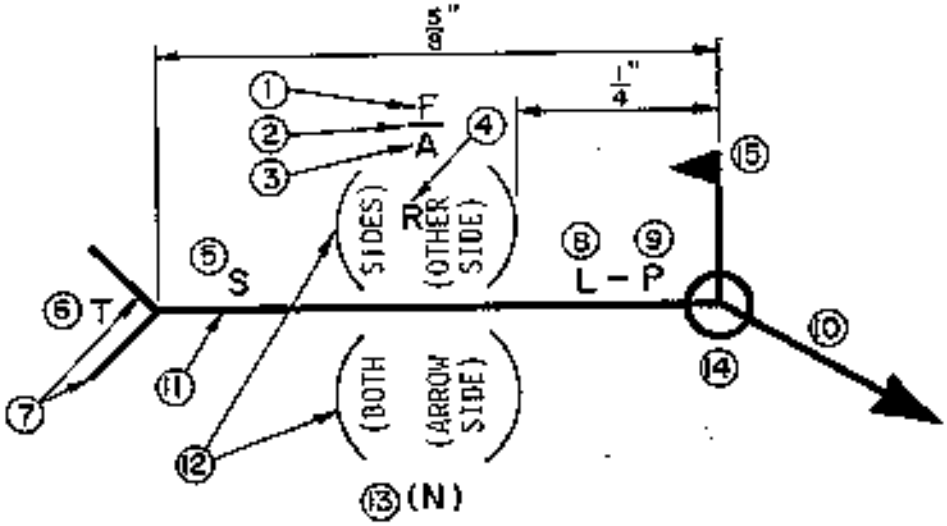
WELDING SYMBOL
LOCATION OF ELEMENTS



1. FINISH SYMBOL.
2. CONTOUR SYMBOL
3. GROOVE ANGLE; INCLUDED ANGLE OF COUNTERS INK FOR PLUG WELDS.
4. ROOT OPENING; DEPTH OF FILLING FOR PLUG AND SLOT WELDS.
5. SIZE; SIZE OR STRENGTH FOR CERTAIN WELDS.
6. SPECIFICATION, PROCESS, OR OTHER REFERENCES.
7. TAIL (MAY BE OMITTED WHEN REFERENCE NOT USED).
8. LENGTH OF WELD.
9. PITCH (CENTER-TO-CENTER SPACING) OF WELDS.
10. ARROW CONNECTING REFERENCE LINE TO ARROW SIDE OF JOINT, TO GROOVED MEMBER, OR BOTH.
11. REFERENCE LINE.
12. BASIC WELD SYMBOL OR DETAIL REFERENCE.
13. NUMBER OF SPOT OR PROJECTION WELDS.
14. WELD ALL AROUND SYMBOL.
15. FIELD WELD SYMBOL.

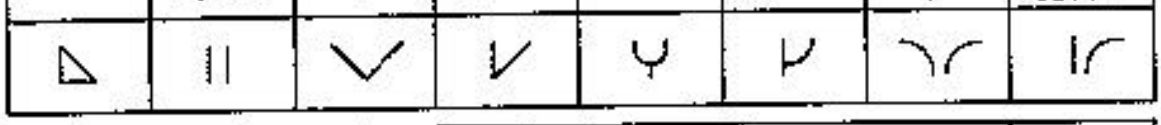
NOTES:

1. SIZE, WELD SYMBOL, LENGTH OF WELD AND SPACING MUST READ IN THAT ORDER FROM LEFT TO RIGHT ALONG REFERENCE LINE. NEITHER ORIENTATION OF REFERENCE LINE NOR LOCATION OF THE ARROW ALTER THIS RULE.

