

TABLE 1: APP MODIFIED BITUMIN ROOF COVERS OVER STRUCTURAL CONCRETE DECKS - NEW CONSTRUCTION or REROOF (Tear-Off)

SYSTEM NO.	ALLOWABLE UPLIFT CAPACITY (lbs/ft²)	BASE INSULATION	TOP INSULATION¹	BASE PLY²	INTERPLY²	CAP PLY²	FIRE RATING ASTM E108	
							Class	Maximum Incline
1	-67.5	Minimum 1-½-inch thick Derbiboard or Derbiboard CA¹,³	Minimum ¼-inch thick Georgia-Pacific Gypsum LLC DensDeck Prime® Roofboard or Securock Gypsum-Fiber Roofboard	Derbibase, Derbibase Ultra, or Derbigum GP⁴	Derbibase, Derbibase Ultra, or Derbigum GP⁵	Derbigum GP, Derbigum GP-FR, Derbigum XPS, Derbigum XPS-FR, Derbicolor GP-FR, Derbicolor XPS, Derbicolor XPS-FR⁶	A	¼:12
2	-77.5	Minimum 1 inch thick AC Foam II or AC Foam III³,¹	Georgia-Pacific Gypsum LLC DensDeck Prime® Roofboard	Derbibase, Derbibase Ultra, Derbibase HV, Bitutak MB, Derbigum GP or Derbigum XPS⁷	Derbibase, Derbibase Ultra, Derbibase HV, Bitutak MB, Derbigum GP or Derbigum XPS⁸	Derbibrite, Derbigum XPS FR, Derbigum GP, Derbigum GP-FR, Derbigum XPS, Derbicolor GP, Derbicolor GP FR, Derbicolor P, Derbicolor P FR, Derbicolor XPS, or Derbicolor XPS FR, Bitutak Cold Mineral, or Bitutak MB Mineral⁷	A	¼:12
3	-160	Minimum 1 inch thick AC Foam II or AC Foam III¹,⁹	Minimum ¼-inch thick Georgia-Pacific Gypsum LLC DensDeck Prime® Roofboard			Derbigum GP, Derbigum GP-FR, Derbigum XPS, Derbicolor GP, Derbicolor GP FR, Derbicolor P, Derbicolor P FR, Derbicolor XPS, or Derbicolor XPS FR⁷	A	¼:12
4	-347.5	Minimum 1 inch thick AC Foam II¹		Derbibase	Derbibase, Derbibase Ultra, Derbibase HV, Bitutak MB, Derbigum GP or Derbigum XPS⁸	Derbigum GP, Derbigum GP-FR, Derbigum XPS, Derbigum XPS FR, Derbicolor GP, Derbicolor GP FR, Derbicolor P FR, Derbicolor XPS, or Derbicolor XPS FR⁷	A	¼:12
5	-502.5	N/A	N/A	Derbibase Ultra⁷	Derbibase Ultra⁷	Derbigum GP, Derbigum GP-FR, Derbigum XPS, Derbigum XPS FR, Derbicolor GP, Derbicolor GP FR, Derbicolor XPS, Derbicolor XPS FR, Bitutak Cold Mineral, or Bitutak MB Mineral⁷	A	¼:12

¹Applied in OlyBond 500 insulation adhesive in 12-inch o.c. ribbons.²All membranes require a minimum 3 inch wide side lap and minimum 4 inch wide end lap unless otherwise noted.³Optional vapor barrier beneath the insulation may consist of: Derbibase, Derbibase Ultra, or Derbigum GP torch adhered or fully adhered in Permastic adhesive at 1-½ to 2-gal/100-ft.² to concrete deck primed with ASTM D41 primer at 1 – 2-gal/100-ft.²⁴Torch adhered or fully adhered in Permastic adhesive at 1-½ to 2-gal/100-ft.²⁵Optional interply torch adhered or fully adhered in Permastic adhesive at 1-½ to 2-gal/100-ft.² to primed concrete deck.⁶Fully adhered in Permastic adhesive at 1-½ to 2-gal/100-ft.²⁷Torch adhered.⁸Optional interply torch adhered.⁹Optional vapor barrier beneath the insulation to consist of two or more plies of PRS Glass Ply IV or PRS Glass Ply VI fully adhered in hot roofing asphalt to concrete deck primed with ASTM D41 primer at 1 – 2-gal/100-ft.²

