

**Purpose**

Examples

1. Shingle roof system
2. Metal roof with blanket insulation
3. Metal roof with rigid insulation
4. Built-up asphalt roof system
5. Single-ply roof system
6. Modified Bitumen roofing system
7. ~~Cold tar roof system~~

NOTE:

- #1: Other types of roof systems may be acceptable if system meets or exceeds the performance standards listed below.
- #2: All roof system and products shall be designed in accordance with state fire prevention code and state building code.

**Performance Standards**

1. **Moisture resistant – integral finishes**
2. **Thermal resistant – minimum U-factor for low-slope roof is 26.0 and steep roof 19.6.**
3. **Positive slope – minimum slope 1/4” in 12”, unless specified otherwise.**
4. **Minimal maintenance – upkeep but not continual maintenance**
5. **Wind / weather resistant – meet FM uplift criteria**
6. **Positive drainage to interior drains or exterior sources**
7. **Fire resistive – meet UL class “A”**
8. **“ENERGY STAR” compliant ratings for surface treatments**
9. **Consider “radiant barriers”, such as aluminum foil at the ceiling of attics**
10. **Sheet metal flashings shall conform to SMACNA’s “Architectural Sheet Metal Manual”.**
11. **Pre-Roofing Conference prior to field installation of roofing system.**

Components

1. Asphalt shingles, UL class “A”; ASTM B108 or UL790
2. Roofing accessories:
  - a. Felt underlayment
  - b. Self-adhering sheet underlayment
3. ~~Vented nailboard insulation~~: oriented strand board (OSB) or plywood
4. Rigid insulation with vapor barrier on under side: extruded polystyrene or polyisocyanurate board
5. Vapor barrier
6. Structural support: steel deck or cementitious deck; or wood deck (lumber, plywood or oriented strand board, OSB) permitted in accordance with Arkansas State Fire Prevention Code and Building Code.

Performance Standards

1. **Moisture resistant**
2. **Thermal resistant**
3. **“ENERGY STAR”**: compliant surface treatments
4. **Maximum industry available material and wind warranty**

Construction Standards

1. **Minimum 3:12 slope**
2. **Fasten shingles to roof sheathing with nails – not staple fasteners.**
3. **Metal drip edge: brake formed sheet metal with at least a 2 inch roof deck flange**
4. **Laminated-Strip Asphalt Shingles: ASTM D3462 laminated, multi-ply overlay construction glass-fiber reinforced, mineral-granule surfaced, self-sealing shingles.**
5. **Felt underlayment 30 pound asphalt-saturated organic felts, non-perforated. Use two layers where slope equals or is less than 4/12.**
6. **Sheet metal flashings conform to SMACNA’s “Architectural Sheet Metal” manual. Includes perimeter edge metal; penetration flashings; valley construction; and apron, step, cricket, or back flashings.**
7. **Minimum 20 year warranty.**

**METAL ROOF WITH BLANKET INSULATION**

Components

1. Standing seam metal roof panels, minimum 26 gauge
  - a. Profile: vertical, rib, seamed joint
  - b. Material: aluminum zinc alloy coated steel sheet
  - c. Exterior finish: fluoropolymer two-coat finish system 70 percent PDFY resin.
  - d. Snow guards: seam mounted, stop or bare type (surface mounted is not acceptable)
2. Insulation: glass fiber blanket with vapor tight edge tabs and facer on under side (Minimum R-19)
3. Galvanized steel purlins
4. Solid substrate with ice/watershield moisture barrier recommended.
5. Structural support:
  - a. Steel joist or truss joists
  - b. Pre-engineered structural framing system.

Performance Standards

1. **Moisture resistant**
2. **Thermal resistant**
3. **“ENERGY STAR”**: compliant surface treatments
4. **Special warranty on panel finishes by manufacturer: 20 years.**
5. **Special weathertightness warranty for standing seam metal roof panels: 20 years.**
6. **System shall have ASTM E 1592-94 wind uplift classification.**
7. **Contractor furnish 2 year guarantee on materials and Workmanship (in accordance with terms and conditions of manufacturer’s 20 year weathertightness warranty).**
8. **System shall have ASTM E 1592-94 wind uplift classification.**
9. **No water penetration when tested according to ASTE 1646.**

