

# TGFU.R13231 - Roofing Systems

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## Roofing Systems

[See General Information for Roofing Systems](#)

### BITEC INC

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MORRILTON, AR 72110 USA

R13231

## ASPHALT FELT SYSTEMS WITH HOT ROOFING ASPHALT

### Class A

1. **Deck:** NC

**Incline:** 3

**Base Sheet:** — "Beta Base" I (Type G2), mechanically fastened or hot mopped.

**Insulation: (Optional):** — Perlite, glass fiber, polyisocyanurate, urethane, any thickness, mechanically fastened or hot mopped.

**Ply Sheet:** — One or more plies "Beta Base" I (Type G2).

**Surfacing:** — Gravel, crushed stone or crushed slag, in a flood coat of hot roofing asphalt.

## SINGLE PLY MEMBRANE SYSTEMS

The following alternate constructions are applicable for roofing systems listed below:

A. "Type FA-2T, FS-2H", "Beta Base I" may be used wherever Type G2 base sheet are specified.

B. Vapor barriers or ply sheets are optional under roof insulation.

C. Type G3 cap sheet may be used in lieu of Type G2 base sheet.

D. "EGM-2H" may be used in lieu of "SFM-3.5H" membrane in noncombustible deck roof systems.

E. "Compabase PS-2H" or "Compaflash BFS-2H" may be used in noncombustible deck roof systems where perlite or woodfiber board is utilized as a barrier board. In uninsulated systems over noncombustible roof decks, these products may be installed directly on the deck.

F. Two plies Type G1 may be used in lieu of Type G2 base sheet in noncombustible deck roof systems.

G. Partek Insulations Inc., 3/4 in. min thick "Paroc Baseboard" or "Paroc Capboard" insulations are suitable alternates to any of the insulation products Listed in a given insulated system. Systems intended for application over noncombustible roof decks may be applied over combustible roof decks when 3/4 in. min thick "Paroc Capboard" with the insulation joints are staggered a min of 6 in. from the plywood deck joints. "Paroc Baseboard" and "Paroc Capboard", may be hot mopped in place or mechanically fastened.

H. Systems which utilize "APS-4T", "APM-4T", "APM-4.5T", "ISA-4T" modified bitumen membrane products which are restricted to inclines not exceeding 1 in. may use any of the following coatings applied at 1-1/2 gal/sq:

1. APOC, Subsidiary of Gardner Asphalt Products "APOC 212".

2. Henry "Henry 520".

3. Karnak "" Karnak No. 97".

4. Monsey Products "Pro-Grade Aluminum Roof Coating".

- I. Any of the following Classified roofing systems may be installed over combustible or noncombustible roof decks or any existing roof system when min 1/4 in. thick G-P Gypsum DensDeck® or min 1/2 in. thick gypsum board is installed. When these materials are installed over new combustible roof decks, the butt joints are to be staggered a min of 6 in. from deck joints.
- J. Unless otherwise indicated, "SPM-4H" and "SPM-4H/250" are acceptable alternates to "SFM-3H", "SFM-3.5H", "SPM-4T" and "SPM-4.5T" or "Elastoplan 250 G/P" in noncombustible roof deck assemblies.
- K. Unless otherwise indicated, "Mineral Design MDA" may be used as an alternate to "APM-4T". Unless otherwise indicated, "Mineral Design MDS" may be used as an alternate to "SPM-4H".
- L. Unless otherwise indicated, "BETA VENT" may be used in lieu of "EGM-2H", Type G1 ply sheet or Type G2 base sheet.
- M. In any of the following Classifications, additional layers of base/ply sheets may be used above and beyond the number of plies specified in the individual Classifications.
- N. "IMPERFLEX USA" may be used in lieu of "FS-2H" in any of the following classification.
- O. For ballasted systems, "UDL-40", "MAT-40", "ISA-4T" or "DEFEND" may be used wherever Type G2 base sheet are specified.

### Class A - Ballasted

#### 1. Deck: NC

**Incline:** 3

**Insulation (Optional):** — Polyisocyanurate, urethane, perlite/polyisocyanurate composite, perlite/urethane composite, glass fiber, wood fiber or perlite, any thickness.

**Base Sheet:** — One or more plies Type G2, hot mopped or mechanically fastened.

**Membrane:** — "APS-4T", "APM-4T", "APM-4.5T", "ISA-4T", "DEFEND" or "SPM-4.5T" or "Elastoplan 250 G/P" (modified bitumen), heat fused; or "SPS-3H", "SPM-3.5H" or "Elastoplan 180 G/S", "SFM-3H", "SFM-3.5H", "SFM-3H-FR", hot mopped "SFM-3.5H-FR", "SFM-4H", "SFM-4H-FR" or "SFM-4.5H-FR", (modified bitumen) or "IMPERFLEX MSA", self-adhered, or "Elasto PE 3 P/P" heat-welded.

**Surfacing:** — Gravel. As an option, gravel can be applied loosely, but incline cannot exceed 2 in.

#### 2. Deck: C-15/32

**Incline:** 1/2

**Insulation (Optional):** — Polyisocyanurate, urethane, perlite/polyisocyanurate composite, perlite/urethane composite, glass fiber or perlite, 1-1/2 in. min thickness.

**Base Sheet:** — One or more plies Type G2, hot mopped or mechanically fastened.

**Membrane:** — "APS-4T", "APM-4T", "APM-4.5T", "ISA-4T" or "SPM-4.5T" or "Elastoplan 250 G/P" (modified bitumen), heat fused; or "SPS-3H", "SPM-3.5H" or "Elastoplan 180 G/S", "SFM-3H", "SFM-3.5H", "SFM-3H-FR", hot mopped "SFM-3.5H-FR", "SFM-4H", "SFM-4H-FR" or "SFM-4.5H-FR", (modified bitumen) or "IMPERFLEX MSA", self-adhered, or "Elasto PE 3 P/P" heat-welded..

**Surfacing:** — Gravel embedded in hot mopping asphalt. As an option, gravel can be applied loosely.

### Class A - Fully Adhered

#### 1. Deck: NC

**Incline:** 1-1/2

**Insulation:** — Perlite, glass fiber, polyisocyanurate, urethane, phenolic, perlite/polyisocyanurate composite, perlite/urethane composite or wood fiber, any thickness.

**Base Sheet:** — One or more plies Type G2, mechanically fastened or hot mopped.

**Membrane:** — "APM-4T", "APM-4.5T", "APS-4T" or "ISA-4T" heat fused in place.

**Surfacing:** — Karnak Chemical "Karnak #97 Fibrated Aluminum Asphalt Coating" or "Karnak #97 Asbestos Free Aluminum Roof Coating" 1-1/2 gal/sq.

#### 2. Deck: NC

**Incline:** 3/4

**Insulation:** — Perlite, glass fiber, polyisocyanurate, polyisocyanurate/perlite composite, urethane, perlite/urethane composite or wood fiber, 4-1/2 in. max.

