

#2021h-3k - FIBER REINFORCED
BITUMINOUS MEMBRANE SURFACE TREATMENT

DETAILED SPECIFICATIONS

1. DESCRIPTION

This work shall consist in the construction and installation of a fiber reinforced bituminous membrane surface treatment known as “**FiberSeal**” when used as a Stress Absorbing Membrane or SAM, and as “**FiberMat**” when used as a Stress Absorbing Membrane Interlayer or SAMI. This is accomplished by using a specific applicator which is mounted on an asphalt distributor modified for applying the surface treatment of bituminous binder reinforced with glass fibers. The applicator is comprised of an open bottomed spray bar housing; a fan or blower for producing a down draft in the housing; at least one spray bar mounted on the housing and adapted to extend transversely to the direction of movement of the asphalt distributor on which the unit is mounted; a series of nozzles spaced longitudinally along the spray bar for spraying bituminous material; means for controlling the nozzles; and a number of sources for dispensing cut glass fiber through the open bottomed housing to the surface of the bituminous material previously sprayed.

Asphalt emulsion, aggregate and in-place chopped fibers are combined to form a versatile treatment, ideal for sealing as a SAM and arresting severely alligator cracked surfaces. The in-place chopped glass fiber gives the surface an improved tensile strength.

When applied as an interlayer within the pavement structure, the fiber reinforced bituminous membrane surface treatment acts as a SAMI for the treatment of reflective cracking, prior to the construction or placement of subsequent layers.

2. MATERIALS

2.01 Bituminous Materials

- A. Bituminous Material Approval. The bituminous material shall be obtained from a storage facility that has current approval by the NYSDoT, Materials Bureau within the current calendar year, prior to the start of work.
- B. Bituminous Material Selection. The selected bituminous material shall be compatible with the aggregate to be used. It is the Contractor's responsibility to ensure compatibility between the bituminous material and the aggregate. The bituminous material shall also be subject to approval by the NYSDoT, Materials Bureau and shall conform to the standards of CRS-1P.

2.02 Aggregates

The aggregates for the fiber reinforced bituminous membrane surface treatment shall conform to the requirements of the NYSDoT Item 703-02 A Coarse Aggregate and be from an approved source. Where aggregates for pavement surface treatment are from more than one source or of more than one type of material, they shall be proportioned and blended to provide a uniform mixture. The regional director or the authorized representative shall approve the procedure used for this proportioning.

When the fiber reinforced bituminous membrane surface treatment is to be considered as a SAM, then the aggregate size shall be No. 1ST or No. 1A or a combination of both as in a double application.

When the fiber reinforced bituminous membrane surface treatment is to be considered as a SAMI, then the aggregate size shall be No. 1A only.

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In both cases the aggregate shall meet one of the following:

1. Limestone having an acid insoluble content of not less than 20%, excluding particles of chert and similar siliceous rocks. Blends of siliceous and non-siliceous limestone will not be permitted.
2. Dolomite
3. Sandstone, granite chert, trap rock, ore tailing, or other non-carbonate materials
4. Gravel, or a natural or manufactured blend of two or more of the following types of material: limestone, dolomite, gravel, sandstone, granite, chert, trap rock, or tailing, slag, or other similar materials meeting the following requirements:
Non-carbonate plus 3.2mm particles must comprise a minimum 10% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities. A minimum of 20% of plus 4.75mm particles must be non-carbonate

Polymer Modifier: The ideal amount of solid or dry polymer modifier shall be 3%, based on the asphalt weight. The polymer materials shall be milled or blended into the asphalt or blended with A soap phase[®] or post added to the emulsion, but at all times ensuring good homogenization of the polymer with the asphalt emulsion.

Fiber: The glass fiber is E Class from an approved source determined by the License holder. Typically the fiberglass is cut into 2.38" lengths which are distributed uniformly across and between the two parallel applications of asphalt emulsion. Glass fiber application rates are 2-4 oz/sy, depending upon the emulsion application rate.

3. CONSTRUCTION DETAILS

3.01 Fiber Reinforced Bituminous Membrane Surface Treatment

PreConstruction Conference: For all In-Place projects, a preconstruction conference shall be held at least five days prior to site work to discuss mix designs, application procedures, maintenance and protection of traffic, public notification, scalar chain, and other operational issues.

Traffic Control: Traffic Control shall be provided by the County in strict compliance with the provisions of the MUTCD. The cost of any required repair work due to traffic shall be included in the unit bid price.

