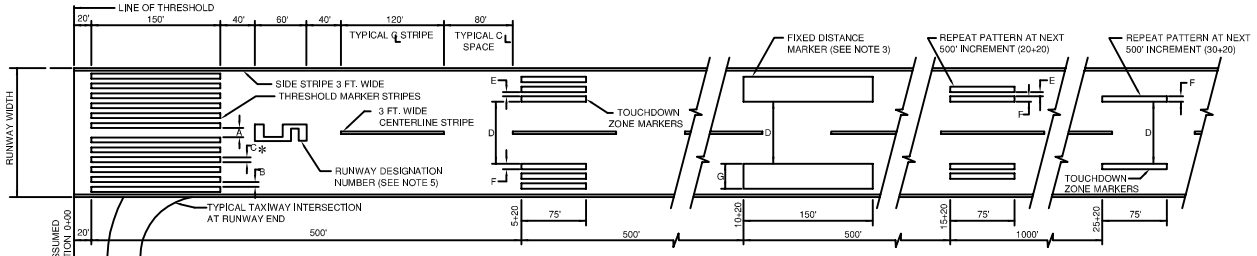


PRECISION INSTRUMENT RUNWAY MARKING

INCLUDES ALL MARKING ELEMENTS SHOWN

NONPRECISION INSTRUMENT RUNWAY MARKING

INCLUDES ONLY THRESHOLD MARKER STRIPES, RUNWAY DESIGNATION NUMBER AND CENTERLINE STRIPES, USE SAME DIMENSIONAL STANDARDS AS PRECISION INSTRUMENT RUNWAY MARKING. OTHER ELEMENTS OF PRECISION INSTRUMENT MARKING MAY BE REQUIRED OR USED.

NOTE:

SEE TABLE FOR DIMENSIONS INDICATED BY LETTERS AND AREAS OF VARIABLE MARKINGS.

DETAIL C
ILS/MLS HOLDING LINE

WHEN A TAXIWAY HOLD LINE & ILS/MLS HOLD LINE ARE WITHIN 50', ONE HOLD LINE MAY BE ESTABLISHED BY RELOCATING THE TAXIWAY HOLD LINE TO THE ILS/MLS HOLD LINE LOCATION. DISTANCE & LOCATION SHALL BE DETERMINED BY THE ENGINEER. ALL MARKINGS ARE 1' WIDE.
MARKING AREA = 5 SQ. FT. PER FOOT OF TAXIWAY WIDTH.

TABLE 1:
RUNWAY TABLE OF VARIABLE DIMENSIONS

RUNWAY WIDTH	BLAST PAD AREA PER CHEVRON	THRESHOLD MARKER STRIPES					TOUCHDOWN ZONE MARKERS								FIXED DISTANCE MARKERS			
		DIMENSIONS			# OF STRIPES	AREA FOR STRIPES	DIMENSIONS			BARS	SPACES	AREAS			DIM.	BARS	SPACES	AREA FOR 2 MARKERS
		A	B	C *			D	E	F			6 STRIPES	4 STRIPES	2 STRIPES	G			
150	595	11	5'9"	5'9"	12	10,350	72	5	6'8"	10	9	2,850	1,900	950	29'8"	45	44	8,900
100	382	11	5'9"	5'9"	8	6,900	48	3	3'8"	6	5	1,650	1,100	550	19'8"	30	29	5,900
75	275	11	5'9"	5'9"	6	5,175	36	2	3	5	4	1,350	900	450	15	23	22	4,500
60	212	11	5'9"	5'9"	4	3,450	29	1'6"	2	SOLID		900	600	300	11'8"	18	17	3,500
50	170	11	5'9"	5'9"	4	3,450	24	1'3"	1'6"	SOLID		675	450	225	9'8"	15	14	2,900
40	127	11	5'9"	2'9"	4	3,450	-	-	-	-		-	-	-	-	-	-	-

