DUAL WALL OVAL DUCT AND FITTINGS CONSTRUCTION STANDARDS

Outer Shell Positive Pressure

Gauge selection for galvanized (ASTM A653). Fittings are manufactured with standing seam, welded seam, spot welded, or button punched locked construction. All Spiral Duct and Fittings are manufactured in accordance with applicable SMACNA, ASHRAE and SPIDA standards.

FLAT OVAL CONSTRUCTION		
Major Dimension Duct Width	Spiral Seam Duct Gauge	Fitting Gauge
to 24”	24	20
25 to 36”	22	20
37 to 48”	22	18
49 to 60”	20	18
61 to 70”	20	16
71” and up	18	16

Thickness/Weight Relationships of Standard Materials

Gauge	Galvanized Steel		Stainless Steel (304 or 316)		Aluminum 3003-H14	
	Nominal Thickness (inches)	Nominal Weight (lb/sq ft)	Nominal Thickness (inches)	Nominal Weight (lb/sq ft)	Nominal Thickness (inches)	Nominal Weight (lb/sq ft)
26	0.0217	0.906	0.0188	0.788	0.025	0.356
24	0.0276	1.156	0.0250	1.050	0.032	0.456
22	0.0336	1.406	0.0313	1.313	0.040	0.570
20	0.0396	1.656	0.0375	1.575	0.050	0.713
18	0.0516	2.156	0.0500	2.100	0.063	0.898
16	0.0635	2.656	0.0625	2.625	0.080	1.140

Inner Shell

Gauge selection for inner shell. Standard material for the inner shell of spiral pipe is perforated steel (ASTM A653), with 3/32” holdes on 3/16” staggered centers for a free area of 23%. Standard material for the inner shell of fittings is solid steel.

Major Dimension Duct Dia.	Inner Shell	Fittings
to 24”	24	24
25” - 36”	24	24
37” - 48”	24	24
49” - 60”	22	22
61” - 70”	22	20
71” and up	22	18

Standard Insulation is 1” thick, 1 pound per cubic foot density, with a thermal conductivity (ASTM C 518) @ 75°F mean temperature of 0.27 (BTU-in./hr.ft.2°F)
Surface burning characteristics (ASTM E 84, UL 723)
25 flame spread
50 smoke developed

DIMENSIONING CODE

All dimensions are in inches, all angles are in degrees

A - Oval major

B - Oval minor

C - Branch oval major

D - Branch oval minor

R - Center Line Radius

V - Body length of fitting

H - See Loloss Tee

ORDERING

Specify type of fittings and list the following dimensions:

ELBOWS	- A, B, R
TEES	- A, B, E, F, L, (C, D, G, H, L_2)
LATERALS	- A, B, E, F, L, (C, D, G, H, L_2)
CROSSES	- A, B, E, F, L, G, H, (C, D, L_2, L_3)
ACCESSORIES	- As Noted

All fittings, unless noted, are sized as a male part on each end for a slip joint assembly with spiral pipe.

For flanged fittings see connectors detail for all dimensioning.

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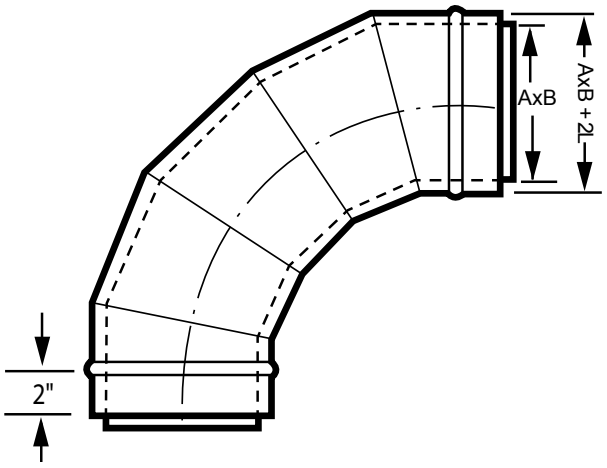
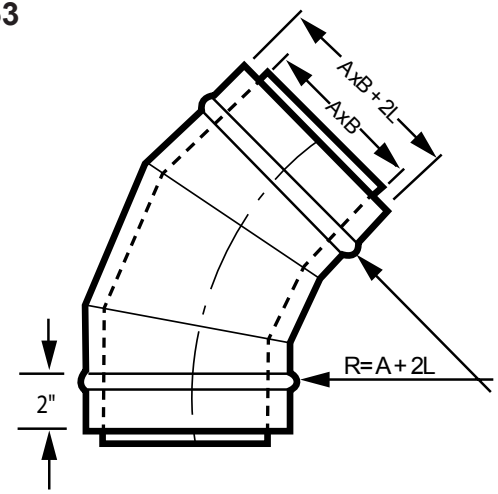
Double Wall Oval

