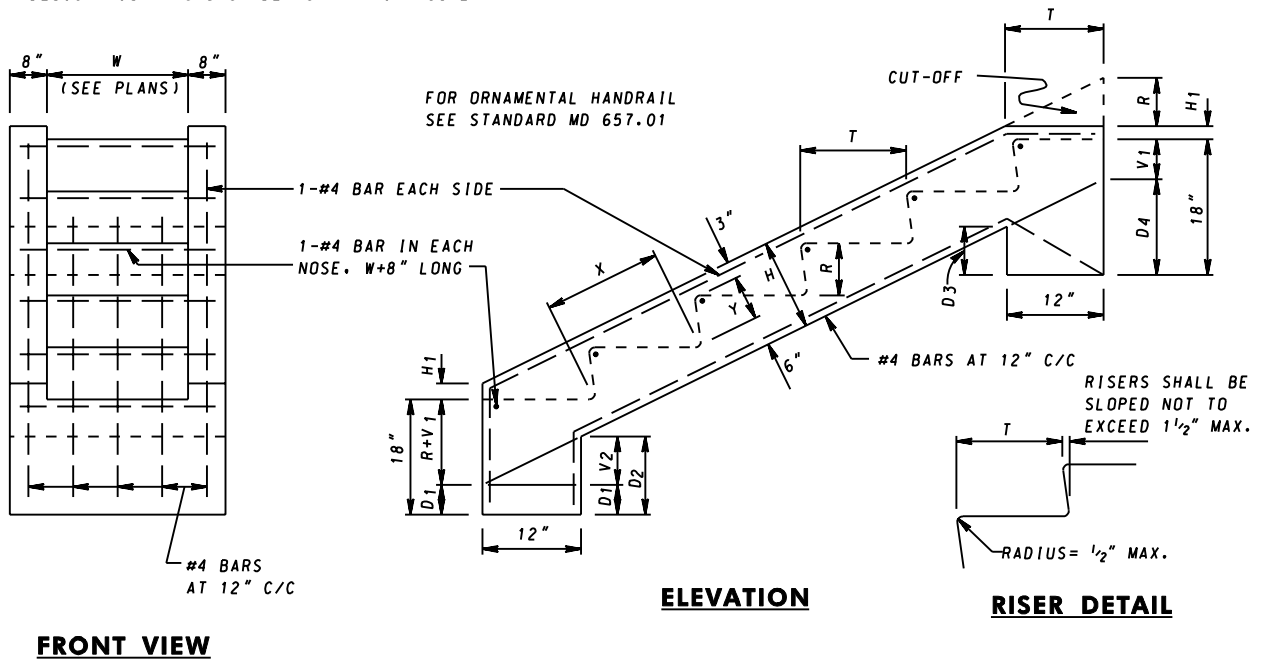
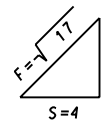
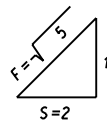
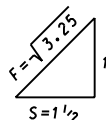


NOTE: ALL REINFORCING TO BE #4 BARS, CONFORMING TO A.S.T.M. DESIGNATION A-615 GRADE 40. 1" MIN. COVER.



STANDARD SLOPES, DIMENSIONS & FORMULAS

SLOPE RATIO S:1 VALUES OF S	R	T	F	H ₁	X	Y	H	V ₁	V ₂	D ₁	D ₂	D ₃	D ₄
1 1/2	7"	11"	$\sqrt{3.25}$	3.61"	13.04"	5.91"	14.91"	7.21"	8"	3.79"	11.79"	2.79"	10.79"
2	6"	12"	$\sqrt{5}$	3.36"	13.44"	5.36"	14.36"	6.72"	6"	5.28"	11.28"	5.28"	11.28"
4	3 1/2"	14"	$\sqrt{17}$	3.09"	14.44"	3.39"	12.39"	6.19"	3"	8.31"	11.31"	8.81"	11.81"



CONCRETE REQUIRED FOR STANDARD STAIRWAYS TABLE OF UNIT QUANTITIES

ITEM - UNIT OF STAIRWAY	SLOPE RATIO & T:R			VOLUMES PER STAIRWAY
	1 1/2 : 1	2 : 1	4 : 1	
	11 : 7	12 : 6	14 : 3 1/2	
VOL. OF 1 STEP + BOTTOM SLAB PER 1" WIDTH OF W	= .0651	.0675	.0643	MULTIPLIED BY (NW) =A
VOL. OF 2 SIDEWALLS PER STEP OR TREAD	= 1.7317	1.7870	1.6566	MULTIPLIED BY (N) =B
VOL. OF UPPER & LOWER FOOTINGS PER 1" OF TOTAL WIDTH	= .1012	.1150	.1397	MULTIPLIED BY (W+16)=C
VOL. OF 2 UPPER SIDE WALL CUT-OFFS TO DEDUCT	= -.3403	.3333	-.2269	MULTIPLIED BY 1 =D

CONCRETE=MIX NO. 2 (VOLUMES SHOWN IN TABLE ABOVE ARE IN CUBIC FEET)
TOTAL VOLUME IN CUBIC YARDS/STAIRWAY= $\frac{A+B+C-D}{27}$

NUMBER OF STEPS OR TREADS=N
TREAD WIDTH (IN INCHES)=W

SPECIFICATION CATEGORY CODE ITEMS

APPROVED

Kirk G. McCall
DIRECTOR - OFFICE OF HIGHWAY DEVELOPMENT



APPROVAL • SHA
REVISIONS

APPROVAL 2-7-51

REVISED 10-1-01

REVISED

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HIGHWAY ADMINISTRATION

APPROVAL

REVISED 2-27-85

REVISED

REVISED

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

STANDARD STAIRWAYS

STANDARD NO. MD 657.00