Brad Hays

Both Sides of the Storm

Silver Bullet Checklists™

SBC Roof Series: Torch Down Roofing Systems

A torch down roof system, also known as modified bitumen roof or torch on roofing, is a type of roofing material made from asphalt and rubber modifiers that is installed using a torch. It typically consists of layers of modified bitumen, a rubberized asphalt material, which are applied to the roof surface. The installation process involves heating the material with a torch to create a waterproof seal. The layers are heated with a torch as they are rolled onto the roof, creating a durable and seamless waterproof membrane. Torch down roofs are favored for their flexibility, which allows them to expand and contract with changing temperatures, making them well-suited for buildings in areas with extreme weather conditions. Additionally, they are resistant to UV rays and can provide long-lasting protection for flat or low-slope roofs. This meth od makes the roofing material more flexible and durable, suitable for flat or low-sloped roofs. Torch down roofs are known for their resistance to weather and UV exposure, making them a popular choice for commercial and residential buildings.

The components of a torch down roof typically include:

1. Modified Bitumen Rolls: These are made of asphalt and rubber modifiers, providing flexibility and durability.

   Modified bitumen rolls, also known as torch down roofing rolls, are commonly available in standard widths of 36 inches and 39 inches. Typically, these rolls are manufactured in lengths of around 33 feet. The thickness of the rolls can vary, offering options such as 1.5 millimeters (mm), 2 mm, or 3 mm to suit different project requirements.

2. Base Sheet: The bottom layer of the system, usually made of fiberglass or polyester, providing strength and stability.

   The base sheet of a torch down roof is a crucial component that provides a sturdy foundation for the overall roofing system. This sheet is typically made from fiberglass or polyester, and it serves as the bottom layer of the roofing assembly. Its primary functions include:

   1. Reinforcement: The base sheet adds strength and stability to the roof, enhancing its ability to withstand various stresses, including wind and foot traffic.
   2. Moisture Protection: It acts as a barrier, preventing moisture from infiltrating the underlying structure.

3. Adhesive Receptivity: The base sheet is designed to receive and bond with the torch down modified bitumen membrane during installation, creating a secure and watertight seal.

Overall, the base sheet is integral to the torch down roofing system, contributing to its durability and long-term performance.

3. Torch: A roofing torch is used to heat the modified bitumen membrane, allowing it to adhere to the underlying surface.

The torch used in a torch down roof is a specialized tool designed for heating and melting the modified bitumen material during installation. It typically operates with a mix of propane and oxygen, producing a flame that reaches temperatures between 900 and 1100 degrees Fahrenheit (482 to 593 degrees Celsius).

The torch is a handheld device with a nozzle that directs the flame onto the surface of the modified bitumen rolls, allowing the material to bond with the underlying layers and create a waterproof seal. The skilled application of heat from the torch is essential for activating the adhesive properties of the modified bitumen and ensuring proper adhesion to the substrate.

Due to the high temperatures involved, using the torch requires careful training, adherence to safety protocols, and knowledge of local building codes. Proper ventilation and fire safety measures are critical when using the torch to install a torch down roof.

4. Adhesive: When using a torch down system, a heat-activated adhesive is crucial for creating a strong bond between the membrane and the roof deck.

In a torch down roofing system, there are typically two primary types of adhesives used:

1. Heat-Activated Adhesive: This type of adhesive is an essential component of torch down roofing. It becomes activated when heat from the torch is applied during installation. The heat causes the adhesive to soften and form a strong bond between the modified bitumen membrane and the underlying surface, creating a waterproof seal.
2. Cold-Applied Adhesive: In some cases, a cold-applied adhesive may be used in addition to the heat-activated adhesive. Cold-applied adhesives provide an extra layer of protection and can be used around edges, seams, or other areas where the torch application may not be practical.

Both types of adhesives play a critical role in ensuring the integrity and waterproofing of the torch down roofing system. It's important to follow manufacturer recommendations and industry best practices when selecting and applying adhesives for torch down roofs.

5. Flashing: Metal flashing is used to seal joints, edges, and other vulnerable areas, providing additional protection against water intrusion.
   In a torch down roofing system, various types of flashing may be used to provide additional protection at vulnerable areas such as roof edges, penetrations, and joints. Common types of flashing used in a torch down roof include:

   1. Metal Flashing: This is often made of materials such as aluminum, copper, or galvanized steel. Metal flashing is used to seal joints, edges, and corners, providing a durable, weather-resistant barrier against water infiltration.
   2. Drip Edge Flashing: Drip edge flashing is installed along the edges of the roof to direct water away from the structure, preventing water from seeping into the underlying materials.
   3. Pipe Flashing: This type of flashing is designed to seal around pipes or other roof penetrations, creating a watertight seal and protecting against leaks.
   4. Termination Bar: While not technically flashing, termination bars are often used in torch down roofing to secure and seal the edges of the roofing membrane at parapet walls, curbs, and other raised roof features.

   Proper installation of flashing is crucial to the long-term performance of a torch down roof, as it helps to prevent water intrusion and maintain the integrity of the roofing system.

6. Insulation (optional): For added energy efficiency, insulation may be installed beneath the torch down roofing material.

   In a torch down roofing system, various types of insulation may be used, depending on the specific requirements of the project. The choice of insulation typically depends on factors such as building codes, energy efficiency goals, and the structure's design. Common types of insulation used in conjunction with torch down roofing include:

1. Polyisocyanurate (Polyiso) Insulation: This type of insulation is often used in torch down roofing due to its high R-value, which indicates its effectiveness in providing thermal resistance. Polyiso insulation is lightweight and offers good fire resistance.
2. Expanded Polystyrene (EPS) Insulation: EPS insulation is a rigid foam board insulation that is lightweight, durable, and offers moisture resistance. It is often used as a cost-effective option for torch down roofing systems.

3. Extruded Polystyrene (XPS) Insulation: XPS insulation provides high resistance to moisture, making it suitable for applications where exposure to water is a concern. It also offers high compressive strength.

Insulation is an important component of any roofing system, including torch down roofs, as it helps to improve energy efficiency, regulate indoor temperatures, and provide additional protection against moisture infiltration. The selection of insulation should be based on the specific requirements of the project and local building codes.

These components work together to create a durable and weather-resistant roofing system suitable for flat or low-sloped roofs.

* Check with a licensed roofing contractor for additional information.