

GENERAL NOTES

B. COMPONENT B SHALL BE THE CURING AGENT CONTAINING AMINE HARDENERS AND MODIFIERS.

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| 1. VISCOSITY* @ 40 ± 3°F | 400 - 1,400 CPS |
| 2. VISCOSITY* @ 77 ± 3°F | 100 - 200 CPS |
| 3. SHELF LIFE, ORIGINAL UNOPENED SEALED CONTAINER (SEE NOTE A) | 18 MONTHS |

NOTE A. THE MANUFACTURER SHALL FURNISH ALL A AND B COMPONENT MATERIALS BY BATCH NUMBER AND DATE AND CERTIFIED TO BE FRESH AND WITHIN TWO (2) MONTHS OF MANUFACTURED AT TIME OF SHIPPING.

C. COMBINED COMPONENTS.

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| 1. INITIAL VISCOSITY* @ 77°F (25°C) | 100 - 600 CPS |
| 2. POTLIFE 60 G @ 77°F | 13 - 25 MINUTES |
| 60 G @ 100°F | 5 - 10 MINUTES |

D. CURED ADHESIVE, WHEN CURED FOR 7 DAYS @ 77 ± 3°F, SHALL HAVE THE FOLLOWING PROPERTIES:

1. COMPRESSIVE PROPERTIES (ASTM D 695)

A. COMPRESSIVE YIELD STRENGTH	15,000 PSI MIN.
B. COMPRESSIVE MODULUS OF ELASTICITY	200,000 TO 350,000 PSI
 2. TENSILE PROPERTIES (ASTM D 638)

A. TENSILE ULTIMATE STRENGTH	8,000 PSI MIN.
B. TENSILE ELONGATION AT BREAK	1.0% MIN.
C. TENSILE MODULUS OF ELASTICITY	500,000 PSI MIN.
 3. FLEXURAL PROPERTIES (ASTM D 790)

A. FLEXURAL MODULUS OF ELASTICITY	550,000 PSI MIN.
B. FLEXURAL MODULUS OF RUPTURE	10,000 PSI MIN.
 4. BOND STRENGTH

A. SLANT SHEAR STRENGTH (F'C = 5,000 PSI CONCRETE)	3,500 PSI MIN.
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 5. HEAT DEFLECTION TEMPERATURE (ASTM D 648) (CREEP RESISTANCE)

A. CURED 28 DAYS @ 77 ± 3°F	135°F
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- *BROOKFIELD RVT SPINDLE NO. 2 @ 20 RPM

2. PASTE EPOXY CRACK SEALER

A. BONDER. AN EPOXY BONDER SHALL BE USED TO SEAL THE CRACKS AND PORTS DURING THE INJECTION PROCESS. A MAXIMUM OF 1/16 IN. THICK (1.59 MM) BY 1 IN. (25.4 MM) SHALL BE SUFFICIENT TO SEAL THE CRACKS FOR INJECTION. THE SEALING EPOXY NEED NOT BE REMOVED FROM THE CONCRETE.

B. COMPONENTS A AND B

1. COLOR (COMBINED) SIMILAR TO CONCRETE GREY
2. DENSITY @ 77°F (25°C), LBS PER GAL:

	RAPID CURE	NORMAL CURE
COMPONENT A (UNMIXED)	11.50 - 0.10	11.55 - 0.10
COMPONENT B (UNMIXED)	10.65 - 0.10	10.65 - 0.10
COMPONENTS (COMBINED)	11.35 - 0.10	11.15 - 0.10

C. MIX RATIO, PARTS BY WEIGHT:

	RAPID CURE	NORMAL CURE
COMPONENT A	80	75
COMPONENT B	20	25

D. SHELF LIFE, ORIGINAL UNOPENED SEALED CONTAINER @ 77°F (25°C) 2 YEARS MIN.

III. PREPARATION: PORTS SHALL BE INSTALLED IN CLEAN HOLES WHICH ARE VACUUM OR WET DRILLED, 3 INCHES DEEP IN THE DECK BOTTOM SO THAT THE EPOXY WILL PENETRATE THE HOLLOW PLANE. THE FIRST PORT SHALL BE LOCATED NEAR THE EDGE OF THE OUTLINED UNSOUND AREA. ADDITIONAL PORTS SHALL BE PLACED AT DISTANCES SLIGHTLY GREATER THAN THE DISTANCE FROM THE FIRST PORT TO THE VOID EDGE. PORT PLACEMENT MUST ENSURE THAT THE GROUT FACE REACHES THE EDGE OF THE VOID BEFORE REACHING THE NEXT PORT. PORTS AND VISIBLE CRACKS SHALL BE SEALED WITH BONDER TO PREVENT EMISSION OF INJECTION RESIN. THE BONDER SHALL CURE 24 HOURS PRIOR TO INJECTION OF EPOXY RESIN.

