

THE QUALITY CONTROL SPECIALIST SHALL PERFORM THE FOLLOWING TEST (AND THE INSPECTOR WILL VERIFY) TO ENSURE THAT THE AIR IS NOT CONTAMINATED: BLOW AIR FROM THE NOZZLE FOR THIRTY (30) SECONDS ONTO A WHITE CLOTH OR BLOTTER HELD IN A RIGID FRAME. IF ANY OIL OR OTHER CONTAMINANTS ARE PRESENT ON THE CLOTH OR BLOTTER, ABRASIVE BLASTING SHALL BE SUSPENDED UNTIL THE PROBLEM IS CORRECTED AND VERIFIED BY ANOTHER TEST. THIS TEST SHALL BE DONE AT THE START OF EACH SHIFT AND AT FOUR (4) HOUR INTERVALS.

ABRASIVE BLASTING AND PAINTING MAY TAKE PLACE SIMULTANEOUSLY ON ANY ONE BRIDGE AS LONG AS ABRASIVE BLASTING DEBRIS AND/OR DUST CREATED BY THE BLOWING OPERATION DOES NOT COME IN CONTACT WITH FRESHLY PAINTED SURFACES.

THE CONTRACTOR SHALL REMOVE ALL BLASTING RESIDUES FROM THE ROADWAY, PEDESTRIAN WALKWAYS, GUTTERS AND OTHER DRAINAGE FACILITIES AT THE END OF EACH DAY'S WORK. CARE SHALL BE TAKEN TO KEEP ALL BLASTING RESIDUES OUT OF DRAINS OR CATCH BASINS. NEARBY DRAINS AND CATCH BASINS SHALL BE COVERED DURING BLASTING OPERATIONS. BLASTING RESIDUE SHALL NOT BE PERMITTED ON SURFACES WHICH ARE BEING USED BY VEHICLES OR PEDESTRIANS. THE BLASTING RESIDUES SHALL BE DISPOSED OF OUTSIDE THE HIGHWAY RIGHT-OF-WAY.

TESTING EQUIPMENT

BOTH THE CONTRACTOR FOR THE FIELD APPLICATION AND THE FABRICATOR FOR SHOP APPLICATION, SHALL PROVIDE AND ASSIGN TO THE ENGINEER THE FOLLOWING TESTING EQUIPMENT IN GOOD WORKING ORDER, FOR THE DURATION OF THE PROJECT, ONE (1) SET OF TESTING EQUIPMENT FOR EACH QUALITY CONTROL SPECIALIST. THESE SHALL BE SEPARATE SETS FROM THOSE THE CONTRACTOR OR FABRICATOR PROVIDES FOR THE QUALITY CONTROL SPECIALIST.

EACH QUALITY CONTROL SPECIALIST SHALL HAVE HIS OWN TESTING EQUIPMENT. WHEN NO TEST EQUIPMENT IS AVAILABLE, NO WORK SHALL BE PERFORMED.

1. ONE (1) SPRING MICROMETER AND 1 ROLL OF COARSE AND 3 (UNLESS OTHERWISE SPECIFIED ON THE PLANS) ROLLS OF EXTRA-COARSE REPLICA TAPE.
2. ONE (1) POSITECTOR 2000-6000, QUANIX 2200, OR ELCOMETER (A345FBII) AND THE CALIBRATION PLATES AS PER THE NBS CALIBRATION STANDARDS IN ACCORDANCE WITH ASTM D-1186.
3. ONE (1) SLING PSYCHROMETER INCLUDING PSYCHOMETRIC TABLES USED TO CALCULATE RELATIVE HUMIDITY AND DEW POINT TEMPERATURES.
4. TWO (2) STEEL SURFACE THERMOMETERS ACCURATE WITHIN 2 DEGREES.
5. FLASHLIGHT 2-D CELL.
6. SSPC VISUAL STANDARD FOR ABRASIVE BLAST CLEANED STEEL SSPC-VIS 1-89.
7. ONE (1) RECORDER THERMOMETER CAPABLE OF RECORDING THE DATE, TIME, AND TEMPERATURE OVER A PERIOD OF AT LEAST 12 HOURS.

