

Commercial/Industrial Roofing Systems

 **UL Listing: EPDM Roofing Systems****SINGLE PLY MEMBRANE ROOFING SYSTEMS**

In the fully adhered and mechanically fastened systems described below, the ".045 EPDM" membrane may replace the "EPDM.06R" membrane. However, in this case, the membrane must be coated with " EPDM Color Coating" at 2/3 gal/sq and dry silica sand is added to wet coating at 35 lbs/sq.

When a classification does not require a Hypalon and sand coating, the classification is retained when surfaced with one or two coats of " EPDM Color Coating" at 2/3 gal/sq/coat limited to max 1/2 in. slope.

Unless otherwise indicated, when referring to gypsum board in the following classifications, the following will be referenced: G-P Gypsum Dens-Deck®, 1/4 in. thick min regular gypsum board (not Classified) laid with staggered joints (6 in. offset) measuring 0.463 in. thick min and weighing 184 lbs/sq min or Georgia Pacific "Sound Deadening Board", measuring 0.208 in. thick min and weighing 109 lbs/sq min.

Straight or tapered insulation may be used in the following assemblies provided they do not exceed the indicated incline of thickness and carry a UL label.

Unless otherwise indicated, the term "Referenced Insulations" will include the following: Johns Manville "ISO I" or "Fesco Foam", Atlas Roofing "ACFoam II", Johns Manville "E'NRG'Y-2", Rmax "Multi-Max" or "Multi-Max FA", any thickness.

Red rosin paper must be used over combustible decks when "GlasPly IV" or "GlasPly Premier" are nailed as base sheets in asphalt membrane systems.

" EPDM Seam Tape" (after application of " EPDM Tape Primer") may be used in place of " EPDM Lap Cement" and " EPDM Lap Caulk".

Any noncombustible deck Classification incorporating polyisocyanurate insulation may substitute the polyisocyanurate with EPS covered by a layer of 1/2 in. thick (min) wood fiber board.

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

Polystyrene insulation (any thickness), covered with 1/2 in. thick min perlite, is an acceptable alternate to any insulation in any of the following noncombustible roof deck Classifications.

Class A – Ballasted (EPDM)**1. Deck:** NC**Incline:** 2

Insulation (Optional): Polystyrene, polyurethane, polyisocyanurate, perlite, perlite/urethane/perlite composite, perlite/urethane composite or perlite/isocyanurate composite or wood fiber, any thickness.

Membrane: ".060 FR EPDM" or "EPDM.045", laid loosely.

Surfacing: River bottom stone (3/4 to 1-1/2 in. diam), 1000 lbs/sq.

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

Incline: 2

Insulation: Any thickness, one or more layers Johns Manville "Fesco", "Fesco-Foam", "ISO I", "E'NRG'Y 2", 1/2 in. "Retro-Fit Board", 1/2 in. "Retro-Fit" cover board over polystyrene or any UL Classified polyisocyanurate insulation, mechanically fastened or hot mopped.

Membrane: Any UL Classified membrane (EPDM).

Surfacing: River bottom stone (3/4 to 1-1/2 in. diam), 1000 lbs/sq.

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

Incline: 3

Slip Sheet: Atlas Roofing "FR-50", 20 mil.

Insulation: Any thickness, one or more layers Johns Manville "Retro-Fit Board", "ISO I", "E'NRG'Y 2", "Fesco-Foam", "Fesco", 1/2 in. "Retro-Fit" cover board over polystyrene or any UL Classified polyisocyanurate insulation, laid loosely.

Membrane: ".060 FR EPDM" or "EPDM.045", laid loosely.

Surfacing: River bottom stone (3/4 to 1-1/2 in. diam), 1000 lbs/sq.

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

Incline: 2

Base Sheet: One ply Type G1 or G2, Johns Manville "GlasBase", nailed.

Ply Sheet: One ply Type G1 or G2, Johns Manville "GlasBase", adhered with hot mopping asphalt.

Slip Sheet: One layer Atlas Roofing "FR-50".