ELBOWS

90° 5-PC ELBOW
E905

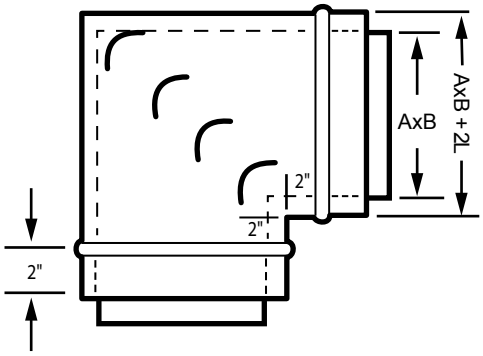


45° 3-PC ELBOW
E453

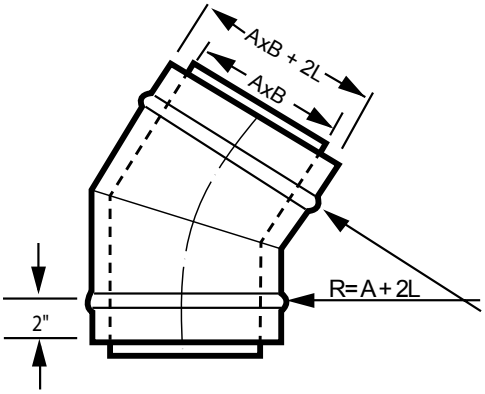


90° 2-PC MITRED ELBOW
E290 / E290V

A	No. of vanes
6-9	2
10-14	3
15-19	4
20-60	5

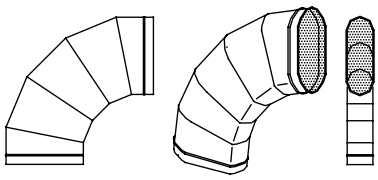


CUSTOM ELBOW
XELB

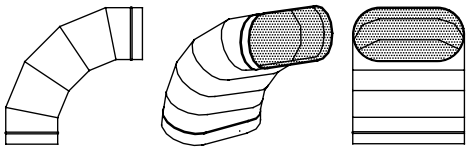


***SPECIFY** (Elbow Angle & Radius of Centerline

*Oval Duct Elbows are available in “Hard Bend” and “Easy Bend” as defined by the following diagrams and abbreviations.



Hard Bend (HB)



Easy Bend (EB)

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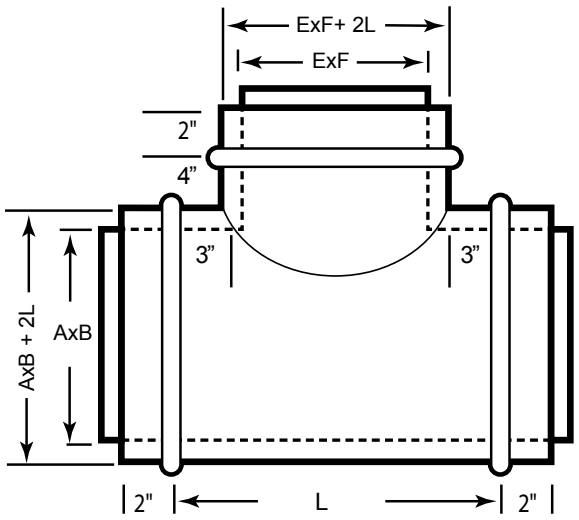
Double Wall Oval

