

TGFU.R40222 - Roofing Systems

Roofing Systems

See General Information for Roofing Systems

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R40222

1/2-in. thick (min) gypsum board or 1/4-in. thick (min) G-P Gypsum Corp. "DensDeck® Roofboard" or "DensDeck Prime® Roofboard" or "DensDeck DuraGuard™ Roofboard" may be used in any existing noncombustible deck Classification. When this is done, the resulting roofing system is acceptable for use over combustible (15/32-in. min) roof decks. The butt joints in the gypsum board and overlayment board are offset a min of 6-in. with the butt joints in the plywood roof deck. Polystyrene insulation must be placed beneath the gypsum board and G-P Gypsum Corp. "DensDeck® Roofboard" products.

Unless otherwise indicated, insulation can be mechanically fastened, adhered with hot roofing asphalt or UL Classified insulation adhesive in any of the following Classifications.

SINGLE PLY MEMBRANE ROOFING SYSTEMS (PVC)

Unless otherwise indicated, insulation is mechanically fastened to the roof deck with metal screws and metal discs.

An air/vapor retarder may be added on top of the deck, below the insulation, in any system listed below.

Unless otherwise indicated, polystyrene insulation may be used under insulation to taper the roof system; limited to noncombustible decks.

Class A - Ballasted (PVC)

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

Incline: 2

Insulation: — Polystyrene, polyisocyanurate, polyurethane, kraft-faced glass fiber, perlite, wood fiber, gypsum board, any thickness, laid loosely.

Slip Sheet (Optional): — Glass fiber reinforced kraft paper.

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC) laid loosely.

Surfacing: — River bottom stone (1/2 to 2-1/2-in. diam) 1000 lb/sq, or crushed stone (1/2 to 3/4-in.) at 900 lbs/sq min, or concrete blocks (10 lb/sq ft) spread not more than 1/8-in. apart, or "STYROFOAM" panels surfaced with 3/8-in. (max) concrete mortar (panels to be abutted together).

Class A - Fully Adhered (PVC)

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

Incline: 1/2

Barrier Board (Required For Combustible Deck): — 1/2-in. min thick gypsum board mechanically fastened with insulation fasteners (6-in. offset of gypsum board joints from plywood deck joints).

Insulation: — Atlas Roofing Corp. "ACFoam II" or 3/4-in. min wood fiberboard over EPS.

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC), fully adhered with TAAC International Corp. "LA-432" applied at 2-gal/sq. or TAAC International Corp. "LA-636" at applied at 2-1/4-gal/sq.

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

Incline: 2

Barrier Board: — 1/2-in. min thick gypsum board, mechanically fastened with insulation fasteners. (6-in. offset of gypsum board joints from plywood deck joints).

Insulation: — 3/4-in. min wood fiberboard over EPS.

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC), fully adhered to the insulation with TAAC

International Corp. "LA-432" applied at 2-gal/sq. or TAAC International Corp. "LA-636" at applied at 2-1/4-gal/sq.

3. Deck: NC

Incline: 1/2

Insulation: — Atlas Roofing Corp. "ACFoam II" or 3/4-in. min wood fiberboard over EPS.

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC), fully adhered with TAAC International Corp. "LA-432" applied at 2-gal/sq. or TAAC International "LA-636" at applied at 2-1/4-gal/sq.

4. Deck: NC

Incline: 1

Insulation (Optional): — Polystyrene or polyisocyanurate, any thickness.

Barrier Board: — 15/32-in. plywood or 7/16-in. oriented strand board.

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC) fully adhered with TAAC International Corp. "LA-432" applied at 2-gal/sq. or TAAC International Corp. "LA-636" at applied at 2-1/4-gal/sq.

5. Deck: NC

Incline: 1/2

Membrane: — "PHX PVC-50" or "PHX PVC-60" (PVC), adhered with TAAC International Corp. "LA-636" applied at 2-1/4-gal/sq.

6. Deck: C-15/32

Incline: Unlimited

Insulation (Optional): — Any UL Classified (except EPS), any thickness, uniform or tapered.

Barrier Board: — — G-P Gypsum Corp. "DensDeck® Roofboard," 1/4-in. thick min (butt joints of barrier board must be staggered a min of 6-in. from the plywood deck butt joints; staggered joints not required for noncombustible roof decks).

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" fully adhered with TAAC International Corp. "LA-432" applied at 2-gal/sq.

Class B - Fully Adhered (PVC)

1. Deck: NC

Incline: 3

Insulation: — Atlas Roofing Corp. "ACFoam II" or Apache Products Co. Corp. "White Line," any thickness.