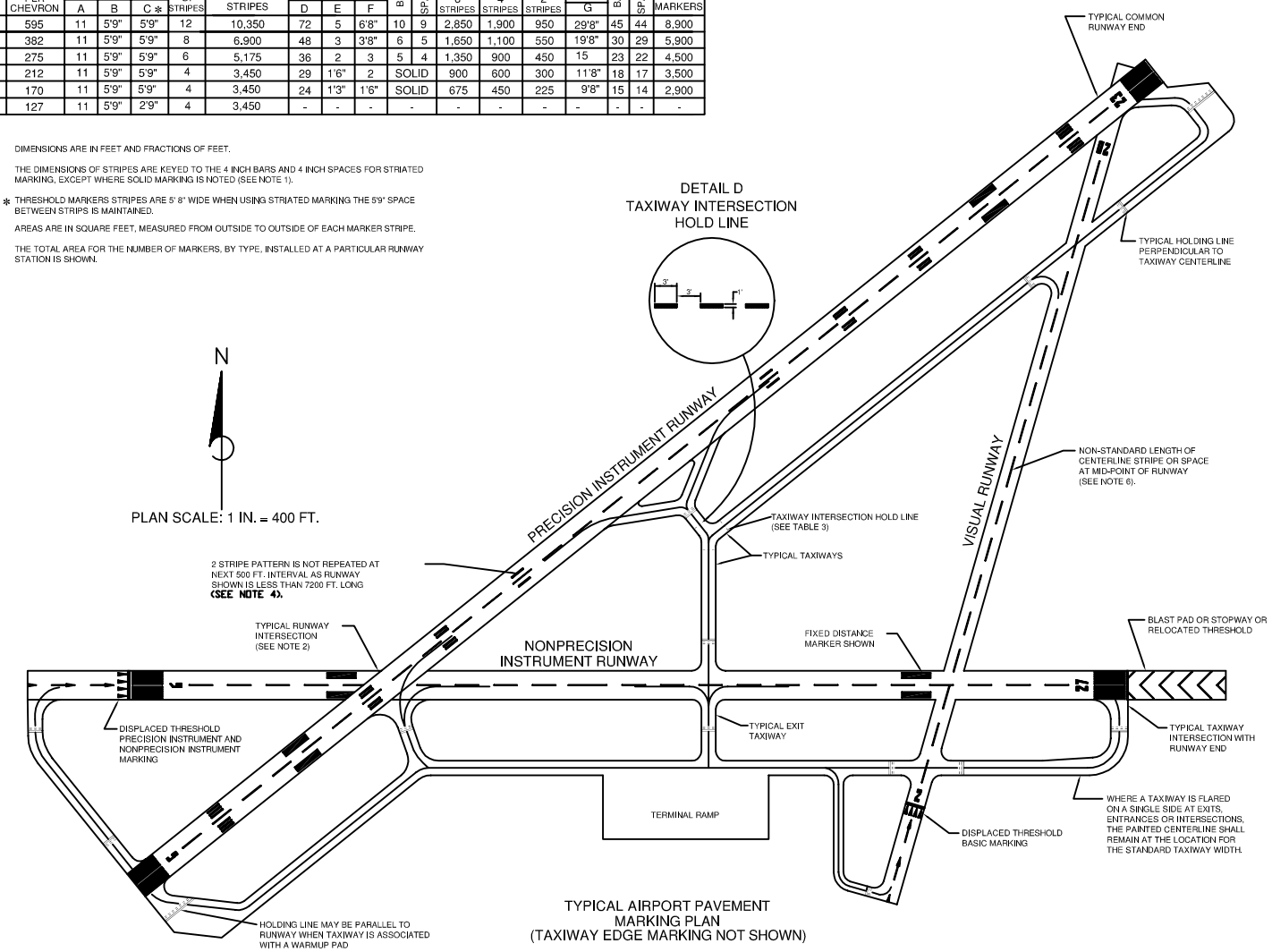
DIMENSIONS ARE IN FEET AND FRACTIONS OF FEET.

THE DIMENSIONS OF STRIPES ARE KEYED TO THE 4 INCH BARS AND 4 INCH SPACES FOR STRIATED MARKING, EXCEPT WHERE SOLID MARKING IS NOTED (SEE NOTE 1).

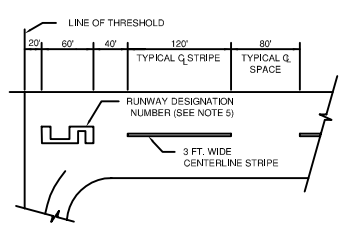
* THRESHOLD MARKERS STRIPES ARE 5' 8" WIDE WHEN USING STRIATED MARKING THE 5'9" SPACE BETWEEN STRIPS IS MAINTAINED.

AREAS ARE IN SQUARE FEET, MEASURED FROM OUTSIDE TO OUTSIDE OF EACH MARKER STRIPE.

THE TOTAL AREA FOR THE NUMBER OF MARKERS, BY TYPE, INSTALLED AT A PARTICULAR RUNWAY STATION IS SHOWN.

