

Commercial/Industrial Roofing Systems



UL Listing: APP MODIFIED BITUMEN SYSTEMS

APP MODIFIED BITUMEN SYSTEMS

Unless otherwise indicated, insulation is mechanically fastened to roof deck with metal screws and disks. 1/2 in. nom gypsum wallboard is optional in all systems (anywhere within the system) except where noted.

Multiple layers of "APPeX 4M, -4S, -5S", "APPeX 180", "Roof Defender APP Cap Sheet" membranes are acceptable for all systems.

Pittsburgh Corning "FOAMGLAS", "FOAMGLAS/PF" or "FOAMGLAS/P1" are acceptable alternate insulations in like thickness to any insulation listed in the following Classifications.

Multiple plies of Type G1 or G2 base/ply sheets are acceptable in all systems.

Two plies of any Type G1 base sheet is an acceptable alternate to one ply of Type G2 ply sheet in any Classification.

Imperbel America "7U" adhesive is an acceptable alternate to heat welding in all Classifications surfaced with gravel and/or roof coating.

Any Classification incorporating polyisocyanurate insulation may incorporate a layer of wood fiber board (any thickness) on top or bottom of the insulation.

"Nord Board" or its equivalent "DibiBoard" may be used in place of Type G1 or G2 base/ply sheets in any NC Classification utilizing heat fused membranes.

"DynaLastic 250FR" is an acceptable alternate to "DynaLastic 180FR" in all applicable Classifications.

"Roof Defender Fiber Glass Cap Sheet" is a suitable alternate to "PermaPly 28" in all applicable Classifications.

"Bicor S", "Bicor MFR", "Tricor S" or "Tricor MFR" may be adhered with "MBR Cold Application Adhesive" in lieu of heat fusing.

APP MODIFIED BITUMEN HEAT FUSED SYSTEMS

Class A

1. **Deck:** C-15/32

Incline: 2

Membrane: "APPeX 4S, 5S", "Bicor", "Tricor" or "APPeX 180" (APP modified bitumen), heat fused.

Surfacing: River bottom stone (1/2 to 2-1/2 in. diam), at 1000 lbs/sq.

2. **Deck:** NC

Incline: 2

Base Sheet (Optional): Types 15, G1 or G2 or Johns Manville APP Base, hot mopped.

Insulation: Johns Manville "DuraBoard", "Nord Board", "Fesco", "Fesco Foam", "ISO 1", "E'NRG'Y-2", "Fiber Glass Roof Insulation" or any UL Classified polyisocyanurate, urethane, perlite/urethane composite, perlite/polyisocyanurate composite, glass fiber, perlite or wood fiber, any thickness or polystyrene (any thickness) covered with 1/2 in. min perlite.

Base Sheet: Types 15, G1 or G2 or vented base sheet, mechanically fastened.

Membrane: "APPeX 4S, 5S", "Bicor", "Tricor" or "APPeX 180" (APP modified bitumen), heat fused.

Surfacing: Gravel, applied loosely.

3. Deck: NC

Incline: 2

Insulation (Optional): Johns Manville "Fesco", "Retro-Fit Board", "Fesco-Foam", "ISO 1", "E'NRG'Y-2", "Fiber Glass Roof Insulation" or any UL Classified polyisocyanurate, urethane, perlite/urethane composite, perlite/polyisocyanurate composite, glass fiber, perlite or wood fiber, any thickness or polystyrene (any thickness) covered with 1/2 in. min perlite.

Base Sheet: Type 15, G1 or G2 or vented base sheet or Johns Manville APP Base, mechanically fastened or hot mopped.

Membrane: "APPeX 4S or 5S", "Bicor", "Tricor", "APPeX 180", "DynaLastic 180 S", "Johns Manville SBS 170", heat fused in place.

Surfacing: Gravel, laid loosely or embedded in hot roofing asphalt or any UL Classified emulsion.

4. Deck: C-15/32

Incline: 2

Insulation (Optional): Johns Manville "Fesco", "Fesco-Foam", "ISO 1", "E'NRG'Y-2", "Fiber Glass Roof Insulation" or any UL Classified polyisocyanurate, urethane, perlite/urethane composite, perlite/polyisocyanurate composite, glass fiber, perlite or wood fiber.

Base Sheet: Type G2, "DynaBase", mechanically attached or hot mopped.

Ply Sheet: One or more plies Types G1, G2 or "DynaBase", mechanically fastened or hot mopped.

Membrane: "APPeX 5S", "4S", "4M", "Black Bear", "4M FR", "Roof Defender APP Cap Sheet", "4.5M FR", "Bicor", "Tricor" or "APPeX 180", hot mopped in place.

Surfacing: Gravel, embedded in hot roofing asphalt.

5. Deck: NC

Incline: 2

Insulation (Optional): Johns Manville "DuraBoard", "Fiber Glass Roof Insulation" "Fesco" or any UL Classified glass fiber, perlite or wood fiber, 1-1/2 in. max or polystyrene (any thickness) covered with 1/2 in. min perlite.

Base Sheet: Type G2 or Johns Manville APP Base.

Membrane: "APPeX 4S or 5S", "Bicor", "Tricor", "APPeX 180" (APP modified bitumen).

Surfacing: Karnak "Karnak No. 97 Fibrated Aluminum Asphalt Roof Coating" or "Karnak No. 97 Non-Asbestos Aluminum Roof Coating" at 1 to 2 gal/sq.

6. Deck: NC

Incline: 1

Insulation (Optional): Johns Manville "DuraBoard", "Fesco", "Retro-Fit Board", "Fesco Foam", "ISO 1", "E'NRG'Y-2", "Fiber Glass Roof Insulation" or any UL Classified polyisocyanurate, urethane, perlite/urethane composite, perlite/polyisocyanurate composite, glass fiber, perlite or wood fiber, any thickness or polystyrene (any thickness) covered with 1/2 in. min perlite.