**Base Sheet:** — One or more plies Type G2, mechanically fastened or hot mopped.

**Membrane:** — "IMPERFLEX MSA", self-adhered; "SFM-3H", "SFM-3.5H", "SFM-4H", "SPM-3.5H" or "Elastoplan 180 G/S" or "SPS-3H" adhered with hot roofing asphalt, or "Elasto PE 3 P/P" heat-welded.

**Surfacing:** — Karnak Chemical "Karnak #97 Fibrated Aluminum Asphalt Coating", "Karnak #97 Asbestos Free Aluminum Roof Coating", Grundy "al MB Aluminum Roof Coating", 1-1/2 gal/sq.

#### 3. Deck: NC

**Incline:** 3/4

**Insulation:** — Perlite, glass fiber, polyisocyanurate, urethane, polyisocyanurate/perlite composite, perlite/urethane composite or wood fiber, any thickness.

**Base Sheet:** — One or more plies Type G2, mechanically fastened or hot mopped.

**Membrane:** — "SPM-4.5T" or "Elastoplan 250 G/P", heat fused in place.

**Surfacing:** — Karnak Chemical "Karnak #97 Fibrated Aluminum Asphalt Coating", "Karnak #97 Asbestos Free Aluminum Roof Coating", Grundy "al MB Aluminum Roof Coating", 1 1/2 gal/sq.

4. **Deck:** NC

**Incline:** 1/2

**Ply or Base Sheet:** — Three plies Type G2.

**Membrane:** — "IMPERFLEX MSA", self-adhered; "SPM-3.5H" or "Elastoplan 180 G/S", "SPS-3H", "SFM-3H", "SFM-3.5H" or "SFM-4H", adhered with hot roofing asphalt, or "Elasto PE 3 P/P" heat-welded.

**Surfacing:** — Karnak Chemical "Karnak #97 Fibrated Aluminum Asphalt Coating" or "Karnak #97 Asbestos Free Aluminum Roof Coating", 1 - 2 gal/sq or Grundy "al MB Aluminum Roof Coating" at 1-2 gal/sq.

5. **Deck:** NC

**Incline:** 1

**Insulation:** — Polyisocyanurate, urethane, Perlite/polyisocyanurate composite, perlite/urethane composite, glass fiber, wood fiber or perlite, any thickness

**Base Sheet:** — One or more plies Type G2, hot mopped or mechanically fastened.

**Membrane:** — "APS-4T", "APM-4T", "APM-4.5T" or "ISA-4T" (modified bitumen), heat fused.

**Surfacing:** — Karnak Chemical "Karnak #97 Fibrated Aluminum Asphalt Roof Coating", "Karnak #97 Asbestos Free Aluminum Roof Coatings", Grundy "al MB Aluminum Roof Coating", 1-2 gal/sq.

6. **Deck:** NC

**Incline:** 3/4

**Insulation:** — Polyisocyanurate, urethane, perlite/polyisocyanurate composite, perlite/urethane composite, glass fiber, wood fiber or perlite, any thickness.

**Base Sheet:** — One or more plies Type G2, hot mopped or mechanically fastened.

**Membrane:** — "IMPERFLEX MSA", self-adhered; "SPS-3H", "SPM-3.5H" or "Elastoplan 180 G/S", "SFM-3H", "SFM-3.5H" or "SFM-4H" (modified bitumen), hot mopped or "SPM-4.5T" or "Elastoplan 250 G/P", (modified bitumen), heat welded, or "Elasto PE 3 P/P" heat-welded.

**Surfacing:** — Karnak Chemical "Karnak No. 97 Fibrated Aluminum Asphalt Roof Coating", "Karnak #97 Asbestos Free Aluminum Roof Coating" or Grundy "al MB Aluminum Roof Coating", 1-2 gal/sq.

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

**Incline:** 1/2

**Insulation (Optional):** — Glass fiber, perlite, perlite/urethane composite, polyisocyanurate, urethane, perlite/urethane composite, polyisocyanurate/perlite composite, any thickness, mechanically fastened or hot mopped.

**Base Sheet:** — Three plies Type G2, mechanically fastened or hot mopped.

**Membrane:** — "APS-4T", "APM-4T", "APM-4.5T", "ISA-4T", "DEFEND" "SPM-4.5T" or "Elastoplan 250 G/P" (modified bitumen), heat fused.

**Surfacing:** — Karnak Chemical "Karnak No. 97 Fibrated Aluminum Asphalt Roof Coating", 1-2 gal/sq. or gravel. As an option, gravel may be loose laid.

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

**Incline:** 1/4

**Insulation:** — Two or more layers (staggered joints) polyisocyanurate, urethane, perlite/polyisocyanurate composite, perlite/urethane composite, glass fiber or perlite, 3 in. min. thickness.

**Base Sheet:** — One or more plies Type G2, hot mopped or mechanically fastened.

**Membrane:** — "IMPERFLEX MSA", self-adhered "APM-4T", "APM-4.5T", "APS-4T", "ISA-4T", or "SPM-4.5T" or "Elastoplan 250 G/P", heat fused or "SFM-3H", "SFM-3.5H", "SFM-4H", "SPM-3.5H" or "Elastoplan 180 G/S", "SPS-3H", hot mopped, or "Elasto PE 3 P/P" heat-welded.

**Surfacing:** — Karnak Chemical "Karnak #97 Fibrated Aluminum Asphalt Roof Coating", "Karnak #97 Asbestos Free Aluminum Roof Coating", 1-2 gal/sq. or Grundy "al MB Aluminum Roof Coating" at 1-2 gal/sq or two applications of "IMPER-SOL™", "MAC-200™" or "MAC-300™" coating, applied at 1 gal/sq.

9. **Deck:** NC

**Incline:** 1

**Insulation:** — Cellular concrete, gypsum concrete, vermiculite concrete, perlite concrete or structural concrete.

**Base Sheet:** — One or more plies Type G2, mechanically fastened.

**Membrane:** — "APM-4T", "APM-4.5T", "APS-4T" or "ISA-4T" (modified bitumen), heat fused.

**Surfacing:** — Karnak Chemical "Karnak No. 97 Fibrated Aluminum Asphalt Roof Coating", "Karnak #97 Asbestos Free Aluminum Roof Coating", 1-2 gal/sq. or Grundy "al MB Aluminum Roof Coating" at 1-2 gal/sq or two applications of "IMPER-SOL™", "MAC-200™" or

"MAC-300™" coating, applied at 1 gal/sq.

10. **Deck:** NC

**Incline:** 1

**Insulation (Optional):** — Perlite, glass fiber, polyurethane, isocyanurate, combination isocyanurate/perlite, polyurethane/perlite or wood fiber, any thickness.