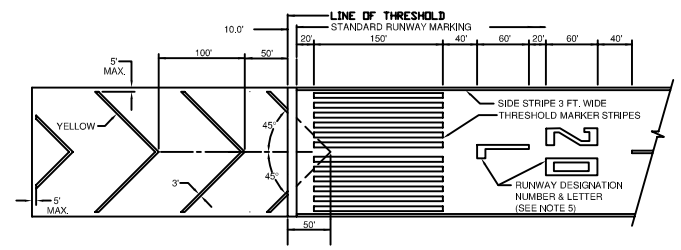


TYPICAL AIRPORT PAVEMENT MARKING PLAN
(TAXIWAY EDGE MARKING NOT SHOWN)



VISUAL RUNWAY MARKING

INCLUDES ONLY CENTERLINE MARKING AND RUNWAY DESIGNATION NUMBERS. ELEMENTS OF NONPRECISION INSTRUMENT OR PRECISION INSTRUMENT MARKING MAY BE REQUIRED OR USED.

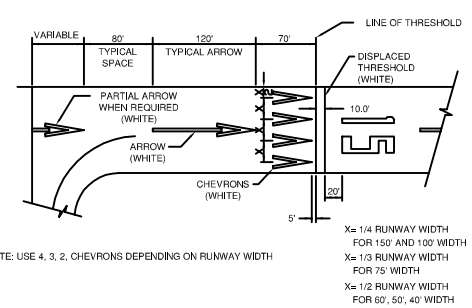


BLAST PAD MARKING

50 FT. SPACING MAY BE USED WHEN LENGTH OF AREA IS LESS THAN 250 FEET.

PARALLEL RUNWAY MARKING

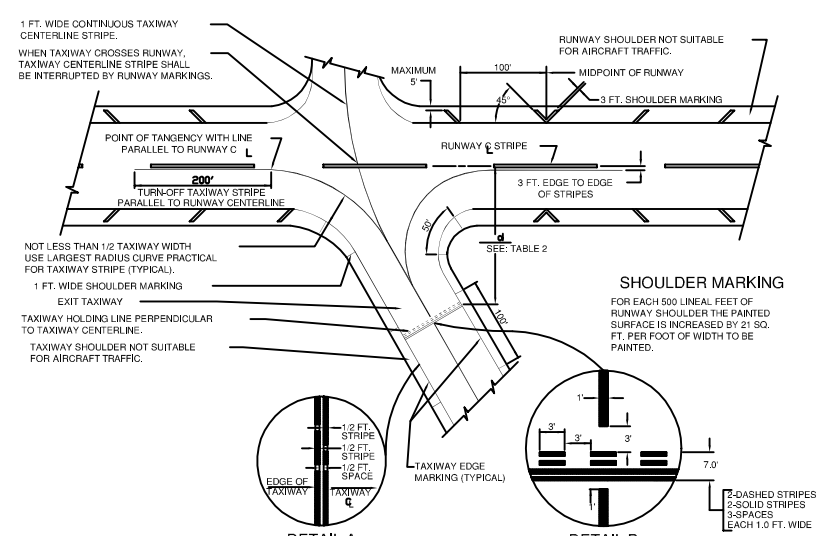
(PRECISION INSTRUMENT RUNWAY SHOWN)
PARALLEL RUNWAYS WITH VISUAL RUNWAY MARKING SHALL FOLLOW THE SAME LONGITUDINAL SPACING, EXCEPT THE BOTTOM OF THE DESIGNATION LETTER SHALL BE SPACED 20 FT. FROM THE END OF THE RUNWAY PAVEMENT OR 30 1/3 FT. FROM THE LINE OF THRESHOLD IF IT IS DISPLACED OR RELOCATED. ONLY THE RUNWAY DESIGNATION LETTER, NUMBER AND CENTERLINE STRIPE ARE REQUIRED.



NOTE: USE 4, 3, 2, CHEVRONS DEPENDING ON RUNWAY WIDTH

DISPLACED THRESHOLD MARKING

STRIATIONS IN THE DISPLACED THRESHOLD BAR SHALL RUN PERPENDICULAR TO THE RUNWAY CENTERLINE. (16 BARS, 15 SPACES)



SHOULDER MARKING

FOR EACH 500 LINEAL FEET OF RUNWAY SHOULDER THE PAINTED SURFACE IS INCREASED BY 21 SQ. FT. PER FOOT OF WIDTH TO BE PAINTED.