HANDLING

ALL PAINT AND THINNER SHALL BE DELIVERED TO THE PROJECT SITE OR FABRICATOR'S SHOP IN ORIGINAL, UNOPENED CONTAINERS WITH LABELS INTACT. MINOR DAMAGE TO CONTAINERS IS ACCEPTABLE PROVIDED THE CONTAINER HAS NOT BEEN PUNCTURED. THINNER CONTAINERS SHALL BE A MAXIMUM OF FIVE (5) GALLONS.

PAINT SHALL BE STORED AT THE TEMPERATURE RECOMMENDED BY THE MANUFACTURER TO PREVENT PAINT DETERIORATION.

EACH CONTAINER OF PAINT AND THINNER SHALL BE CLEARLY MARKED OR LABELED TO SHOW PAINT IDENTIFICATION, COMPONENT, COLOR, LOT NUMBER, STOCK NUMBER, DATE OF MANUFACTURE, AND INFORMATION AND WARNINGS AS MAY BE REQUIRED BY FEDERAL AND STATE LAWS.

ALL CONTAINERS OF PAINT AND THINNER SHALL REMAIN UNOPENED UNTIL REQUIRED FOR USE. THE LABEL INFORMATION SHALL BE LEGIBLE AND SHALL BE CHECKED AT TIME OF USE.

SOLVENT USED FOR CLEANING EQUIPMENT IS EXEMPT FROM THE ABOVE REQUIREMENTS.

PAINT WHICH HAS LIVERED, GELLED OR OTHERWISE DETERIORATED DURING STORAGE SHALL NOT BE USED. HOWEVER, THIXOTROPIC MATERIALS WHICH CAN BE STIRRED TO ATTAIN NORMAL CONSISTENCY MAY BE USED.

THE OLDEST PAINT OF EACH KIND SHALL BE USED FIRST. NO PAINT SHALL BE USED WHICH HAS SURPASSED ITS SHELF LIFE.

PAINT MAY BE CONSIDERED AS ELIGIBLE FOR PAYMENT FOR MATERIAL ON HAND AS SPECIFIED IN CMS 109.07. HOWEVER, ONLY PAINT WHICH THE CONTRACTOR CAN PROVE TO THE ENGINEER WILL BE USED DURING THE CONSTRUCTION SEASON SHALL BE ELIGIBLE FOR PAYMENT. THE CONTRACTOR SHALL PROVIDE THE ENGINEER CALCULATIONS INDICATING THE TOTAL SQUARE FEET OF STEEL TO BE PAINTED DURING THE CONSTRUCTION SEASON. HE SHALL ALSO PROVIDE CALCULATIONS SHOWING THE TOTAL NUMBER OF GALLONS REQUIRED. THE CONTRACTOR SHALL BE RESPONSIBLE TO STORE THE PAINT ON THE PROJECT IN SUCH MANNER TO PREVENT THEFT AND ADVERSE TEMPERATURES. HE SHALL PROVIDE THERMOMETERS CAPABLE OF MONITORING THE MAXIMUM HIGH AND LOW TEMPERATURES WITHIN THE STORAGE FACILITY. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY DISPOSING OF ALL UNUSED PAINT AND PAINT CONTAINERS.

THE CONTRACTOR SHALL FURNISH SHIPPING INVOICES FOR ALL MATERIALS USED ON THE PROJECT TO THE ENGINEER PRIOR TO USE.

MIXING AND THINNING

ALL INGREDIENTS IN ANY CONTAINER OF PAINT SHALL BE THOROUGHLY MIXED IMMEDIATELY BEFORE USE AND SHALL BE AGITATED OFTEN ENOUGH DURING APPLICATION TO MAINTAIN A UNIFORM COMPOSITION; HOWEVER, THE PRIMER SHALL BE CONTINUOUSLY MIXED BY AN AUTOMATED AGITATION SYSTEM (HAND HELD MIXERS ARE NOT ALLOWED). PAINT SHALL BE CAREFULLY EXAMINED AFTER MIXING FOR UNIFORMITY AND TO VERIFY THAT NO UNMIXED PIGMENT REMAINS ON THE BOTTOM OF THE CONTAINER. THE PAINT SHALL BE MIXED WITH A HIGH SHEAR MIXER (SUCH AS A JIFFY MIXER). PADDLE MIXERS OR PAINT SHAKERS ARE NOT ALLOWED. PAINT SHALL NOT BE MIXED OR KEPT IN SUSPENSION BY MEANS OF AN AIR STREAM BUBBLING UNDER THE PAINT SURFACE.