TABLE 2: APP MODIFIED BITUMIN ROOF COVERS OVER MECHANICALLY FASTENED LIGHTWEIGHT CONCRETE ASSEMBLIES OVER STEEL DECKS¹ - NEW CONSTRUCTION or REROOF (Tear-Off)

SYSTEM NO.	ALLOWABLE UPLIFT CAPACITY (lbs/ft ²)	BASE PLY	INTERPLY	CAP PLY ⁵	FIRE RATING ASTM E108	
					Class	Maximum Incline
6 ²	-37.5	PRS Glass Base ^{3,4}	Derbibase Ultra ⁵	Derbicolor GP	A	1:12
7 ⁶	-60	Derbibase ^{3,7}	Derbibase Ultra ^{5,8}	Derbibrite, Derbigum GP, Derbigum GP FR, Derbigum XPS, Derbigum XPS FR, Derbicolor GP, Derbicolor GP FR, Derbicolor P FR, Derbicolor XPS, or Derbicolor XPS FR	A	1:12
8 ⁹	-60	Derbibase ^{3,10}	Derbibase Ultra ^{5,8}	Derbibrite, Derbigum GP, Derbigum GP FR, Derbigum XPS, Derbigum XPS FR, Derbicolor GP, Derbicolor GP FR, Derbicolor P FR, Derbicolor XPS, or Derbicolor XPS FR	A	1:12
9 ²	-67.5	PRS Glass Base ^{3,10}	Derbibase Ultra ⁵	Derbicolor GP	A	1:12
10 ¹¹	-75	Inverted Bitutak MB ^{3,12}	Derbibase Ultra ⁵	Derbibrite, Derbigum GP, Derbigum GP FR, Derbigum XPS, Derbigum XPS FR, Derbicolor GP, Derbicolor GP FR, Derbicolor P FR, Derbicolor XPS, or Derbicolor XPS FR	A	1:12
11 ¹⁴	-82.5	Derbibase HV ^{3,12}	Derbibase Ultra ^{5,8}	Derbibrite, Derbigum GP, Derbigum GP FR, Derbigum XPS, Derbigum XPS FR, Derbicolor GP, Derbicolor GP FR, Derbicolor P FR, Derbicolor XPS, or Derbicolor XPS FR	A	1:12
12 ¹⁴	-45	PRS Glass Base ^{15,16}	Derbibase Ultra	Derbigum GP, Derbigum GP FR, Derbigum XPS, Derbigum XPS FR, Derbicolor GP, Derbicolor P FR, Derbicolor XPS, or Derbicolor XPS FR	A	1:12
13 ^{14,17}	-45	PRS Glass Base ^{1,16}	Derbibase Ultra	Derbigum GP, Derbigum GP FR, Derbigum XPS, Derbigum XPS FR, Derbicolor GP, Derbicolor P FR, Derbicolor XPS, or Derbicolor XPS FR	A	1:12

¹Minimum 22 gauge Type B vented steel liner deck installed over structural supports spaced maximum 6-ft. o.c.

²Minimum 390 psi Celcore MF with HS Rheology admixture with PVA Curing Compound applied at 1-gal/300-ft.²

³4 inch wide side lap

⁴Mechanically fastened 12 inches o.c. in 4 inch wide side lap and 12 inches o.c. in two equal field rows with 1.7" Trufast FM-90 Base Sheet Fasteners.