Insulation: Any thickness, one or more layers Johns Manville "ISO I", "ENRG'Y 2", "Fesco-Foam", "Fesco", "Retro-Fit Board", 1/2 in. "Retro-Fit" over polystyrene or any UL Classified polyisocyanurate insulation.

Membrane: ".060 FR EPDM", loose laid.

Surfacing: River bottom stone (3/4 to 1-1/2 in. diam), 1000 lbs/sq.

Class A – Fully Adhered (EPDM)

In the fully adhered systems described below, the insulation is mechanically attached with fasteners and plates, hot roofing asphalt or cold adhesive. Unless otherwise indicated, the specified membrane is adhered to the insulation with " EPDM Bonding Cement" at 1-1/3 gal/sq. Field membrane splices, 3 to 4 in. wide are adhered with " EPDM Lap Cement" or " EPDM Lap Cement-Black" at 130-150 lin ft/gal. Splice edges are covered with " EPDM Lap Caulk-Black" at 11 oz/22 lin ft.

In the ".060 White EPDM" systems described below, the installation is the same as listed above except " EPDM Lap Cement-White" is used in the place of " EPDM Lap Cement-Black". Coverage rates are the same. Splice edges are covered with " EPDM Lap Caulk-White" at 11 oz/22 lin ft.

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

Incline: 1

Barrier Board: Gypsum board, 0.463 in. min 184 lb/sq, mechanically fastened.

Insulation: Johns Manville "Fesco-Foam", "ISO I", "E'NRG'Y 2", "Fesco" or wood fiber, 3.6 in. max, 1/2 in. wood fiber over polystyrene, 3.6 in. max, mechanically fastened with metal screws and metal or plastic insulation plates.

Membrane: ".060 FR EPDM".

2. **Deck:** NC

Incline: As specified below

Insulation: Wood fiber, 1/2 to 3 in.; wood fiber, 1/2 in. min over Johns Manville "Fesco", "Fesco-Foam", "ISO I", "E'NRG'Y 2", polyisocyanurate, urethane, any thickness; cellular concrete, precast concrete with grouted joints or structural (poured in place) concrete.

Membrane: ".060 FR EPDM", ".045R EPDM" or ".060R EPDM", 1 in. incline; ".060 White EPDM, 1-1/2 in. incline."

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

Incline: As specified below

Insulation: One of or combination of the following:

A.)Gypsum board.

B.)Gypsum board over Johns Manville "Fesco", "Fesco–Foam", "ISO I", "E'NRG'Y 2", polyisocyanurate, urethane, any thickness.

C.)Wood fiber, 1/2 in. min over Johns Manville "Fesco", "Fesco–Foam", over gypsum board.

D.)Wood fiber, 1/2 in. min over Johns Manville "ISO I", "E'NRG'Y 2", polyisocyanurate, polystyrene, urethane, any total thickness, over gypsum board.

E.)Wood fiber, 1/2 in. min over gypsum board.

Membrane: ".060 FR EPDM", ".045R EPDM" or ".060R EPDM", 1 in. incline; ".060 White EPDM", 1–1/2 in. incline.

4. **Deck:** NC

Incline: As specified below

Insulation: Johns Manville "ISO I", "E'NRG'Y 2" or "Referenced insulations".

Membrane: ".060 White EPDM" or ".060 FR EPDM", 1/2 in. incline; ".045R EPDM" or ".060R EPDM", 1/4 in. incline.

5. **Deck:** C–15/32

Incline: As specified below

Barrier Board: Gypsum board.

Insulation: Johns Manville "ISO I", "E'NRG'Y 2" or "Referenced insulations".

Membrane: ".060 White EPDM" or ".060 FR EPDM", 1/2 in. incline; ".045R EPDM" or ".060R EPDM", 1/4 in. incline.

6. **Deck:** NC

Incline: 1/2

Insulation: Rmax "Multi–Max FA", any thickness.

Membrane: ".045 EPDM".

Surfacing: One coat " EPDM Color Coating" at 2/3 gal/sq. Dry silica sand at 35 lbs/sq is broadcast onto wet coating. Excess sand may be removed after coating has air dried. Bald (unsanded) spots shall be recoated and resanded at same rates.