Notification: All homeowners and businesses affected by the construction shall be notified 24 to 72 hours prior to the surfacing. This notification shall be in the form of a written posting stating the times and dates that construction is expected on their road. This notification will be prepared and distributed by the Contracting Agency. Should the roadway require closure, the Engineer shall be notified in writing no less than ten days prior to commencement of site work.

The following items will be performed by the Highway Department, unless otherwise directed:

- A. Manhole covers, water valves, catch basins, and other drainage structures shall be clearly referenced for location and adjustment.
- B. All vegetation at the edge of pavement shall be removed.
- C. Pre-Cleaning of Pavement, as required.
- D. Furnish aggregate, delivered to the chip-spreader.
- E. Maintenance and Protection of Traffic.

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A. Weather and Seasonal Limitations: The fiber reinforced bituminous membrane surface treatment may be applied on a dry or damp surface, but should not be applied where there is standing water or on a wet surface. Application should only be undertaken when the surface temperature is at least 50 degree F and rising. The fiber reinforced bituminous membrane surface treatment should only be placed during the period from May 1 to the third Saturday in September.

B. Equipment: The following equipment shall be required:

Bituminous Distributor and Fiber Material Applicator: The liquid bituminous fiber applicator, to be used, shall be mounted on, or attached to, a vehicle for applying a surface treatment of bituminous binder, reinforced with glass fibers. The applicator shall comprise an open bottomed spray bar housing, a fan or blower producing a down draft in the housing, and at least one spray bar mounted on the housing and adapted to extend transversely in the direction of movement of the vehicle on which the applicator is mounted or attached. A number of nozzles spaced longitudinally along the spray bar for spraying binder material, a means for controlling the nozzles, and a number of sources for dispensing cut glass fiber through the open bottomed housing to the surface of the binder material previously sprayed shall also be included.

The applicator shall have been calibrated within the previous 12 months for transverse and longitudinal distribution application rates, according to ASTM D2995 or other suitable methods. The bituminous fiber applicator shall be equipped, maintained, and operated so that the bituminous materials can be applied at controlled rates from 0.022 gal/sy to 0.56 gal/sy. The fiber is applied at controlled rates from 2 to 4 oz/sy. These applications shall be such that a uniform first layer of asphalt emulsion is applied followed by a uniform layer of glass fibers who are chopped in-place and covered with a uniform second layer of asphalt emulsion.

The asphalt distributor shall include a tachometer, accurate volume measuring devices or a calibrated tank, and a thermometer for measuring the temperature of the tank contents. The applicator shall include a flow gauge to accurately determine the fiber output.

Self-propelled Aggregate Spreader: The aggregate spreader shall be a self-propelled unit capable of uniformly spreading the aggregate at the required rate on a minimum width of 6" wider than the width of the lane to be treated. The spreader shall meet the approval of the Engineer and be calibrated similar to the test method used in ASTM D2995, within the previous 12 months, for transverse and longitudinal distribution.

Pneumatic Tire Roller: A sufficient number of pneumatic tire rollers shall be required to permit the initial rolling of the aggregate to occur within 5 minutes of the application of the fiber reinforced bituminous membrane surface treatment. The pneumatic tire roller shall be self-propelled and have oscillating wheels with smooth tread tires and will have a minimum ballasted weight of 10 tons. The tire pressure for all wheels shall be uniform within 2 psi. The roller(s) shall be operated at a maximum speed of 5 mph. To prevent pick-up of the aggregate on the tires, the tires shall be kept moistened with water mixed with small quantities of detergent or other material approved. In no case shall a solvent having negative affect upon the fiber reinforced bituminous membrane surface treatment be used.

Static Steel Wheel Rollers: Static steel wheel rollers shall not be used for this item.

Self-Propelled Rotary Power Broom: A self-propelled rotary power broom shall be designed, equipped, maintained and operated so that the pavement surface can be swept clean. The broom shall have an adjustment to control downward pressure.

C. Determination of the Quantities of Materials to be Applied: In conjunction with the Agency, the Contractor will decide upon the appropriate rates of asphalt emulsion and fiber to be applied on each project site. Typical rates of application for the asphalt emulsion range from 0.4 to 0.5 gal/sy and the fiber application rates range from 2 to 4 oz/sy.

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For SAM applications the aggregate shall be the No. 1ST or No.1A types and be added at rates as per conventional chip sealing operations, approximately 18-26 #/sy.

For SAMI applications only the No. 1A aggregate is used. If the surface is to be overlaid within a few days, the typical application rate is 11-15 #/sy. If the surface to be overlaid is to remain exposed for a period of time longer than three days, the application rate for the aggregate is 13-20 #/sy.

