

Note to Designer:
 The information presented in this Standard Detail has been prepared in accordance with recognized engineering principles and is for general use. It should not be used for specific application without competent professional examination and verification of its suitability and applicability by a licensed professional engineer. Contents within the inner border line shall not be altered.

NO.	DATE	DESCRIPTION OF REVISIONS
1	7-12	Original Issue
2		
3		
4		

		STEEL LIST																			
Mark	Qty	90° Dia.		96° Dia.		102° Dia.		108° Dia.		114° Dia.		120° Dia.		126° Dia.		132° Dia.		138° Dia.		144° Dia.	
		No	Size Lgth	No	Size Lgth	No	Size Lgth	No	Size Lgth	No	Size Lgth	No	Size Lgth	No	Size Lgth	No	Size Lgth	No	Size Lgth	No	Size Lgth
a1	A	3	#5 6'-3"	3	#5 6'-6"	3	#5 7'-0"	3	#5 7'-3"	3	#5 7'-9"	3	#5 8'-3"	3	#5 8'-6"	4	#5 8'-9"	4	#5 9'-3"	4	#5 9'-6"
a2	A	3	#5 7'-6"	3	#5 7'-9"	3	#5 8'-3"	3	#5 8'-6"	3	#5 9'-0"	3	#5 9'-6"	3	#5 9'-9"	3	#5 10'-0"	3	#5 10'-9"	4	#5 11'-0"
a3	A	3	#5 8'-9"	3	#5 9'-0"	3	#5 9'-6"	3	#5 9'-6"	3	#5 10'-3"	3	#5 10'-6"	3	#5 11'-0"	3	#5 11'-3"	3	#6 12'-0"	3	#6 12'-9"
a4	A	3	#5 10'-3"	3	#5 10'-0"	3	#5 10'-6"	3	#6 10'-9"	3	#6 11'-6"	3	#6 11'-9"	3	#6 12'-3"	3	#6 12'-6"	3	#7 13'-0"	3	#7 14'-0"
a5	A	3	#6 11'-6"	2	#6 11'-3"	2	#6 11'-9"	3	#6 12'-0"	3	#7 12'-9"	3	#7 13'-0"	3	#7 13'-6"	3	#7 14'-0"	3	#7 14'-6"	3	#8 15'-0"
a6	A			2	#6 12'-6"	2	#7 13'-0"	2	#7 13'-3"	2	#7 14'-0"	3	#7 14'-3"	3	#7 14'-9"	3	#7 15'-3"	3	#8 15'-9"	3	#8 16'-3"
a7	A	3	#5 5'-6"	3	#5 5'-9"	3	#5 6'-0"	3	#5 6'-3"	3	#5 6'-9"	3	#5 7'-0"	3	#5 7'-3"	3	#5 7'-6"	3	#5 8'-0"	3	#5 8'-3"
a8	A	3	#5 7'-0"	3	#5 7'-3"	3	#5 7'-6"	3	#5 8'-0"	3	#5 8'-3"	3	#5 8'-6"	3	#5 8'-9"	3	#5 9'-0"	3	#5 9'-6"	3	#5 10'-0"
a9	A	3	#5 8'-9"	3	#5 9'-0"	3	#5 9'-3"	3	#5 9'-6"	3	#5 10'-0"	3	#5 10'-3"	3	#5 10'-6"	3	#5 10'-9"	3	#5 11'-3"	3	#5 11'-6"
a10	A	2	#5 10'-6"	2	#5 10'-9"	3	#6 11'-0"	3	#6 11'-3"	3	#6 11'-9"	3	#6 12'-0"	3	#6 12'-3"	3	#6 12'-6"	3	#6 12'-9"	3	#6 13'-3"
a11	A	2	#6 11'-9"	2	#6 12'-3"	2	#7 12'-9"	2	#7 13'-0"	3	#7 13'-6"	3	#7 13'-9"	2	#7 14'-0"	3	#7 14'-6"	3	#7 14'-9"		