**Base Sheet:** — One or more plies Type G2, mechanically fastened or hot mopped.

**Membrane:** — "APM-4.5T", "APM-4T", "APS-4T", "ISA-4T", or "SPM-4.5T" or "Elastoplan 250 G/P" (modified bitumen), heat fused or "IMPERFLEX MSA" self-adhered, "SFM-3H", "SFM-3.5H", "SFM-4H", "SPS-3H" or "SPM 3.5H", (modified bitumen), hot mopped, or "Elasto PE 3 P/P" heat-welded.

**Surfacing:** — Grundy "al MB Aluminum Roof Coating" at 1-2 gal/sq.

11. **Deck:** NC

**Incline:** 1/2

**Insulation (Optional):** — Glass fiber, perlite, perlite/urethane composite, 4 in. max, mechanically fastened or hot mopped.

**Base Sheet:** — Three plies Type G2, mechanically fastened or hot mopped.

**Membrane:** — "IMPERFLEX MSA", self-adhered "SFM-3H", "SFM-3.5H", "SFM-4H", "SPM-3.5H" or "Elastoplan 180 G/S" or "SPS-3H" (modified bitumen), hot mopped, or "Elasto PE 3 P/P" heat-welded.

**Surfacing:** — Karnak Chemical "Karnak No. 97 Fibrated Aluminum Asphalt Roof Coating" at 1-2 gal/sq., "Karnak #97 Asbestos Free Aluminum Roof Coating" 1-1/2 gal/sq. or gravel. As an option, gravel may be loose laid.

12. **Deck:** NC

**Incline:** 1/2

**Insulation:** — Polyisocyanurate, wood fiber, any thickness.

**Base Sheet:** — One ply Type G2 mechanically attached or hot applied.

**Membrane:** — Two plies "ELASTO PE 3 P/P" (Same as SPS-3H except it is heat welded).

**Insulation:** — Expanded polystyrene, any thickness.

**Fabric:** — Polypropylene (non-UL Classified)

**Surface:** — Pre-cast concrete pavers, min 1-1/2 in thickness.

13. **Deck:** NC

**Incline:** 1

**Insulation (Optional):** — Polyisocyanurate, urethane, perlite/polyisocyanurate composite, perlite/urethane composite, 1 in. min; perlite or woodfiber 3/4 in. min, mechanically fastened or mopped in place.

**Base Sheet:** — One ply Type G2, mechanically fastened or mopped in place.

**Membrane:** — "ISA-4T", "APS-4T", "APM-4T" or "APM-4.5T", heat welded.

**Surfacing:** — Karnak Chemical "Karnak No. 97" or Henry "Henry #520" or APOC, Subsidiary of Gardner Asphalt "APOC 212" or Monsey Products "Pro-Grade Aluminum Roof Coating", applied at 1-1/2 gal/sq.

14. **Deck:** NC

**Incline:** 1/4

**Base Sheet:** — One ply Type G2, mechanically fastened or mopped in place.

**Membrane:** — "APM-4T" or "APM-4.5T", heat welded.

15. **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 Inc. "PAROC" roof insulation.

**Base Sheet:** — One or more layers "Fields Glass" or other UL Classified Type G1 or G2.

**Membrane:** — One or more layers "APM-4T", "APM-4.5T", "APS-4T", or "ISA-4T" (modified bitumen), heat fused.

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

16. **Deck:** NC

**Incline:** 1

**Insulation (Optional):** — Perlite, glass fiber or wood fiber, 3/4 in. max, mechanically fastened.

**Base Sheet:** — One or more plies Type G2, mechanically fastened.

**Membrane:** — One ply "APM-4T" or "APM-4.5T", heat welded.

17. **Deck:** NC

**Incline:** 1/2

**Insulation (Optional):** — Perlite, glass fiber or wood fiber, 3/4 in. max.

**Base Sheet:** — One or more plies Type G1 hot mopped or Type G2, mechanically fastened or hot mopped in place.

**Membrane:** — One ply "SFM-3H", "SFM-3.5H", "SFM-4H", "SPM-3.5H" or "Elastoplan 180 G/S", "SPM-4H", "SPM-4H/250", hot mopped in place or "SPM-4T" or "SPM-4.5T" or "Elastoplan 250 G/P", heat fused or "IMPERFLEX MSA", self-adhered.

**18. Deck:** NC

**Incline:** 2

**Insulation (Optional):** — Perlite or glass fiber or perlite/EPS composite polyisocyanurate or perlite/urethane composite or wood fiber, any thickness.

**Base Sheet:** — Type G2.

**Ply Sheet (Optional):** — Type G1 or Type G2.

**Membrane:** — Garland Co Inc StressPly (4360)" or "StressPly E FR" or "VersiPly (4363-40)" or "VersiPly (4363-60)" or "VersiPly (4364)" heat sealed or hot mopped.

**Surfacing:** — Two applications "Imper-Sol" at applied at 1 to 2 gal/100-ft<sup>2</sup>/application or one application applied at 1 to 3 gal/100-ft<sup>2</sup> when base coat is used.

**19. Deck:** NC

**Incline:** 1

**Insulation (Optional):** — Any combination of UL classified insulations, including but not limited to: perlite, glass fiber, polyurethane, isocyanurate; combination isocyanurate/perlite, polyurethane/perlite composite or wood fiber, EPS/wood fiber, EPS/perlite any thickness.

**Barrier Board:** — Minimum 1/4 in. thick G-P Gypsum Corp. "DensDeck® Roofboard" or "DensDeck Prime® Roofboard " or "DensDeck Prime 2™ Roofboard" or DensDeck DuraGuard® Roofboard" or CertainTeed Gypsum Inc. "GlasRoc" or USG Corp. SECUROCK® Glass-Mat Roof Board (Type SGMRX)", mechanically fastened or hot mopped.

**Base Sheet (Optional):** — One or more plies G1 or G2 base/ply sheet. G2 mechanically attached or hot mopped. G1 hot mopped only.

**Ply Sheet (Optional):** — One or more plies "FA-2T", "APS-4T" or "ISA-4T", heat fused.

**Membrane:** — "APS-4T", "ISA-4T", "APM-4T", "APM-4.5T" or "Mineral Design™ MDA", heat fused.

**Surfacing:** — Two applications of IMPER-SOL™ coating, applied at 1 gal/100 ft<sup>2</sup>.

**20. Deck:** NC

**Incline:** 1-1/2

**Insulation (Optional):** — Any combination of UL classified insulations, including but not limited to: perlite, glass fiber, polyurethane, isocyanurate; combination isocyanurate/perlite, polyurethane/perlite composite or wood fiber, EPS/wood fiber, EPS/perlite any thickness.