Base Sheet: Type G2 or Johns Manville APP Base.

Membrane: "APPeX 5S", "4S", "Bicor", "Tricor", "4M", "Black Bear", "4M FR", "Roof Defender APP Cap Sheet", "4.5M FR" or "APPeX 180", (modified bitumen), heat fused.

Surfacing: Karnak "No. 97 AF Aluminum Roof Coating", "No. 97 Fibrated Aluminum Roof Coating", 1-1/2 gal/sq, Monsey "Pro Grade Aluminum Roof Coating", 1-1/2 gal/sq, Grundy "al MB Aluminum Roof Coating", 1-1/2 gal/sq or "20F Asphalt Emulsion", 2-1/2 gal/sq.

7. Deck: NC

Incline: 1

Base Sheet (Optional): Type G2 or Johns Manville APP Base.

Membrane: "APPeX 5S", "4S", "Bicor", "Tricor", "4M", "Black Bear", "4M FR", "Roof Defender APP Cap Sheet", "4.5M FR" or "APPeX 180" (modified bitumen), heat fused.

Surfacing: Karnak "No. 97 AF Aluminum Roof Coating", "No. 97 Fibrated Aluminum Roof

Coating", 1–1/2 gal/sq or Monsey "Pro Grade Aluminum Roof Coating", 1–1/2 gal/sq or Grundy "al MB Aluminum Roof Coating", 1–1/2 gal sq.

8. **Deck:** C–15/32

Incline: 1/4

Base Sheet: Two plies Johns Manville "PermaPly 28" or "GlasBase": (Type G2).

Membrane: "APPeX 5S", "4S", "Bicor", "Tricor", "4M", "Black Bear", "4M FR", "Roof Defender APP Cap Sheet", "4.5M FR" or (modified bitumen), heat fused.

Surfacing: Karnak "No. 97 AF Aluminum Roof Coating" or "No. 97 Fibrated Aluminum Roof Coating", 2 gal/sq.

9. **Deck:** C–15/32

Incline: 1/4

Insulation: Johns Manville "ISO 1", "E'NRG'Y–2", "Fesco–Foam", or any UL Classified polyisocyanurate, polyisocyanurate/perlite composite, 2 in. thick min, joints in insulation offset 6 in. with joints in deck.

Base Sheet: Johns Manville "PermaPly 28" or "GlasBase" (Type G2).

Membrane: "APPeX 5S", "4S", "Bicor", "Tricor", "4M", "Black Bear", "4M FR", "Roof Defender APP Cap Sheet", "4.5M FR", "APPeX 180" (modified bitumen), heat fused.

Surfacing: Grundy "al MB Aluminum Roof Coating", 2–3 gal/sq.

10. **Deck:** C–15/32

Incline: 1/2

Insulation: Johns Manville "ISO 1", "E'NRG'Y–2", "Fesco–Foam", or any UL Classified polyisocyanurate, polyisocyanurate/perlite composite, 2 in. thick min, joints in insulation offset 6 in. with joints in deck.

Base Sheet: Johns Manville "PermaPly 28" or "GlasBase" (Type G2).

Membrane: "APPeX 5S", "4S", "Bicor", "Tricor", "4M", "Black Bear", "4M FR", "Roof Defender APP Cap Sheet", "4.5M FR", "APPeX 180" (modified bitumen), heat fused.

Surfacing: Monsey "Pro Grade Aluminum Roof Coating", 2 gal/sq.

11. **Deck:** NC

Incline: 1/2

Base Sheet (Optional): Type G2 or Johns Manville APP Base.

Membrane: "APPeX 5S", "4S", "Bicor", "Tricor", "4M", "Black Bear", "4M FR", "Roof Defender APP Cap Sheet", "4.5M FR", "APPeX 180" (modified bitumen), heat fused.

Surfacing: APOC No. 302 Asphalt Emulsion", 2–1/2 gal/sq, " No. 212 Aluminum Roof Coating, 3 gal/sq or "Sunbright 400", 2–1/2 gal sq.

12. **Deck:** NC

Incline: 1–1/2

Insulation (Optional): Johns Manville "DuraBoard", "Fesco", "Fiber Glass Roof Insulation" or any UL Classified perlite, wood fiber or glass fiber, 1–1/2 in. max or polystyrene (any thickness) covered with 1/2 in. min perlite.

Base Sheet (Optional): Type G2 or Johns Manville APP Base.

Membrane: "APPeX 5S", "4S", "Bicor", "Tricor", "4M", "Black Bear", "4M FR", "Roof Defender APP Cap Sheet", "4.5M FR", "APPeX 180" (modified bitumen), heat fused.

Surfacing: Grundy "20 F Asphalt Emulsion", 2–1/2 gal/sq.

13. **Deck:** NC

Incline: 2

Insulation (Optional): Johns Manville "DuraBoard", "Fesco", "Fiber Glass Roof Insulation" or any UL Classified perlite, wood fiber or glass fiber, any combination, any thickness or polystyrene (any thickness) covered with 1/2 in. min perlite.

Base Sheet (Optional): Type G2 or Johns Manville APP Base.

Membrane: "APPeX 5S", "4S", "Bicor", "Tricor", "4M", "Black Bear", "4M FR", "Roof Defender APP Cap Sheet", "4.5M FR", "APPeX 180" (modified bitumen), heat fused.

Surfacing: "Fibrated Topgard Type B", 2–1/2 gal/sq.