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC), fully adhered with TAAC International Corp. "LA-432" applied at 2-gal/sq.

Class A - Mechanically Fastened (PVC)

Unless otherwise indicated, the membrane is mechanically fastened to the deck with one of the following methods: "SFS," "Disc Cap." The PVC laps are solvent welded or hot air welded and a PVC sealant (not UL Classified) applied to the exposed seam (approximately 1/8-in. wide bead).

1. Deck: NC

Incline: 1/2

Slip Sheet (Optional): — Any UL Classified Slip Sheet.

Insulation: — (1-in. min) One of the following: Owens Corning "Foamular 150," "Foamular 250," in combination with one ply Atlas Roofing Corp. "FR-10."

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC).

2. Deck: C-15/32

Incline: 1/2

Insulation: — 1/2-in. gypsum board - (joint staggered a min of 6-in. with the joints in plywood); (optional) Branch River Foam 1.0 pcf EPS - 1/2-in. max.

Slip Sheet (Optional when EPS is not used): — 1 ply Atlas Roofing Corp. "FR-50."

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC).

3. Deck: C-15/32

Incline: 1/2

Barrier Board: — 1/2-in. min gypsum board, mechanically fastened (joints in gypsum board are staggered a min of 6-in. from plywood deck joints). The following insulations may be any thickness:

Insulation/Slip Sheet: —

- a. Perlite/(optional) 1 ply Atlas Roofing Corp. "FR-10."
- b. Atlas Roofing Corp. "ACFoam II" / Atlas Roofing Corp. "FR-10."
- c. Owens Corning "Foamular 150," "Foamular 250" or Dow Chemical "Styrofoam SM" / 1 ply Atlas Roofing Corp. "FR-10."
- d. Polyisocyanurate (1-in. min) covered by perlite (3/4-in. min) / (optional) 1 ply Atlas Roofing Corp. "FR-10."
- e. BASF EPS (uniform thickness or tapered), covered with perlite (3/4-in. min) / (optional) 1 ply Atlas Roofing Corp. "FR-10."
- f. ARCO Chemical "ARCOR MB" or "ARCOR FM-1," 1.6-in. min.

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC).

4. **Deck:** NC

Incline: 1

Insulation: — Arco Chemical "ARCOR MB" or "ARCOR FM-1," 1.6-in. min.

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC).

5. **Deck:** NC

Incline: 1

Insulation: — Polystyrene (uniform thickness or tapered), any thickness, covered with perlite, 3/4-in. min.

Slip Sheet (Optional): — 1 ply Atlas Roofing Corp. "FR-10."

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC).

6. **Deck:** NC

Incline: 1

Barrier Board (Optional): — 1/2-in. min gypsum board or 3/4-in. perlite, mechanically fastened.

Insulation: — Dow Chemical "Styrofoam SM, RM, TG or Grayboard," 1-in. min.

Slip Sheet: — Atlas Roofing Corp. "FR-10" or 3/4-in. min perlite with no slip-sheet.

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC), mechanically fastened.

7. **Deleted.**

8. **Deck:** NC

Incline: 1

Insulation: — Atlas Roofing Corp. "ACFoam II" or "ISO II" (1-in. min), mechanically fastened or hot mopped.

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC).

9. **Deck:** NC

Incline: 1

Insulation (Optional): — Polyisocyanurate (1-in. min)

Insulation: — Perlite (3/4-in. min)

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC).

10. **Deck:**

Incline:

Insulation (Optional): — Polyisocyanurate, any thickness.

Insulation (Optional): — Polystyrene (uniform thickness or tapered), any thickness.

Barrier Board: — 3/4-in. min perlite.

Slip Sheet (Optional): — Any UL Classified.

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC).

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

Incline: 2

Barrier Board: — 5/8-in. gypsum board, mechanically fastened with staggered joints 6-in. min from plywood joints.

Insulation: — Polyisocyanurate followed by 3/4-in. min perlite board.

Slip-sheet (Optional): — Any UL Classified.

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC).

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

Incline: 2

Barrier Board: — 1/2-in. gypsum board, joints staggered a min 6-in. from the plywood joints.

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC).

13. **Deck:** NC

Incline: 1

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

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC).

14. **Deck:** NC

Incline: 4

Insulation: — One of the following or combinations of the following insulations any thickness, polyisocyanurate, polyisocyanurate/perlite composite, polyurethane/perlite composite, perlite, wood fiberboard fiberglass.

