

APPENDIX 'B'

Crafco® Inc. Mastic One^{MT} Installation Instructions

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READ BEFORE USING THIS PRODUCT

GENERAL: These installation instructions are for CrafcO Mastic One, which is a hot-applied, single component, pourable, aggregate filled, polymer modified asphalt mastic used for maintenance, repair, and preservation of pavement and bridge surfaces. Mastic One is used for sealing, filling and repairing many distresses in both asphalt concrete and portland cement concrete pavements that are larger than those typically repaired by crack or joint sealing, but smaller than repairs requiring remove and replace patching procedures. Typical uses include sealing, filling and leveling of wide transverse or longitudinal cracks and joints, filling potholes and utility cuts, localized skin patch repairs and leveling bridge approaches or faulted areas. When properly applied, Mastic One forms a well bonded, flexible, durable, traffic resistant repair. To use, Mastic One is placed in an appropriate melter, mixed and heated until application temperature is reached, and then poured into the prepared repair area and leveled. Mastic One is formulated to provide neat feathered edge installation. Mastic One is then ready for traffic when it has cooled to solidify.

MELTING, HEATING AND AGITATING: Mastic One is supplied in solid form in a meltable plastic bag in a cardboard box or in boxless meltable PLEXI-melt packaging. The aggregate and polymer modified binder are pre-measured and contained in the package, but are not pre-mixed. To use, Mastic One is placed in a CrafcO Patcher I or II or other approved melter to mix and heat to the proper installation temperature. If inappropriate melters are used, application difficulties, pump system damage, and extreme wear can result. The melter must be equipped with an effective horizontal agitator system that is able to maintain a uniformly mixed product, have a thermostatically controlled hot oil jacketed heating system, and have an effective means of dispensing product. During heating, the heat transfer oil should be heated to between 450 and 525°F (323 - 274°C). Agitation should begin as soon as the Mastic One has melted sufficiently for the agitator shaft to turn. Additional Mastic One can then be added to the melter. Heating and agitation should continue until all added material has been thoroughly mixed and the product application temperature range of 375 - 400°F (190 - 204°C) has been reached. At application temperature, Mastic One is a thick, grainy appearing mastic. Additional Mastic One can be added as product is used and quantity in the melter decreases. When adding additional Mastic One, the agitator must be stopped. After the additional Mastic One is added, agitation is to be immediately resumed and application should not resume until required temperatures are reached and all added material has melted, becoming well mixed into the product with no uncoated aggregate present. During application and while product is hot, agitation should be continuous, except for when additional product is being added to guard against aggregate settlement. If aggregate settles in the melter, it may be difficult to agitate product. For best performance, it is recommended that the melter be emptied, or only small amounts of Mastic One be left in the melter at the end of each work day.

PAVEMENT TEMPERATURES: Apply Mastic One when pavement temperature exceeds 40°F (4°C). Lower temperature may result in

reduced adhesion due to presence of moisture or ice. If pavement temperature is less than 40°F (4°C), it may be warmed with a heat lance that puts no direct flame on the pavement (CrafcO Part No. 45650). If installing at night, assure that dew is not forming on the pavement surface. Applied product shall be checked by qualified personnel to assure that adhesion is adequate.

TRAFFIC CONTROLS: Place appropriate traffic controls in accordance with part 6, Temporary Controls, of the FHWA Manual on Uniform Traffic Control devices (MUTCD) to protect the work site for the duration of the repairs.

RECOMMENDED INSTALLATION PROCEDURES:

1. Only apply Mastic One to clean, sound, dry surfaces. Avoid highly distressed areas in need of reconstruction. All areas must be clean from dust and debris. All areas to be repaired shall be blown with clean, dry, oil free compressed air at 90 psi (620 kpa) minimum. If compressed air does not sufficiently remove all debris or dust coatings, additional cleaning procedures such as sweeping with a stiff or wire bristle broom, sandblasting or routing are recommended. (If sealant won't adhere, neither will Mastic One). PCCP shall be abrasive cleaned to achieve maximum adhesion performance.
2. The minimum pavement temperature for installation of Mastic One is 40°F (4°C). If the pavement temperature is less than 40°F (4°C), it can be warmed by heating with a heat lance. Asphalt concrete pavement should be heated so a slight bleeding effect occurs. This bleeding brings some of the asphalt binder from the pavement to the surface, which will enhance the adhesive bond between the Mastic One and road surface. However, caution should be taken to prevent overheating/oxidizing the asphalt brought to the surface as this could be detrimental to adhesion performance. Heating the pavement will also remove moisture assuring a dry surface. Mastic One should be applied within 10 minutes of warming the pavement area.
3. Mastic One that has been mixed and heated to installation temperature is poured from the melter and immediately applied to the prepared pavement area. Mastic One can be poured from the melter directly into the repair area, poured into an appropriate bucket such as the CrafcO TechCrete Bucket (Part No. 32263) and then applied, or poured into the CrafcO Material Handler (Part No. 57650) and then installed. For placing Mastic One in wide cracks, CrafcO Shoebox Applicators (Part Nos. 32350-32353, 32255, 32250, 32252, or 32253) can be used.
4. Immediately following application to the pavement surface, Mastic One shall be leveled and smoothed to the desired level using a straight metal or rubber squeegee. If necessary for deep installations, to limit settling and to produce a level finished surface, Mastic One can be applied in layers with a cooling and solidifying time period between applications. Minimum installed thickness is 3/8 in (1 cm). The aggregate portion of Mastic One is selected to allow feathered edge type

installations when required. The finished Mastic One installation should be applied smooth and level with the pavement surface.