14. **Deck:** NC

Incline: 3–1/2

Insulation (Optional): Johns Manville "Fesco", "Fiber Glass Roof Insulation" or any UL Classified perlite, wood fiber or glass fiber, any combination, any thickness or polystyrene (any thickness) covered with 1/2 in. min perlite.

Base Sheet (Optional): Type G2 or Johns Manville APP Base.

Membrane: "APPeX 5S", "4S", "Bicor", "Tricor", "4M", "Black Bear", "4M FR", "Roof Defender APP Cap Sheet", "4.5M FR", "APPeX 180" (modified bitumen), heat fused.
Coating: Grundy "20 F Asphalt Emulsion", 3 gal/sq or APOC "302" or "302AF" Asphalt Emulsion, 3 gal/sq.
Surfacing: Roofing granules, 60 lbs/sq.

15. Deck: NC **Incline:** 3

Base Sheet (Optional): Type G2 or Johns Manville APP Base.
Membrane: "APPeX 5S", "4S", "Bicor", "Tricor", "4M", "Black Bear", "4M FR", "Roof Defender APP Cap Sheet", "4.5M FR", "APPeX 180" (modified bitumen), heat fused.
Coating: "Topgard Type B", 3 gal/sq.
Surfacing: Roofing granules, 60 lbs/sq.

16. Deck: C-15/32 **Incline:** 1/4

Base Sheet: Two plies Johns Manville "PermaPly 28" or "GlasBase" (Type G2).
Membrane: "APPeX 5S", "4S", "Bicor", "Tricor", "4M", "Black Bear", "4M FR", "Roof Defender APP Cap Sheet", "4.5M FR", "APPeX 180" (modified bitumen), heat fused.
Coating: "Fibrated Topgard Type B", 3 gal/sq or Grundy "20F Asphalt Emulsion", 3 gal/sq.
Surfacing: Roofing granules, 60 lbs/sq.

17. Deck: NC **Incline:** 1-1/2

Base Sheet (Optional): Type G2 or Johns Manville APP Base.
Membrane: "APPeX 5S", "4S", "Bicor", "Tricor", "4M", "Black Bear", "4M FR", "Roof Defender APP Cap Sheet", "4.5M FR", "APPeX 180" (modified bitumen), heat fused.
Base Coat: APOC "302" or "302AF Asphalt Emulsion", 2 gal/sq.
Surfacing: Gardner "Elastomeric Roof Coating", 1-1/2 gal/sq.

18. Deck: C-15/32 **Incline:** 1/4

Base Sheet: Two plies Johns Manville "PermaPly 28" or "GlasBase" (Type G2).
Membrane: "APPeX 5S", "4S", "Bicor", "Tricor", "4M", "Black Bear", "4M FR", "Roof Defender APP Cap Sheet", "4.5M FR", "APPeX 180" (modified bitumen), heat fused.
Base Coat: APOC "302" or "302AF Asphalt Emulsion", 2 gal/sq.
Surfacing: Gardner "Elastomeric Roof Coating", 1-1/2 gal/sq.

19. Deck: C-15/32 **Incline:** 1/2

Insulation: Johns Manville "ISO 1", "E'NRG'Y-2", "Fesco Foam", or any UL Classified polyisocyanurate, polyisocyanurate/perlite composite, 2 in. thick min, joints in insulation offset 6 in. with joints in deck.
Base Sheet: Johns Manville "PermaPly 28" or "GlasBase" (Type G2).
Membrane: "APPeX 5S", "4S", "Bicor", "Tricor", "4M", "Black Bear", "4M FR", "Roof Defender APP Cap Sheet", "4.5M FR", "APPeX 180" (modified bitumen), heat fused.
Base Coat: APOC "302" or "302AF Asphalt Emulsion", 2 gal/sq.
Surfacing: Gardner "Elastomeric Roof Coating", 1-1/2 gal/sq.

20. Deck: NC **Incline:** 1/2

Base Sheet (Optional): Type G2 or Johns Manville APP Base.
Ply Sheet (Optional): Type G2.
Membrane: "APPeX 5S", "4S", "Bicor", "Tricor", "4M", "Black Bear", "4M FR", "Roof Defender APP Cap Sheet", "4.5M FR", "APPeX 180" (modified bitumen), heat fused.
Surfacing: "Fibrated Topgard Type A" or "Topshield Aluminum Coating", 2-1/2 gal/sq.

21. Deck: NC **Incline:** 1/2

Insulation (Optional): Johns Manville "DuraBoard", "Fesco", "Retro-Fit Board", "Fesco Foam", "ISO 1", "E'NRG'Y-2", "Fiber Glass Roof Insulation" or any UL Classified polyisocyanurate, urethane, perlite/urethane composite, perlite/polyisocyanurate composite, glass fiber, wood fiber, any thickness or polystyrene (any thickness) covered with 1/2 in. min perlite.
Base Sheet: Type G2 or Johns Manville APP Base.

Membrane: "APPeX 5S", "4S", "Bicor", "Tricor", "4M", "Black Bear", "4M FR", "Roof Defender APP Cap Sheet", "4.5M FR", "APPeX 180" (modified bitumen), heat fused.

Surfacing: APOC "302" or "302AF Asphalt Emulsion", 2–1/2 gal/sq, "Sunbright 400" or "Fibrated Aluminum Roof Coating", 1–1/2 gal/sq or Henry "No. 229 Aluminum Emulsion", 2–1/2 gal/sq.

22. **Deck:** NC

Incline: 2–1/2

Insulation (Optional): Johns Manville "DuraBoard", "Fesco", "Retro-Fit Board", "Fesco Foam", "ISO 1", "E'NRG'Y-2", "Fiber Glass Roof Insulation" or any UL Classified polyisocyanurate, urethane, perlite/urethane composite, perlite/polyisocyanurate composite, glass fiber, perlite or wood fiber, any thickness or polystyrene (any thickness) covered with 1/2 in. min perlite.