**Barrier Board:** — Minimum 1/4 in. thick G-P Gypsum Corp. "DensDeck® Roofboard" or "DensDeck Prime® Roofboard " or "DensDeck Prime 2™ Roofboard" or DensDeck DuraGuard® Roofboard" or CertainTeed Gypsum Inc. "GlasRoc" or USG Corp. SECUROCK® Glass-Mat Roof Board (Type SGMRX)", mechanically fastened or hot mopped.

**Base Sheet (Optional):** — One or more plies G1 or G2 base/ply sheet. G2 mechanically attached or hot mopped. G1 hot mopped only.

**Ply Sheet (Optional):** — One or more plies "FA-2T", "APS-4T" or "ISA-4T", heat fused.

**Membrane:** — "APS-4T", "ISA-4T", "APM-4T", "APM-4.5T" or "Mineral Design™ MDA", heat fused.

**Surfacing:** — Two applications of "MAC-200™" or "MAC-300™", coating, applied at 1 gal/100 ft<sup>2</sup>.

**21. Deck:** NC

**Incline:** 1

**Insulation (Optional):** — Any combination of UL classified insulations, including but not limited to: perlite, glass fiber, polyurethane, isocyanurate; combination isocyanurate/perlite, perlite/phenolic composite, polyurethane/perlite composite or wood fiber, EPS/wood fiber, EPS/perlite any thickness.

**Barrier Board:** — Minimum 1/4 in. thick G-P Gypsum Corp. "DensDeck® Roofboard" or "DensDeck Prime® Roofboard " or "DensDeck Prime 2™ Roofboard" or DensDeck DuraGuard® Roofboard" or CertainTeed Gypsum Inc. "GlasRoc" or USG Corp. SECUROCK® Glass-Mat Roof Board (Type SGMRX)", mechanically fastened or hot mopped.

**Base Sheet (Optional):** — One or more plies G1 or G2 base/ply sheet. G2 mechanically attached or hot mopped. G1 hot mopped only.

**Ply Sheet (Optional):** — One or more plies "FS-2H", "PS-2H" or "SPS-3H", hot mopped or "Elasto PE 3 P/P" heat-welded.

**Membrane:** — "SPS-3H", "SFM-3H", "SFM-3.5H", "SFM-3.5H-FR", "SPM-3.5H" or "Elastoplan 180 G/S", "SPM-4H", "SPM-4H/250", or "Mineral Design™ MDS", hot mopped; "SPM-4T", or "SPM-4.5T" or "Elastoplan 250 G/P", heat fused; "IMPERFLEX™ MSA", self-adhered, or "Elasto PE 3 P/P" heat-welded.

**Surfacing:** — Two applications of IMPER-SOL™ coating, applied at 1 gal/100 ft<sup>2</sup>.

**22. Deck:** NC

**Incline:** 1

**Insulation (Optional):** — Any combination of UL classified insulations, including but not limited to: perlite, glass fiber, polyurethane, isocyanurate; combination isocyanurate/perlite, perlite/phenolic composite, polyurethane/perlite composite or wood fiber, EPS/wood fiber, EPS/perlite any thickness.

**Barrier Board:** — Minimum 1/4 in. thick G-P Gypsum Corp. "DensDeck® Roofboard" or "DensDeck Prime® Roofboard " or "DensDeck Prime 2™ Roofboard" or DensDeck DuraGuard® Roofboard" or CertainTeed Gypsum Inc. "GlasRoc" or USG Corp. SECUROCK® Glass-Mat Roof Board (Type SGMRX)", mechanically fastened or hot mopped.

**Base Sheet (Optional):** — One or more plies "IMPERFLEX USA™", self adhered. First layer may be mechanically attached.

**Membrane:** — "IMPERFLEX™ MSA", self-adhered.

**Surfacing:** — Two applications of "IMPER-SOL™" coating, applied at 1 gal/100 ft<sup>2</sup>.

### 23. Deck: NC

### Incline: 2

**Insulation (Optional):** — Any combination of UL classified insulations, including but not limited to: perlite, glass fiber, polyurethane, isocyanurate; combination isocyanurate/perlite, polyurethane/perlite composite or wood fiber, EPS/wood fiber, EPS/perlite any thickness.

**Barrier Board:** — Minimum 1/4 in. thick G-P Gypsum Corp. "DensDeck® Roofboard" or "DensDeck Prime® Roofboard " or "DensDeck Prime 2™ Roofboard" or DensDeck DuraGuard® Roofboard" or CertainTeed Gypsum Inc. "GlasRoc" or USG Corp. SECUROCK® Glass-Mat Roof Board (Type SGMRX)", mechanically fastened or hot mopped.

**Base Sheet (Optional):** — One or more plies G1 or G2 base/ply sheet. G2 mechanically attached or hot mopped. G1 hot mopped only.

**Ply Sheet (Optional):** — One or more plies "FS-2H", "PS-2H" or "SPS-3H", hot mopped, or "Elasto PE 3 P/P" heat-welded.

**Membrane:** — "SPS-3H", "SFM-3H", "SFM-3.5H", "SFM-3.5H-FR", "SPM-3.5H" or "Elastoplan 180 G/S", "SPM-4H", "SPM-4H/250", or "Mineral Design™ MDS", hot mopped; SPM-4.5T", or SPM-4T", heat fused; "IMPERFLEX™ MSA", self-adhered, or "Elasto PE 3 P/P" heat-welded.

**Surfacing:** — Two applications of "MAC-200™" or "MAC-300™" coating, applied at 1 gal/100 ft<sup>2</sup>.

### 24. Deck: NC

### Incline: 1-1/2

**Insulation (Optional):** — Any combination of UL classified insulations, including but not limited to: perlite, glass fiber, polyurethane, isocyanurate; combination isocyanurate/perlite, polyurethane/perlite composite or wood fiber, EPS/wood fiber, EPS/perlite any thickness.

**Barrier Board:** — Minimum 1/4 in. thick G-P Gypsum Corp. "DensDeck® Roofboard" or "DensDeck Prime® Roofboard " or "DensDeck Prime 2™ Roofboard" or DensDeck DuraGuard® Roofboard" or CertainTeed Gypsum Inc. "GlasRoc" or USG Corp. SECUROCK® Glass-Mat Roof Board (Type SGMRX)", mechanically fastened or hot mopped.

**Base Sheet (Optional):** — One or more plies "IMPERFLEX USA™", self adhered. First layer may be mechanically attached.

**Ply Sheet (Optional):** — One or more plies "FS-2H", "PS-2H" or "SPS-3H", hot mopped, or "Elasto PE 3 P/P" heat-welded.

**Membrane:** — "IMPERFLEX™ MSA", self-adhered.

**Surfacing:** — Two applications of "IMPER-SOL™", "MAC-200™" or "MAC-300™" coating, applied at 1 gal/100 ft<sup>2</sup>.

### 25. Deck: NC

### Incline: 1/2

**Insulation (Optional):** — Any combination of UL classified insulations, including but not limited to: perlite, glass fiber, polyurethane, isocyanurate; combination isocyanurate/perlite, polyurethane/perlite composite or wood fiber, EPS/wood fiber, EPS/perlite any thickness.