Barrier Board: — 1/2-in. thick min Johns Manville International Inc. "Retro-Fit Board."

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC).

15. **Deck:** NC

Incline: 1

Insulation: — Polystyrene, any thickness.

Insulation (Optional if slip sheet is used): — Polyisocyanurate, 1-in. min thickness.

Slip Sheet (Optional if polyisocyanurate is used): — 1 ply Atlas Roofing Corp. "FR-10."

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC), mechanically fastened.

16. **Deck:** NC

Incline: 1

Insulation: — Perlite, 3/4-in. min.

Slip Sheet (Optional): — Any UL Classified.

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC).

17. **Deck:** NC

Incline: 1

Insulation (Optional): — Polyisocyanurate, any thickness.

Insulation: — Polystyrene, any thickness (uniform or tapered).

Insulation (Optional if slip sheet is used): — Polyisocyanurate, 1-in. min thickness.

Slip Sheet (Optional if polyisocyanurate is used): — 1 ply Atlas Roofing Corp. "FR-10."

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC) mechanically fastened.

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

Incline: 4

Barrier Board: — 5/8-in. gypsum board (joints staggered a min of 6-in. from the plywood deck joints).

Insulation (Optional): — Polyisocyanurate, any thickness.

Cover Board: — 1/2-in. thick (min) Johns Manville International Inc. "Retro-Fit Board."

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC).

19. **Deck:** Structural Cement-Fiber Unit*

Incline: 1

Insulation: — Atlas Roofing Corp. "ACFoam II" (1-in. min).

Slip Sheet (Optional): — Any UL Classified.

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC).

* - min 2 in. thick, Classified under Structural Cement-Fiber Units (CIYT) Fire Resistance Directory.

20. **Deck:** Structural Cement-Fiber Unit*

Incline: 1/2

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC).

* - min 2 in. thick, Classified under Structural Cement-Fiber Units (CIYT) Fire Resistance Directory.

21. **Deck:** NC

Incline: 2-1/2

Insulation: — Atlas Roofing Corp. "ACFoam II" 1-in. min, mechanically fastened

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC).

22. **Deck:** NC

Incline: 1

Insulation (Optional): — Polyisocyanurate, polyurethane, 1-in. min.

Barrier Board: — Wood fiberboard, 1/2-in. min.

Slip Sheet (Optional): — 1 ply Atlas Roofing Corp. "FR-10."

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC).

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

Incline: 3

Insulation (Optional): — Polystyrene, glass fiber, perlite, polyurethane, isocyanurate, perlite/isocyanurate or perlite polyurethane composites or Partek "Paroc Baseboard," any thickness, mechanically fastened.

Barrier Board: — Partek "Paroc Capboard," 3/4-in. min with insulation joints staggered a min of 6-in. from the plywood deck joints (staggered joints not required for noncombustible deck), mechanically fastened.

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC) mechanically fastened.

24. **Deck:** NC

Incline: 3

Insulation (Optional): — Polystyrene, glass fiber, perlite, polyurethane, isocyanurate, perlite/isocyanurate or perlite polyurethane composites or Partek "Paroc Baseboard," any thickness, mechanically fastened.

Barrier Board: — Partek "Paroc Capboard," 3/4-in. min, mechanically fastened.

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PV) mechanically fastened.

25. **Deck:** NC

Incline: 4

Barrier Board (Optional): — 1/2-in. min gypsum board.

Insulation (Optional): — Polyisocyanurate, any thickness.

Barrier Board: — 1/2-in. thick (min) Johns Manville International Inc. "Retro-Fit Board."

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC).

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

Incline: Unlimited

Insulation (Optional): — Polyisocyanurate, perlite, glass fiber, urethane, wood fiber, polystyrene, EPS, polyisocyanurate composite, urethane composite, mechanically fastened, any thickness.

Barrier Board: — G-P Gypsum Corp. "DensDeck® Roofboard," 1/4-in. thick.

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC)

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

Incline: 1/2

Slip Sheet (Optional): — Two plies Atlas Roofing Corp. "FR 50."

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC).

28. **Deck:** Structural Cement-Fiber Unit*

Incline: 1/2

Insulation: — Rmax Inc. "Multi-Max" (1-in. min).

Slip Sheet (Optional): — Any UL Classified.

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC).

Class B - Mechanically Fastened (PVC)

1. **Deck:** NC

Incline: 2-1/2

Insulation: — The Dow Chemical Co. "Hy-Tec" or "Energy-Lok," any thickness.

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC).

2. **Deck:** NC

Incline: 3

Barrier Board: — For standing seam steel decks, 2-in. maximum perlite between the seams.