Base Sheet: Type G2 or Johns Manville APP Base.

Membrane: "APPeX 5S", "4S", "Bicor", "Tricor", "4M", "Black Bear", "4M FR", "Roof Defender APP Cap Sheet", "4.5M FR", "APPeX 180" (modified bitumen), heat fused.

Coating: Grundy "20 F Asphalt Emulsion", 3 gal/sq.

Surfacing: Roofing granules, 60 lbs/sq.

23. **Deck:** NC

Incline: 1–1/2

Insulation (Optional): Johns Manville "DuraBoard", "Fesco", "Retro-Fit Board", "Fesco Foam", "ISO 1", "E'NRG'Y-2", "Fiber Glass Roof Insulation" or any UL Classified polyisocyanurate, urethane, perlite/urethane composite, perlite/polyisocyanurate composite, glass fiber, perlite or wood fiber, any thickness or polystyrene (any thickness) covered with 1/2 in. min perlite.

Base Sheet: Type G2 or Johns Manville APP Base.

Membrane: "APPeX 5S", "4S", "Bicor", "Tricor", "4M", "Black Bear", "4M FR", "Roof Defender APP Cap Sheet", "4.5M FR", "APPeX 180" (modified bitumen), heat fused.

Surfacing: "Fibrated Topgard Type A" or "Topshield Aluminum Coating", 2–1/2 gal/sq.

24. **Deck:** NC

Incline: 1–1/2

Insulation (Optional): Johns Manville "DuraBoard", "Fesco", "Retro-Fit Board", "Fesco Foam", "ISO 1", "E'NRG'Y-2", "Fiber Glass Roof Insulation" or any UL Classified polyisocyanurate, urethane, perlite/urethane composite, perlite/polyisocyanurate composite, glass fiber, perlite or wood fiber, any thickness, or polystyrene (any thickness) covered with 1/2 in. min perlite.

Base Sheet: Type G2 or Johns Manville APP Base.

Membrane: "APPeX 5S", "4S", "Bicor", "Tricor", "4M", "Black Bear", "4M FR", "Roof Defender APP Cap Sheet", "4.5M FR", "APPeX 180" (modified bitumen), heat fused.

Base Coat: APOC "302" or "302AF Asphalt Emulsion", 2 gal/sq.

Surfacing: Gardner "Elastomeric Roof Coating", 2–1/2 gal/sq.

25. **Deck:** C–15/32

Incline: See Below

Insulation: Johns Manville "ISO 1", "E'NRG'Y-2" or any UL Classified polyisocyanurate, 1.5 in. min, with joints in insulation offset 6 in. with the joints in the deck.

Insulation: Johns Manville "Fesco", "Retro-Fit Board", "Fiber Glass Roof Insulation" or any UL Classified wood fiber, glass fiber or perlite, 1/2 in. min.

Base Sheet: Two plies Johns Manville "PermaPly 28" or "GlasBase" (Type G2).

Membrane: "APPeX 5S", "4S", "Bicor", "Tricor", "4M", "Black Bear", "4M FR", "Roof Defender APP Cap Sheet", "4.5M FR", "APPeX 180" (modified bitumen), heat fused.

Surfacing: a) Grundy "al MB Aluminum Roof Coating", 2 to 3 gal/sq (1/4 in. incline); b) Monsey "Pro Grade Aluminum Roof Coating", 2 gal/sq (1/2 in. incline); c) Karnak "No. 97 AF Aluminum Roof Coating"; d) Karnak "No. 97 Fibrated Aluminum Roof Coating", 2 gal/sq (1/2 in. incline).

26. **Deck:** NC

Incline: 1

Ply Sheet: Type G1 or G2, one or two plies, mechanically fastened or one ply Johns Manville APP Base.

Membrane: "APPeX 4M FR", "4.5M FR", "Tricor M FR" (APP modified bitumen), heat fused in place.

27. **Deck:** C–15/32

Incline: 1

Barrier Board: Gypsum wallboard, 0.463 in. thick min, joints in the wallboard offset 6 in. with joints in deck.

Base Sheet: Type G2, mechanically fastened or hot mopped.

Membrane: "APPeX 4M FR", "4.5M FR", "Tricor M FR" (modified bitumen), heat fused.

28. **Deck:** C-15/32

Incline: 1/2

Insulation: Any UL Classified polyisocyanurate, 1-1/2 in. thick min, joints in insulation offset 6 in. with joints in deck.

Insulation: Johns Manville "Fesco" 3/4 in. thick min or any UL Classified perlite, 3/4 in. thick min.

Base Sheet: One or more plies Johns Manville "PermaPly 28" or "GlasBase" (Type G2), mechanically fastened or hot mopped.

Membrane: "APPeX 4M FR", "4.5M FR", "Tricor M FR", heat fused .

29. **Deck:** C-15/32

Incline: 1/2

Insulation: Johns Manville "ISO 1", "E'NRG'Y-2" or any UL Classified polyisocyanurate, 2 in. thick min, joints in insulation offset 6 in. with joints in deck.

Insulation: Johns Manville "Fiber Glass Roof Insulation", 15/16 in. min or any UL Classified wood fiber, 1 in. thick min or glass fiber, 15/16 in. min.

Base Sheet: One or more plies Johns Manville "PermaPly 28" or "GlasBase" (Type G2), mechanically fastened or hot mopped.

Membrane: "APPeX 4M FR", "4.5M FR", "Tricor M FR", heat fused.

30. **Deck:** NC

Incline: 1

Insulation (Optional): Any UL Classified, any thickness.

Insulation: Wood fiber, glass fiber or perlite 3/4 in. min.

