

GENERAL NOTES

DESCRIPTION:

THIS ITEM CONSISTS OF FURNISHING AND INSTALLING VANDAL FENCING ON NEW AND EXISTING CONCRETE BRIDGE RAILINGS. CONSTRUCT IN A MANNER THAT PROVIDES A RIGID, TAUT FENCE CLOSELY CONFORMING TO THE TOP SURFACE OF THE CONCRETE PARAPET. UNLESS OTHERWISE SPECIFIED IN THE PLANS, INSTALL POSTS AND POST SLEEVES PLUMB.

(1) FENCE LINE POSTS AND END POSTS SHALL BE 2.880 INCH OUTSIDE DIAMETER GRADE 2 PIPE, 710.03 (TYPE 1), FY = 50,000 PSI, 4.64 LB/FT. THE PROTECTIVE COATING SHALL BE ACCORDING TO AASHTO M181 FOR GRADE 2 POSTS.

(2) FENCE TOP RAILS, BOTTOM RAILS AND LINE RAILS SHALL BE 1.660 INCH OUTSIDE DIAMETER GRADE 2 PIPE, 710.03 (TYPE 1), FY = 50,000 PSI, 1.84 LB/FT. THE PROTECTIVE COATING SHALL BE ACCORDING TO AASHTO M181 FOR GRADE 2 POSTS.

(3) BASE PLATES SHALL BE ASTM A709 GRADE 36 OR 50 STEEL GALVANIZED ACCORDING TO 711.02.

(4) FASTENERS: THE 3/4 INCH DIA. HIGH STRENGTH THREADED ANCHORS, 3/4 INCH DIA. BOLTS, NUTS AND WASHERS SHALL MEET THE REQUIREMENTS OF ASTM A325. ALL HARDWARE SHALL BE GALVANIZED ACCORDING TO 711.02. DOWEL 3/4 INCH DIA. THREADED ANCHORS AT LEAST 6 5/8 INCHES INTO EXISTING OR NEW CONCRETE. ANCHORS SHALL PROJECT AT LEAST 2 3/4 INCHES ABOVE THE TOP OF THE PARAPET. HOLE DIAMETERS SHALL BE 1/8 INCH LARGER THAN THE ANCHORS OR AS RECOMMENDED BY THE MANUFACTURER. PLACE AND CURE ANCHORS ACCORDING TO CMS 510 USING NONSHRINK, NONMETALLIC GROUT, 705.20.

FOR INSTALLATIONS IN NEW CONCRETE RAILINGS, THE ANCHORS MAY BE CAST-IN-PLACE WITH A MINIMUM 6 5/8 INCH EMBEDMENT LENGTH.

(5) TENSION BARS SHALL BE 3/16 INCH X 1/2 INCH STEEL GALVANIZED ACCORDING TO 711.02.

(6) TENSION BANDS AND BRACE BANDS SHALL BE 1/8 INCH X 1 INCH GALVANIZED STEEL ASSEMBLED WITH 3/8 INCH DIAMETER X 1 1/4 INCH GALVANIZED BOLTS. ONE TENSION BAND SHALL BE SUPPLIED FOR EACH FOOT OF FABRIC HEIGHT. BANDS SHALL BE GALVANIZED ACCORDING TO 711.02.

(7) LINE RAIL CLAMPS OR BOULEVARDS SHALL BE STEEL, GALVANIZED ACCORDING TO 711.02. THE CLAMPS SHALL BE USED TO CONNECT LINE RAILS OR TOP RAILS OF CURVED FENCES TO INTERIOR POSTS. INSTALL USING 3/8 INCH DIAMETER X 2 1/2 INCH BOLTS, GALVANIZED ACCORDING TO 711.02.

(8) MALLEABLE OR CAST IRON FITTINGS SHALL BE USED FOR END POST DOME CAPS, HALF BALL AND LOOP LINE POST CAPS AND LINE OR TOP RAIL ENDS. ALL FITTINGS SHALL BE GALVANIZED ACCORDING TO 711.02.