STRAIGHT TEES

STRAIGHT TEE

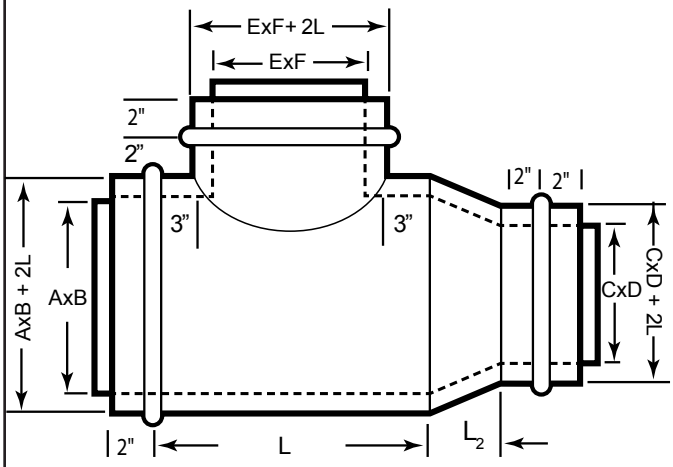
T



REDUCING TEE

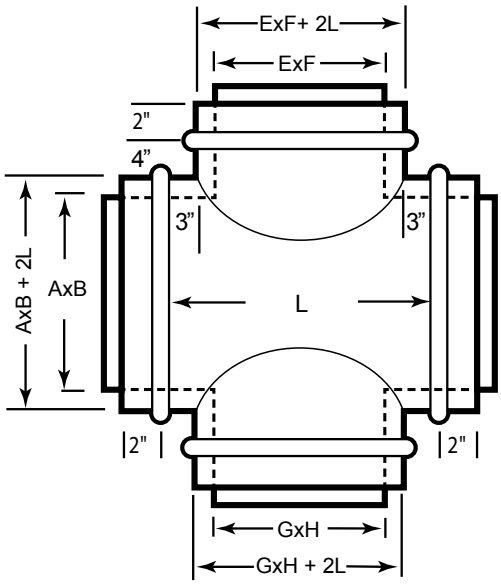
TR

L = A - B
4" MINIMUM



TEE CROSS

TX

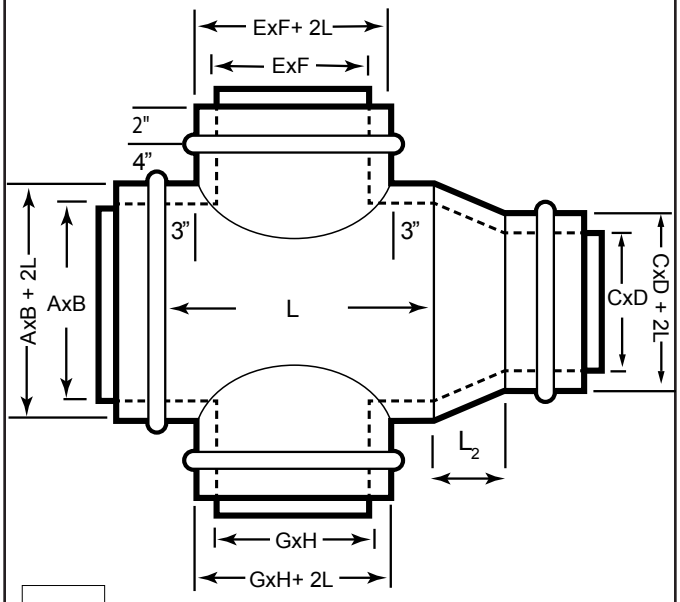


C ≥ D

REDUCING TEE CROSS

TXR

L = A - B
4" MINIMUM

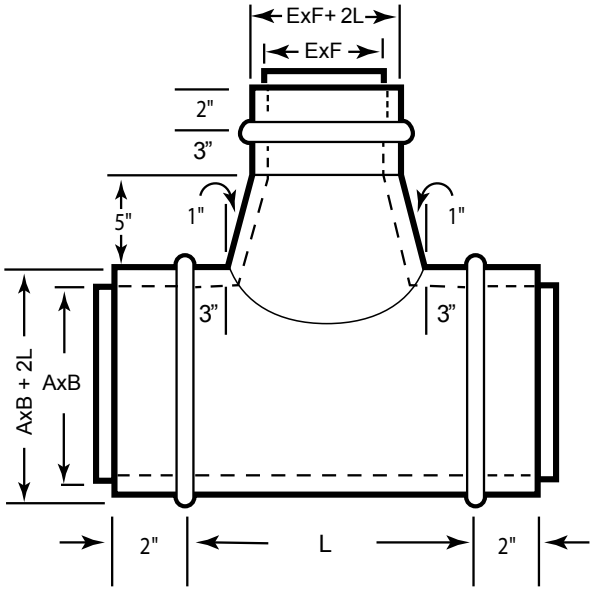


C ≥ D

CONICAL TEES

CONICAL TEE

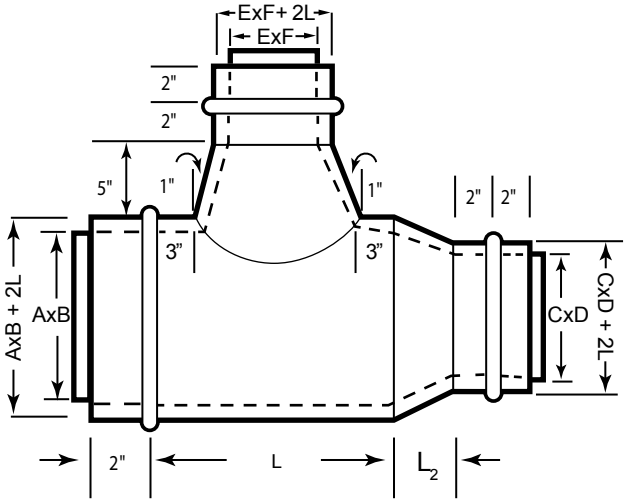
TC



REDUCING CONICAL TEE

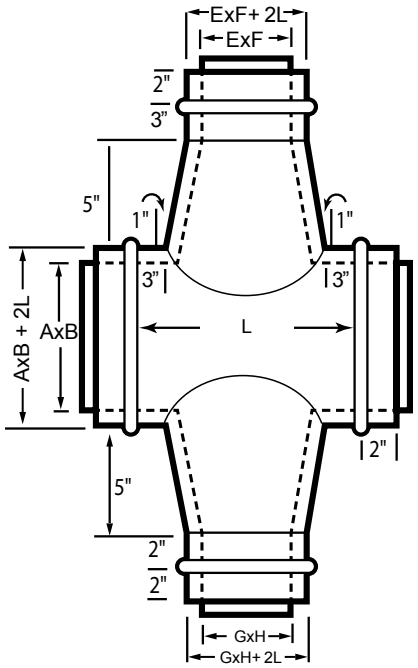
TCR

L = A - B
4" MINIMUM



CONICAL TEE CROSS

TXC

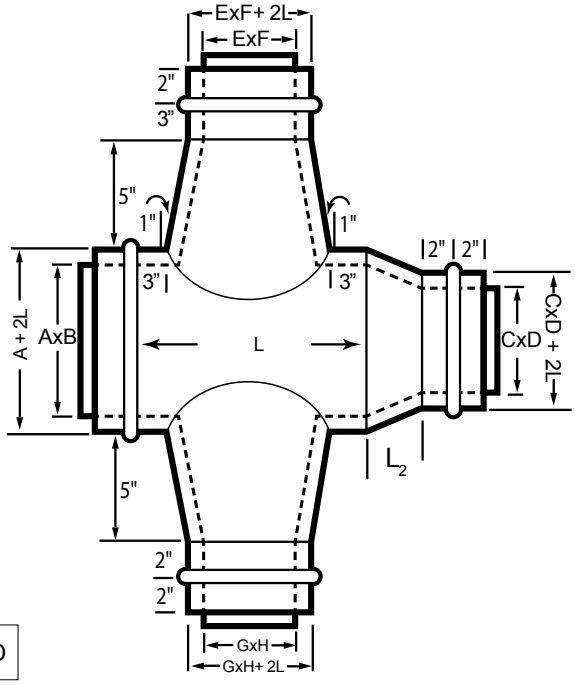


C ≥ D

REDUCING CONICAL TEE CROSS

TXCR

L = A - B
4" MINIMUM



C ≥ D

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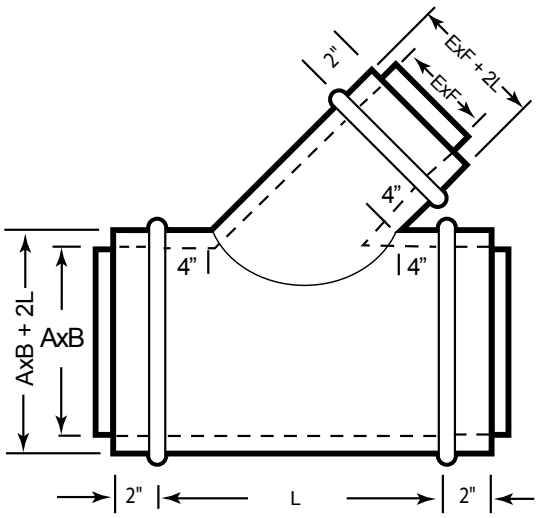
Double Wall Oval