**Barrier Board:** — Minimum 1/4 in. thick G-P Gypsum Corp. "DensDeck® Roofboard" or "DensDeck Prime® Roofboard " or "DensDeck Prime 2™ Roofboard" or DensDeck DuraGuard® Roofboard" or CertainTeed Gypsum Inc. "GlasRoc" or USG Corp. SECUROCK® Glass-Mat Roof Board (Type SGMRX)", mechanically fastened or hot mopped.

**Base Sheet (Optional):** — One or more plies G1 or G2 base/ply sheet. G2 mechanically attached or hot mopped or adhered with "PMA 186" applied at 2-21/4 gal/sq. G1 hot mopped or adhered with "PMA 186" applied at 2-21/4 gal/sq. only.

**Ply Sheet (Optional):** — One or more plies "FS-2H", "PS-2H" or "SPS-3H", hot mopped or adhered with "PMA 186" applied at 2 - 2-1/4 gal/sq or "Elasto PE 3 P/P" heat-welded.

**Membrane:** — "SPS-3H", "SFM-3H", "SFM-3.5H", "SFM-3.5H-FR", "SPM-3.5H" or "Elastoplan 180 G/S", "SPM-4H", "SPM-4H/250", or "Mineral Design™ MDS", hot mopped or adhered with "PMA 186" applied at 2 - 2-1/4 gal/sq; "SPM-4.5T" or "Elastoplan 250 G/P", heat fused; "IMPERFLEX™ MSA", self-adhered, or "Elasto PE 3 P/P" heat-welded.

**Surfacing:** — Two applications of IMPER-SOL™ coating, applied at 1 gal/100ft<sup>2</sup>

### 26. Deck: NC

### Incline: 1

**Insulation (Optional):** — Any combination of UL classified insulations, including but not limited to: perlite, glass fiber, polyurethane, isocyanurate; combination isocyanurate/perlite, polyurethane/perlite composite or wood fiber, EPS/wood fiber, EPS/perlite any

thickness.

**Barrier Board:** — Minimum 1/4 in. thick G-P Gypsum Corp. "DensDeck® Roofboard" or "DensDeck Prime® Roofboard" or "DensDeck Prime 2™ Roofboard" or DensDeck DuraGuard® Roofboard" or CertainTeed Gypsum Inc. "GlasRoc" or USG Corp. SECUROCK® Glass-Mat Roof Board (Type SGMRX)", mechanically fastened or hot mopped.

**Base Sheet (Optional):** — One or more plies G1 or G2 base/ply sheet. G2 mechanically attached or hot mopped adhered with "PMA 186" applied at 2-21/4 gal/sq. G1 hot mopped or adhered with "PMA 186" applied at 2-21/4 gal/sq only.

**Ply Sheet (Optional):** — One or more plies "FS-2H", "PS-2H" or "SPS-3H", hot mopped or adhered with "PMA 186" applied at 2 - 2-1/4 gal/sq. or "Elasto PE 3 P/P" heat-welded.

**Membrane:** — "SPS-3H", "SFM-3H", "SFM-3.5H", "SFM-3.5H-FR", "SPM-3.5H" or "Elastoplan 180 G/S", "SPM-4H", "SPM-4H/250", or "Mineral Design™ MDS", hot mopped or adhered with "PMA 186" applied at 2 - 2-1/4 gal/sq; SPM-4.5T", heat fused; "IMPERFLEX™ MSA", self-adhered, or "Elasto PE 3 P/P" heat-welded.

**Surfacing:** — Two applications of "MAC-200™" or "MAC-300™" coating, applied at 1 gal/100ft<sup>2</sup>

### Class B - Fully Adhered

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

**Incline:** 1/2

**Insulation:** — Two or more layers (staggered joints) polyisocyanurate, urethane, perlite/polyisocyanurate composite, perlite/urethane composite, glass fiber, phenolic, perlite/phenolic composite or perlite, 3 in. min. thickness.

**Base Sheet:** — One or more plies Type G2, hot mopped or mechanically fastened.

**Membrane:** — "APM-4T", "APM-4.5T", "APS-4T", "ISA-4T" or "SPM-4.5T" or "Elastoplan 250 G/P", heat fused or "IMPERFLEX MSA", self-adhered "SFM-3H", "SFM-3.5H", "SFM-4H", "SPM-3.5H" or "Elastoplan 180 G/S", "SPS-3H" (modified bitumen), hot mopped, or "Elasto PE 3 P/P" heat-welded.

**Surfacing:** — Karnak Chemical "Karnak No. 97 Fibrated Aluminum Asphalt Roof Coating", "Karnak #97 Asbestos Free Aluminum Roof Coating", 1-2 gal/sq. or Grundy "al MB Aluminum Roof Coating" at 1-2 gal/sq.

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

**Incline:** 1/2

**Base Sheet:** — Two plies Type G2, mechanically fastened or hot mopped.

**Membrane:** — "SFM-3H", "SFM-3.5H", "SPM-3.5H" or "Elastoplan 180 G/S", "SFM-4H", "SPS-3H", hot mopped or "IMPERFLEX MSA", self-adhered or "APM-4T", "APM-4.5T", "APS-4T", "ISA-4T", "SPM-4.5T" or "Elastoplan 250 G/P", heat fused, or "Elasto PE 3 P/P" heat-welded.

**Surfacing:** — Karnak Chemical "Karnak No. 97 Fibrated Aluminum Asphalt Roof Coating", 1-2 gal/sq.

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

**Incline:** 1/2

**Base Sheet:** — Two plies Type G2, hot mopped or mechanically fastened.

**Membrane:** — "SFM-3.5H-FR", "SFM-4H-FR" or "SFM-4.5H-FR", hot mopped in place.

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

**Incline:** 1/2

**Insulation (Optional):** — Polyisocyanurate, urethane, perlite/polyisocyanurate composite, perlite/urethane composite, 1 in. min; perlite, 3/4 in. min or wood fiber 1 in. min, mechanically fastened or mopped in place.

**Base Sheet:** — One ply Type G2, mechanically fastened or mopped in place.

**Membrane:** — "APM-4T" or "APM-4.5T", heat welded.

**Surfacing:** — Karnak Chemical "Karnak No. 97", Henry "Henry #520", APOC, Subsidiary of Gardner Asphalt "APOC 212" or Monsey Products "Pro-Grade Aluminum Roof Coating", applied at 1-1/2 gal/sq.

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

**Incline:** 1/4

**Base Sheet:** — One ply Type G2, mechanically fastened or mopped in place.

**Membrane:** — "APM-4T" or "APM-4.5T", heat welded.

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

**Incline:** 1/2

**Base Sheet:** — One or more plies Type G2, hot mopped or mechanically fastened.

**Membrane:** — "SFM-3H-FR", "SFM-3.5H-FR", "SFM-4H-FR" or "SFM-4.5H-FR", hot mopped in place.

7. **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 Insulation Inc. "PAROC" roof insulation.