Base Sheet: Type G1, G2 or vented base sheet or Johns Manville APP Base.

Ply Sheet (Optional): "APPeX 4S", "5S", "APPeX 180" (APP modified bitumen), heat fused.

Membrane: "APPeX 4M FR", "4.5M FR", "Tricor M FR" (modified bitumen), heat fused.

31. **Deck:** C-15/32

Incline: 1/2

Insulation: Johns Manville "ISO 1", "E'NRG'Y-2", "Fesco Foam" or any UL Classified polyisocyanurate, polyisocyanurate/perlite composite, 2 in. thick min, joints in insulation offset 6 in. with joints in deck.

Base Sheet: Johns Manville "PermaPly 28" or "GlasBase" (Type G2).

Membrane: "APPeX 5S", "4S", "Bicor", "Tricor", "4M", "Black Bear", "4M FR", "Roof Defender APP Cap Sheet", "4.5M FR", "APPeX 180" (modified bitumen), heat fused.

Coating: Grundy "20 F Asphalt Emulsion", 3 gal/sq or "Fibrated Topgard Type B", 3 gal/sq.

Surfacing: Roofing granules, 60 lbs/sq.

32. **Deck:** C-15/32

Incline: 1/2

Insulation: Johns Manville "ISO 1", "E'NRG'Y-2" or any UL Classified polyisocyanurate, 1.5 in. min, joints in insulation offset 6 in. with joints in deck.

Insulation: Johns Manville "Fesco", "Retro-Fit Board", "Fiber Glass Roof Insulation" or any UL Classified wood fiber, glass fiber or perlite, 1/2 in. min.

Base Sheet: Two plies Johns Manville "PermaPly 28" or "GlasBase" (Type G2).

Membrane: "APPeX 5S", "4S", "Bicor", "Tricor", "4M", "Black Bear", "4M FR", "Roof Defender APP Cap Sheet", "4.5M FR", "APPeX 180" (modified bitumen), heat fused.

Coating: Grundy "20 F Asphalt Emulsion", 3 gal/sq or "Fibrated Topgard Type B", 3 gal/sq.

Surfacing: Roofing granules, 60 lbs/sq.

33. **Deck:** NC

Incline: 1

Insulation: Johns Manville "DuraBoard", "Fesco", "Retro-Fit Board", "Fesco Foam", "UltraGard", "E'NRG'Y-2", "Fiber Glass Roof Insulation" or any UL Classified polyisocyanurate, urethane, perlite/urethane composite, perlite/polyisocyanurate composite, glass fiber, perlite or wood fiber, any thickness or polystyrene (any thickness) covered with 1/2 in. min perlite.

Base Sheet: Type G2 or Johns Manville APP Base.

Membrane: "APPeX 5S", "4S", "Bicor", "Tricor", "APPeX 180", heat fused.

Surfacing: Henry "307", 2–3 gal/sq.

34. **Deck:** NC

Incline: 1/2

Insulation (Optional): Johns Manville "DuraBoard", "Fesco", "Retro–Fit Board", "Fesco Foam", "ISO 1", "E'NRG'Y–2", "Fiber Glass Roof Insulation" or any UL Classified polyisocyanurate, urethane, perlite/urethane composite, perlite/polyisocyanurate composite, glass fiber, perlite or wood fiber, any thickness or polystyrene (any thickness) covered with 1/2 in. min perlite.

Base Sheet: Type G2 or Johns Manville APP Base.

Membrane: "APPeX 5S", "4S", "Bicor", "Tricor", "4M", "Black Bear", "4M FR", "Roof Defender APP Cap Sheet", "4.5M FR", "APPeX 180" (modified bitumen), heat fused.

Surfacing: Grundy "20F–AF" at 3 gal/sq.

35. **Deck:** NC

Incline: 1

Insulation (Optional): Any thickness, one or more layers UL Classified perlite, wood fiber, glass fiber, polyisocyanurate, polyisocyanurate/composite, EPS/wood fiber, EPS/perlite, EPS/composite or Partek Insulation "PAROC" roof insulation.

Base Sheet: One or more layers UL Classified Type G1 or G2 or one ply Johns Manville APP Base.

Membrane: One or more layers "APPeX 180", "APPeX 4S", "4M", "Roof Defender APP Cap Sheet", "4.5M FR", "Black Bear", "Bicor", "Tricor", "5S" (APP modified bitumen), heat fused.

Surfacing: Fields "F530 Heat Shield Aluminum Coating" or "F630 Heat Shield Fibered Aluminum Coating", 1–1/2 gal/sq.

36. **Deck:** NC

Incline: 1

Insulation: Polyisocyanurate Insulation, any thickness.

Base Sheet: One or more plies Johns Manville APP Base Sheet, applied in "MR Cold Application Adhesive" at 1–2 gal/sq.

Membrane: "Tricore MFR" or "Bicore MFR", (modified bitumen), applied in MBR Cold Application Adhesive at 1–2 gal/sq.

37. **Deck:** C–15/32

Incline: 1/2

Base Sheet: Two or more plies G2, "PermaPly 28", "GlasBase" or "DibiGlass Base", mechanically fastened or hot mopped.

Membrane: "Tricore MFR" or "Bicore MFR", (modified bitumen), heat welded.

38. **Deck:** C–15/32

Incline: 1/2

Base Sheet: Two plies Type G2, "PermaPly 28", "GlasBase" or "DibiGlass Base", mechanically fastened or hot mopped.

Membrane: "APPeX 4.5M FR", (modified bitumen), heat welded.

39. **Deck:** NC

Incline: 1/2

Insulation: "E'NRG'Y 2" insulation, 2.3 in. thick, mechanically fastened.

Insulation: 1/2 in. "Retro–Fit Board", mechanically fastened.