Construction Standards

1. **Minimum 1:12 slope**
2. **Thermal spacers where panels attach directly to purlins**
3. **Standing seam assembly: factory formed, cap seam assembly designed for concealed mechanical attachment of panels to roof purlins or deck**
4. **Air leakage through assembly of not more than 0.06 CFM/sq.ft. of roof area when tested to ASTM E 1680.**
5. **No water penetration when tested according to ASTM E 1646.**
6. **Roof panels shall be 26 gauge minimum.**

Guidelines

1. “ENERGY STAR” compliant roof surface recommended

**METAL ROOF WITH RIGID INSULATION**

Components

1. Standing seam metal roof panels, minimum 26 gauge
  - a. Profile: vertical rib, seamed joint
  - b. Material: aluminum zinc alloy coated steel sheet
  - c. Exterior finish: fluoropolymer two-coat finish system 70 percent PDFV resin.
  - d. Snow guards: seam mounted, stop or bar type (surface mounted is not acceptable.)
2. Underlayment (ice and water shield)
3. Nail base Rigid roof insulation – one or two layers
4. Structural support: steel deck or cententitious deck; wood deck (lumber, plywood or oriented strand board, OSB) permitted in accordance with Arkansas State Fire Prevention Code and Building Code.

Performance Standards

1. **Moderate impact resistant**
2. **Moisture resistant**
3. **ENERGY STAR” compliant surface treatment**
4. **Special warranty on panel finishes: 20 years.**
5. **Special weathertightness warranty for standing seam metal roof panels: 20 years.**
6. **Contractor furnish 2 year guarantee on materials workmanship (in accordance with terms and conditions of manufacturer’s 20 year weathertightness warranty).**
7. **System shall have ASTM E 1592-94 wind uplift classification**
8. **No water penetration when tested according to ASTM E 1646**

Construction Standards

1. **Minimum 1:12 slope**
2. **Underlayment: self-adhering high temperature sheet: 30 to 40 mils thick**
3. **Standing seam assembly: factory formed, cap seam assembly designed for concealed mechanical attachment of panels to roof purlins or deck**
4. **Air leakage through assembly of not more than 0.06 CFM/sq.ft. of roof area when tested to ASTM E 1680**
5. **Pre-roofing Conference prior to field installation of roofing**
6. **Roof panels shall be 26 gauge minimum.**

**BUILT-UP ASPHALT ROOF SYSTEM**

Components

1. Alternating layers of bituminous sheets and viscous bituminous coatings over an insulated deck.

**Constructions Standards**

1. **System description:**
  - a. **BU-I-A-G (4) -A (Built-up membrane over insulated deck using asphalt with glass fiber ply sheets and aggregate surfacing.**
  - b. **BU-I-L-G2 (coated base) (4)-A (built-up roof membrane over insulated deck using cold liquid applied asphalt with ply sheets and aggregate surfacing).**
2. **Base sheet (recommended by manufacturer)**
3. **Ply felt: asphalt impregnated, glass fiber felt, complying with ASTM D2178, Type VI or 28 lb. coated base sheets as required by manufacturer to meet warranty requirements.**
4. **Flashing sheet**
  - a. **SB5 modified asphalt sheet, mineral granule surfaced, ASTM G162 (composite sheet) or ASTM G164 (polyster)**
  - b. **APP modified asphalt sheet, mineral granule surfaced, ASTM G223 (composite)**
5. **Asphalt materials**
  - a. **Roofing asphalt: Recommended by built-up roofing manufacturer**
  - b. **Cold applied adhesive**
6. **Auxiliary membrane materials may include: aggregate surfacing; substrate board, vapor retarder; roof coating and/or protective walkways.**
7. **Polisocyanurate board insulation with a minimum compressive strength of 20 PSI and be faced on both top and bottom.**
8. **Pre-Roofing Conference prior to field installation of roofing.**

**Performance Standards**

1. **Thermal resistant**
2. **Impact resistant**
3. **Moisture resistant**
4. **Manufacturer to provide minimum 15 year warranty**
5. **Contractor to provide 2 year guarantee warranting the roofing, insulation and flashing.**

**SINGLE-PLY ROOF SYSTEM**

1. Uniform elastomeric EPDM membrane, PVC or TPO
2. ½ inch, rigid cover board
3. Rigid insulation – one or two layers
4. Vapor barrier
5. ¼ inch substrate board
6. Structural support: steel deck or cementitious deck or wood deck (lumber, plywood or oriented strand board,OSB).