Insulation: — Atlas Roofing Corp. "ACFoam II" any thickness.

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC).

3. **Deck:** NC

Incline: No Limitations

Insulation: — Polyisocyanurate, any thickness.

Barrier Board: — 1/2-in. thick Johns Manville International Inc. "Retro-Fit Board."

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC).

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

Incline: 1/2

Slip Sheet: — One or more plies Atlas Roofing Corp. "FR-50."

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC), mechanically fastened.

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

Incline: 1/2

Slip Sheet: — Two plies Atlas Roofing Corp. "FR-10."

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC).

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

Incline: 1/2

Slip Sheet: — One ply Atlas Roofing Corp. "FR-50."

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC).

Class C - Mechanically Fastened (PVC)

1. **Deck:** NC

Incline: Unlimited

Insulation: — Atlas Roofing Corp. "ACFoam II" mechanically fastened, 1-in. min.

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC).

MAINTENANCE AND REPAIR SYSTEMS (PVC)

Class A

1. **Deck:** NC

Incline: 1/2

Existing Roof System: — Insulated on noninsulated cap sheet, smooth or gravel surfaced (loose gravel may be removed).

Barrier Board (Optional): — 1/2-in. thick (min) plywood.

Insulation/Slip Sheet: — (any thickness).

a. Perlite / (optional) 1 ply Atlas Roofing Corp. "FR-10."

b. ARCO Chemical "ARCOR MB" or "ARCOR FM-1," 1.6-in. min

c. Atlas Roofing Corp. "ACFoam II," 1 ply Atlas Roofing Corp. "FR-10."

d. Owens Corning "Foamular 150," "Foamular 250" or Dow Chemical "Styrofoam SM" / 1 ply Atlas Roofing Corp. "FR-10."

e. Polyisocyanurate (1.0-in. min) covered by perlite (3/4-in. min) / (optional) 1 ply Atlas Roofing Corp. "FR-10."

f. BASF EPS (uniform thickness or tapered), covered with perlite (3/4-in. min) / (optional) 1 ply Atlas Roofing Corp. "FR-10."

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC).

2. **Deck:** NC

Incline: 3

Existing Roof System: — Insulated or noninsulated cap, sheet smooth or gravel surfaced (loose gravel may be removed).

Barrier Board (Optional): — 1/2-in. thick (min) plywood.

Insulation: — Atlas Roofing Corp. "ACFoam II," mechanically fastened any thickness.

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC).

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

Incline: 1

Existing Roof System: — Insulated or noninsulated cap sheet, smooth or gravel surfaced bur (gravel may be removed from noncombustible decks) or PVC roof system, covered with:

Barrier Board: — 1/4-in. thick min G-P Gypsum DensDeck®.

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC).

Class B

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

Incline: 1

Existing Roof System: — Insulated or noninsulated cap sheet smooth or gravel surfaced (loose gravel may be removed from noncombustible decks) Class B to retain the existing classification is covered with:

Barrier Board: — 1/2-in. thick min Johns Manville International Inc. "Retro-Fit Board."

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC), mechanically fastened.

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

Incline: 1

Existing Roof System: — Insulated or noninsulated cap sheet, smooth or gravel surfaced BUR (gravel may be removed from noncombustible decks) or PVC Class B roof system to retain existing classification covered with:

Barrier Board: — 1/2-in. thick min Johns Manville International Inc. "Retro-Fit Board."

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC).

Class A, B or C

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

Incline: 1

Existing Roof System: — Class A, B or C insulated (any thickness wood fiber, perlite, polyisocyanurate, urethane or polystyrene with a slip sheet)

Polyester Fleece: — One ply 2.5-oz/sq yd (max) polyester fleece.

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC), mechanically fastened.

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

Incline: 1

Existing Roof System: — Class A, B or C insulated (any thickness wood fiber, perlite, polyisocyanurate, urethane or polystyrene with a slip sheet)

Polyester Fleece: — One layer 2.5-oz/sq yd (max) polyester fleece.

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" (PVC), mechanically fastened.

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

Incline: 1

Existing System: — Class A, B or C built-up system, smooth surface, cap sheet or gravel surfaced, gravel to be maintained at 400/sq, to retain existing Classification.

Insulation: — (Optional) Owens Corning Specialty Products "Foamular," 1-in. max

Slip Sheet: — 1 ply Altas Roofing "FR10" or "FR11."

Membrane: — "PHX PVC-50" "PHX PVC-60" or "PHX PVC-80" mechanically fastened.

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