(9) TENSION WIRE SHALL BE ALUMINIZED 0.177 INCH DIAMETER STEEL COIL SPRING WIRE CONFORMING TO AASHTO M181. PLACE TENSION WIRE AS CLOSE TO THE CONCRETE PARAPET AS PRACTICAL BUT NOT MORE THAN 2 INCHES MAXIMUM. THE LOAD ON THE TENSION WIRE SHALL BE 800 LB MINIMUM.

(10) FABRIC TIES AND HOG RINGS SHALL BE 0.148 INCH CORE DIAMETER GALVANIZED PVC COATED STEEL WIRE AND 0.120 INCH ANNEALED STAINLESS STEEL WIRE CONFORMING TO ASTM A478 RESPECTIVELY. TO CONNECT THE FABRIC TO THE LINE POSTS, SUPPLY ONE FABRIC TIE FOR EACH ONE FOOT OF FABRIC HEIGHT. CONNECT THE FABRIC TO THE TENSION WIRE USING HOG RINGS 2-3 INCHES ON EACH SIDE OF THE POSTS AND AT SPACINGS NOT TO EXCEED 12 INCHES BETWEEN POSTS. THE PVC COATING SHALL BE THE SAME AS THAT FOR THE STEEL FABRIC.

(11) STAINLESS STEEL CLOSURE PLATES ARE REQUIRED FOR ALL FENCING INSTALLATIONS NOT USING A BOTTOM RAIL. REFER TO SHEET 7 OF 7 FOR MATERIAL AND INSTALLATION REQUIREMENTS FOR THE STAINLESS STEEL CLOSURE PLATES.

(12) ADJUSTABLE TRUSS RODS: IF THE FENCE FABRIC IS CONTINUOUS ACROSS A STRUCTURAL EXPANSION JOINT, INSTALL ADJUSTABLE TRUSS RODS IN THE PANEL SECTION ON EACH IMMEDIATE SIDE OF THE EXPANSION PANEL. OTHERWISE, INSTALL TRUSS RODS ONLY AS NECESSARY TO MEET THE REQUIREMENTS OF THIS DRAWING. ADJUSTABLE TRUSS RODS SHALL BE 3/8 INCH DIAMETER STEEL, GALVANIZED ACCORDING TO 711.02.

(13) DOUBLE WRAP FABRIC TIES SHALL BE 0.091 INCH CORE DIAMETER GALVANIZED PVC COATED STEEL WIRE, 15 1/4 INCHES LONG. TO CONNECT THE FABRIC TO THE LINE AND TOP RAILS, USE DOUBLE WRAP TIES 2-3 INCHES ON EACH SIDE OF THE POSTS AND AT SPACINGS NOT TO EXCEED 12 INCHES BETWEEN POSTS. THE PVC COATING SHALL BE THE SAME AS THAT FOR THE STEEL FABRIC.

(14) FABRIC: SHALL CONSIST OF A 1 INCH DIAMOND MESH USING 0.120 INCH DIA. (11 GAGE) WIRE CONFORMING TO ASTM F668 CLASS 2A OR 2B EXCEPT AS NOTED. THE PVC COATING SHALL BE GRAY IN COLOR CLOSELY APPROACHING FEDERAL STANDARD NO. 595B-16251 UNLESS OTHERWISE SPECIFIED IN THE PLANS. SELVAGES SHALL BE KNUCKLED AT BOTH ENDS. HANDLE ALL PVC COATED FABRIC WITH CARE. IF THE PVC COATING IS DAMAGED, REPLACE THE DAMAGED PORTION OF THE FABRIC AT NO COST TO THE DEPARTMENT.

(15) FILLET WELDS SHALL CONFORM TO CMS 513.

(16) POST SLEEVES SHALL BE 3.500 INCH OUTSIDE DIAMETER PIPE, ASTM A53, 25,000 PSI MINIMUM YIELD STRENGTH, 7.58 LB/FT, GALVANIZED ACCORDING TO 711.02. HEXAGON SOCKET SET SCREWS SHALL BE SAE 4140 ALLOY STEEL, HEAT TREATED, WITH FLAT OR OVAL POINT.