⁵Torch adhered

⁶Minimum 300 psi Celcore MF with HS Rheology admixture with PVA Curing Compound applied at 1-gal/300-ft.²

⁷Mechanically fastened 9 inches o.c. in 4 inch wide side lap and 12 inches o.c. in two equal field rows with Perlok CR Base Sheet Fasteners.

⁸Optional ply

⁹Minimum 400 psi Concrecel with Concrecel Curing Compound and Bonding Agent applied at 1-gal/600-ft.² each.

¹⁰Mechanically fastened 9 inches o.c. in 4 inch wide side lap and 9 inches o.c. in two equal field rows with 1.7" Trufast FM-90 Base Sheet Fasteners.

¹¹Minimum 390 psi Celcore MF with HS Rheology admixture with PVA Curing Compound applied at 1-gal/300-ft.²

¹²Mechanically fastened 7 inches o.c. in 4 inch wide side lap and 7 inches o.c. in two equal field rows with 1.7" Trufast FM-90 Base Sheet Fasteners

¹³Minimum 387 psi Celcore MF with HS Rheology admixture with PVA Curing Compound applied at 1-gal/300-ft.²

¹⁴NVS® lightweight concrete with minimum 1-inch thick top coating.

¹⁵3-½ inch wide side lap.

¹⁶Mechanically fastened 9 inches o.c. in 4 inch wide side lap and 9 inches o.c. in two equal field rows with Trufast FM-75 Base Sheet Fasteners.

¹⁷Minimum ½-inch thick Georgia-Pacific Gypsum LLC DensDeck Prime® Roofboard thermal barrier mechanically fastened to steel deck w. Trufast #15 EHD/3 inch round insulation plates at 1 fastener/plate per 2 ft.²

TABLE 3: APP MODIFIED BITUMIN ROOF COVERS OVER EXISTING SMOOTH SURFACED BUILT-UP ROOF - REROOF (Tear-Off) OR RECOVER

SYSTEM NO.	ALLOWABLE UPLIFT CAPACITY (lbs/ft²)	BASE INSULATION	TOP INSULATION	BASE PLY	INTERPLY	CAP PLY	FIRE RATING UL790¹	
							Class	Maximum Incline
14	-160	Minimum 1 inch thick AC Foam II or AC Foam III²	Minimum ¼-inch thick Georgia-Pacific Gypsum LLC DensDeck Prime® Roofboard²	Derbibase, Derbibase Ultra, Derbibase HV, Bitutak MB, Derbigum GP or Derbigum XPS³	Derbibase, Derbibase Ultra, Derbibase HV, Bitutak MB, Derbigum GP or Derbigum XPS³,⁴	Bitutak MB Mineral, Bitutak MB, Derbigum GP-FR, Derbicolor GP-FR, Derbicolor XPS-FR, Derbibrute, Derbigum GP, Derbigum XPS, Derbicolor GP, or Derbicolor XPS³	A	½:12
15	-210	Minimum ¼-inch thick Securock Gypsum-Fiber Roofboard or ½-inch thick Duraboard²	N/A	Derbigum GP or Derbigum XPS³	Derbibase, Derbibase Ultra, Derbibase HV, Bitutak MB, Derbigum GP or Derbigum XPS³,⁴	Bitutak MB Mineral, Bitutak MB, Derbigum GP-FR, Derbicolor GP-FR, Derbicolor XPS-FR, Derbibrute, Derbigum GP, Derbigum XPS, Derbicolor GP, or Derbicolor XPS³	A	½:12