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

**Membrane:** — One or more layers "APM-4T", "APM-4.5T", "APS-4T", "ISA-4T" (modified bitumen), heat fused.

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

### Class C

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

**Incline:** 1-1/2

**Base Sheet:** — One or more plies Type G2, hot mopped or mechanically fastened.

**Insulation (Optional):** — Polyisocyanurate, urethane, perlite/polyisocyanurate composite, perlite/urethane composite, glass fiber or perlite, any thickness.

**Membrane:** — "APS-4T", "APM-4T", "APM-4.5T" or "ISA-4T" (modified bitumen), heat fused,

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

**Incline:** No Limitation

**Insulation (Optional):** — Polyisocyanurate, urethane, perlite/isocyanurate composite, glass fiber, perlite, perlite/urethane composite or wood fiber, any thickness, offset 6 in. from joints in plywood.

**Base Sheet:** — Type G2, mechanically attached or hot mopped.

**Ply Sheet (Optional):** — One or more plies Type G1 or G2, mechanically attached or hot mopped.

**Membrane:** — "SPM-3.5H-FR", hot mopped.

3. **Deck:** NC

**Incline:** No Limitation

**Insulation:** — Polyisocyanurate, urethane, perlite/isocyanurate composite, perlite/urethane composite, glass fiber, perlite or wood fiber, any thickness.

**Base Sheet:** — Type G2, mechanically fastened.

**Ply Sheet:** — "FS-2H-FR", hot mopped.

**Membrane:** — "SPM-3.5H-FR", hot mopped.

4. **Deck:** NC

**Incline:** 1/2

**Insulation:** — Polyisocyanurate, urethane, perlite/urethane composite, isocyanurate composite, wood fiber, glass fiber, perlite, any thickness, mechanically attached.

**Base Sheet:** — Type G2, hot mopped or mechanically attached.

**Membrane:** — "IMPERFLEX MSA", self-adhered "SPS-3H", "SPM-3.5H" or "Elastoplan 180 G/S", "SFM-3.5H", "SFM4-H" or "SPM-4H", hot mopped, or "Elasto PE 3 P/P" heat-welded.

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

**Incline:** Unlimited

**Underlayment:** — One ply Type G2 "Beta Base", mechanically fastened.

**Membrane:** — One ply "Mineral Design MDA" heat fused or "Mineral Design MDS" hot mopped.

6. **Deck:** NC

**Incline:** 3/4

**Insulation:** — Polyisocyanurate, urethane, perlite/isocyanurate composite, perlite/urethane composite, perlite or wood fiber, any thickness or EPS, any thickness covered with min. 1/2 in. thick wood fiber or min. 3/4 in. thick perlite.

**Base Sheet:** — One or more plies Type G2, hot mopped or mechanically fastened.

**Membrane:** — "SFM-3H-FR", "SFM-3.5H-FR", "SFM-4H-FR" or "SFM-4.5H-FR" (modified bitumen), hot mopped.

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

**Incline:** 1/4

**Insulation:** — Polyisocyanurate, urethane, perlite/isocyanurate composite, perlite 1-1/2 in. minimum or wood fiber, 3/4 in. min.

**Base Sheet:** — One or more layers Type G2, hot mopped or mechanically fastened.

**Membrane:** — "SFM-3.5H-FR", "SFM-4H-FR" or "SFM-4.5H-FR" (modified bitumen), hot mopped.

8. **Deck:** NC

**Incline:** 3/4

**Insulation (Optional):** — Polyisocyanurate, urethane, perlite/isocyanurate composite, perlite or wood fiber, any thickness.

**Base Sheet:** — One ply Type G1 or G2, mechanically fastened or hot mopped.

**Ply Sheet (Optional):** — One or more plies Type G1 or G2, mechanically attached or hot mopped.

**Membrane:** — "SFM-3H-FR", "SFM-3.5H-FR", "SFM-4H-FR" or "SFM-4.5H-FR", hot mopped.

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

**Incline:** 3/4

**Insulation:** — Polyisocyanurate, urethane, perlite/isocyanurate composite, perlite/urethane composite, perlite, 1-1/2 in. min or wood fiber, 3/4 in. min, offset 6 in. from joints in plywood.



**Base Sheet:** — Type G2, mechanically attached or hot mopped.

**Ply Sheet (Optional):** — One or more plies Type G1 or G2, mechanically attached or hot mopped.

**Membrane:** — SFM-3.5H-FR, SFM-4H-FR or SFM-4.5H-FR, hot mopped.

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

**Incline:** 1

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

**Barrier Board:** — Minimum 1/4 in. thick G-P Gypsum Corp. "DensDeck® Roofboard" or "DensDeck Prime® Roofboard " or "DensDeck Prime 2™ Roofboard" or DensDeck DuraGuard® Roofboard" or CertainTeed Gypsum Inc. "GlasRoc" or USG Corp. SECUROCK® Glass-Mat Roof Board (Type SGMRX)" with butt joints in the barrier board staggered a minimum of 6 in. from plywood deck butt joints, mechanically fastened or hot mopped.

**Base Sheet:** — One ply Type G2, hot mopped.

**Membrane:** — "SFM-3.5H-FR", hot mopped.

## MAINTENANCE AND REPAIR SYSTEMS

### Class A

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

**Incline:** 3

**Existing Roofing System:** — Class A BUR smooth surface or gravel surface with all gravel maintained at original coverage rate covered with:

**Insulation (Optional):** — One layer wood fiber, perlite or glass fiber, 1/2 in.

**Base Sheet (Optional):** — Type G1 or G2, hot mopped or mechanically fastened.

**Membrane:** — "APS-4T", "APM-4T", "APM-4.5T", "ISA-4T", "DEFEND" or "SPM-4.5T" or "Elastoplan 250 G/P" (modified bitumen), heat fused; or "IMPERFLEX MSA", self-adhered; "SPS-3H", "SPM-3.5H" or "Elastoplan 180 G/S", "SFM-3H", "SFM-3.5H" or "SFM-4H" (modified bitumen), hot mopped, or "Elasto PE 3 P/P" heat-welded.

**Surfacing:** — Gravel. As an option, gravel can be applied loosely, but incline cannot exceed 2 in.

2. **Deck:** NC

**Incline:** 1/2

**Existing Roofing System:** — Class A, B or C BUR Smooth Surface or gravel surface (gravel may be removed) covered with:

**Membrane:** — "APS-4T", "APM-4T", "APM-4.5T", "ISA-4T" or "SPM-4.5T" or "Elastoplan 250 G/P" (modified bitumen), heat fused; or "SPS-3H", "SFM-3H", "SFM-3.5H" or "SFM-4H" (modified bitumen), hot mopped, or "Elasto PE 3 P/P" heat-welded.

