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**SPECIFICATION FOR  
PREFORMED THERMOPLASTIC MANHOLE PROTECTOR RING**

1. **USE:** A durable material that is preformed for use as a manhole protection ring.
  - 1.1. The material must be able to provide a durable sloped surface with a pitch more shallow than 1:12 to the edge of exposed manholes that vertically exceed the substrate surface.
  - 1.2. The material must be a resilient black thermoplastic product. The material must be resistant to the detrimental effects of motor fuels, lubricants, hydraulic fluids etc. The material must be capable of being affixed to bituminous and/or Portland cement concrete pavements by the use of the normal heat of a propane torch. Other colors shall be available as required.
  - 1.3. The material must be capable of conforming to pavement contours, breaks and faults through the action of traffic at normal pavement temperatures. The material shall have resealing characteristics, such that it is capable of fusing with itself when heated with the torch.
  - 1.4. The markings shall not have minimum ambient and road temperature requirements for application, storage, or handling.
2. **MANUFACTURING CONTROL AND ISO CERTIFICATION:** The manufacturer must be ISO 9001:2008 certified and provide proof of current certification.
3. **MATERIAL:** Must be composed of an ester-modified rosin resistant to degradation by motor fuels, lubricants etc. in conjunction with aggregates, pigments, and binders that have been factory produced as a finished product.
  - 3.1. Heating indicators: The top surface of the material shall have regularly spaced indents. These indents shall act as a visual cue during application that the material has reached a molten state so satisfactory adhesion has been achieved and a post-application visual cue that the installation procedures have been followed.
  - 3.2. Thickness: The material must be supplied at a minimum thickness of 125 mils (3.18 mm) per individual layer. The material kit as provided by the manufacturer will provide minimum pre-applied vertical height adjustment of 125 mils (3.18mm) to 375 mils (9.53 mm).
  - 3.3. Environmental Resistance: The material must be resistant to deterioration due to exposure to sunlight, water, salt or adverse weather conditions and impervious to oil and gasoline.
4. **APPLICATION:**
  - 4.1. Asphalt: The materials shall be applied using the propane torch method recommended by the manufacturer. The material must be able to be applied without minimum requirements for ambient and road temperatures and without any preheating of the pavement to a specific temperature. The material must be able to be applied without the use of a thermometer. The pavement shall be clean, dry and free of debris. Supplier must enclose application instructions with each box/package.
  - 4.2. Portland Concrete: The same application procedure shall be used as described under Section 4.1. However, a compatible primer sealer may be applied before application to assure proper adhesion.
5. **PACKAGING:** The preformed thermoplastic material shall be placed in protective plastic film with cardboard stiffeners where necessary to prevent damage in transit. The cartons in which packed shall be non-returnable and shall not exceed 40 in (101 cm) length and 25 in (63 cm) width, and be labeled for ease of identification. The weight of the individual carton must not exceed 70 lb (32 kg). A protective film around the box must be applied in order to protect the material from rain or premature aging.
6. **TECHNICAL SERVICES:** The successful bidder shall provide technical services as required.