7. **Deck:** NC

Incline: 1

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

Ply Sheet (Optional): One or more plies "GlasPly IV", "GlasPly Premier", mopped in hot asphalt.

Insulation: Wood fiber, 1/2 to 3 in.; wood fiber, 1/2 in. min over Johns Manville "Fesco", "Fesco–Foam", "ISO", "E'NRG'Y 2", polyisocyanurate, any thickness.

Membrane: ".060 FR EPDM", ".060R EPDM" or ".045R EPDM".

8. **Deck:** NC

Incline: 1

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

Ply Sheet (Optional): One or more plies "GlasPly IV" or "GlasPly Premier", mopped in hot asphalt.

Insulation: Wood fiber, 1/2 to 3 in.; wood fiber, 1/2 in. min over Johns Manville "Fesco", "Fesco–Foam", "ISO 1", "E'NRG'Y 2", polyisocyanurate, any thickness.

Membrane: ".060 EPDM", ".060R EPDM" or ".045R EPDM".

Class B – Fully Adhered (EPDM)

1. **Deck:** C–15/32

Incline: 1/4

Barrier Board: Gypsum board, 0.463 in. min 184 lb/sq, mechanically fastened.

Insulation: Wood fiber board, 1/2 in. min over (optional) Johns Manville "Fesco–Foam", "ISO I", "E'NRG'Y 2", "Fesco" or polystyrene, mechanically fastened with metal screws and metal or plastic

insulation plates.

Membrane: ".060 FR EPDM", ".045 EPDM" or ".060 White EPDM".

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

Incline: See Note

Insulation: Min 2 in. thick "E'NRG'Y 2"; any UL Classified wood fiber board, min 1-1/2 in. thick; 1/2 in. "Retro-Fit Board" over min 1.5 in. "E'NRG'Y 2". Bottom insulation joints shall be staggered min 6 in. from the deck joints.

Membrane: Any UL Classified Johns Manville EPDM membrane.

Note: Max incline shall be in accordance with Classification established for the insulation/membrane roofing but shall not exceed 1 in.

Class A – Mechanically Fastened (EPDM)

In the following mechanically fastened systems, Johns Manville "ISO I", "E'NRG'Y 2", "Fesco-Foam" or "Tapered ISO I" with a cover board of either min 3/4 in. "Fesco", min 1/2 in. thick "Retro-Fit" or 1/2 in. wood fiber are suitable alternates to those listed provided max insulation thickness is not exceeded.

The insulation is attached with mechanical fasteners and plates, hot roofing asphalt or cold adhesive. The specified membrane is secured over the insulation by mechanical fasteners and plates placed in the field splices. Field membrane splices, 6 in. wide, are adhered with " EPDM Lap Cement-Black" at 85 to 95 lin ft/gal. Splice edges are covered with " EPDM Lap Caulk-Black" at 11 oz/22 lin ft.

In the ".060 White EPDM" systems described below, the installation is the same as listed above except " EPDM Lap Cement-White" is used in place of " EPDM Lap Cement-Black". Coverage rates are the same.

Splice edges are covered with " EPDM Lap Caulk-White" at 11 oz/22 lin ft.

1. **Deck:** NC

Incline: 1/4

Insulation: Johns Manville "ISO I", "E'NRG'Y 2" or "Referenced Insulations".

Membrane: ".045R EPDM" or ".060 FR EPDM".

2. **Deck:** NC

Incline: 1

Insulation: Wood fiber, 1/2 to 3 in.; Johns Manville "Fesco", "Fesco-Foam", any thickness; wood fiber or "Retro-Fit", 1/2 in. min over Johns Manville "ISO I", "E'NRG'Y 2", polyisocyanurate, urethane, any thickness; cellular concrete, precast concrete with grouted joints or structural (poured-in-place) concrete.

Membrane: ".045R EPDM" or ".060 FR EPDM".

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

Incline: 1

Insulation: One of or combination of the following:

A.)Gypsum board.

B.)Gypsum board over Johns Manville "Fesco", "Fesco-Foam", "ISO I", polyisocyanurate, polystyrene, urethane, any thickness.

C.)Wood fiber or Johns Manville "Retro-Fit", 1/2 in. min over "Fesco", "Fesco-Foam", over gypsum board.