2. FOR DETAILED INFORMATION ON WELDING SYMBOL REFER TO AMERICAN WELDING SOCIETY "WELDING SYMBOLS" A2.0.

WELD SYMBOLS
BASIC AND SUPPLEMENTARY

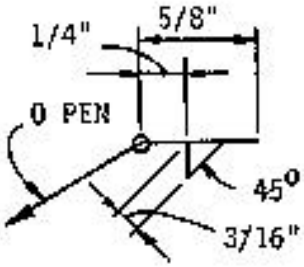
BASIC WELD SYMBOLS: ACTUAL SCALE

FILLET	GROOVE OR BUTT						
	SQUARE	V	BEVEL	U	J	FLARE. V	FLARE. BEVEL
							

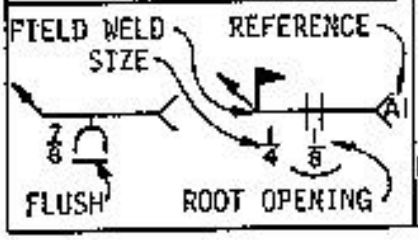
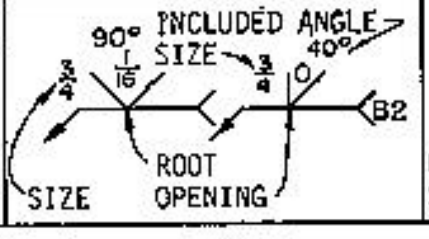
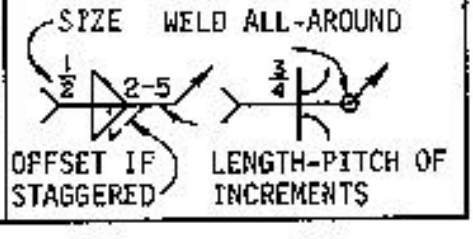
PLUG OR SLOT	SPOT OR PROJEC-TION	SEAM	BACK OR BACKING	SUR-FACING	FLANGE		
					EDGE	CORNER	

SUPPLEMENTARY WELD SYMBOLS:

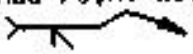
WELD ALL AROUND	FIELD WELD	MELT-THRU	CONTOUR		
			FLUSH	CONVEX	CONCAVE



WELDING SYMBOL ILLUSTRATIONS:

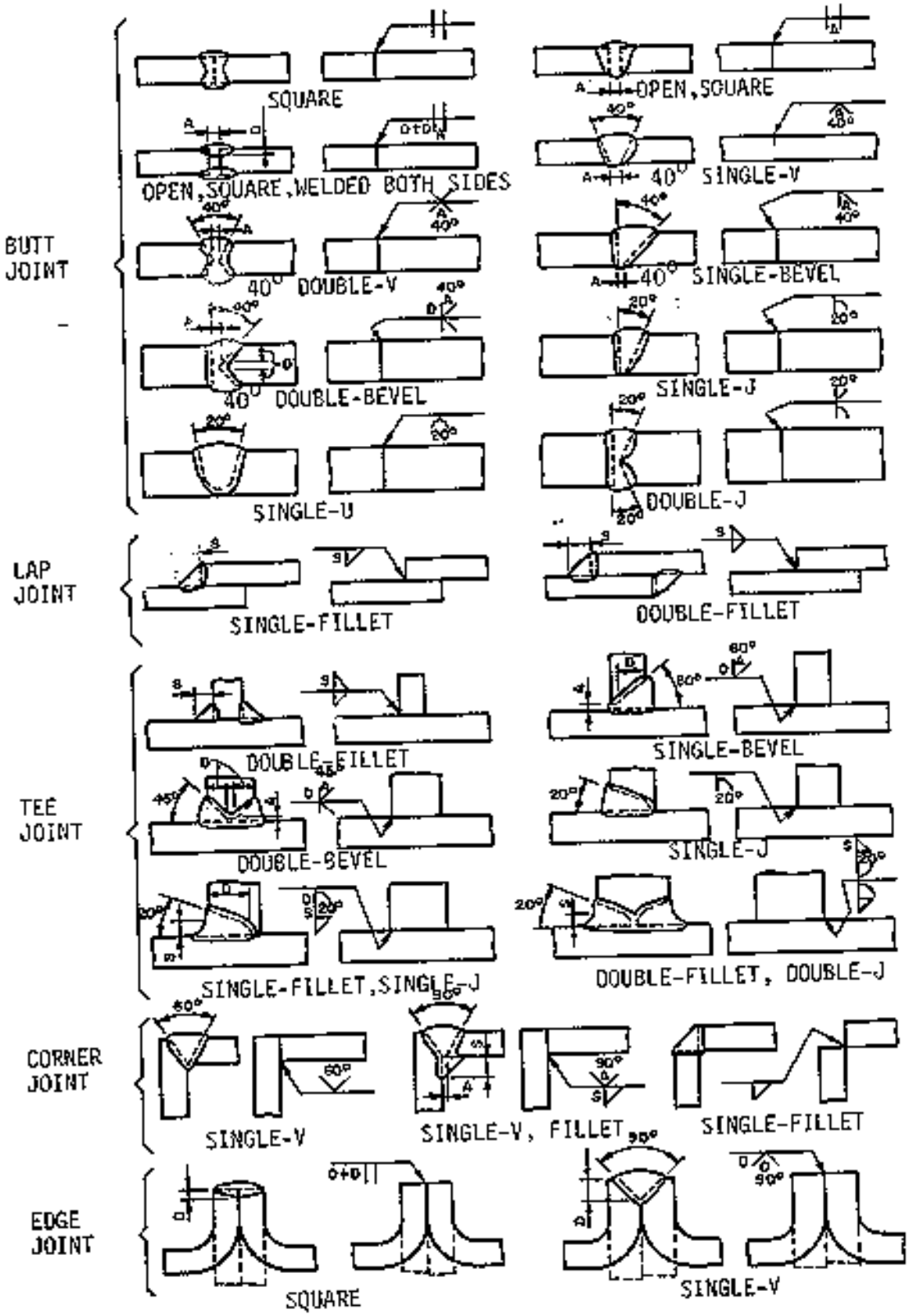
ARROW (OR NEAR) SIDE	OTHER (OR FAR) SIDE	BOTH SIDES
		