a12	A													2	#7 14'-9"	2	#7 15'-3"	2	#8 16'-0"	2	#8 16'-6"
b1	str	2	#4 15'-6"	2	#4 16'-0"	2	#4 16'-6"	2	#4 17'-0"	2	#4 17'-6"	2	#4 18'-0"	2	#4 18'-6"	2	#4 19'-3"	2	#4 19'-9"	2	#4 20'-3"
b2	str	4	#4 14'-6"	4	#4 15'-0"	6	#4 15'-6"	6	#4 16'-0"	6	#4 16'-6"	6	#4 17'-0"	8	#4 17'-6"	8	#4 18'-0"	8	#4 18'-6"	8	#4 19'-0"
b3	str	2	#4 13'-0"	2	#4 14'-6"	2	#4 12'-0"	2	#4 13'-9"	2	#4 15'-0"	2	#4 16'-3"	2	#4 13'-9"	2	#4 14'-9"	2	#4 16'-0"	2	#4 17'-6"
b4	str	2	#4 9'-3"	2	#4 10'-9"	2	#4 8'-3"	2	#4 10'-0"	2	#4 11'-3"	2	#4 12'-3"	2	#4 10'-0"	2	#4 11'-0"	2	#4 12'-3"	2	#4 13'-6"
b5	str	2	#4 5'-6"	2	#4 7'-0"	2	#4 4'-9"	2	#4 6'-3"	2	#4 7'-3"	2	#4 8'-3"	2	#4 6'-0"	2	#4 7'-3"	2	#4 8'-3"	2	#4 9'-9"
b6	str	2	#4 2'-0"	2	#4 3'-3"	2	#4 1'-3"	2	#4 2'-6"	2	#4 3'-6"	2	#4 4'-6"	2	#4 2'-3"	2	#4 3'-6"	2	#4 4'-6"	2	#4 6'-0"
b7	str	2	#4 13'-6"	2	#4 14'-3"	2	#4 14'-9"	2	#4 15'-3"	2	#4 15'-9"	2	#4 16'-6"	2	#4 17'-0"	2	#4 17'-6"	2	#4 18'-0"	2	#4 18'-6"
b8	str	4	#4 12'-0"	4	#4 12'-6"	4	#4 13'-0"	4	#4 13'-6"	4	#4 14'-0"	6	#4 14'-6"	6	#4 15'-0"	6	#4 15'-6"	6	#4 16'-0"	6	#4 16'-6"
b9	str	2	#4 9'-6"	2	#4 10'-6"	2	#4 11'-6"	2	#4 12'-3"	2	#4 13'-6"	2	#4 12'-0"	2	#4 12'-6"	2	#4 13'-9"	2	#4 14'-6"	2	#4 15'-6"
b10	str	2	#4 6'-9"	2	#4 8'-0"	2	#4 8'-9"	2	#4 9'-6"	2	#4 10'-9"	2	#4 9'-3"	2	#4 9'-9"	2	#4 10'-9"	2	#4 11'-9"	2	#4 12'-6"
b11	str	2	#4 4'-3"	2	#4 5'-3"	2	#4 6'-3"	2	#4 6'-9"	2	#4 8'-0"	2	#4 6'-6"	2	#4 7'-0"	2	#4 8'-0"	2	#4 9'-0"	2	#4 10'-0"
b12	str	2	#4 1'-6"	2	#4 2'-9"	2	#4 3'-6"	2	#4 4'-3"	2	#4 5'-3"	2	#4 4'-0"	2	#4 4'-3"	2	#4 5'-3"	2	#4 6'-6"	2	#4 7'-0"
b13	str					2	#4 1'-0"	2	#4 1'-6"	2	#4 2'-6"	2	#4 1'-3"	2	#4 1'-6"	2	#4 2'-3"	2	#4 3'-9"	2	#4 4'-3"
b14	str																	2	#4 1'-0"	2	#4 1'-6"
c	str	5	#4 10'-6"	5	#4 11'-0"	5	#4 11'-6"	5	#4 12'-0"	5	#4 12'-6"	5	#4 13'-0"	5	#4 13'-6"	5	#4 14'-0"	5	#4 14'-6"	5	#4 15'-0"
d	A	6	#6 12'-3"	6	#6 12'-9"	6	#7 13'-3"	6	#7 13'-9"	6	#7 14'-6"	6	#7 15'-0"	6	#7 15'-6"	6	#7 16'-0"	6	#8 16'-6"	6	#8 17'-0"
e1	C	3	#5 3'-6"	3	#5 3'-6"	3	#5 3'-9"	3	#5 4'-0"	3	#5 4'-0"	3	#5 4'-3"	4	#5 4'-6"	4	#5 4'-9"	4	#5 4'-9"	4	#5 4'-9"