D. Preparation of the Surface: A self-propelled power broom shall be used to clean any loose material from the surface to be treated immediately prior to the application of the fiber reinforced bituminous membrane surface treatment. Any surface-defects such as potholes shall be repaired prior to the commencement of work. Manhole covers, drop inlets, catch basins, curbs and any structure within the roadway area shall be protected against the fiber reinforced bituminous membrane surface treatment.

Abrading of existing pavement markings may be necessary. The method of abrading may include sand blasting, water blasting, grinding or other methods approved by the Jefferson County Highway Department. The price bid for pavement marking abrading shall include all labor, materials, and equipment required to abrade the existing pavement markings and to properly maintain and protect traffic.

E. Application of the Fiber Reinforced Bituminous Membrane Surface Treatment: Fiber and bituminous materials shall be applied by means of pressure applicator in a uniform, continuous spread over the section to be treated and within the temperature range, sandwiching the in-place chopped fibers between the two layers of asphalt emulsion. The quantities of fibers and bituminous materials shall be decided between the Agency and Contractor dependant on the job site. The applicator shall be moving forward at the proper application speed at the time the spray bar and fiber chopper bars are opened. If any skipped areas or deficiencies occur, the operation shall be immediately stopped and repairs made to these areas immediately. Junctions of spreads shall be carefully made to assure a smooth riding surface.

The fiber reinforced bituminous membrane surface treatment shall not be applied more than 150 feet in advance of the self-propelled chip spreader. Under no circumstances shall operations proceed in such a manner that the fiber reinforced bituminous membrane surface treatment will be allowed to chill, set-up, dry or otherwise impair retention of the cover aggregate. Traffic will not be allowed to run on the unprotected fiber reinforced bituminous membrane surface treatment. The asphalt distributor and applicator, when not spreading, shall be parked so that the spray bar or mechanism will not drip on the surface of the traveled way.

F. Application of the Cover Aggregate: Immediately following the application of the fiber reinforced bituminous membrane surface treatment, cover aggregate shall be spread at the specified rate. Spreading shall be accomplished in such a manner that the tires of the aggregate spreader at no time contact the uncovered and newly applied fiber reinforced bituminous membrane surface treatment. Immediately after the cover aggregate is spread, any deficient areas shall be covered by additional material. Pneumatic tire rolling shall begin immediately. The initial pass shall be completed within 5 minutes of the application of the fiber reinforced bituminous membrane surface treatment and shall be continued until three complete passes are obtained within 30 minutes of the application of the fiber reinforced bituminous membrane surface treatment. Pneumatic tire rollers shall come to a complete stop prior to a change in direction.

G. Opening to Traffic: Unless otherwise specified, the highway shall be kept open to traffic at all times. Traffic shall be discontinued on the lane being surface treated, and as soon as the final layer is applied and rolled, controlled traffic may be permitted thereon. "Loose Stone" signs meeting requirements of NYS MUTCD shall be posted at 1 mile intervals throughout the length of the project. Immediately after completion of the fiber reinforced bituminous membrane surface treatment, the section shall be posted for speed limit of 30 mph for a period of three days. These signs should be posted every 0.5 mile interval, and signs showing other speed limitations shall be covered during this period. The Highway Department shall place and remove all signs.

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4. GUARANTEE

PERFORMANCE WARRANTY

The Contractor attests to the following warranty upon completion of the work and acceptance of final payment:

The Contractor hereby warrants that all workmanship and all materials furnished under this item shall comply fully with the requirements of these specifications. If at any time within two years after the date of the completion of the work, any unfaithful or defective work should appear, which in the opinion of the Superintendent is due to inferior materials or workmanship, the Contractor shall have thirty (30) days, after receiving written notification from the Superintendent, to correct, repair or replace the defective or inferior materials and / or workmanship at his or her expense to the satisfaction of the Superintendent. The guarantee shall be automatically extended to two years from the completion of any corrections, repairs or replacements of defective materials. The cost of inspections, samplings, or tests that reveal defective, inferior or inadequate materials or workmanship and any subsequent inspections, sampling or tests shall be paid by the Contractor.

5. METHOD OF MEASUREMENT: Fiber reinforced bituminous membrane surface treatment will be measured by the number of square yards of compacted material in place making no deductions for minor untreated areas such as catch basins and manholes.

6. BASIS OF PAYMENT: Fiber reinforced bituminous membrane surface treatment shall be paid at the unit price bid per square yard per day, plus the addition of any optional items the Agency requires the Contractor to furnish. The aggregates will be paid using the Stone, Sand, Gravel and Topsoil bid for the appropriate items. Asphalt Price adjustment shall be as specified in the NYSDoT/OGS price adjustment formula provided in the Item 3 Liquid Asphalt Contract, Item CRS-1P (or approved substitute). Measurement and payment will be limited to the longitudinal length and width of which there is a definite texture present.