STRAIGHT LATERAL

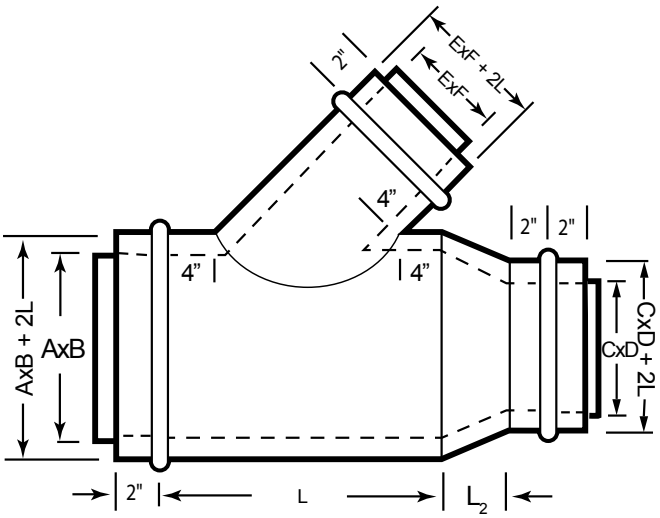
45° LATERAL

L



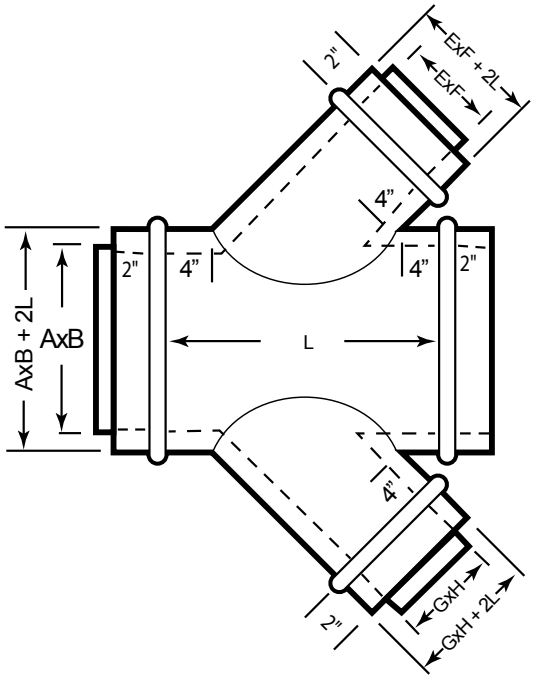
45° REDUCING LATERAL

LR



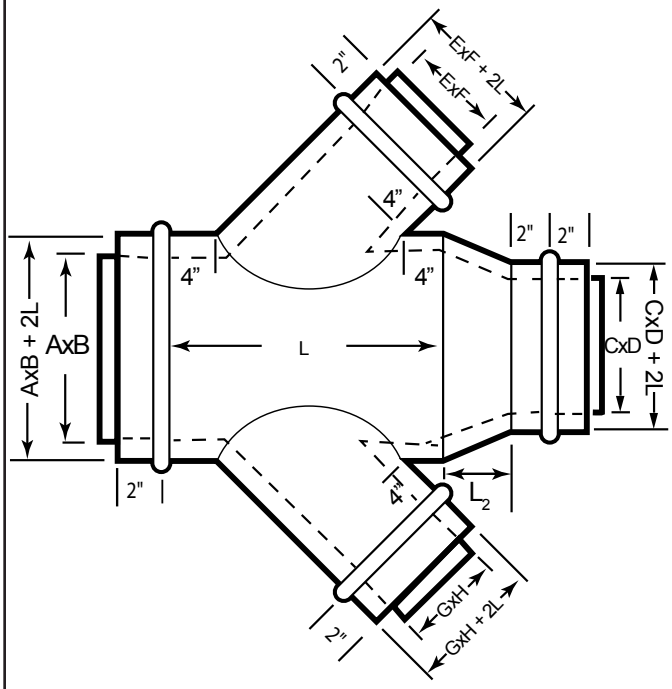
45° LATERAL CROSS

LX



45° REDUCING LATERAL CROSS

LXR



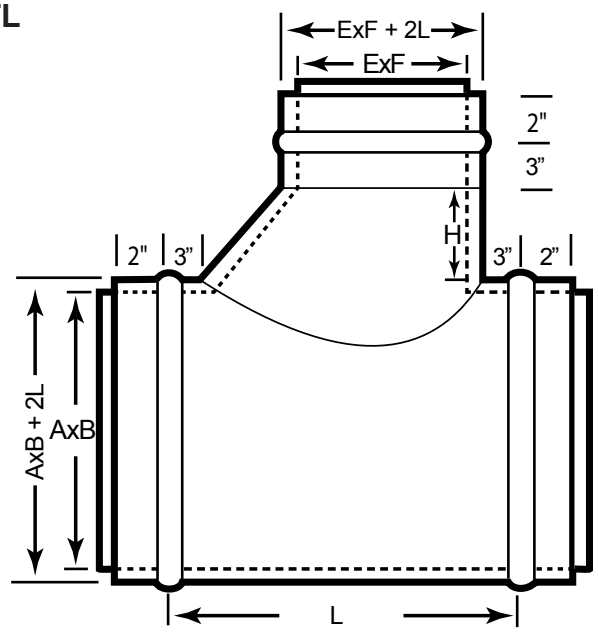
Air Distribution Corporation

Double Wall Oval

LOLOSS TEES

LOLOSS TEE

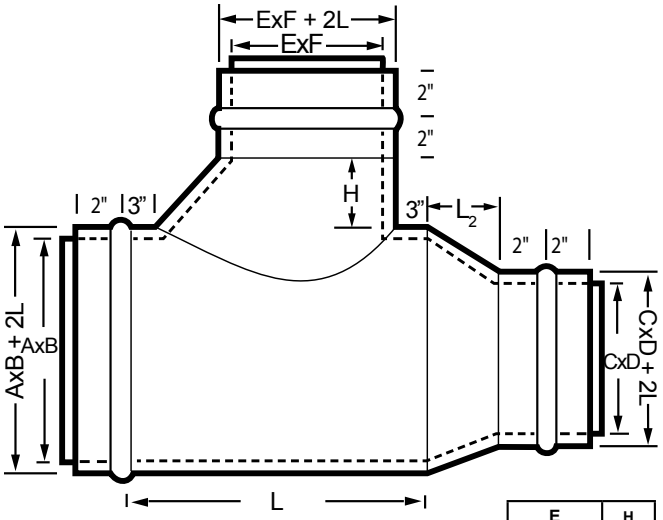
TL



E	H
3 thru 8	4"
9 thru 16	6"
17 thru 26	10"
27 and up	12"