**Performance Standards**

1. **Moisture resistant**
2. **Thermal resistant**
3. **Weather / temperature resistant**
4. **“ENERGY STAR”: compliant surface treatment**
5. **Class “A” U.L. roof system**
6. **Manufacturer to provide 20 year warranty**
7. **Contractor to provide 2 year guarantee warranting the roofing, insulation, and flashing work**

**Construction Standards**

1. **Minimum slope 1/4”:12”**
2. **Loose laid/ballasted, fully adhered or mechanically fastened ethylene propylene diene monomers (EPDM) membrane, .045 inch thick minimum**
3. **Cover board: ASTM C 1177, glass mat, water resistant gypsum substrate Type X, or ASTM C 272 gypsum wood fiber composite board**
4. **Insulation: extruded polystyrene board or polyisocyanurate board**
5. **Vapor barrier: polyethylene retarder, ASTM D 4397, 6 mils (0.15 mm) thick minimum**
6. **Substrate board: glass mat, water resistant gypsum board**
7. **Pre-roofing Conference prior to field installation of roofing.**

Components

1. Roofing system formed with modified bituminous membranes over an insulated deck.

**Construction Standards**

1. **System description – provided one of the following:**
  - a. **MBA(1)-i-(T,M or L)-G(2)-M or A (modified bitumen APP roofing membrane over insulated deck, mopped or set in cold, liquid-applied adhesive, with glass fiber ply sheet and mineral or aggregate surfacing.**
  - b. **MBS (1)-I-(T, M or L)-G(2) M or A (modified bitumen SBS roofing membrane, over insulated deck, mopped or set in cold, liquid-applied adhesive, with glass fiber ply sheet and mineral or aggregate surfacing.**
2. **Cap sheet – provide one of the following:**
  - a. **SBS modified bituminous cap sheet: SBS modified asphalt sheet, smooth surfaced, dusted with fine parting agent on both sides or granular surfaced; suitable for application method specified; manufacturer’s standard thickness and weight; for use of reinforcing type as follows:**
    - i. **Use: roof membrane and base flashing**
    - ii. **Reinforcing: composite woven (ASTM G162) and glass fiber mat.**
  - b. **APP-Modified cap sheet, smooth surfaced: atactic polypropylene modified asphalt sheet, smooth surfaced; suitable for application method specified; manufacturer’s standard thickness and weight; for use and of reinforcing types as follows:**
    - i. **Use: roof membrane and base flashing**
    - ii. **Reinforcing: composite woven (ASTM G162) and glass fiber mat**
3. **Auxiliary membrane materials may include: protective surfacing (aggregate surfacing or roof granules); roofing asphalt (as recommended by system manufacturer); substrate board (if required by design professional or roof manufacturer); cold applied adhesive: vapor retarded (if required by project conditions by design professional or manufacturer; and protective walkway materials recommended by system manufacturer.**
4. **Base sheet: unperformed, asphalt impregnated and coated glass fiber sheet, dusted with fine mineral surfacing on both sides.**
5. **Base ply felts: asphalt coated, glass fiber felt, complying with ASTM D2178, Type VI or 28 lb. coated base sheets as required by manufacturer to meet warranty requirements.**

**MODIFIED BITUMINOUS MEMBRANE**

6. Polyiso-cyanurate board insulation with a minimum compressive strength of 20 PSI and be faced with both top and bottom; and provide tapered insulation, preformed saddles, crickets, tapered edge strips and other insulation shapes as required for “positive drainage”.
7. Insulation accessories as may be recommended by the insulation manufacturer and as compatible with membrane roofing including: fasteners; cold fluid applied adhesive; wood nailer strips; and cover board (perlite insulation board or cellulosic-fiber insulation board).
8. Pre-Roofing Conference prior to field installation of roofing.

**Performance Standards**

1. Thermal resistant
2. Impact resistant
3. Moisture resistant
4. Manufacturer to provide a minimum 20 year warranty
5. Contractor to provide a minimum 2 year warranty covering the roofing, insulation and flashing.