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BID SHEET

COMPANY NAME _____

The Bidder has carefully examined the specification for FIBER REINFORCED BITUMINOUS MEMBRANE SURFACE TREATMENT and agrees to furnish and supply all the materials, equipment, tools and labor necessary to properly install the product requested, in strict conformance to the detailed specifications attached. No deviations, amendments, or alternative methods of application or installation of the product or specifications will be considered.

Bidders are requested to submit prices per square yard for the two (2) types listed. The square yard range is the average daily square yards to be applied on all project locations or work sites.

SQUARE YARD RANGE	FiberMat	FiberSeal
1 - 5,000 sy/ Day	_____.____ / sy	_____.____ / sy
5,001 - 10,000 sy/ Day	_____.____ / sy	_____.____ / sy
10,001+ sy/ Day	_____.____ / sy	_____.____ / sy

OPTIONAL ITEMS (if Contracting Department elects to require Contractor to provide any or all of these items.)

	per day	per Hr, >10
A. Contractor furnishes and operates self-propelled aggregate spreader	_____.____	_____.____
B. Contractor furnishes and operates pneumatic tired roller (per roller)	_____.____	_____.____
C. Abrading existing pavement markings	\$_____ /linear foot	

Attached Bid Checklist, Signature/Non-Collusive Page, and Iran Notice must be signed to complete the bid.

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BID CHECKLIST

The documents required to complete this bid are indicated below.

- (X) Insurance Certificates See Exhibit A, pages F-G
(X) Iran Notice See Pages 12h – 12i

- _____ We have reviewed and have submitted the items required under the Mandatory Submission Requirements.
_____ The Bid Page(s), Signature/Non-Collusive Page, and Iran Notice are completed and included.
_____ Deviations are noted and explained.
_____ Insurance Certificates are enclosed if required.

**WAIVER OF IMMUNITY/NON-COLLUSIVE BIDDING CERTIFICATE PURSUANT TO
SECTION 103-D OF THE NEW YORK STATE GENERAL MUNICIPAL LAW**

- A. By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid, each party thereto certifies as to its own organizations, under penalty of perjury, that to the best of knowledge and belief:
1. The prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor.
 2. Unless otherwise required by law, the prices which have been quoted in this bid have not knowingly been disclosed by the bidder and will not knowingly be disclosed by the bidder, directly or indirectly, prior to opening, to any bidder or to any competitor.
 3. No attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.

A bid shall not be considered for award nor shall any award be made where 1, 2, and 3 above have not been complied with; provided, however, that in any case the bidder cannot make to foregoing certification, the bidder shall so state and shall furnish with the bid a signed statement which sets forth in detail the reasons thereof. Where 1, 2, and 3 above have not been complied with, the bid shall not be considered for any award nor shall any award be made unless the head of the Purchasing Unit to the political subdivision, public department, agency or official thereof to which the bid is made, or his designee, determines that such disclosure was not made for the purpose of restricting competition.

The fact that a bidder (a) has published price lists, rates, or tariffs covering items being procured, (b) has informed prospective customer of proposed or pending publications of new or revised price lists for such items, or 8 has sold the same items to other customers at the same prices being bid, does not constitute, without more, a disclosure within the meaning of paragraph "A" above.

- B. Any bid hereafter made to any political subdivision of the state or any public department, agency or official thereof by a corporate bidder for work or services performed or to be performed or goods sold or to be sold, where competitive bidding is required by statute, rule, regulation, local law, and where such bid contains the certification referred to in paragraph "A" of this section, shall be deemed to have been authorized by the Board of Directors of the bidder, and such authorization shall be deemed to include the submission of the bid and the inclusion therein of the certificate of non-collusion as the act and deed of the corporation.

SIGNATURE PAGE ON REVERSE MUST BE SIGNED TO COMPLETE THE BID.

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SIGNATURE PAGE

The undersigned proposes to furnish products or services to specifications included in this bid document, at the price(s) set forth, as required to meet the County's needs. Any deviation to the specifications must be noted on the bid form and fully explained or the deviations will not be considered part of the bid.

Deviations: Yes _____ No _____

By signing below I am certifying that I fully understand the complete requirements of the bid and agree to the non-collusive certification on the reverse of this page and additional documents as specified on the bid checklist. Bidder hereby acknowledges receipt of all addenda pertaining to this bid which are made part of the original bid specifications.