D.)Wood fiber or Johns Manville "Retro-Fit", 1/2 in. min over "ISO I", polyisocyanurate, polystyrene, urethane, any total thickness, over gypsum board.

E.) Wood fiber or Johns Manville "Retro-Fit", 1/2 in. min over gypsum board.

Membrane: ".045R EPDM" or ".060R EPDM".

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

Barrier Board: Gypsum board.

Insulation: Johns Manville "ISO I", "E'NRG'Y 2" or "Referenced Insulations" .

Membrane: ".045R EPDM" or ".060R EPDM".

Class B – Mechanically Fastened (EPDM)

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

Base Sheet: One layer "GlasBase", mechanically fastened.

Membrane: ".045R EPDM" or ".060R EPDM".

2. **Deck:** C-15/32 **Incline:** See Note

Insulation: Min 2 in. thick "E'NRG'Y 2"; any UL Classified wood fiber board, min 1-1/2 in. thick; 1/2 in. "Retro-Fit Board" over min 1.5 in. "E'NRG'Y 2". Bottom insulation joints shall be staggered min 6 in. from the deck joints.

Membrane: Any UL Classified Johns Manville EPDM membrane.

Note: Max incline shall be in accordance with Classification established for the insulation/membrane roofing but shall not exceed 1 in.

MAINTENANCE AND REPAIR SYSTEMS (EPDM)

Class A

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

Existing Roof System: Class A, B or C, gravel or smooth surfaced, covered with:

Insulation: Any thickness, one or more layers Johns Manville "Retro-Fit Board", "Fesco", "Fesco-Foam", "ISO I", "E'NRG'Y 2", 3/4 in. "Fesco" over polystyrene or any UL Classified polyisocyanurate insulation, mechanically fastened or hot mopped.

Surfacing: Any UL Classified Class A loose laid, ballasted EPDM single ply roofing membrane.

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

Existing Roof System: Class A, B or C, gravel or smooth surfaced, covered with:

Insulation: Any thickness, one or more layers Johns Manville "Retro-Fit Board", "Fesco", "Fesco-Foam", "ISO I", "E'NRG'Y 2", 3/4 in. "Fesco" over polystyrene or any UL Classified polyisocyanurate insulation, mechanically fastened or hot mopped.

Surfacing: Any UL Classified Class A loose laid, ballasted EPDM single ply roofing membrane.

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

Existing Roof System: Class A, B or C roofing system, covered with:

Barrier Board: Gypsum board.

Membrane: ".045R EPDM" or ".060R EPDM", mechanically fastened.

Class B

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

Existing Roof System: Class A or B roofing system, covered with:

Insulation: Wood fiber, 1/2 to 3 in., Johns Manville "Fesco", "Fesco-Foam", any thickness (for mechanically attached systems only); wood fiber, 1/2 in. min over Johns Manville "ISO I", "E'NRG'Y 2", polystyrene, polyisocyanurate, urethane, any thickness.

Membrane: ".060 EPDM" or ".060 White EPDM", fully adhered. Also ".045R EPDM" or ".060 White EPDM" may be mechanically fastened.

Class C

1. **Deck:** NC

Incline: 1

Existing Roof System: Class A, B or C roofing system, covered with:

Insulation: Wood fiber, 1/2 to 3 in.

Membrane: ".060 EPDM", mechanically attached. Optionally, the ".060 EPDM" membrane can be fully adhered (See Class A – Fully Adhered description).

Class A, B and C

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

Incline: 1/2

Existing Roof System: Class A, B or C mineral or smooth surfaced asphalt coated (not modified) cap sheet roofing system, to retain the existing Classification, covered with:

Membrane: ".060 EPDM" or ".060 White EPDM", fully adhered (See Class A – Fully Adhered description).

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

Incline: 1/2

Existing Roof System: Class A, B or C mineral or smooth surfaced asphalt coated (not modified) cap sheet roofing system, to retain the existing Classification, covered with:

Slip Sheet: Atlas Roofing "FR-50", 15 mil, laid loosely.

Membrane: ".045R EPDM" or ".060R EPDM", mechanically fastened.