IV. INJECTION: THE RESIN SHALL BE INJECTED ONLY WHEN THE DECK IS DRY AND ITS TEMPERATURE IS ABOVE 50 DEGREES F. THE INJECTION RESIN SHALL BE AT 70°F PRIOR TO MIXING THE COMPONENTS.

THE EPOXY INJECTION EQUIPMENT SHALL BE CAPABLE OF INJECTING THE MATERIAL INTO THE PORTS AT LOW PRESSURES OF 14 TO 20 PSI. THE INJECTION EQUIPMENT SHALL BE CAPABLE OF METERING, MIXING, INJECTING, AND MEASURING THE FLOW THE EPOXY RESIN ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS.

THE INJECTION SHALL COMMENCE AT THE EDGE OF THE DELAMINATION AND CONTINUE UNTIL THE EPOXY RESIN APPEARS AT THE NEXT PORT. MOST INCOMPLETELY FILLED VOIDS ARE CAUSED BY THE OPERATOR STOPPING THE INJECTION PROCESS PREMATURELY; THEREFORE, A STEADY, LOW PRESSURE SHALL BE MAINTAINED ON THE EPOXY UNTIL A STEADY CLEAR FLOW APPEARS AT THE NEXT PORT. THEN THE INJECTION NOZZLE IS REMOVED, THE PORT CLOSED AND THE INJECTION CONTINUED FROM PORT TO PORT UNTIL THE VOID IS COMPLETELY FILLED. SINCE THE GROUT FACE IS MOVING UNDER VISCOUS FLOW CONDITIONS WHICH ARE GOVERNED BY FLUID SURFACE FRICTION, THE INJECTION PROCESS IS SLOW. REGARDLESS, INJECTION PRESSURE SHALL BE 20 PSI MAXIMUM SO THAT BOTTOM COVER CONCRETE IS NOT BLOWN OFF. PROGRESS OF THE EPOXY SHALL BE CHECKED WITH A TAPPING HAMMER.

V. TESTING THE INJECTED VOID: THE OUTLINED INJECTED VOID SHALL BE SOUNDED WITH A HAMMER BY THE ENGINEER. ANY REMAINING UNSOUND AREAS SHALL BE MEASURED, RECORDED AND DEDUCTED FROM THE FINAL PAY QUANTITY. ALL EQUIPMENT, LABOR AND MATERIALS REQUIRED BY THE ENGINEER TO ACCOMPLISH THIS WORK SHALL BE SUPPLIED BY THE CONTRACTOR.

VI. METHOD OF MEASUREMENT: THE FOOTAGE UNDER THIS ITEM SHALL BE THE NUMBER OF SQUARE FEET OF DELAMINATED DECK BOTTOM CONCRETE THAT ARE SATISFACTORILY LOW-PRESSURE EPOXY INJECTED AND ACCEPTED.

VII. BASIS OF PAYMENT: THE ACCEPTED QUANTITIES OF LOW-PRESSURE EPOXY INJECTED CONCRETE WILL BE PAID FOR AT THE CONTRACT UNIT BID PRICE PER SQUARE FOOT, WHICH PRICE AND PAYMENT SHALL BE FULL COMPENSATION FOR FURNISHING AND PLACING ALL MATERIALS, SOUNDING THE INJECTED AREAS, SUPPLYING THE MANUFACTURER'S REPRESENTATIVE AND ALL OTHER MATERIAL, LABOR AND EQUIPMENT NECESSARY TO COMPLETE THIS WORK ACCORDING TO SPECIFICATIONS. PAYMENT WILL BE MADE UNDER:

ITEM SPECIAL - LOW PRESSURE EPOXY INJECTING DELAMINATED CONCRETE.

STRUCTURAL STEEL CLEANING AND COATING

ITEM 514 - FIELD PAINTING OF NEW STEEL SYSTEM A, AS PER PLAN.

A. AREAS TO BE COATED

1. ALL NEW STRUCTURAL STEEL AS SHOWN ON SHEET [37/37] SHALL BE CLEANED AND COATED AS PER 514.05 OF THE CMS WITH PAINT, SYSTEM A.
2. ALL EXISTING STRUCTURAL STEEL SURFACES THAT ARE DAMAGED DURING CONSTRUCTION INCLUDING ALL NEW WELDS SHALL ALSO BE CLEANED AND COATED WITH THE SAME PAINT SYSTEM AS THE NEW STRUCTURAL STEEL IS RECEIVING.
3. THE TOTAL WEIGHT OF STRUCTURAL STEEL TO BE COATED IS APPROXIMATELY 1,843 POUNDS, AND THE TOTAL SURFACE AREA IS APPROXIMATELY 350 SF.
4. NEW GALVANIZED STEEL SHALL NOT BE PAINTED.

B. LIMITATIONS OF OPERATIONS

NO NIGHTTIME STRUCTURAL STEEL COATING OPERATIONS SHALL BE PERMITTED.

NO SANDBLASTING OPERATIONS OR STEEL COATING OPERATIONS SHALL BE PERFORMED DURING THE PERIOD BEGINNING NOVEMBER 1ST AND ENDING MARCH 31ST.