_____ COMPANY NAME

_____ ADDRESS (Principal Office)

_____ CITY, STATE, ZIP CODE

_____ AREA CODE/TELEPHONE NUMBER

_____ FAX NUMBER

_____ AUTHORIZED SIGNATURE

_____ PRINTED NAME

_____ TITLE

_____ DATE

_____ ADDRESS (Local Office)

_____ CITY, STATE, ZIP CODE

_____ AREA CODE/TELEPHONE NUMBER

_____ FAX NUMBER

_____ E-MAIL ADDRESS

Check One: Corporation _____ Partnership _____ Individual _____

Incorporated under the laws of the State of _____

Federal Identification # _____

State if authorized to do business in the State of New York: Yes _____ No _____

Names and Addresses of Partners:

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Iranian Energy Sector Divestment

Contractor hereby represents that said Contractor is in compliance with New York State General Municipal Law Section 103-g entitled “Iranian Energy Sector Divestment”, in that said Contractor has not:

- a. Provided goods and services of \$20 Million or more in the energy sector of Iran including but not limited to the provision of oil or liquefied natural gas tankers or products used to construct or maintain pipelines used to transport oil or liquefied natural gas for the energy sector of Iran; or
- b. Acted as a financial institution and extended \$20 Million or more in credit to another person for forty-five days or more, if that person’s intent was to use the credit to provide goods or services in the energy sector in Iran.

Any Contractor who has undertaken any of the above and is identified on a list created pursuant to Section 165-a (3)(b) of the New York State Finance Law as a person engaging in investment activities in Iran, shall not be deemed a responsible Bidder pursuant to Section 103 of the New York State General Municipal Law.

Except as otherwise specifically provided herein, every Contractor submitting a bid in response to this Request for Bids must certify and affirm the following under penalties of perjury:

- a. “By submission of this bid, each Bidder and each person signing on behalf of any Bidder certifies, and in the case of a joint bid, each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief, that each Bidder is not on the list created pursuant to NYS Finance Law Section 165-a (3)(b).”

Jefferson County will accept this statement electronically in accordance with the provisions of Section 103 of the General Municipal Law.

Except as otherwise specifically provided herein, any Bid that is submitted without having complied with subdivision (a) above, shall not be considered for award. In any case where the Bidder cannot make the certification as set forth in subdivision (a) above, the Bidder shall so state and shall furnish with the bid a signed statement setting forth in detail the reasons therefore. The County reserves its rights, in accordance with General Municipal Law Section 103-g to award the Bid to any Bidder who cannot make certification, on a case-by-case basis under the following circumstances.

1. The investment activities in Iran were made before April 12, 2012, the investment activities in Iran have not been expanded or renewed after April 12, 2012, and the Bidder has adopted, publicized and is implementing a formal plan to cease the investment activities in Iran and to refrain from engaging in any new investments in Iran; or
2. The County of Jefferson has made a determination that the goods or services are necessary for the County to perform its functions and that, absent such an exemption, the County of Jefferson would be unable to obtain the goods or services for which the Bid is offered. Such a determination shall be made by the County in writing and shall be a public document.

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Attachment
Certification Pursuant to Section 103-g
of the New York State
General Municipal Law

- A. By submission of this bid, each Bidder and each person signing on behalf of any Bidder certifies, and in the case of a joint bid, each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each Bidder is not on the list created pursuant to paragraph (b) of subdivision 3 of Section 165-a of the New York State Finance Law.
- B. A Bid shall not be considered for award, nor shall any award be made where the condition set forth in Paragraph A above has not been complied with; provided, however, that in any case the Bidder cannot make the foregoing certification set forth in Paragraph A above, the Bidder shall so state and shall furnish with the bid a signed statement which sets forth in detail the reasons therefore. Where Paragraph A above cannot be complied with, the Purchasing Unit to the political subdivision, public department, agency or official thereof to whom the bid is made, or his designee, may award a bid, on a case by case basis under the following circumstances:
1. The investment activities in Iran were made before April 12, 2012, the investment activities in Iran have not been expanded or renewed after April 12, 2012, and the Bidder has adopted, publicized and is implementing a formal plan to cease the investment activities in Iran and to refrain from engaging in any new investments in Iran; or
 2. The political subdivision makes a determination that the goods or services are necessary for the political subdivision to perform its functions and that, absent such an exemption, the political subdivision would be unable to obtain the goods and services for which the contract is offered. Such a determination shall be made in writing and shall be a public document.

Signature

Title

Date

Company Name