REDUCING LOLOSS TEE

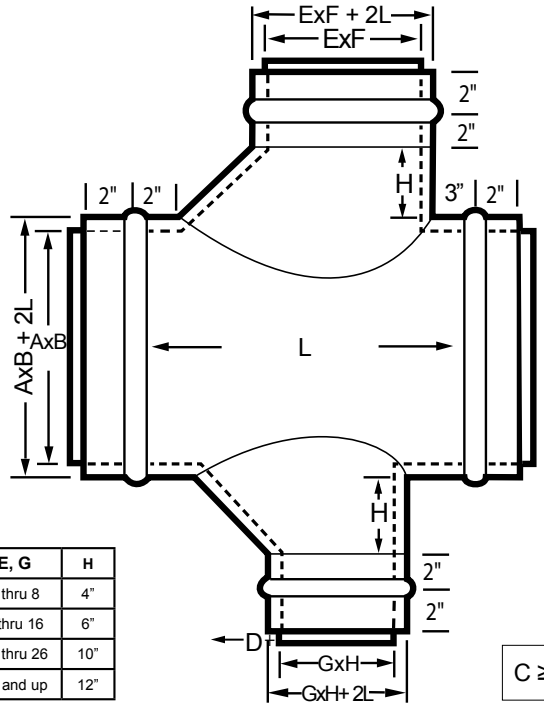
TLR



E	H
3 thru 8	4"
9 thru 16	6"
17 thru 26	10"
27 and up	12"

LOLOSS TEE CROSS

TLX

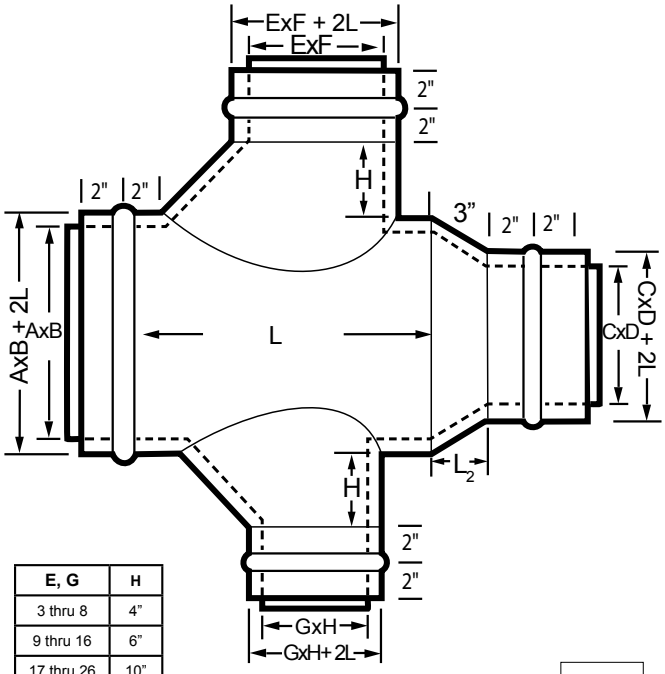


E, G	H
3 thru 8	4"
9 thru 16	6"
17 thru 26	10"
27 and up	12"

C ≥ D

REDUCING LOLOSS TEE CROSS

TLXR

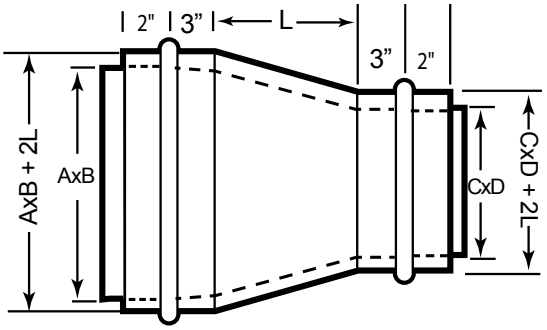


E, G	H
3 thru 8	4"
9 thru 16	6"
17 thru 26	10"
27 and up	12"