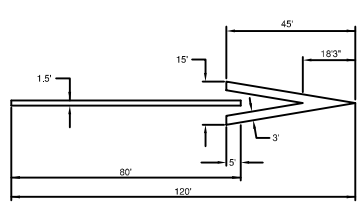
DETAIL A
TAXIWAY EDGE MARKING

DETAIL B
TAXIWAY HOLDING LINE

TAXIWAY MARKING

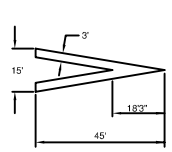
AT TAXIWAY INTERSECTIONS WITH RUNWAY ENDS, TAXIWAY CENTERLINE STRIPES TERMINATE AT THE NEAREST EDGE OF THE RUNWAY AS SHOWN ON RUNWAY MARKING DETAILS.

TAXIWAY MARKING AREAS:
CENTERLINE = 1 SQ. FT. PER LINEAL FOOT OF TAXIWAY C OR TURN-OFF STRIPE.
EDGE MARKING = 2 SQ. FT. PER LINEAR FOOT OF TAXIWAY (INCLUDES BOTH EDGES).
HOLDING LINE = 3.0 SQ. FT. PER FOOT OF TAXIWAY WIDTH.
SHOULDER MARKING = FOR EACH 100 LINEAL FEET OF TAXIWAY SHOULDER THE PAINTED SURFACE IS INCREASED BY 1 SQ. FT. PER FOOT OF WIDTH TO BE PAINTED.



ARROW DETAIL

CENTER ON RUNWAY CENTERLINE
AREA FOR EACH ARROWHEAD = 218 SQ. FT.
AREA FOR EACH ARROWSHAFT = 120 SQ. FT.
(5 BARS, 4 SPACES EACH)



CHEVRON DETAIL

(AREA = 218 sq. ft.)
RUNWAY WIDTHS 100' TO 150' : USE FOUR PER DISPLACED THRESHOLD
RUNWAY WIDTH 75': USE THREE PER DISPLACED THRESHOLD
RUNWAY WIDTHS 40', 50', 60': USE TWO PER DISPLACED THRESHOLD

NOTES:

1) GENERAL:
RUNWAY MARKINGS 3 FEET AND WIDER SHALL BE STRIATED.
STRIATED MARKINGS ARE COMPOSED OF A SERIES OF 4 INCH BARS SEPARATED BY 4 INCH SPACES.
RUNWAY MARKINGS LESS THAN 3 FEET WIDE SHALL BE SOLID.

2) RUNWAY MARKING PRECEDENCE:
1ST PRECISION INSTRUMENT
2ND NONPRECISION INSTRUMENT
3RD VISUAL (VFR)
MARKING OF LESSER PRECEDENCE RUNWAYS SHALL BE INTERRUPTED AT THE EDGE OF HIGHER PRECEDENCE RUNWAYS, AT INTERSECTIONS AND COMMON ENDS (SEE TYPICAL MARKING PLAN).
HOLDING POSITION MARKINGS SHOULD ONLY BE INSTALLED ON A RUNWAY WHERE A PORTION OF THE RUNWAY IS USED AS A TAXIWAY OR USED FOR "LAND AND HOLD-SHORT OPERATIONS".
THE LOCATION OF THESE MARKINGS SHALL BE IN ACCORDANCE WITH TABLE 2.

3) FIXED DISTANCE MARKERS:
FOR JET AIRCRAFT OPERATIONS ON BASIC AND NONPRECISION INSTRUMENT RUNWAYS, PROVIDE FIXED DISTANCE MARKERS ON RUNWAYS OF 4,000 FEET OR LONGER.

4) TOUCHDOWN ZONE MARKERS:
FOR RUNWAY LESS THAN 7200 FEET BETWEEN THRESHOLDS, ANY PAIR OF TOUCHDOWN ZONE MARKERS THAT WOULD EXTEND TO WITHIN 900 FEET OF THE MIDPOINT OF THE RUNWAY SHALL BE ELIMINATED.