ALL PAINT SHALL BE STRAINED AFTER MIXING. STRAINERS SHALL BE OF A TYPE TO REMOVE ONLY SKINS AND UNDESIRABLE MATTER, BUT NOT THE PIGMENT.

NO THINNER SHALL BE ADDED TO THE PAINT WITHOUT THE ENGINEER'S APPROVAL, AND ONLY IF NECESSARY FOR PROPER APPLICATION AS RECOMMENDED BY THE MANUFACTURER. WHEN THE USE OF THINNER IS PERMISSIBLE, THINNER SHALL BE ADDED SLOWLY TO THE PAINT DURING THE MIXING PROCESS. ALL THINNING SHALL BE DONE UNDER SUPERVISION OF THE ENGINEER. IN NO CASE SHALL MORE THINNER BE ADDED THAN THAT RECOMMENDED BY THE MANUFACTURER'S PRINTED INSTRUCTIONS. ONLY THINNERS RECOMMENDED AND SUPPLIED BY THE PAINT MANUFACTURER MAY BE ADDED TO THE PAINT. NO OTHER ADDITIVES SHALL BE ADDED TO THE PAINT.

CATALYSTS, CURING AGENTS, OR HARDENERS WHICH ARE IN SEPARATE PACKAGES SHALL BE ADDED TO THE BASE PAINT ONLY AFTER THE BASE PAINT HAS BEEN THOROUGHLY MIXED. THE PROPER VOLUME OF THE CATALYST SHALL THEN BE SLOWLY POURED INTO THE REQUIRED VOLUME OF BASE WITH CONSTANT AGITATION. LIQUID WHICH HAS SEPARATED FROM THE PIGMENT SHALL NOT BE POURED OFF PRIOR TO THE MIXING. THE MIXTURE SHALL BE USED WITHIN THE POT LIFE SPECIFIED BY THE MANUFACTURER. THEREFORE ONLY ENOUGH PAINT SHALL BE CATALYZED FOR PROMPT USE. MOST MIXED, CATALYZED PAINTS CANNOT BE STORED, AND UNUSED PORTIONS OF THESE SHALL BE DISCARDED AT THE END OF EACH WORKING DAY.

COATING APPLICATION

GENERAL

ALL STRUCTURAL STEEL, SCUPPERS, BULB ANGLES, EXPANSION JOINTS, STEEL RAILING, EXPOSED STEEL PILING, DRAIN TROUGHS, GALVANIZED SURFACES AND OTHER AREAS INDICATED ON THE PLANS SHALL BE PAINTED UNLESS OTHERWISE NOTED IN THE PLANS.

GALVANIZED SURFACES TO BE EMBEDDED IN CONCRETE AND SURFACES IN CONTACT WITH SEALS, SHALL BE MASKED AND RECEIVED NO PAINT.

ALL AREAS WHERE FIELD WELDING IS REQUIRED SHALL BE MASKED PRIOR TO SHOP COATING AND RECEIVE NO PAINT.

AREAS TO RECEIVE STUDS SHALL NOT BE MASKED BUT PAINT SHALL BE REMOVED BEFORE STUDS ARE APPLIED.

TREATMENT OF FAYING SURFACES

SURFACES INDICATED BELOW SHALL BE TREATED ACCORDING TO METHOD A OR METHOD B AS DESCRIBED IN THIS SPECIFICATION:

1. FAYING SURFACES OF MAIN BEAM OR GIRDER BOLTED FIELD SPLICES.
2. ALL INTERNAL CONTACT SURFACES OF FILLER AND SPLICE PLATES.
3. OTHER SURFACES INDICATED IN THE PLANS.

BOLTED CROSSFRAMES ON STRAIGHT BEAMS OR GIRDERS DO NOT NEED TO MEET THE REQUIREMENTS OF METHOD A OR METHOD B UNLESS INDICATED OTHERWISE IN THE PLANS.

METHOD A

THE FAYING SURFACES SHALL BE COATED WITH INORGANIC ZINC PRIMER.

THE COATING OF THESE FAYING SURFACES WITH THE INORGANIC ZINC-RICH PRIMER SHALL BE DONE BY USING A DOUBLE MASKING TECHNIQUE. FIRST, THE AREAS ADJACENT TO THE FAYING SURFACES SHALL BE TIGHTLY MASKED AND THE INORGANIC ZINC PRIMER APPLIED. AFTER THIS PRIMER HAS DRIED SUFFICIENTLY ENOUGH TO AVOID DAMAGE, THE FAYING SURFACES SHALL BE MASKED AND THE REMAINDER OF THE GIRDER SHALL BE COATED WITH THE ORGANIC ZINC-RICH PRIMER AND SUBSEQUENT COATS.