C ≥ D

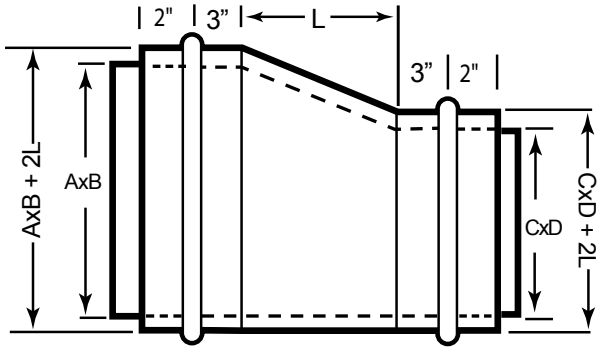
CONCENTRIC REDUCER

R



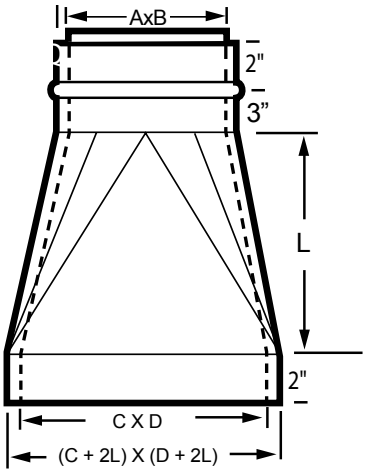
ECCENTRIC REDUCER

RE



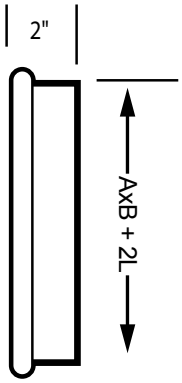
RECTANGULAR TO OVAL

RTR



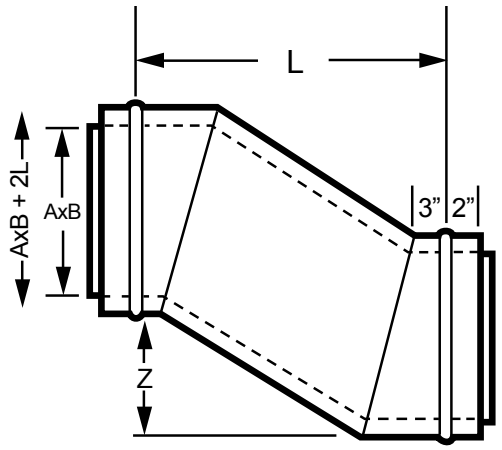
END CAP

EC

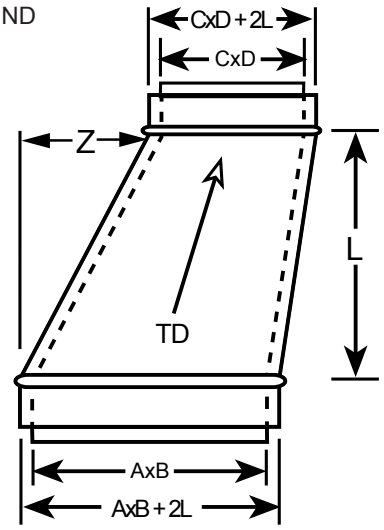


OFFSET
Z

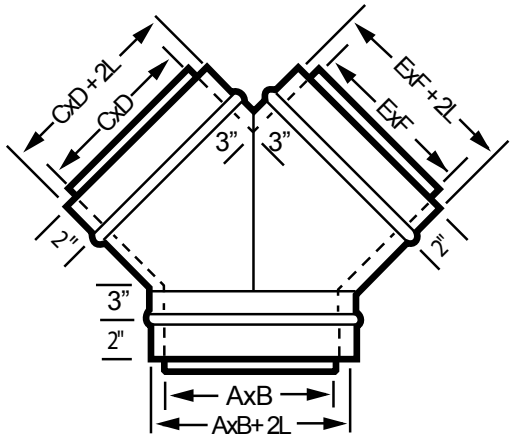
V STANDARD = 2XA



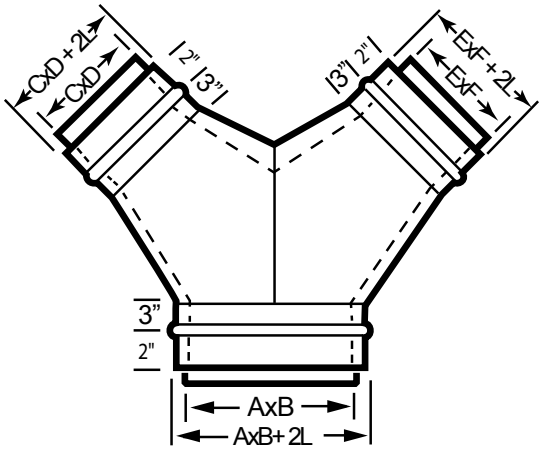
ROUND TO ROUND
ZR



Y BRANCH
Y

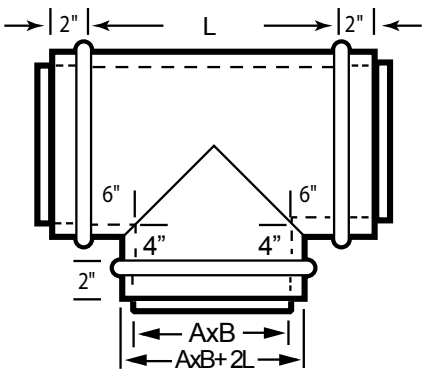


TAPERED Y BRANCH
YR



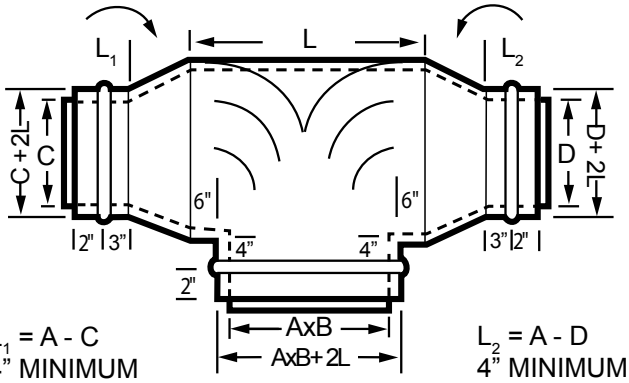
BULLHEAD TEE
TBV

A	No. of vanes
3-7	1
8-10	3
10-60	5



REDUCING BULLHEAD TEE
TBVR

A	No. of vanes
3-7	1
8-10	3
10-60	5



L_1 = A - C
4" MINIMUM

L_2 = A - D
4" MINIMUM

ACTUAL SPIRAL PIPE OVAL SIZES & CONSTRUCTION CHART

Nominal Oval Size	Galv Spiral Duct Ga.	Galv. Fitting Ga.	Weight lb/ft	Actual Size
6 x 17	24	20	4.5	17.11
19	24	20	4.57	18.76
20	24	20	4.80	20.33
22	24	20	5.26	21.90
23	24	20	5.45	23.47
25	22	20	7.16	25.05
28	22	20	8.00	28.30
31	22	20	8.85	31.45
34	22	20	9.62	34.59
37	22	18	10.81	37.73
41	22	18	11.3	40.87
44	22	18	12.00	44.09
47	22	18	12.81	47.23
50	20	18	16.15	50.37
53	20	18	17.10	53.52
56	20	18	18.05	56.66
59	20	18	18.92	59.60
63	20	16	19.95	62.94
66	20	16	20.90	66.08
69	20	16	21.85	69.22
72	18	16	29.09	72.36
75	18	16	30.46	75.51
8 x 16	24	20	4.5	15.96
17	24	20	4.57	17.62
19	24	20	4.80	19.19
21	24	20	5.26	20.76
22	24	20	5.45	22.33
24	24	20	5.87	23.90
27	22	20	8.00	27.16
30	22	20	8.85	30.30
33	22	20	9.62	33.25
36	22	20	10.41	36.59
39	22	18	11.3	39.73
43	22	18	12.00	42.95
46	22	18	12.81	46.09
49	20	18	16.15	49.23
52	20	18	17.10	52.37
55	20	18	18.05	55.52
58	20	18	18.92	58.66
61	20	16	19.95	61.80
65	20	16	20.90	64.94
68	20	16	21.85	68.08
71	18	16	29.09	71.22
74	18	16	30.46	74.36
77	18	16	31.53	77.51