**Surfacing:** — Karnak Chemical "Karnak No. 97 Fibrated Aluminum Asphalt Roof Coating", "Karnak No. 97 Asbestos Free Aluminum Roof Coatings", 1-2 gal/sq. or gravel. As an option gravel can be applied loosely.

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

**Incline:** 1/2

**Existing Roofing System:** — Class A BUR Smooth Surface or glass fiber ply sheet, gravel surfaced BUR (gravel may be removed) covered with:

**Insulation (Optional):** — Glass fiber, perlite, wood fiber, polyisocyanurate, recovery board, perlite/polyisocyanurate composite, 1/2 in. min.

**Membrane:** — "APM-4T", "APM-4.5T", "APS-4T", "ISA-4T" or "SPM-4.5T" or "Elastoplan 250 G/P" (modified bitumen), heat fused; or "IMPERFLEX MSA", self-adhered; "SFM-3H", "SFM-3.5H", "SFM-4H", "SPM-3.5H" or "Elastoplan 180 G/S" or "SPS-3H" (modified bitumen), hot mopped, or "Elasto PE 3 P/P" heat-welded.

**Surfacing:** — Karnak Chemical "Karnak No. 97 Fibrated Aluminum Asphalt Roof Coating", 1-2 gal/sq, Grundy "al MB Aluminum Roof Coating" at 1-2 gal/sq. or gravel. As an option, gravel can be applied loosely.

4. **Deck:** NC

**Incline:** 1/2

**Existing Roofing System:** — Class A B or C BUR smooth Surface or gravel surface (gravel may be removed) covered with:

**Membrane:** — "APM-4T", "APM-4.5T", "APS-4T", "ISA-4T" or "SPM-4.5T" or "Elastoplan 250 G/P" (modified bitumen), heat fused; or "IMPERFLEX MSA", self-adhered "SFM-3H", "SFM-3.5H", "SFM-4H", "SPM-3.5H" or "Elastoplan 180 G/S" or "SPS-3H" (modified bitumen), hot mopped, or "Elasto PE 3 P/P" heat-welded.

**Surfacing:** — Grundy "al MB Aluminum Roof Coating" at 1-2 gal/sq.

5. **Deck:** NC

**Incline:** 1/2

**Existing Roof System:** — Class A, B or C BUR, gravel partially removed, coated with an aluminum coating and covered with:

**Base Sheet:** — Type G3.

**Membrane:** — "APS-4T" or "ISA-4T", heat fused.

**Surfacing:** — Karnak Chemical "Karnak #97 Fibrated Aluminum Asphalt Coating" or Grundy "al MB Aluminum Roof Coating" at 1-2 gal/sq.

**6. Deck:** Structural Cement Fiber Unit **Incline:** 1/2

**Existing Roof System:** — Class A, B or C BUR, gravel surfaced, covered with:

**Insulation:** — EPS, any thickness, covered with 1/2 in. wood fiber or 3/4 in. perlite.

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

**Membrane:** — "APM-4T", "APM-4.5T", "APS-4T", "ISA-4T", "DEFEND" or "SPM-4.5T" or "Elastoplan 250 G/P" (modified bitumen) heat fused, "IMPERFLEX MSA", self adhered; "SFM-3.H", "SFM-4H" or "SPM-3.5H" or "Elastoplan 180 G/S" (modified bitumen), hot mopped.

**Surfacing:** — Karnak Chemical "#97 Fibrated Aluminum Coating" at 1-2 gal/sq.

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

**Existing Roof System:** — Class A, B or C BUR, smooth or gravel surfaced (gravel may be removed) covered with:

**Insulation:** — EPS, any thickness, covered with 1 in. wood fiber or 3/4 in. perlite.

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

**Membrane:** — "APM-4T", "APM-4.5T", "APS-4T", "ISA-4T", "DEFEND" or "SPM-4.5T" or "Elastoplan 250 G/P" (modified bitumen) heat fused, "IMPERFLEX MSA", self-adhered "SFM-3.H", "SPM-3.5H" or "Elastoplan 180 G/S" or "SFM-4H" (modified bitumen), hot mopped.

**Surfacing:** — Karnak Chemical "#97 Fibrated Aluminum Coating" at 1-2 gal/sq.

### Class B

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

**Existing Roofing System:** — Class A or B BUR smooth or gravel surface (gravel may be removed) covered with:

**Base Sheet (Optional):** — Type G2, hot mopped or mechanically fastened.

**Membrane:** — "APM-4T", "APM-4.5T", "APS-4T", "ISA-4T" or "SPM-4.5T" or "Elastoplan 250 G/P" (modified bitumen), heat fused; or "IMPERFLEX MSA", self-adhered; "SFM-3H", "SFM-3.5H", "SFM-4H", "SPM-3.5H" or "Elastoplan 180 G/S" or "SPS-3H" (modified bitumen), hot mopped, or "Elasto PE 3 P/P" heat-welded.

**Surfacing:** — Karnak Chemical "Karnak No. 97 Fibrated Aluminum Asphalt Roof Coating", 1-2 gal/sq, Grundy "al MB Aluminum Roof Coating" at 1-2 gal/sq. or gravel. As an option, gravel can be applied loosely.

### Class C

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

**Existing Roofing System:** — Class A, B or C smooth or gravel surface (gravel may be removed) covered with:

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

**Membrane:** — "SPM-4.5T" or "Elastoplan 250 G/P" (modified bitumen), heat fused.

**2. Deck:** Structural Cement Fiber Unit **Incline:** 3/4

**Existing Roof System:** — Class A, B or C BUR, gravel surfaced, covered with:

**Insulation:** — EPS, any thickness, covered with 1/2 in. wood fiber or 3/4 in. perlite.

**Base Sheet:** — Type G2, hot mopped or mechanically attached.

**Membrane:** — "SFM-3H-FR", "SFM-3.5H-FR", "SFM-4H-FR" or "SFM-4.5H-FR" (modified bitumen), hot mopped.

## COMBINATION HOT AND COLD SYSTEMS

As an alternate in mechanically fastened systems, a thin second layer of perlite insulation may be mopped over the first layer to protect the fasteners.

### Class A

**1. Deck:** C-15/32 **Incline:** 3/4

**Insulation (optional):** — Any thickness polyisocyanurate, glass fiber, perlite, wood fiber, loose laid, mechanically fastened or adhered any UL Classified insulation adhesive.

**Barrier Board:** — Minimum 1/4 in. thick GP Gypsum Corp. "DensDeck® Roofboard" or "DensDeck Prime® Roofboard" or "DensDeck DuraGuard™ Roofboard" mechanically fastened or adhered any UL Classified insulation adhesive with butt joints in the barrier board staggered a minimum of 6-in. from plywood deck butt joints.