¹Fire rating shall not exceed existing roof rating

²Applied in OlyBond 500 insulation adhesive in 12-inch o.c. ribbons

³Torch adhered

⁴Optional ply

TABLE 4: APP MODIFIED BITUMIN ROOF COVERS OVER WOOD DECKS – NEW, REROOF (Tear-Off), or RECOVER

SYSTEM NO.	ALLOWABLE UPLIFT CAPACITY (lbs/ft²)	DECKING	BARRIER	INSULATION	BASE PLY	INTERPLY	CAP PLY	FIRE RATING ASTM E108	
								Class	Maximum Incline
16	-52.5	Nominal ¾-inch thick FR-Treated plywood	Minimum ½-inch thick Georgia-Pacific Gypsum LLC DensDeck Prime® Roofboard¹	Minimum ½ inch thick Blue Ridge Fiberboard, Inc. Structodeck or JM RETRO-FIT™, or minimum 1-½ inch thick Derbiboard¹	PRS Glass Base¹	Derbibase, Derbibase Ultra, Derbigum GP, Derbigum GP FR, Derbigum XPS, or Derbigum XPS FR²	Derbigum GP, Derbigum GP FR, Derbigum XPS, Derbigum XPS FR, Derbicolor GP, Derbicolor GP FR, Derbicolor P FR, Derbicolor XPS, or Derbicolor XPS FR³	A	¼:12

¹Common fastened to wood deck 9 inches o.c. in 2-inch wide heat welded base ply side lap and 9 inches o.c. in three equal field rows with w. Perlok-O Fasteners and Plates.

²One or more plies, torch adhered.

³Torch adhered

TABLE 5: APP MODIFIED BITUMIN ROOF COVERS WITH MECHANICALLY FASTENED INSULATION OVER STEEL DECKS - NEW CONSTRUCTION or REROOF (Tear-Off)

SYSTEM NO.	ALLOWABLE UPLIFT CAPACITY (lbs/ft ²)	BASE INSULATION	TOP INSULATION	BASE PLY	INTERPLY	CAP PLY	FIRE RATING ASTM E108	
							Class	Maximum Incline
17	-45	Optional, common fastened with top layer	Minimum 1-½-inch thick Derbiboard or Derbiboard CA ²	Derbibase, PRS Glass Base, PRS Glass Ply IV, or PRS Glass Ply VI ³	Derbibase, PRS Glass Base, PRS Glass Ply IV, or PRS Glass Ply VI ^{3,4}	Derbigum GP-FR, Derbigum XPS-FR, Derbicolor GP-FR, or Derbicolor XPS-FR ³	A	¼:12
18 ⁵	-52.5	Minimum 2-inch thick Derbiboard ⁶	Minimum ¼-inch thick National Gypsum Co. DEXcell FA ⁷	Derbibase Ultra ⁸	Derbibase Ultra, Derbibase HV, Bitutak MB, Derbigum GP or Derbigum XPS ^{4,8}	Derbigum GP, Derbigum GP FR, Derbigum XPS, Derbigum XPS FR, Derbicolor GP, Derbicolor GP FR, Derbicolor P FR, Derbicolor XPS, or Derbicolor XPS FR ⁸	A	¼:12
19 ⁵	-60	Minimum 2-inch thick Derbiboard ⁹	Minimum ½-inch thick National Gypsum Co. DEXcell FA ⁹	Derbibase Ultra ⁸	Derbibase Ultra, Derbibase HV, Bitutak MB, Derbigum GP or Derbigum XPS ^{4,8}	Derbigum GP, Derbigum GP FR, Derbigum XPS, Derbigum XPS FR, Derbicolor GP, Derbicolor GP FR, Derbicolor P FR, Derbicolor XPS, or Derbicolor XPS FR ⁸	A	¼:12
20 ¹⁰	-82.5	Any Listed roofing insulation board	Any Listed roofing insulation board	Derbibase HV ¹¹	Derbibase Ultra ¹²	Derbigum GP, Derbigum GP FR, Derbigum XPS, Derbigum XPS FR, Derbicolor GP, Derbicolor GP FR, Derbicolor XPS, or Derbicolor XPS FR ¹²	A	¼:12
21 ¹⁰	-172.5	Any Listed roofing insulation board, minimum 2-inches thick ¹¹	Minimum ¼-inch thick Georgia-Pacific Gypsum LLC DensDeck Prime® Roofboard or Securock Gypsum-Fiber Roofboard ¹¹	Derbibase HV ¹¹	Derbibase Ultra ¹²	Derbigum GP, Derbigum GP FR, Derbigum XPS, Derbigum XPS FR, Derbicolor GP, Derbicolor GP FR, Derbicolor P FR, Derbicolor XPS, or Derbicolor XPS FR ¹²	A	¼:12