Nominal Oval Size	Galv Spiral Duct Ga.	Galv. Fitting Ga.	Weight lb/ft	Actual Size
10 x 16	24	20	4.57	16.43
18	24	20	4.80	18.05
19	24	20	5.26	19.62
21	24	20	5.45	21.19
23	24	20	5.87	22.76
26	22	20	8.00	26.02
29	22	20	8.85	29.16
32	22	20	9.62	32.30
35	22	20	10.41	35.45
38	22	18	11.30	38.59
41	22	18	12.00	41.81
45	22	18	12.81	44.95
48	22	18	13.58	48.09
51	20	18	17.10	51.23
54	20	18	18.05	54.37
57	20	18	18.92	57.52
60	20	18	19.95	60.66
63	20	16	20.90	63.80
67	20	16	21.85	66.94
70	20	16	22.79	70.08
73	18	16	30.46	73.22
76	18	16	31.53	76.36
79	18	16	32.77	79.51
12 x 17	24	20	4.8	16.91
18	24	20	5.26	18.48
20	24	20	5.45	20.05
21	24	20	5.87	21.62
25	22	20	8.00	24.88
28	22	20	8.85	28.02
31	22	20	9.62	31.16
34	22	20	10.41	34.30
37	22	18	11.30	37.45
40	22	18	12.00	40.67
43	22	18	12.81	43.81
47	22	18	13.58	46.95
50	20	18	17.10	50.09
53	20	18	18.05	53.23
56	20	18	18.92	56.37
59	20	18	19.95	59.52
62	20	16	20.90	62.66
65	20	16	21.85	65.80
69	20	16	22.79	68.94
72	18	16	30.46	72.08
75	18	16	31.53	75.22
78	18	16	32.77	78.36

ACTUAL SPIRAL PIPE OVAL SIZES & CONSTRUCTION CHART

Nominal Oval Size	Galv Spiral Duct Ga.	Galv. Fitting Ga.	Weight lb/ft	Actual Size
14 x 19	24	20	5.45	18.91
20	24	30	5.87	20.48
23	24	20	8.00	23.74
27	22	20	8.85	26.88
30	22	20	9.62	30.02
33	22	20	10.41	33.16
36	22	20	11.30	36.30
39	22	18	12.00	39.52
42	22	18	12.81	42.67
45	22	18	13.58	45.81
49	20	18	17.10	48.95
52	20	18	18.05	52.09
55	20	18	18.92	55.23
58	20	18	9.90	58.37
61	20	16	20.90	61.52
64	20	16	21.85	64.66
67	20	16	22.79	67.80
71	18	16	30.46	70.94
74	18	16	31.53	74.08
77	18	16	32.77	77.22
80	18	16	34.00	80.36
16 x 22	24	20	8.00	22.60
25	22	20	8.85	25.74
29	22	20	9.62	28.88
32	22	20	10.41	32.02
35	22	20	11.30	35.16
38	22	18	12.00	38.38
41	22	18	12.81	41.52
44	22	18	13.58	44.67
47	22	18	14.20	47.81
51	20	18	18.05	50.95
54	20	18	18.92	54.09
57	20	18	19.95	57.23
60	20	18	20.90	60.37
63	20	16	21.85	63.52
66	20	16	22.79	66.66
69	20	16	23.80	69.80
73	18	16	31.53	72.94
76	18	16	32.77	76.08
79	18	16	34.00	79.22

Nominal Oval Size	Galv Spiral Duct Ga.	Galv. Fitting Ga.	Weight lb/ft	Actual Size
18 x 24	24	20	8.85	24.60
27	22	20	9.62	27.74
31	22	20	10.41	30.88
34	22	20	11.30	34.02
37	22	18	12.00	37.24
40	22	18	12.81	40.38
43	22	18	13.58	43.52
46	22	18	14.20	46.67
49	20	18	18.05	49.81
53	20	18	18.92	52.95
56	20	18	19.95	56.09
59	20	18	20.90	59.23
62	20	16	21.85	62.37
65	20	16	22.79	65.52
68	20	16	23.80	68.66
72	18	16	31.53	71.80
75	18	16	32.77	74.94
78	18	16	34.00	78.08
20 x 26	22	20	9.23	24.60
29	22	20	10.41	29.74
33	22	20	11.30	32.88
36	22	20	12.00	36.10
39	22	18	12.81	39.24
42	22	18	13.58	42.38
45	22	18	14.20	45.52
48	22	18	15.18	48.67
51	20	18	18.92	51.81
55	20	18	19.95	54.95
58	20	18	20.90	58.09
61	20	16	21.85	61.23
64	20	16	22.79	64.37
67	20	16	23.80	67.52
70	18	16	31.53	70.66
73	18	16	32.77	73.80
77	18	16	34.00	76.94
80	18	16	35.12	80.08

