Brad Hays

Both Sides of the Storm

Silver Bullet Checklists™

SBC Roof Series: EPDM Roofing System

An EPDM (Ethylene Propylene Diene Monomer) roof system is a type of flat or low-sloped roofing system that is known for its durability, flexibility, and weather resistance. EPDM roofing membranes are synthetic rubber materials available in large sheets, which are typically black in color.

A fully adhered roof system is a type of roofing installation method where the roofing material is directly attached to the roof substrate using adhesives. This method is commonly used with single-ply membranes such as EPDM, TPO, or PVC. In fully adhered roof system, the membrane is glued to the insulation or roof deck, creating a strong and watertight seal. This method is preferred for its ability to resist wind uplift, and it can be a suitable choice for roofs with irregular shapes or complicated layouts. Additionally, adhered roof systems are known for their ease of installation and ability to accommodate thermal movement.

The components of an EPDM roof system typically include:

1. EPDM membrane: A synthetic rubber membrane that provides waterproofing and protection.

   The EPDM (ethylene propylene diene terpolymer) membrane is made out of a synthetic rubber compound. This durable material is known for its resistance to weathering, tearing, and abrasion, making it a popular choice for waterproofing flat and low-slope roofs. Additionally, EPDM is often available in different thicknesses and widths to accommodate various roofing needs.

   EPDM membranes are commonly available in thicknesses ranging from 45 to 90 mils (1.14 to 2.29 mm). As for width, they are usually available in rolls that are 10 to 50 feet wide, providing flexibility and coverage options for different roofing projects. Some manufacturers may offer custom sizes or variations, so it's worth checking with specific suppliers for their available options.

2. Insulation: Materials used to provide thermal insulation and improve energy efficiency.

   Various types of insulation can be used in conjunction with an EPDM roofing system. Common options include:

   1. Polyisocyanurate (Polyiso): This type of insulation offers a high R-value per inch, making it an efficient choice for roofing applications.
   2. Expanded Polystyrene (EPS): EPS insulation is known for its lightweight nature and is available in various compressive strengths.

3. Extruded Polystyrene (XPS): XPS insulation provides excellent moisture resistance and can be used in various roofing systems.

These insulation materials can offer thermal performance, moisture resistance, and compatibility with EPDM roofing systems, contributing to energy efficiency and overall roof performance. It's important to select insulation materials based on the specific requirements and performance characteristics of the roofing project.

3. Adhesives: Used for bonding EPDM membrane seams and attaching the membrane to the roofing substrate.

In an EPDM roofing system, several types of adhesives are commonly used for various applications. These adhesives include:

1. Seam tape and primer: Used to create and seal seams in the EPDM membrane. The primer helps to prepare the membrane for adhesion.
2. Contact adhesive: This type of adhesive is used to bond EPDM membrane to various substrates, such as wood, metal, or insulation boards.
3. Splice adhesive: This adhesive is specifically designed for bonding two EPDM membranes together at overlaps and seams.
4. Flashing adhesive: Used for adhering EPDM flashings and details to the roofing substrate.

These adhesives are crucial for creating strong, watertight bonds within the EPDM roofing system, providing durability and weather resistance. It's important to follow manufacturer recommendations and industry best practices for the application of these adhesives to ensure proper performance and longevity of the roofing system.

4. Flashings: These are used to create watertight seals around roof penetrations, edges, and transitions.

In an EPDM roofing system, various types of flashings are used to create watertight seals and protect vulnerable areas. Common EPDM flashings include:

1. Pipe flashings: These are used to seal around pipes and other penetrations extending through the roof, providing a waterproof barrier.
2. Wall flashings: Used to create a waterproof transition between the roof membrane and vertical surfaces, such as parapet walls or upstands.
3. Edge flashings: Installed at the perimeter of the roof to provide a secure edge detail and prevent water intrusion.

4. Skylight and curb flashings: Specifically designed for sealing around skylights, roof curbs, and other rooftop features.

These flashings are essential components of an EPDM roofing system, helping to maintain the integrity of the waterproofing and protect vulnerable areas from potential water damage. Proper installation and detailing of these flashings are critical for the long-term performance of the roof.

5. Sealants: Used for additional waterproofing at critical junctions and seams.

Several types of sealants are commonly used in EPDM roofing systems to provide additional waterproofing and protection in critical areas. Commonly used sealants include:

1. Butyl sealant tape: This tape is used for sealing joints and transitions, such as roof-to-wall connections, and offers good adhesion to EPDM membranes and various substrates.
2. Silicone sealant: Silicone-based sealants are used to seal around roof penetrations, flashings, and details, providing flexibility and weather resistance.
3. Liquid EPDM sealant: This type of sealant is often used to repair small punctures, tears, or damaged areas of the EPDM membrane, providing a seamless waterproof barrier.

These sealants are essential for addressing specific areas of vulnerability and maintaining the overall waterproofing integrity of the EPDM roofing system. When selecting sealants, it's important to consider compatibility with the EPDM membrane and specific application requirements.

6. Fasteners: Hardware used to secure the EPDM membrane and other components to the roof substrate.

Various types of fasteners are used in EPDM roofing systems to secure the membrane and other components to the roof substrate. Common fasteners include:

1. Roofing screws: These self-tapping screws are commonly used to attach EPDM membrane and insulation boards to the roofing substrate.
2. Plates and barbed plates: Used in conjunction with fasteners to provide additional mechanical attachment and secure the membrane in place.
3. Batten bar systems: These systems use batten bars and fasteners to secure the EPDM membrane in place without penetrating the membrane itself.

The selection of fasteners depends on factors such as the type of roof substrate, regional wind uplift requirements, and specific details of the roofing project. It's important to ensure that fasteners are compatible with the EPDM membrane and are installed according to manufacturer recommendations and industry best practices for optimal performance and longevity of the roofing system.

7. Roofing accessories: Various accessories such as termination bars, drip edges, and other components used for detailing and finishing the roof system.

Several roof accessories are commonly used in EPDM roofing systems to provide detailing, finishing, and additional functionality. These accessories include:

1. Termination bars: Used to secure and seal the edges of the EPDM membrane at parapet walls, curbs, and other terminations.
2. Drain assemblies: Including scuppers, roof drains, and gutters to manage water runoff and prevent ponding on the EPDM roof surface.
3. Drip edges and fascia covers: Installed at the perimeter of the roof to direct water away from the structure and protect the EPDM membrane edges.
4. Walkway pads: These are used to create designated pathways for maintenance and service personnel, protecting the EPDM membrane from damage due to foot traffic.
5. Roof access hatches and ladders: Providing safe access to the roof for maintenance and inspections without causing damage to the EPDM membrane.

These accessories are essential for ensuring proper functionality, protection, and longevity of the EPDM roofing system, while also addressing specific requirements and practical needs of the roofing structure.

* Check with a licensed roofing contractor for additional information.