e2	C	3	#5 4'-3"	3	#5 4'-3"	3	#5 4'-3"	3	#5 4'-6"	3	#5 4'-9"	3	#5 5'-0"	3	#5 5'-3"	4	#5 5'-6"	4	#5 5'-6"	4	#5 5'-6"
e3	C	3	#5 4'-9"	3	#5 4'-9"	3	#5 5'-0"	3	#5 5'-3"	3	#5 5'-6"	3	#6 5'-9"	3	#6 5'-9"	3	#6 6'-3"	3	#6 6'-6"	3	#6 6'-6"
e4	C	3	#5 5'-6"	3	#5 5'-6"	3	#5 5'-6"	3	#6 6'-0"	3	#6 6'-3"	3	#6 6'-6"	3	#6 6'-9"	3	#7 7'-9"	3	#7 8'-0"	3	#7 8'-6"
e5	C	3	#5 6'-3"	2	#6 6'-0"	2	#6 6'-3"	3	#6 6'-6"	3	#6 7'-0"	3	#7 8'-0"	3	#7 8'-0"	3	#7 8'-9"	3	#7 9'-0"	3	#7 9'-6"
e6	C			2	#6 6'-9"	2	#6 7'-0"	2	#7 8'-3"	2	#7 8'-6"	3	#8 8'-9"	3	#8 9'-3"	3	#8 9'-3"	3	#8 10'-0"	3	#8 10'-6"
e7	C	3	#6 6'-6"	3	#6 7'-0"	3	#6 7'-3"	3	#7 8'-6"	3	#7 8'-9"	4	#8 9'-0"	4	#8 9'-6"	4	#8 10'-0"	4	#8 10'-3"	4	#8 10'-9"
e8	C	9	#6 6'-6"	9	#6 7'-0"	10	#7 8'-6"	10	#7 8'-6"	11	#7 8'-9"	11	#8 9'-0"	12	#8 9'-6"	12	#8 10'-0"	13	#8 10'-3"	13	#9 10'-9"
e9	C	5	#6 6'-6"	5	#6 7'-0"	5	#7 8'-6"	5	#7 8'-6"	5	#7 8'-9"	6	#8 9'-0"	6	#8 9'-6"	6	#8 10'-0"	6	#8 10'-3"	6	#9 10'-9"
e10	C	3	#5 6'-3"	2	#5 6'-9"	2	#6 7'-0"	2	#6 7'-3"	2	#7 8'-6"	3	#8 8'-9"	3	#8 9'-3"	2	#7 9'-9"	2	#8 10'-0"	2	#8 10'-3"
e11	C	3	#5 5'-3"	2	#5 6'-0"	2	#5 6'-3"	3	#5 6'-6"	3	#6 6'-9"	3	#7 7'-9"	2	#6 8'-0"	2	#7 9'-0"	2	#7 9'-0"	3	#7 9'-0"
e12	C	3	#5 4'-6"	3	#5 5'-0"	3	#5 5'-3"	3	#5 5'-6"	3	#5 5'-9"	3	#6 6'-0"	3	#6 6'-3"	3	#6 7'-0"	3	#6 7'-3"	3	#6 7'-6"
e13	C	3	#5 3'-6"	3	#5 4'-3"	3	#5 4'-6"	3	#5 4'-9"	3	#5 5'-0"	3	#5 5'-3"	3	#5 5'-3"	3	#5 6'-3"	3	#6 6'-6"	3	#6 6'-6"
e14	C			3	#5 3'-6"	3	#5 3'-9"	3	#5 4'-0"	3	#5 4'-0"	3	#5 4'-3"	3	#5 4'-3"	3	#5 5'-3"	3	#5 5'-6"	3	#5 5'-6"
e15	C																				
f1	str	3	#4 4'-6"	3	#4 4'-9"	3	#4 5'-3"	3	#4 5'-6"	3	#4 5'-9"	3	#4 6'-3"	3	#4 6'-6"	3	#4 6'-9"	4	#4 7'-3"	4	#4 7'-6"
f2	str	3	#4 6'-3"	3	#4 6'-9"	3	#4 7'-0"	3	#4 7'-6"	3	#4 7'-9"	3	#4 8'-0"	3	#4 8'-6"	3	#4 8'-9"	3	#4 9'-3"	3	#4 9'-9"
f3	str	2	#4 8'-0"	2	#4 8'-9"	3	#4 9'-0"	3	#4 9'-3"	3	#4 9'-9"	3	#4 10'-0"	3	#4 10'-3"	3	#4 10'-6"	3	#4 11'-0"	3	#4 11'-6"
f4	str	2	#4 9'-9"	2	#4 10'-3"	2	#4 10'-9"	2	#4 11'-3"	2	#4 11'-9"	3	#4 11'-9"	3	#4 12'-3"	3	#4 12'-6"	3	#4 13'-0"	3	#4 13'-6"
f5	str	3	#4 3'-9"	3	#4 4'-0"	3	#4 4'-3"	3	#4 4'-6"	3	#4 4'-9"	3	#4 5'-0"	3	#4 5'-6"	3	#4 5'-6"	3	#4 5'-9"	3	#4 6'-6"