Ply Sheet: Two or more plies "GlasPly 4", hot mopped.

Membrane: One or more plies "APPeX 4.5 M", heat applied.

Coating: Karnak "#97", 1–1/2 gal/sq.

40. **Deck:** NC

Incline: 1/2

Base Sheet: One ply "Ventsulation", hot mopped.

Insulation: "E'NRG'Y 2" insulation, 3 in. thick, mechanically fastened.

Insulation: 1/2 in. "Retro–Fit Board", mechanically fastened.

Ply Sheet: Two or more plies "GlasPly 4", hot mopped.

Base Sheet: "JM APP Base", heat applied.

Membrane: One or more plies "APPeX 4M FR", heat applied.

Class B

1. **Deck:** C–15/32

Incline: 1/4

Insulation: Johns Manville "Fiber Glass Roof Insulation", 1–1/2 in. or any UL Classified glass fiber, 1–1/2 in.

Base Sheet: Type G2, "GlasBase".

Membrane: "APPeX 4S", "4M", "Roof Defender APP Cap Sheet", "4.5M FR", "Black Bear", "Bicor", "Tricor", "5S", "APPeX 180" (modified bitumen).

Surfacing: Karnak "Karnak No. 97 Fibrated Aluminum Asphalt Roof Coating" or "Karnak No. 97 AF Aluminum Roof Coating" at 2 gal/sq.

2. Deck: NC

Incline: 4

Insulation (Optional): Johns Manville "DuraBoard", "Fesco", "Fiber Glass Roof Insulation" or any UL Classified perlite, wood fiber or glass fiber, any combination, any thickness or polystyrene (any thickness) covered with 1/2 in. min perlite.

Base Sheet (Optional): Type G2 or Johns Manville APP Base.

Membrane: "APPeX 5S", "4S", "Bicor", "Tricor", "4M", "4M FR", "Black Bear", "Roof Defender APP Cap Sheet", "4.5M FR", "APPeX 180" (modified bitumen), heat fused.

Coating: "Fibrated Topgard Type B", 3 gal/sq.

Surfacing: Roofing granules, 60 lbs/sq.

3. Deck: C–15/32

Incline: 1/4

Base Sheet: Two plies Johns Manville "PermaPly 28" or "GlasBase" (Type G2).

Membrane: "APPeX 5S", "4S", "Bicor", "Tricor", "4M", "4M FR", "Black Bear", "Roof Defender APP Cap Sheet", "4.5M FR", "APPeX 180" (modified bitumen), heat fused.

Surfacing: Grundy "al MB Aluminum Roof Coating", 2–3 gal/sq or Monsey "Pro Grade Aluminum Roof Coating", 2 gal/sq.

4. Deck: C–15/32 in.

Incline: 1/2

Base Sheet: One or more plies Johns Manville "PermaPly 28" or "GlasBase" (Type G2).

Membrane: "APPeX 4S", "4M", "Roof Defender APP Cap Sheet", "4.5M FR", "Black Bear", "Bicor", "Tricor", "APPeX 180" (modified bitumen), torched in place.

Surfacing: Karnak "No. 97 AF Aluminum Roof Coating" or "No. 97 Fibered Aluminum Roof Coating", 1–1/2 to 2 gal per sq.

5. Deck: C–15/32 in.

Incline: 1/2

Insulation: Atlas Roofing "ACFoam II", 1.2 in. min, joints in insulation offset 6 in. with joints in deck.

Base Sheet: One or more plies Johns Manville "PermaPly" or "GlasBase" (Type G2).

Membrane: "APPeX 4S", "4M", "Roof Defender APP Cap Sheet", "4.5M FR", "Black Bear", "Bicor", "Tricor", "APPeX 180" (modified bitumen), torched in place.

Surfacing: Karnak "No. 97 AF Aluminum Roof Coating" or "No. 97 Fibered Aluminum Roof Coating", 1–1/2 to 2 gal/sq.

6. Deck: C–15/32

Incline: 1

Insulation: Johns Manville "ISO 1", 1.2 in. min, "E'NRG'Y–2", 1.2 in. min or any UL Classified polyisocyanurate, 1.2 in. thick min, joints in insulation offset 6 in. with joints in deck.

Insulation: Johns Manville "DuraBoard", "Fesco", "Retro–Fit Board", "Fiber Glass Roof Insulation" or any UL Classified wood fiber, glass fiber or perlite, 1/2 in. thick min.

Membrane: "APPeX 4S", "4M", "Roof Defender APP Cap Sheet", "4.5M FR", "Black Bear", "Bicor", "Tricor", "APPeX 180" (modified bitumen), heat fused.

Surfacing: Karnak "No. 97 Fibrated Aluminum Roof Coating", "No. 97AF aluminum Roof Coating", 1–1/2 to 2 gal/sq or Monsey "Pro Grade Aluminum Roof Coating", 1–1/2 gal/sq.

7. Deck: C–15/32

Incline: 1/4

Base Sheet: Two plies Johns Manville "PermaPly 28" or "GlasBase" (Type G2), mechanically fastened or hot mopped.

Membrane: "APPeX 4M FR", "4.5M FR", heat fused.

8. Deck: C–15/32

Incline: 1/4

Insulation: Johns Manville "Fesco", 1 in. thick min or any UL Classified perlite, 1 in. thick min, joints in insulation offset 6 in. with joints in deck.

Base Sheet: One or more plies Johns Manville "PermaPly 28" or "GlasBase" (Type G2), mechanically fastened or hot mopped.

Membrane: "APPeX 4M FR", "4.5M FR", heat fused.