¹Mechanically fastened to steel deck w. Dekfast Hex Plates and #14 fastener at 1 per 1.6 ft.²

²Mechanically fastened to steel deck w. Dekfast Hex Plates and #14 fastener at 1 per 3 ft.² ³Fully adhered in Permastic adhesive at 1.5 - 2-gal/100-ft.² to primed concrete deck.

⁴Optional ply

⁵Minimum 22 gauge, Type B 33 ksi steel deck installed over structural supports spaced maximum 6-ft. o.c.

⁶Mechanically fastened to steel deck w. Trufast Plates and #15 fastener at 1 per 1.33 ft.²

⁷Ribbon adhered in Derbibond LR at 12 inches o.c.

⁸Torch adhered or fully adhered in Permastic adhesive at 1.5 - 2-gal/100-ft.² to primed concrete deck.

⁹Common fastened to steel deck w. Trufast Plates and #15 fastener at 1 per 1.6 ft.²

¹⁰Minimum 20 gauge, Type B 80 ksi steel deck installed over structural supports spaced maximum 6-ft. o.c.

¹¹Common fastened to steel deck 12 inches o.c. in 3-inch wide heat welded side lap and 12 inches o.c. in two equal field rows with w. Perlok-O Plates and OMG XHD fasteners.

¹²Torch adhered

APPENDIX

The following applies to the systems outlined herein:

1. Roof decks shall be in accordance with LABC or LARC requirements to the satisfaction of the Department. Wind load resistance of the roof deck shall be documented through proper codified documentation.
2. Unless otherwise noted, fasteners and stress plates for insulation attachment shall be as follows. Fasteners shall be of sufficient length to:

 Penetrate a minimum $\frac{3}{4}$ -inch into the top flute of corrugated steel or wood roof deck.

 Penetrate a minimum 1 inch embedment into concrete roof deck. Fasteners installed with a pilot hole in accordance with the fastener manufacturer's published installation instructions.

 All Fasteners shall be FM Approved.
3. Bonded polyisocyanurate insulation boards shall be maximum 4 x 4 ft.
4. For recover applications for mechanically fastened roof assemblies the insulation is optional. Alternatively, min. 0.25-inch Invinso, DensDeck, DensDeck Prime, SECUROCK Gypsum-Fiber RoofBoard may be used as a separator board, preliminarily attached prior to roof cover installation. For all recover applications, the existing roof system shall be suitable for a recover application.
5. For cap sheets, side laps shall be minimum 3-inch wide side laps; minimum 6-inch end laps.
6. The deck details consist of:

Concrete deck	Min. $f'_c = 2,500$ psi at 28 days	
Steel Deck	Min. 22 ga wide rib deck (Type WR) conforming to ANSI/SDI-RD1.0; 0.5% vented for LWIC applications only.	
	F<#>	<#> #12-24 HWH self-drilling screws or equivalent fastener at each flute used to secure the deck to the structural supports; min. $\frac{1}{4}$ -inch penetration
	L<#>	Max. span of <#>ft
	P	Min. 5/8-inch diameter puddle welds at each flute used to secure the deck to the structural supports
	S<#>	1/4 in. – 14 HWH X 7/8 in. self-drilling screws or equivalent fastener
	W	3/4-inch OD flat washer used with indicated fastener

7. The following naming conventions have been utilized for specify products shown in Tables 1-5 of this Report.
8. "MDP" = Maximum Design Pressure is the result of testing for wind load resistance based on allowable wind loads. A safety factor of 2 was applied to the maximum test load achieved without failure. Refer to LABC Section 1609.1.1 for determination of design wind loads.