ALL BOLTED SHOP CONNECTIONS AND BOLTED CROSS FRAMES SHALL BE REMOVED AND DISASSEMBLED PRIOR TO THE BLASTING AND COATING OF THE GIRDERS OR BEAMS. THE PARTS SHALL BE BLASTED SEPARATELY AND PRIMED, THEN REASSEMBLED AND THE BOLTS FULLY TIGHTENED USING THE TURN OF THE NUT METHOD.

METHOD B

THE FAYING SURFACES SHALL BE COATED WITH ORGANIC ZINC PRIMER ONLY PER THIS SPECIFICATION. IN ORDER TO USE METHOD B, THE PRIMER SHALL BE TESTED IN ACCORDANCE WITH THE METHODS DESCRIBED IN "ALLOWABLE STRESS DESIGN SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS". TESTING SHALL INCLUDE SLIP TESTS AND TENSION CREEP TESTS. A MINIMUM SLIP COEFFICIENT OF 0.33 SHALL BE ATTAINED.

TESTING SHALL BE PERFORMED BY AN ACCREDITED LABORATORY AT THE CONTRACTOR'S EXPENSE. CERTIFIED TEST RESULTS SHALL BE FURNISHED TO THE ENGINEER. DOCUMENTATION SHALL ALSO INCLUDE CERTIFICATION THAT THE ESSENTIAL VARIABLES (DEFINED IN SECTION I.2, APPENDIX A, OF THE STRUCTURAL JOINTS SPECIFICATION) USED IN THE TESTING ARE THE SAME AS THOSE USED IN THE PAINT PROVIDED FOR THE STRUCTURE.

ALL GALVANIZED COMPONENTS, INCLUDING GALVANIZED NUTS, BOLTS, AND WASHERS, SHALL BE SOLVENT CLEANED AFTER INSTALLATION. THE EPOXY TIE-COAT, EPOXY COAT AND THE URETHANE PROTECTIVE COAT SHALL THEN BE APPLIED.

TEMPORARY ERECTION MARKS ADDED BY THE FABRICATOR TO HIGHLIGHT OR ENHANCE THE REQUIRED STEEL STAMPED ERECTION MARKS SHALL BE MADE WITHOUT DAMAGING THE PAINT SYSTEM. TEMPORARY ERECTION MARKS SHALL BE APPLIED ONLY AFTER THE FINISH COAT IS CURED AND SHALL BE REMOVED AT THE END OF THE PROJECT.

UNLESS OTHERWISE SPECIFIED, ALL COATS SHALL BE APPLIED BY SPRAY.

THE CONTRACTOR FOR FIELD APPLICATION AND THE FABRICATOR FOR SHOP APPLICATION, SHALL SUPPLY THE ENGINEER WITH THE PRODUCT DATA SHEETS BEFORE ANY COATING IS DONE. THE PRODUCT DATA SHEETS SHALL INDICATE THE MIXING AND THINNING DIRECTIONS, THE RECOMMENDED SPRAY NOZZLES AND PRESSURES AND THE MINIMUM DRYING TIME FOR SHOP APPLIED COATS.

THESE PRODUCT DATA SHEETS SHALL BE FOLLOWED EXCEPT WHEN THEY CONFLICT WITH THESE SPECIFICATIONS, IN WHICH CASE THE SPECIFICATIONS SHALL GOVERN.

IF THE SURFACE IS DEGRADED OR CONTAMINATED AFTER SURFACE PREPARATION AND BEFORE PAINTING, THE SURFACE SHALL BE RESTORED BEFORE PAINTING APPLICATION. IN ORDER TO PREVENT DEGRADATION OR CONTAMINATION OF CLEANED SURFACE, THE PRIME COAT OF PAINT SHALL BE APPLIED WITHIN TWENTY-FOUR (24) HOURS AFTER BLAST CLEANING WITH METHOD A, AND WITHIN EIGHT (8) HOURS AFTER BLAST CLEANING WITH METHOD B, AS REQUIRED IN SURFACE PREPARATION ABOVE.