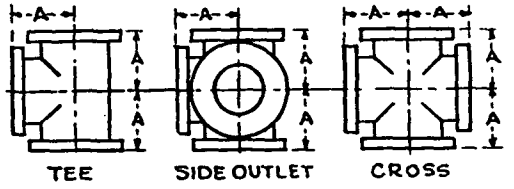
the statement that a weld is only as good as the workman who makes it. The control Codes now in process of adoption will be the law governing the use of the welding process. These Codes prohibit individual practices contrary to their specified procedure and rules of control, and this is predicated upon the sound requirement that the employer must assume full responsibility for the deposited weld.

It is advisable that this management responsibility be included in all welding specifications and that authoritative standards of workmanship also be specified. The standards of workmanship for this industry are as

TABLE 8. AMERICAN STANDARD DIMENSIONS OF TEES AND CROSSES (STRAIGHT SIZES) FOR CLASS 125 CAST-IRON FLANGED FITTINGS



Nominal Pipe Size[a,b]	A — Center to Face Tees and Crosses[b,c]	AA — Face to Face Tees and Crosses[b,c]	Diameter of Flange	Thickness of Flange, Min.	Metal[d] Thickness of Body
1	3½	7	4¼	7/16	5/16
1¼	3¾	7½	4⅝	½	5/16
1½	4	8	5	9/16	5/16
2	4½	9	6	⅝	5/16
2½	5	10	7	11/16	5/16
3	5½	11	7½	¾	⅜
3½	6	12	8½	13/16	7/16
4	6½	13	9	15/16	½
5	7½	15	10	15/16	½
6	8	16	11	1	9/16
8	9	18	13½	1⅛	⅝
10	11	22	16	1 3/16	¾
12	12	24	19	1¼	13/16
14 O.D.	14	28	21	1⅜	⅞
16 O.D.	15	30	23½	1 7/16	1
18 O.D.	16½	33	25	1 9/16	1 1/16
20 O.D.	18	36	27½	1 11/16	1⅛
24 O.D.	22	44	32	1⅞	1¼
30 O.D.	25	50	38¾	2⅛	1 7/16
36 O.D.	28	56	46	2⅜	1⅝
42 O.D.	31	62	53	2⅝	1 13/16
48 O.D.	34	68	59½	2¾	2

All dimensions given in inches.

[a]Size of all fittings listed indicates nominal inside diameter of port.

[b]Tees, side outlet tees, and crosses 16 in. and smaller, reducing on the outlet, have the same dimensions center to face, and face to face as straight size fittings corresponding to the size of the larger opening. Sizes 18 in. and larger, reducing on the outlet, are made in two lengths, depending on the size of the outlet.

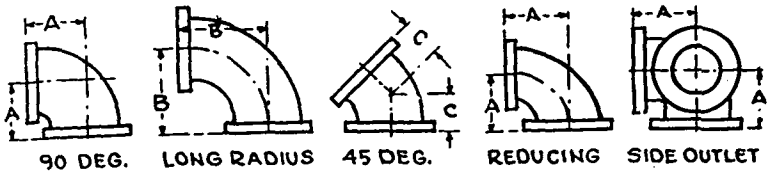
[c]Tees and crosses, reducing on run only, carry same dimensions center to face and face to face as a straight size fitting of the larger opening.

[d]Body thickness at no point shall be less than 87½ per cent of the dimensions given in the table.

set forth in the *Standard Manual on Pipe Welding* of the *Heating, Piping and Air Conditioning Contractors National Association.*

A complete line of manufactured steel welding fittings is now available and a dimensional standard is being prepared under the procedure of the *American Standards Association* to unify heretofore divergent dimensions for the same type welding fittings as produced by different manufacturers. Proposed standard dimensions for elbows, tees, caps, and lapped-joint stub ends are given in Table 10. Dimensions for eccentric and concentric reducers, and 180-deg return bends are not shown in Table 10 but will

TABLE 9. AMERICAN STANDARD DIMENSIONS OF ELBOWS FOR CLASS 125 CAST-IRON FLANGED FITTINGS



Nominal Pipe Size[a]	A — Center to Face Elbow[b,c,d]	B — Center to Face Long Radius Elbow[b,c,d]	C — Center to Face 45 Deg Elbow[c]	Diameter of Flange	Thickness of Flange, Min.	Metal[e] Thickness of Body
1	3½	5	1¾	4¼	7/16	5/16
1¼	3¾	5½	2	4⅝	½	5/16
1½	4	6	2¼	5	9/16	7/16
2	4½	6½	2½	6	⅝	5/16
2½	5	7	3	7	11/16	5/16
3	5½	7¾	3	7½	¾	⅜
3½	6	8½	3½	8½	13/16	7/16
4	6½	9	4	9	15/16	½
5	7½	10¼	4½	10	15/16	½
6	8	11½	5	11	1	9/16
8	9	14	5½	13½	1⅛	⅝
10	11	16½	6½	16	1 3/16	¾
12	12	19	7½	19	1¼	13/16
14 O.D.	14	21½	7½	21	1⅜	⅞
16 O.D.	15	24	8	23½	1 7/16	1
18 O.D.	16½	26½	8½	25	1 9/16	1 1/16
20 O.D.	18	29	9½	27½	1 11/16	1⅛
24 O.D.	22	34	11	32	1⅞	1¼
30 O.D.	25	41½	15	38¾	2⅛	1 7/16
36 O.D.	28	49	18	46	2⅜	1⅝
42 O.D.	31	56½	21	53	2⅝	1 13/16
48 O.D.	34	64	24	59½	2¾	2

All dimensions given in inches.

[a]Size of all fittings listed indicates nominal inside diameter of port.

[b]Reducing elbows and side outlet elbows carry same dimensions center to face as straight size elbows corresponding to the size of the larger opening.

[c]Special degree elbows, ranging from 1 to 45 deg, inclusive, have the same center to face dimensions as given for 45-deg elbows and those over 45 deg and up to 90 deg, inclusive, shall have the same center to face dimensions as given for 90-deg elbows. The angle designation of an elbow is its deflection from straight line flow and is the angle between the flange faces.

[d]Side outlet elbows shall have all openings on intersecting center-lines.

[e]Body thickness at no point shall be less than 87½ per cent of the dimensions given in the table.