyisocyanurate	8	12"(6)(7)	6"(6)	
72 or 80 MPH	1/4" Dens-Deck Prime (2) or Securock	12	12"(6)(7)(8)	6"(6)(8)	Carlisle Drip Edge, SecurEdge 200 may be fastened with ring shank nails staggered 4" on center. Carlisle HP or HP-X Fasteners may also be used fastened 12" on center.
	1/2" SecurShield HD (3) or HP Recovery Board (2)	16	12"(6)(7)(8)	6"(6)(8)	
	1-1/2" (25 psi) Polyisocyanurate	10	12"(6)(7)(8)	6"(6)(8)	
	2" (25 psi) Polyisocyanurate	8	12"(6)(7)(8)	6"(6)(8)	
90 MPH	1/2" Dens-Deck Prime(2) or Securock	12	6"(10)	6"(8)(9)	Carlisle Drip Edge (4), SecurEdge 200 (4)(5) or SecurEdge 2000 or 3000.
	1-1/2" (20 psi) Securshield Polyiso	16	6"(10)	6"(8)(9)	
	2" (20 psi) SecurShield Polyiso	8	6"(10)	6"(8)(9)	
	2" SecurShield HD Composite	8	6"(10)	6"(8)(9)	
	1-1/2" Insulfoam HD Composite	16	6"(10)	6"(8)(9)	
100 MPH	2" (25-psi) SecurShield Polyiso(1)	16	FS	FS	Carlisle Drip Edge (4), SecurEdge 200 (4)(5) or SecurEdge 2000 or 3000.
	5/8" Dens-Deck (2)		FS	FS	
	5/8" Securock		FS	FS	
	2" Securshield HD Composite		FS	FS	
110 MPH	5/8" Dens Deck Prime (1)(2)	16	FS	FS	SecurEdge 2000 or 3000
	5/8" Securock (1)		FS	FS	
120 MPH	5/8" Dens Deck Prime (2)	24	FS	FS	SecurEdge 2000 or 3000
	5/8" Securock		FS	FS	

FS = Full Spray or Ribbons @ 4" O.C.

***For Direct Application over Wood Decks and Lightweight Cellular Concrete, Refer to Roof Deck & Substrate Criteria Table.**

- (1) For Building heights between 51-100', enhance 12'-wide perimeter with 50% more fasteners and plates.
- (2) Cover boards must be installed over a min. 1" thick approved Carlisle Insulation.
- (3) 1/2" SecurShield HD limited to 72 mph.
- (4) Carlisle HP or HP-X Fasteners must be used to secure Carlisle Drip Edge or SecurEdge 200 Metal Fascia to perimeter wood nailers.
- (5) Membrane securement is required at the base of the SecurEdge 200 waterdam.
- (6) Gravel Surface BUR - Field @ 6" O.C. / Perimeter @ 4" O.C.
- (7) Steel Decks - Field & Perimeter @ 6" O.C.
- (8) Cementitious Wood Fiber - Field @ 6" O.C. / Perimeter @ 4" O.C.
- (9) Smooth BUR - Field @ 6" O.C. / Perimeter @ 4" O.C.
- (10) Gravel Surface BUR – FS

Additional Design Considerations (Up to 20 YR Warranty)

- 1 - Minimum membrane thickness 60-mil PVC
 - 2 - Building height shall not exceed 100'
 - 3 - Local Wind Zone per ASCE 7 shall not exceed 130 mph*
 - 4 - Acceptable decking: 22-gauge or heavier steel, structural concrete, 1-1/2" wood plank, or 3/4" plywood.
 - 5 - All "T-Joints" must be overlaid with Carlisle "T-Joint" Covers.
- * Projects where building height exceeds 100' or wind speed exceeds 130 mph, shall be submitted to Carlisle for review.

Underlayment/Insulation & Required Attachment Assemblies 25 YR or 30 YR Warranty for Adhered PVC Roofing Systems

Table XII

Other Requirements are Listed in Additional Design Considerations following this Table

All Carlisle Products listed for higher wind speed coverage can also be used for Warranties for a lower speed coverage. (i.e. 72 MPH underlayment may be used for 55 MPH underlayment)

Peak Gust Wind Speed Warranty	Minimum Membrane Underlayment	Insulation Attachment			Metal Edging
		# of Fasteners per 4' x 8' board size (1)	Adhesive Ribbon Spacing for 4' x 4' size board		
			Field	Perimeter	
55 MPH	1-1/2" to 2-1/2" (25 psi) Polyisocyanurate	16	6" (3)(5)	6" (5)	Carlisle Drip Edge, SecurEdge 200
	1/2" HP Recovery Board (1)		6" (3)(5)	6" (5)	
	1/4" Dens-Deck Prime (2)		6" (3)(5)	6" (5)	
	1/4" Securock (2)		6" (3)(5)	6" (5)	
72 or 80 MPH	1-1/2" to 2-1/2" (25-psi) SecurShield Polyisocyanurate	16	6" (4)(5)(6)	6" (5)(6)	Carlisle Drip Edge (7), SecurEdge 200 (7) (8) or SecurEdge 2000 or 3000
	1/2" Dens-Deck Prime (2)		6" (4)(5)(6)	6" (5)(6)	
	1/2" Securock (2)		6" (4)(5)(6)	6" (5)(6)	
90 or 100 MPH	5/8" Dens-Deck Prime (2)	16	FS	FS	SecurEdge 2000 or 3000
	5/8" Securock (2)		FS	FS	

FS = Full Spray or Ribbons @ 4" O.C.

- (1) For Building heights between 51-100', enhance 12'-wide perimeter with 50% more fasteners and plates.
- (2) Hail coverage offered with substrate.
- (3) Structural Concrete - Field @ 12" O.C. / Perimeter @ 6" O.C.
- (4) 80 mph over Structural Concrete - Field & Perimeter @ 6" O.C.
- (5) Cementitious Wood Fiber & Wood – FS
- (6) 80-mph warranty wind speed coverage over Gypsum Decks – Adhesive Ribbon spacing shall be at 4" O.C.
- (7) Carlisle HP or HP-X Fasteners must be used to secure Carlisle Drip Edge or SecurEdge200 Metal Fascia to perimeter wood nailers.
- (8) Membrane securement is required at the base of the SecurEdge 200 waterdam.

Additional Design Considerations (25 YR or 30 YR Warranty)

- 1 - Minimum membrane thickness 80-mil PVC
- 2 - Building height shall not exceed 100'
- 3 - Local Wind Zone per ASCE 7 shall not exceed 130 mph*
- 4 - Acceptable decking: 22-gauge or heavier steel, structural concrete, 1-1/2" wood plank, or 3/4" plywood.
- 5 - All "T-joints" must be overlaid with Carlisle "T-Joint" Covers.
- 6 - New construction or complete tear-off of existing roofing material.

* Projects where building height exceeds 100' or wind speed exceeds 100 mph, shall be submitted to Carlisle for review.