9. **Deck:** C-15/32

Incline: 1/2

Insulation: Johns Manville "ISO 1", "E'NRG'Y-2", 1-1/2 in. thick min or any UL Classified polyisocyanurate, 1-1/2 in. thick min, joints in insulation offset 6 in. with joints in deck.

Insulation: Johns Manville "Fesco", 3/4 in. thick min, "Fiber Glass Roof Insulation", 15/16 in. thick min or any UL Classified wood fiber, 1 in. thick min, glass fiber, 15/16 in. thick min, or perlite, 3/4 in. thick min.

Base Sheet: One or more plies Johns Manville "PermaPly 28" or "GlasBase" (Type G2), mechanically fastened or hot mopped.

Base/Ply Sheet (Optional): One or more plies Type G1 or G2.

Membrane: "APPeX 4M FR", "4.5M FR", heat fused.

10. **Deck:** C-15/32

Incline: 1/2

Insulation: Johns Manville "ISO 1", "E'NRG'Y-2", "Fesco Foam" or any UL Classified polyisocyanurate, polyisocyanurate/perlite composite, 1/2 in. thick min, joints in insulation offset 6 in. with joints in deck.

Base Sheet: Johns Manville "PermaPly 28" or "GlasBase" (Type G2).

Membrane: "APPeX 5S", "4S", "Bicor", "Tricor", "4M", "Black Bear", "4M FR", "Roof Defender APP Cap Sheet", "4.5M FR", "APPeX 180" (modified bitumen), heat fused.

Surfacing: Any one of the following:

A.)Karnak "No. 97" or "No. 97AR", 1-1/2 gal/sq.

B.)APOC "302" or "302AF Emulsion (optionally coated with Gardner " Elastomeric Roof Coating", 1-1/2 gal/sq), 3 gal/sq and roofing granules, 60 lbs/sq. Granules not required when " 252" coating is utilized.

C.)Grundy "al MB", 2-3 gal/sq or "20F Emulsion", 2-3 gal/sq with roofing granules, 60 lbs/sq.

D.)"Fibrated Topgard Type B", 3 gal/sq and roofing granules, 60 lbs/sq or "Pro Grade Aluminum Roof Coating", 1-1/2 gal/sq.

11. **Deck:** C-15/32

Incline: 1/2

Insulation: Johns Manville "Fesco", 1 in. thick min or any UL Classified perlite, 1 in. thick min, joints in insulation offset 6 in. with joints in deck.

Base Sheet: One or more plies Johns Manville "PermaPly 28" or "GlasBase" (Type G2), mechanically fastened or hot mopped.

Membrane: "APPeX 5S", "4S", "4M", "Roof Defender APP Cap Sheet", "4.5M FR", "Black Bear", "Bicor", "Tricor", "APPeX 180" (modified bitumen), heat fused.

Coating: Grundy "20 F Asphalt Emulsion", 3 gal/sq or "Fibrated Topgard Type B", 3 gal/sq.

Surfacing: Roofing granules, 60 lbs/sq.

12. **Deck:** C-15/32

Incline: 1/2

Insulation (Optional): Any thickness, one or more layers UL Classified perlite, glass fiber, polyisocyanurate, polyisocyanurate/composite or Partek "PAROC" roof insulation.

Base Sheet: One or more layers UL Classified Type G2.

Membrane: One or more layers "APPeX 180", "APPeX 4S", "4M", "Roof Defender APP Cap Sheet", "4.5M FR", "Black Bear", "Bicor""Tricor" or "5S" (APP modified bitumen), heat fused.

Surfacing: Fields "F530 Heat Shield Aluminum Coating" or "F630 Heat Shield Fibered Aluminum Coating", 1–1/2 gal/sq.

13. **Deck:** NC

Incline: 1/2

Insulation: Any UL Classified polyisocyanurate, perlite/isocyanurate composite, perlite or fiber glass insulation (any thickness, flat or tapered)

Insulation (Optional): "Johns Manville Fesco" or "Retro-Fit Board" (any thickness).

Base Sheet: Type G2 "GlasBase", "PermaPly 28", "Ventsulation", "GlasPly Premier" or "GlasPly IV", hot mopped or mechanically attached.

Ply Sheet (Optional): One or more plies "GlasPly Premier", "GlasPly IV", "GlasBase" or "PermaPly 28" hot mopped.

Membrane: "APPeX 4MFR", "APPeX 4.5 MFR" or "Tricor MFR", heat fused.

14. **Deck:** NC

Incline: 1

Base Sheet (Optional): One or more plies "GlasBase", "Ventsulation", "PermaPly 28", "GlasPly Premier" or "GlasPly IV", hot mopped and/or one or more plies "Johns Manville APP Base", "APPeX 4S", "APPeX 5S", "Bicor S", "Tricor S" or "APPeX 180", heat welded.

Insulation (Optional): Any thickness, one or more layers any combination, any UL Classified perlite, fiber glass, polyisocyanurate, polyisocyanurate/perlite composite, "Johns Manville Nord Board" hot mopped, mechanically attached or cold adhesive.

Base Sheet: One or more plies "GlasBase", "Ventsulation", "PermaPly 28", "GlasPly Premier" or "Glas Ply IV", hot mopped and/or one or more plies Johns Manville APP Base, "APPeX 4S", "APPeX 5S", "Bicor S", "Tricor S" or "APPeX 180", heat welded.

Membrane: "APPeX 4M FR", "APPeX 4.5M FR", "Bicor M FR" or "Tricor M FR", heat welded.

15. **Deck:** C–15/32

Incline: 1/2

Base Sheet: One or more plies "PermaPly 28" or "GlasBase", mechanically fastened.

Membrane: One layer "APPeX 4.5M FR", heat fused.