5. When installing over a distressed pavement surface, Mastic One should be applied at least 6 in (15 cm) beyond the distressed area onto sound pavement surfaces.
6. Mastic One cools quickly after installation and is ready for traffic when it has solidified sufficiently to support loads. Apply CrafcO Detack to reduce surface tack and allow quicker opening of the area to traffic.

USES AND INSTALLATION CONFIGURATIONS: The general use of Mastic One is to repair pavement deficiencies which are larger than those that can be appropriately addressed with pavement sealants, but smaller than those where conventional remove and replace patching procedures are used. Typical uses include (but are not limited to):

- 1) Sealing and filling pavement cracks or joints over 1.5 in (3.8cm) wide,
- 2) Filling potholes,
- 3) Leveling depressed thermal cracks,
- 4) Sealing and repairing deteriorated longitudinal joints,
- 5) Skin patching,
- 6) Pretreatment of cracked areas prior to surface treatments,
- 7) Repairs prior to surface treatments
- 8) Leveling manhole covers, bridge deck approaches, or other settlement at structures,
- 9) Capping settled utility cuts,
- 10) Filling spalls, popouts, and corer breaks

Note: *Mastic One shall not be used for surface skin patch repairs at intersections, unless followed by a surface treatment.*

Mastic One binder is self-adhesive and develops a strong bond to the pavement. Shrinkage of approximately 5% occurs as Mastic One cools from application temperature to ambient. No compaction is required. After application, time must be given for the product to cool before opening the area to traffic. Cooling time will vary depending on the size of the application and ambient temperature. Generally allow approximately 30 to 60 minutes of cooling for each 1 in (2.5cm) of material depth.

For installations of Mastic One deeper than 2.5 in (6.3cm), product should be installed in layers not exceeding 2.5 in thick (6.3cm) with cooling to 200F (93C) maximum before applying the next layer. The final layer to the pavement surface level should be ½ to 1 in (1.2 to 2.5cm) thick. This layering process reduces material shrinkage during product cooling. Installations over 2 in (5cm) deep can be bulked by adding up to 25% by volume of CrafcO Structural Aggregate (Part No. 33033) to the patch in layers for improved stability and quicker cooling. Roofing felt or other similar strips can be used along the work area boundaries to create neat, well defined edges. The strips should be removed immediately after application before material cools.

APPLICATION LIFE: Application life at application temperatures is approximately 12 to 15 hours. Application life may be extended by adding fresh material as quantity in the applicator decreases. Mastic One must be agitated while being applied. The material may be

reheated to application temperature once, after the initial heat up. Additional reheating of the material may result in degradation of properties. At the end of the installation day, it is recommended that the melter be as empty as possible. Product volume of no more than 25% of melter capacity should be left in the melter for reheating. When reheating, a volume of Mastic One equal to or greater than the amount being reheated should be added to the melter for the next installation. When the application life has been exceeded, Mastic One will begin to thicken, become “stringy” and may then gel. If this should occur, the material should immediately be removed from the melter and discarded.

PRECAUTIONS: Mastic One will soften, become sticky, and track if exposed to fuel or oil spillage, therefore, it should not be used in areas subject to fuel or oils.

STORAGE: Pallets of packaged product are protected with a weather resistant covering. During storage, the protective wrap must be kept on the pallets to maintain pallet stability. If rips in the pallet covering occur during handling, they should be repaired to help maintain packaging integrity. Pallets should be stored on a level surface which is dry and has good drainage. Pallets should not be stacked because crushing of bottom layers may occur. Mastic One material properties are not affected by packaging deterioration.

SAFETY PRECAUTIONS: Since Mastic One is heated to elevated temperatures, it is essential that operations be conducted in manners which assure safety of personnel. All associated with use of the material need to be aware of the hazards of using hot applied materials and safety precautions. Before use, the crew should read and understand product use, safety information and the product SDS. This sheet which is supplied with each shipment, describes the characteristics of the product as well as any potential health hazards and precautions for safe handling and use. User should check D.O.T. requirements for transportation of product at elevated temperatures (above 212°F (100°C)).

HAZARDS ASSOCIATED WITH HOT APPLIED MATERIALS: Skin contact with hot applied materials causes burns. Over exposure to fumes may cause respiratory tract irritation, nausea, or headaches. Appropriate precautions need to be taken to prevent contact with the hot material and to avoid inhalation of fumes for everyone in the vicinity of the work area operation. Safety precautions should include: 1. Protective clothing to prevent skin contact with hot material. 2. Care when adding product to melters to reduce splashing. 3. Careful operation and control of tools which are used to apply product. 4. Traffic and pedestrian control measures which meet or exceed MUTCD requirements to prevent access to work areas while product is still in a molten state. 5. Avoidance of material fumes. 6. Proper application configurations with a minimum amount of excesses of material. 7. Appropriate clean up of excessive applications or product spills.

ADDITIONAL INFORMATION: Additional information regarding these products is available by contacting your distributor or CrafcO, Inc. This information includes 1) Product Data Sheets, 2) Safety Data Sheets, 3) Equipment Safety Manual