**Base Sheet:** — One or two plies Garland Co Inc "HPR TorchBase 4113" heat welded.

**Membrane:** — One ply Garland Co Inc "StressPly IV Mineral" or "StressPly IV UV Mineral" or "StressPly IV Plus Mineral" or "StressPly IV Plus UV Mineral" heat welded.

**Surfacing:** — Two applications "MAC-200" or "MAC-300" applied at 1/2 gal/100-ft<sup>2</sup>/application.

**2. Deck:** NC

**Incline:** 3/4

**Ply Sheet:** — One ply Garland Co Inc "HPR TorchBase 4113" or "4120 HPR TriBase Plus" or "4121 HPR TriBase Premium" or "HPR Glasbase" or "HPR Glasbase Premium" or Type G2 base sheet mechanically fastened.

**Base Sheet:** — One or two plies Garland Co Inc "HPR TorchBase 4113" heat welded

**Membrane:** — One ply Garland Co Inc "StressPly IV Mineral" or "StressPly IV UV Mineral" or "StressPly IV Plus Mineral" or "StressPly IV Plus UV Mineral" heat welded

**Surfacing:** — Two applications "MAC-200" or "MAC-300" applied at 1/2-gal/100-ft<sup>2</sup>/application

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

**Incline:** 1/2

**Insulation (optional):** — Any thickness polyisocyanurate, glass fiber, perlite, wood fiber, loose laid, mechanically fastened or adhered any UL Classified insulation adhesive.

**Barrier Board:** — Minimum 1/4-in. thick GP Gypsum Corp. "DensDeck® Roofboard" or "DensDeck Prime® Roofboard" or "DensDeck DuraGuard™ Roofboard" mechanically fastened or adhered any UL Classified insulation adhesive with butt joints in the barrier board staggered a minimum of 6-in. from plywood deck butt joints.

**Base Sheet:** — One or two plies Garland Co Inc "HPR TorchBase 4113" heat welded.

**Membrane:** — One ply Garland Co Inc "StressPly IV Mineral" or "StressPly IV UV Mineral" or "StressPly IV Plus Mineral" or "StressPly IV Plus UV Mineral" heat welded.

**Surfacing:** — Two applications "Imper-Sol" applied at 1-gal/100-ft<sup>2</sup>/application.

**4. Deck:** NC

**Incline:** 1/2

**Ply Sheet:** — One ply Garland Co Inc "HPR TorchBase 4113" or "4120 HPR TriBase Plus" or "4121 HPR TriBase Premium" or "HPR Glasbase" or "HPR Glasbase Premium" or Type G2 base sheet mechanically fastened

**Base Sheet:** — One or two plies Garland Co Inc "HPR TorchBase 4113" or "StressPly IV" or "StressPly IV Plus" heat welded

**Membrane:** — One ply Garland Co Inc "StressPly IV Mineral" or "StressPly IV UV Mineral" or "StressPly IV Plus Mineral" or "StressPly IV Plus UV Mineral" heat welded

**Surfacing:** — Two applications "Imper-Sol" applied at 1-gal/100-ft<sup>2</sup>/application

**5. Deck:** NC

**Incline:** 11/2

**Insulation (optional):** — Any thickness polyisocyanurate, perlite or woodfiber mechanically fastened or adhered with UL Classified insulation adhesive.

**Cover Board:** — Minimum 1/2-in. woodfiber board or minimum 3/4-in thick perlite mechanically fastened or adhered with UL Classified insulation adhesive.

**Base Sheet:** — One ply Garland Co Inc "4120 HPR TriBase Plus" or "4121 HPR TriBase Premium" or "HPR Glasbase" or "HPR Glasbase Premium" or Type G2 base sheet fully adhered with hot roofing asphalt.

**Ply Sheet:** — Three or four plies Garland Co Inc "4120 HPR TriBase Plus" or "4121 HPR TriBase Premium" fully adhered with " PMA 186" applied at a rate of 2 - 2 1/2-gal./100-ft<sup>2</sup>.

**Surfacing:** — 400-lbs ASTM D-448 Size No. 4 roofing gravel embedded in " PMA 186" applied at a rate of 3 to 5-gal./100-ft<sup>2</sup>.

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

**Incline:** 11/2

**Insulation (optional):** — Any thickness polyisocyanurate, perlite or woodfiber mechanically fastened or adhered with UL Classified insulation adhesive.

**Cover Board:** — Minimum 1/2-in. woodfiber board or minimum 3/4-in thick perlite mechanically fastened or adhered with UL Classified insulation adhesive with butt joints in insulation staggered a minimum of 6-in. from plywood deck joints (not required when option insulation is used).

**Base Sheet:** — One ply Garland Co Inc "4120 HPR TriBase Plus" or "4121 HPR TriBase Premium" or "HPR Glasbase" or "HPR Glasbase Premium" or Type G2 base sheet fully adhered with hot roofing asphalt.

**Ply Sheet:** — Three or four plies Garland Co Inc "HPR TriBase" or "TriBase Premium" fully adhered with " PMA 186" applied at a rate of 2 to 2 1/2-gal./100-ft<sup>2</sup>.

**Surfacing:** — 400-lbs ASTM D-448 Size No. 4 roofing gravel embedded in " PMA 186" applied at a rate of 3 to 5-gal./100-ft<sup>2</sup>.

**Class B**

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

**Insulation (optional):** — Any thickness polyisocyanurate, glass fiber, perlite, wood fiber, loose laid, mechanically fastened or adhered any UL Classified insulation adhesive.

**Barrier Board:** — Minimum 1/4-in. thick GP Gypsum Corp. "DensDeck® Roofboard" or "DensDeck Prime® Roofboard" or "DensDeck DuraGuard™ Roofboard" mechanically fastened or adhered any UL Classified insulation adhesive.

**Base Sheet:** — One or two plies Garland Co Inc "HPR TorchBase 4113" or "StressPly IV" or "StressPly IV Plus" heat welded.

**Membrane:** — One or two plies Garland Co Inc "StressPly IV" or "StressPly IV Plus" heat welded.

**Surfacing:** — Two applications "Imper-Sol" applied at 1-gal./100-ft<sup>2</sup>/application.

**2. Deck:** NC**Incline:** 1/4

**Ply Sheet:** — One ply Garland Co Inc "HPR TorchBase 4113" or "4120 HPR TriBase Plus" or "4121 HPR TriBase Premium" or "HPR Glasbase" or "HPR Glasbase Premium" or Type G2 base sheet mechanically fastened

**Base Sheet:** — One or two plies Garland Co Inc "HPR TorchBase 4113" heat welded

**Membrane:** — One or two plies Garland Co Inc "StressPly IV" or "StressPly IV Plus" heat welded

**Surfacing:** — Two applications "Imper-Sol" applied at 1-gal./100-ft<sup>2</sup>/application

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