f6	str	3	#4 6'-6"	3	#4 6'-6"	3	#4 6'-9"	3	#4 7'-3"	3	#4 7'-0"	3	#4 7'-9"	3	#4 8'-0"	3	#4 8'-0"	3	#4 8'-3"	3	#4 8'-9"
f7	str	2	#4 9'-3"	3	#4 9'-3"	3	#4 9'-6"	3	#4 10'-0"	2	#4 9'-9"	2	#4 10'-3"	2	#4 10'-6"	3	#4 10'-6"	3	#4 11'-0"	3	#4 11'-3"
f8	str									2	#4 11'-6"	2	#4 11'-9"	2	#4 12'-3"	2	#4 13'-0"	2	#4 13'-6"	2	#4 13'-9"
g	str	2	#4 9'-3"	2	#4 9'-9"	2	#4 10'-3"	2	#4 10'-9"	2	#4 11'-3"	2	#4 11'-9"	2	#4 12'-3"	2	#4 12'-9"	2	#4 13'-3"	2	#4 13'-9"
m1	str	4	#4 17'-9"	4	#4 18'-3"	5	#4 19'-0"	5	#4 19'-6"	5	#4 20'-3"	5	#4 20'-9"	6	#4 21'-6"	6	#4 22'-0"	6	#4 22'-6"	6	#4 23'-3"
m2	str	1	#4 17'-9"	1	#4 18'-3"	1	#4 19'-0"	1	#4 19'-6"	1	#4 20'-3"	1	#4 20'-9"	1	#4 21'-6"	1	#4 22'-0"	1	#4 22'-6"	1	#4 23'-3"
m3	str	4	#4 17'-3"	4	#4 18'-0"	5	#4 18'-9"	5	#4 19'-6"	5	#4 20'-3"	5	#4 21'-0"	6	#4 21'-9"	6	#4 22'-6"	6	#4 23'-0"	6	#4 23'-9"
m4	str	1	#4 17'-3"	1	#4 18'-0"	1	#4 18'-9"	1	#4 19'-6"	1	#4 20'-3"	1	#4 21'-0"	1	#4 21'-9"	1	#4 22'-6"	1	#4 23'-0"	1	#4 23'-9"
n1	str	4	#4 17'-0"	4	#4 17'-9"	5	#4 18'-6"	5	#4 19'-6"	5	#4 20'-6"	5	#4 21'-3"	6	#4 22'-3"	6	#4 23'-0"	6	#4 24'-0"	6	#4 25'-0"
n2	str	1	#4 17'-0"	1	#4 17'-9"	1	#4 18'-6"	1	#4 19'-6"	1	#4 20'-6"	1	#4 21'-3"	1	#4 22'-3"	1	#4 23'-0"	1	#4 24'-0"	1	#4 25'-0"
p	str	4	#5 10'-9"	4	#5 11'-3"	4	#5 11'-9"	4	#5 12'-3"	4	#5 12'-9"	4	#5 13'-3"	4	#5 14'-3"	4	#5 14'-9"	4	#5 15'-3"	4	#5 15'-9"
q	str	2	#6 12'-9"	2	#6 13'-3"	2	#6 13'-9"	2	#6 14'-3"	2	#6 14'-9"	2	#6 15'-3"	2	#6 16'-3"	2	#6 16'-9"	2	#6 17'-3"	2	#6 17'-9"
u	B	7	#4 5'-0"	7	#4 5'-0"	8	#4 5'-0"	8	#4 5'-0"	8	#4 5'-0"	9	#4 5'-0"	9	#4 5'-0"	10	#4 5'-0"	10	#4 5'-0"	10	#4 5'-0"
v	str	1	#4 15'-0"	1	#4 15'-6"	1	#4 16'-0"	1	#4 16'-6"	1	#4 17'-0"	1	#4 17'-6"	1	#4 18'-0"	1	#4 18'-6"	1	#4 19'-0"	1	#4 19'-6"
w	str	1	#4 12'-3"	1	#4 12'-9"	1	#4 13'-3"	1	#4 13'-9"	1	#4 14'-3"	1	#4 14'-9"	1	#4 15'-3"	1	#4 15'-9"	1	#4 16'-3"	1	#4 16'-9"

		PIPE DIAMETER									
	Qty	90°	96°	102°	108°	114°	120°	126°	132°	138°	144°
		A	0'-3"	0'-6"	0'-3"	0'-6"	0'-3"	0'-6"	0'-3"	0'-6"	0'-3"
B	2'-2"	2'-2"	2'-3"	2'-3"	2'-4"	2'-4"	2'-5"	2'-5"	2'-6"	2'-6"	
C	1'-6"	1'-8"	1'-9"	1'-11"	2'-0"	2'-2"	2'-3"	2'-			