Class C

1. **Deck:** C–15/32

Incline: 1/2

Insulation: Johns Manville "Fiber Glass Roof Insulation", "Fesco", 1 in. max or any UL Classified glass fiber, perlite or wood fiber, 1 in. max.

Base Sheet: Type G2, mechanically attached or hot mopped in place.

Membrane: "APPeX 4M", "Roof Defender APP Cap Sheet", "4.5M FR", "Black Bear" (modified bitumen), heat fused.

2. **Deck:** C–15/32

Incline: 1/4

Base Sheet: "APPeX 5S", "4S", "Bicor", "Tricor", "APPeX 180" (APP modified bitumen), hot mopped.

Membrane: "APPeX 5S", "4S", "4M", "Roof Defender APP Cap Sheet", "4.5M FR", "Black Bear", "Bicor", "Tricor", "APPeX 180", "Classic M FR", "Classic Premium M FR" (APP modified bitumen), heat fused.

Coating: "Fibrated Topgard Type B", Grundy "20 F Asphalt Emulsion" or APOC "No. 302" or "302AF Asphalt Emulsion", 3 gal/sq.

Surfacing: Roofing granules, 60 lbs/sq.

3. **Deck:** NC

Incline: 1/2

Insulation (Optional): Any UL Classified (except EPS), any thickness.

Ply Sheet: Type G1, G2, G3 or Johns Manville APP Base.

Membrane: "APPeX 4M", "Roof Defender APP Cap Sheet", "4.5M FR", "Black Bear" (APP modified bitumen), heat fused.

APP MODIFIED BITUMEN COLD APPLIED SYSTEMS

Class A

Ply sheet membranes are fully adhered with "MBR Cold Application Adhesive", applied at 1–2 gal/sq.

1. **Deck:** NC

Incline: 1

Insulation (Optional): Any thickness, one or more layers, any combination, any UL Classified perlite, fiber glass, polyisocyanurate, polyisocyanurate/perlite composite, hot mopped, mechanically attached or cold adhesive.

Base Sheet: One or more plies "GlasBase", "PermaPly 28", Johns Manville APP Base, "Bicor S", "Tricor S", applied in "MBR Cold Application Adhesive".

Membrane: "Bicor M FR" or "Tricor M FR", applied in "MBR Cold Application Adhesive".

Class B

1. **Deck:** NC

Incline: 1–1/2

Insulation (Optional): Johns Manville "DuraBoard", "Fesco", "Retro-Fit Board", "Fesco Foam", "ISO 1", "E'NRG'Y-2", "Fiber Glass Roof Insulation" or any UL Classified polyisocyanurate, urethane, perlite/urethane composite, perlite/polyisocyanurate composite, glass fiber, perlite or wood fiber, any thickness or polystyrene (any thickness) covered with 1/2 in. min perlite.

Base Sheet: Type G2.

Membrane: One or more plies "Bicor S" or "Tricor S" (modified bitumen), heat fused or hot mopped.

Coating: "Fibrated Topgard Type B", 3 gal/sq.

Surfacing: Roofing granules, 60 lb/sq.

APP MODIFIED BITUMEN MAINTENANCE AND REPAIR SYSTEMS

Class A

1. **Deck:** C–15/32

Incline: 1/2

Existing Roof System: Class A or B smooth surfaced BUR.

Base Sheet: Johns Manville "PermaPly 28" or "GlasBase" (Type G2).

Membrane: "APPeX 4M FR", "Tricor M FR", heat fused.

2. **Deck:** C–15/32

Incline: 1/2

Existing Roof System: Class A, B or C, gravel may be removed.

Insulation (Optional): Johns Manville "ISO 1", "E'NRG'Y-2", "Fesco Foam", "Fiber Glass Roof Insulation", "Fesco", "Retro-Fit" or any UL Classified polyisocyanurate, polyisocyanurate/perlite composite, glass fiber, wood fiber or perlite, any combination, any thickness, and/or EPS with min 1 in. perlite, wood fiber or 15/16 in. glass fiber cover.

Insulation: Johns Manville "DuraBoard", "Nord Board".

Membrane: "APPeX 5S", "4S", "Bicor", "Tricor", "4M", "4M FR", "Roof Defender APP Cap Sheet", "4.5M FR", "Black Bear", "APPeX 180" (modified bitumen), heat fused.

Surfacing: Karnak "No. 97 AF Aluminum Roof Coating" or Karnak "No. 97 Fibrated Aluminum Roof Coating", 1–1/2 gal/sq.

3. **Deck:** C–15/32

Incline: 1/2

Existing Roof System: Class A or B, smooth surfaced BUR.

Insulation (Optional): Johns Manville "ISO 1", "E'NRG'Y-2", "Fesco Foam", "Fiber Glass Roof Insulation", "Fesco", "Retro-Fit" or any UL Classified polyisocyanurate, polyisocyanurate/perlite composite, glass fiber, wood fiber or perlite, any combination, any thickness, and/or EPS with min 1 in. perlite, wood fiber or 15/16 in. glass fiber cover.

Base/Ply Sheets: One or more layers Type G2 or multiple layers Type G1, mechanically fastened, spot or fully mopped.

Membrane: "APPeX 5S", "4S", "Bicor", "Tricor", "4M", "4M FR", "Roof Defender APP Cap Sheet", "4.5M FR", "Black Bear", "APPeX 180" (modified bitumen), heat fused.

Surfacing: Karnak "No. 97 AF Aluminum Roof Coating" or Karnak "No. 97 Fibrated Aluminum Roof Coating", 1-1/2 gal/sq.

Class B

1. **Deck:** C-15/32

Incline: 1

Existing Roof System: One ply each Type G1, G2 and G3 (respectively), hot mopped in place.

Membrane: "APPeX 4M FR", "Tricor M FR" (APP modified bitumen), heat fused.