THE APPLICATION OF BOTH COATS TO AN AREA SHALL IN ALL CASES BE COMPLETED DURING THE SAME CONSTRUCTION SEASON. AREAS WHICH DO NOT RECEIVE BOTH COATS DURING THE SAME CONSTRUCTION SEASON SHALL BE CONSIDERED UNSATISFACTORY AND SHALL BE RESANDBLASTED AND RECOATED AT THE CONTRACTOR'S EXPENSE.

COMPLETE COAT FINISH

THE FINISH COAT SHALL POSSESS A COLOR APPROACHING FEDERAL COLOR STANDARD NO. 595A-16440.

ITEM SPECIAL - CONCRETE REPAIR BY EPOXY INJECTION

THIS WORK SHALL CONSIST OF EPOXY INJECTING A CRACK ON STRUCTURE LAK-90-1487R AT THE FORWARD ABUTMENT AND A CRACK ON STRUCTURE LAK-90-1487L AT THE REAR ABUTMENT. THIS WORK SHALL ALSO INCLUDE REPAIRING CRACKS AT ALL PIER CAPS OF STRUCTURES LAK-90-1641L&R AND LAK-90-2003L&R. THE VOID SHALL BE COMPLETELY FILLED BY EPOXY INJECTION AS NOTED IN THE PROPOSAL NOTE ENTITLED, "CONCRETE REPAIR BY EPOXY INJECTION". THIS ITEM OF WORK SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR ITEM SPECIAL - CONCRETE REPAIR BY EPOXY INJECTION. THIS PRICE SHALL BE PAYMENT IN FULL FOR ALL MATERIAL, EQUIPMENT AND LABOR NECESSARY TO COMPLETE THIS WORK.

ITEM 622 - TEMPORARY CONCRETE BARRIER, BRIDGE MOUNTED, AS PER PLAN

THE TEMPORARY PRECAST CONCRETE BARRIERS ON THESE BRIDGE DECKS DO NOT REQUIRE ATTACHMENT TO THE DECKS. THEREFORE THE REQUIREMENTS ON DRAWING MC-9A TO ANCHOR OR BRACE THE UNITS SHALL BE WAIVED.

PAYMENT FOR "ITEM 622 - TEMPORARY CONCRETE BARRIER, BRIDGE MOUNTED, AS PER PLAN" IS CARRIED IN THE ROADWAY QUANTITIES.

ITEM 513 - STRUCTURAL STEEL FOR REHABILITATION, AS PER PLAN

THIS ITEM CONSISTS OF ALL MATERIAL, LABOR AND EQUIPMENT NECESSARY TO INSTALL NEW CROSS-FRAME MEMBERS TO REPLACE SEVERELY RUSTED OR DAMAGED MEMBERS ON STRUCTURES LAK-90-1487L&R/1641L&R/2003L&R AND 2110L AS SHOWN ON THE PLANS, TO INSTALL EXTENSIONS TO SCUPPER DOWNSPOUTS ON STRUCTURES LAK-90-1641L&R AND 2003L&R AS SHOWN ON MISCELLANEOUS DETAIL SHEETS, AND THE INSTALLATION OF STEEL BEAM STRUTS COATED WITH COAL TAR EPOXY FOR THE STABILIZATION OF THE FORWARD ABUTMENT ON STRUCTURE LAK-90-2920 AS SHOWN ON SHEET 29/37.

STRUCTURAL STEEL UNDER THIS ITEM WILL NOT REQUIRE SHOP DRAWINGS PRIOR TO FABRICATION. THE CONTRACTOR SHALL MAKE NECESSARY MEASUREMENTS AND PREPARE SKETCHES, DRAWINGS, TABLES, ETC. THE ENGINEER SHALL HAVE AUTHORITY AND RESPONSIBILITY FOR ENSURING THAT THE FABRICATED STEEL IS ACCEPTABLE. TECHNICAL ASSISTANCE WILL BE PROVIDED ON REQUEST BY THE BUREAU OF BRIDGES. MILL TEST REPORTS AND SHIPPING DOCUMENTS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO INCORPORATING STEEL ITEMS INTO THE WORK, AS REQUIRED BY 501.07. AFTER FABRICATION THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR REVIEW AND APPROVAL TO ENSURE THAT THE DRAWINGS DEPICT THE STEEL AS ACTUALLY INCORPORATED INTO THE WORK. THE ENGINEER WILL THEN SEND ONE APPROVED SET TO THE BUREAU OF BRIDGES FOR INFORMATION. PAY WEIGHTS SHALL BE COMPUTED IN COMPLIANCE WITH 513 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS AND SUBMITTED TO THE ENGINEER FOR HIS REVIEW AND APPROVAL. THE FABRICATOR SHALL FURNISH A 35 MILLIMETER MICROFILM COPY OF EACH SHOP DRAWING, WHICH SHALL BE MOUNTED ON AN APERTURE CARD AS SPECIFIED IN 501.05.