(17) SHIM PLATES SHALL BE MADE FROM ANY MULTI-POLYMER PLASTIC WITH A MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI. IN ORDER TO INSTALL POSTS PLUMB, ENDS OF POSTS AND SLEEVES MAY BE CUT ON A BIAS.

(18) TRAFFIC MAINTENANCE: MAINTAIN TRAFFIC ACCORDING TO THE PROJECT PLANS.

(19) CAULKING COMPOUND SHALL CONFORM TO FEDERAL SPECIFICATION TT-S-00230C TYPE II, CLASS A, ALUMINUM GRAY. WHEN APPLYING THE CAULK TO THE BASE PLATE, PROVIDE A 1 INCH OPENING THROUGH THE CAULKING ON LOW SIDE OF BASE PLATE.

(20) EXPANSION SLEEVES: PROVIDE EXPANSION SLEEVES AT LEAST 6 INCHES LONG IN FENCE PANELS SPANNING STRUCTURAL EXPANSION JOINTS. EXPANSION SLEEVES SHALL BE OUTSIDE TYPE WITH INTERNAL HEAVY SPRING AND GALVANIZED ACCORDING TO 711.02. THE SLEEVES SHOULD BE CAPABLE OF ACCOMMODATING THE MAXIMUM EXPANSION AND CONTRACTION MOVEMENTS OF THE STRUCTURE.

(21) CONSTRUCTION PROCEDURE:

1. FIELD VERIFY THE PLAN LOCATIONS OF ALL BASE PLATES AND MARK PARAPETS ACCORDINGLY.
2. MARK AND DRILL HOLES FOR THE 3/4 INCH HIGH STRENGTH THREADED ANCHORS, 3/4 INCH BOLTS OR APPROVED 3/4 INCH INSERTS USING A BASE PLATE OR TEMPLATE.
3. INSTALL 3/4 INCH DIAMETER HIGH STRENGTH THREADED ANCHORS, 3/4 INCH BOLTS OR APPROVED 3/4 INCH INSERTS.
4. INSTALL POSTS AND BASE PLATES AND SHIM WHERE REQUIRED.
5. CAULK EDGES OF BASE PLATES, SHIMS AND SLEEVES.
6. COMPLETE INSTALLATION OF FENCE.

(22) SPECIAL DESIGNS ARE REQUIRED FOR RAILINGS WITH 28 DAY CONCRETE STRENGTHS LESS THAN 4000 PSI. A SPECIAL DESIGN IS ALSO REQUIRED IF THE MIDPOINT OF THE EXPOSED FENCE HEIGHT IS GREATER THAN 50 FEET ABOVE THE NORMAL TERRAIN LEVEL.

(23) PROJECT PLANS: THE DESIGNER SHALL SPECIFY THE TYPE OF BASE PLATE AND POST SECTION TO BE USED AND PROVIDE A SCHEMATIC DECK PLAN SHOWING THE FENCE POST SPACING.

(24) METHOD OF MEASUREMENT: THE DEPARTMENT WILL MEASURE THE QUANTITY BY THE FOOT. THE DEPARTMENT WILL MEASURE ALONG THE BOTTOM OF THE FENCE FROM CENTER TO CENTER OF END POSTS.

(25) BASIS OF PAYMENT: THE DEPARTMENT WILL MAKE PAYMENT FOR THE COMPLETED AND ACCEPTED QUANTITIES OF VANDAL FENCE AS FOLLOWS:

ITEM	UNIT	DESCRIPTION
607	FOOT	SPECIAL - VANDAL PROTECTION FENCE, *

*: 6 FT STRAIGHT, COATED FABRIC
8 FT STRAIGHT, COATED FABRIC
10 FT CURVED, COATED FABRIC
12 FT CURVED, COATED FABRIC

DESIGN AGENCY
OFFICE OF
STRUCTURAL ENGINEERING

STATE OF OHIO DEPARTMENT OF TRANSPORTATION
B. D. Hamilton
ENGINEER OF BRIDGES

REVIEWED	WTF
CHECKED	RLD
DESIGNED	JCR
DRAWN	GFJ

VPF-1-90

REVISIONS
02-01-92
03-24-93
07-19-02

STANDARD
VANDAL PROTECTION FENCE