5) RUNWAY DESIGNATION NUMBERS:
THE RUNWAY DESIGNATION NUMBER ASSIGNED EACH RUNWAY IS THE WHOLE NUMBER NEAREST TO ONE-TENTH OF THE MAGNETIC AZIMUTH MEASURED ALONG THE RUNWAY CENTERLINE.
PARALLEL RUNWAY DESIGNATION LETTERS L, C AND R INDICATE LEFT, CENTER OR RIGHT RUNWAY.
NUMBERS AND LETTERS ARE DETERMINED FROM THE APPROACH DIRECTION.
NUMBERS AND LETTERS ARE CENTERED ON THE RUNWAY CENTERLINE.
THE NUMERALS OF TWO-DIGIT STANDARD SIZE NUMBERS ARE SPACED 15 FEET APART EXCEPT THE NUMERALS IN NUMBER 11, WHICH ARE SPACED 27 FEET APART AT THE BASE.
REDUCED SIZED NUMBERS ARE SPACED 12 FEET AND 22 FEET APART, RESPECTIVELY. SEE ST-M-112 FOR NUMBER LAYOUT.
WHEN REDUCED SIZED NUMBERS ARE USED, THE 60 FEET HEIGHT SHOWN ON THE LAYOUT IS REDUCED TO 48 FEET.

6) RUNWAY CENTERLINE LAYOUT:
RUNWAY CENTERLINE STRIPES SHALL BE LAID OUT FROM RUNWAY DIRECTION NUMBERS TOWARD THE MIDDLE.
ANY NON-STANDARD LENGTH STRIPE OR SPACE REQUIRED SHALL BE AT THE MIDDLE OF THE RUNWAY.

7) PAINT:
RUNWAYS AND TAXIWAYS SHALL BE MARKED WITH A TRAFFIC MARKING PAINT THAT CONFORMS TO M.D.O.T. SPECIFICATION P-620.
COLORS SHALL BE WHITE FOR RUNWAY MARKING AND DISPLACED THRESHOLD ARROWS AND CHEVRONS. YELLOW SHALL BE USED FOR TAXIWAY MARKING, BLAST PAD CHEVRONS, SHOULDER MARKINGS, AND ALL HOLDING POSITION LINES.
APPROXIMATE PAINT COVERAGE IS 155 TO 225 SQUARE FEET PER GALLON FOR STRIATED MARKING AND 85 TO 125 SQUARE FEET PER GALLON FOR SOLID MARKING DEPENDING ON PAVEMENT SURFACE TEXTURE.
THE ACTUAL PAINTED AREA OF STRIATED MARKINGS AVERAGE 55% OF THE TOTAL AREAS SHOWN IN THE TABLE AND DETAILS.

TABLE 2:
RUNWAY &TAXIWAY HOLDING POSITION MARKING LOCATIONS

AIRCRAFT APPROACH CATEGORY AND (AIRPLANE DESIGN GROUP) (SEE AC 150 / 5300-13)	d: DISTANCE FROM RUNWAY CENTERLINE	
	VISUAL/NONPRECISION INSTRUMENT	PRECISION INSTRUMNET
A & B (I & II) SMALL AIRPLANES ONLY	125'	175'
A & B (I, II, & III)	200'	250'
A & B (IV)	250'	250'
C & D (I THRU IV)	250'	250'
C & D (V)	250'	280'

TABLE 3:
TAXIWAY INTERSECTION HOLD LINE LOCATION

AIRCRAFT DESIGN GROUP	I	II	III	IV	V	VI
PERPENDICULAR DISTANCE	44.5'	65.5'	93.0'	129.5'	160.0'	193.0'

HOLDING LINE MARKINGS FOR TAXIWAY INTERSECTIONS SHOULD ONLY BE USED WHERE THERE IS AN OPERATIONAL NEED TO HOLD TRAFFIC AT THAT POSITION.

AIRPORT PAVEMENT MARKINGS SHOWN ON THIS PLAN ARE TO BE USED AS A REFERENCE. ACTUAL MARKINGS TO BE INSTALLED UNDER THIS CONTRACT SHALL BE AS DIRECTED BY THE ENGINEER.

THIS DRAWING CONFORMS TO F.A.A. AC 150/5340-1H, AS MODIFIED BY M.A.C. RULES AND REGULATIONS. IT SHOULD NOT BE USED FOR CATEGORY II INSTRUMENT RUNWAYS.

NO.	DATE	REMARKS	BY	CHK
1	4/01	REVISED DISTANCES & T-RESHOLD MARKER STRIPES	NAR	MWN
		ILS/MLS & TAXIWAY HOLDING LINES		

REVISIONS

STANDARD PLAN
FOR
AIRPORT PAVEMENT MARKING

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF AERONAUTICS
LANSING, MICHIGAN

APPROVED
Oliver House 6/93
CHIEF ENGINEER DATE

DRAWN (CAD)	ROK	06-21-93
CHECKED	JVK	07-14-93
PLOTTED	ROK	07-27-93

ST-M-111-B

FILE NUMBER