NOTES:

1. THE SIDE OF THE JOINT TO WHICH THE ARROW POINTS IS THE ARROW (OR NEAR) SIDE.
2. THE PERPENDICULAR LEG OF ◺, ⌙, ⌙, ⌙ WELD SYMBOLS MUST BE AT LEFT.
3. ARROW AND OTHER SIDE WELDS ARE OF THE SAME SIZE UNLESS OTHERWISE SHOWN.
4. SYMBOLS APPLY BETWEEN ABRUPT CHANGES IN DIRECTION OF JOINT UNLESS GOVERNED BY THE ALL-AROUND SYMBOL OR OTHERWISE DIMENSIONED.
5. WHEN BEVEL OR J-GROOVE WELD SYMBOL IS USED THE ARROW SHALL POINT WITH A DEFINITE BREAK TOWARD THE MEMBER TO BE CHAMFERED, THUS  .
6. ALL WELDS ARE CONTINUOUS AND OF USER'S STANDARD PROPORTIONS, UNLESS OTHERWISE SHOWN.
7. DIMENSIONS OF WELD SIZES, INCREMENT LENGTHS AND SPACINGS ARE GIVEN IN INCHES.
8. FOR DETAILED INFORMATION ON WELD SYMBOLS REFER TO AMERICAN WELDING SOCIETY "WELDING SYMBOLS" A2.0.

WELDED JOINTS
SYMBOL APPLICATION

TYPICAL WELDED JOINTS, SECTIONS AND SYMBOLS:



STRUCTURAL STEEL SHAPES
DESIGNATIONS

TYPE OF SHAPE	DESIGNATION
W SHAPE	W24 X 76 W14 X 26
S SHAPE	S24 X 100
M SHAPE	M8 X 18.5 M10 X 9
AMERICAN STANDARD CHANNEL	C12 X 20.7
MISCELLANEOUS CHANNEL	MC12 X 45
HP SHAPE	HP14 X 73
EQUAL LEG ANGLE	L6 X 6 X 3/4
UNEQUAL LEG ANGLE	L6 X 4 X 3/4
STRUCTURAL TEE CUT FROM W SHAPE	WT12 X 38 WT 7 X 13
STRUCTURAL TEE CUT FROM S SHAPE	ST12 X 50
STRUCTURAL TEE CUT FROM M SHAPE	MT4 X 9.25 MT5 X 4.5
PLATE	PL ½ X 18
SQUARE BAR	BAR 1 □
ROUND BAR	BAR 1¼ Φ
FLAT BAR	BAR 2½ X ½
PIPE	PIPE 4 STD. PIPE 4XX-STRONG
STRUCTURAL TUBING: SQUARE	TS 4X4X .375
STRUCTURAL TUBING: RECTANGULAR	TS 5X3X .375
STRUCTURAL TUBING: CIRCULAR	TS 3 OD X .250

NOTES:

1. THE LENGTH OF A SHAPE SHALL BE SHOWN IN FEET AND INCHES.
   FOR EXAMPLE: L3X3X½ X 6'-3"
2. INDICATE SHAPE DESIGNATIONS AS IT APPEARS IN THE A.I.S.C. MANUAL.
3. FOR ADDITIONAL INFORMATION, REFER TO A.I.S.C. "MANUAL OF STEEL CONSTRUCTION."

STRUCTURAL REINFORCED CONCRETE
REINFORCEMENT BARS AND WELDED WIRE FABRIC DATA

ASTM STANDARD REINFORCING BARS	
BAR SIZE DESIGNATION	NOMINAL DIA. INCHES
#2*	.250
#3	.375
#4	.500
#5	.625
#6	.750
#7	.875
#8	1.000
#9	1.128
#10	1.270
#11	1.410
#14S	1.693
#18S	2.257

NOTES:

1. BAR NUMBERS ARE BASED ON THE NUMBER OF 1/8 INCHES INCLUDED IN THE NOMINAL DIAMETER OF THE BAR.

STANDARD ABBREVIATIONS:

BF BOTTOM FACE
BL BOTTOM LAYER
D BAR DIAMETER
EF EACH FACE
EL EACH LAYER
EW EACH WAY
FF FAR FACE
IL INSIDE LAYER
ML MIDDLE LAYER
NF NEAR FACE
OL OUTSIDE LAYER
TF TOP FACE
TL TOP LAYER

COMMON STOCK STYLES OF WELDED WIRE FABRIC (WWF)		
STYLE DESIGNATION	SPACING OF WIRES, IN.	
	LONGIT	TRANSV
6x6-W1.4xW1.4	6	6
6x6-W2.1xW2.1	6	6
6x6-W2.9xW2.9	6	6
6x6-W4xW4	6	6
4x4-W1.4xW1.4	4	4
4x4-W2.1xW2.1	4	4
4x4-W2.9xW2.9	4	4
4x4-W4xW4	4	4
*4x12-W2.1xW0.9	4	12
*4x12-W2.5xW1.1	4	12

* WELDED SMOOTH WIRE FABRIC WITH WIRES SMALLER THAN SIZE W1.4 IS MANUFACTURED FROM GALVANIZED WIRE.

NOTE:

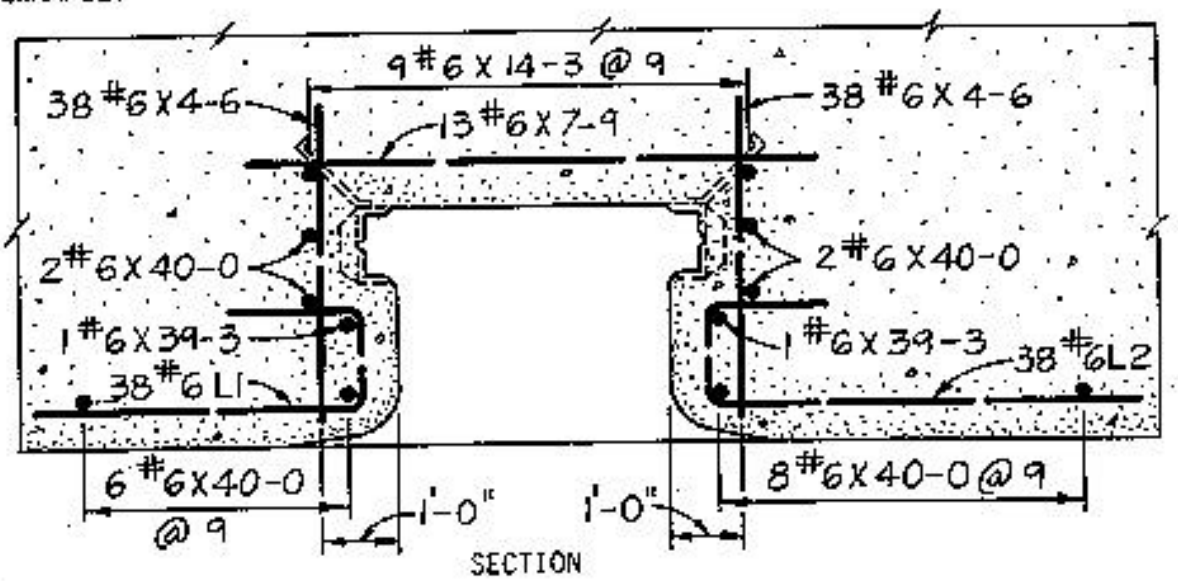
AN EXAMPLE STYLE DESIGNATION IS:

WWF6X6-W2.1XW2.1

STRUCTURAL CONCRETE DETAIL

REINFORCEMENT DATA

EXAMPLE:



SECTION

NOTE:
FEET AND INCH MARKS ARE OMITTED FROM LENGTH AND SPACING DIMENSIONS. REINFORCEMENT SPACED 12" C.C. EXCEPT AS NOTED.

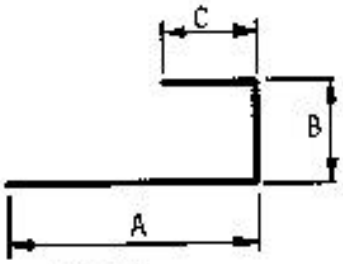
7½" FOR F SIZE DRAWINGS

6-3/4" FOR 8½" x 11" BOUND COPIES

REINFORCEMENT SCHEDULE

MARK	NO. REQ'D	LENGTH	DIMENSIONS				REMARKS
			A	B	C	D	
#6x4-6	76	4-6					
#6x7-9	13	7-9					
#6x14-3	9	14-3					
#6x39-3	2	39-3					
#6x40-0	18	40-0					
#6L1	38	6-9	4-3	1-1	1-9		
#6L2	38	8-6	6-0	1-1	1-9		

BAR BENDING DIAGRAM:



TYPE L

NOTES:

1. BAR BENDS MAY BE DETAILED NEAR REINF. SCHEDULE OR SHOWN ON ANOTHER DRAWING.

2. DETAIL LENGTHS AND BENDS ONLY IN CASES WHERE EXACT DETAILING IS CRITICAL.