Air Distribution Corporation

Double Wall Oval

Reinforcement Chart

OVAL REINFORCEMENT CHART

Spiral Duct							
Nominal Oval Size	Galv Ga.	Static Pressure (in w.g.)					
		0.5	1	2	4	6	10
6 x 19	24	nr	nr	8a	5a	4a	3a
20	24	nr	nr	8a	5a	4a	3a
22	24	nr	10a	8a	5a	4a	3a
25	22	nr	10a	8a	6a	5a	3a
28	22	nr	10a	8a	5a	5a	3a
31	22	10a	10a	8a	5a	4a	3a
34	22	10a	10a	6a	5a	4a	3b
37	22	10a	8a	5a	4a	3b	2.5b
41	22	10a	8a	5a	a	3b	2.5b
44	22	8a	6a	4a	3a	2.5b	2b
47	22	8a	6a	4a	3a	2.5b	2b
50	20	10a	6a	5b	3b	2.5b	2b
53	20	10a	6a	5b	3b	2.5b	2b
56	20	8a	6a	4b	3b	2.5b	2b
59	20	8a	6a	4b	3b	2.5b	2b
63	20	8a	6a	3b	3b	2.5b	2b
66	20	8a	6a	3b	3b	2.5b	2b
69	20	6a	4b	3b	2.5b	2b	x
72	18	8b	6b	4b	3b	2.5b	2c
75	18	8b	6b	4b	3b	2.5b	2c
8 x 17	24	nr	nr	nr	6a	5a	4a
19	24	nr	nr	nr	6a	5a	4a
21	24	nr	nr	8a	5a	4a	3a
24	24	nr	10a	8a	5a	4a	3a
27	22	nr	10a	8a	6a	5a	3a
30	22	nr	10a	8a	5a	5a	3a
33	22	10a	10a	8a	5a	4a	3a
36	22	10a	10a	6a	5a	4a	3b
39	22	10a	8a	5a	4a	3b	2.5b
43	22	10a	8a	5a	4a	3b	2.5b
46	22	8a	6a	4a	3a	2.5b	2b
49	20	10a	8a	5a	4b	3b	2.5b
52	20	10a	6a	5b	3b	2.5b	2b
55	20	10a	6a	5b	3b	2.5b	2b
58	20	8a	6a	4b	3b	2.5b	2b
61	20	8a	6a	4b	3b	2.5b	2b
65	20	8a	6a	3b	3b	2.5b	2b
68	20	8a	6a	3b	3b	2.5b	2b
71	18	8b	6b	4b	3b	2.5b	2c

Spiral Duct							
Nominal Oval Size	Galv Ga.	Static Pressure (in w.g.)					
		0.5	1	2	4	6	10
8 x 74	18	8b	6b	4b	3b	2.5b	2c
77	18	8b	6b	4b	3b	2.5b	2c
10 x 18	24	nr	nr	nr	nr	nr	5a
19	24	nr	nr	nr	6a	5a	4a
23	24	nr	nr	8a	5a	4a	3a
26	22	nr	nr	10a	6a	5a	4a
29	22	nr	10a	8a	6a	5a	3a
32	22	nr	10a	8a	5a	5a	3a
35	22	10a	10a	8a	5a	4a	3a
38	22	10a	10a	6a	5a	4a	3b
41	22	10a	8a	5a	4a	3b	2.5b
45	22	10a	8a	5a	4a	3b	2.5b
48	22	8a	6a	4a	3a	2.5b	2b
51	20	10a	8a	5a	4b	3b	2.5b
54	20	10a	6a	5b	3b	2.5b	2b
57	20	10a	6a	5b	3b	2.5b	2b
60	20	8a	6a	4b	3b	2.5b	2b
63	20	8a	6a	4b	3b	2.5b	2b
67	20	8a	6a	3b	3b	2.5b	2b
70	20	8a	6a	3b	3b	2.5b	2b
73	18	8b	6b	4b	3b	2.5b	2c
76	18	8b	6b	4b	3b	2.5b	2c
79	18	8b	6b	4b	3b	2.5b	2c
12 x 18	24	nr	nr	nr	nr	nr	5a
21	24	nr	nr	nr	6a	5a	4a
25	22	nr	nr	nr	8a	5a	4a
28	22	nr	nr	10a	6a	5a	4a
31	22	nr	10a	8a	6a	5a	3a
34	22	nr	10a	8a	5a	5a	3a
37	22	10a	10a	8a	5a	4a	3a
40	22	10a	10a	6a	5a	4a	3b
43	22	10a	8a	5a	4a	3b	2.5b
47	22	10a	8a	5a	4a	3b	2.5b
50	20	10a	8a	5a	4b	3b	2.5b
53	20	10a	8a	5a	4b	3b	2.5b
56	20	10a	6a	5a	3b	2.5b	2b
59	20	10a	6a	5b	3b	2.5b	2b
62	20	8a	6a	4b	3b	2.5b	2b
65	20	8a	6a	4b	3b	2.5b	2b

Example: 8a
8 = distance in feet between angle
a = letter indicates size of angle

a = 1 1/2" x 1 1/2 " x 1/8"
b = 2" x 2" x 3/16"
c = 2 1/2" x 2 1/2" x 1/4"

nr = no reinforcement required

OVAL REINFORCEMENT CHART

Spiral Duct							
Nominal Oval Size	Galv Ga.	Static Pressure (in w.g.)					
		0.5	1	2	4	6	10
12 x 69	20	8a	6a	3b	3b	2.5b	2b
72	18	10a	8b	5b	3b	3b	2b
75	18	8b	6b	4b	3b	2.5b	2c
78	18	8b	6b	4b	3b	2.5b	2c
14 x 20	24	nr	nr	nr	nr	nr	5a
23	24	nr	nr	nr	6a	5a	4a
27	22	nr	nr	nr	8a	5a	4a
30	22	nr	nr	10a	6a	5a	4a
33	22	nr	10a	8a	6a	5a	3a
36	22	nr	10a	8a	5a	5a	3a
39	22	10a	10a	8a	5a	4a	3a
42	22	10a	10a	6a	5a	4a	3b
45	22	10a	8a	5a	4a	3b	2.5b
49	20	10a	10a	6a	5b	4b	3b
52	20	10a	8a	5a	4b	3b	2.5b
55	20	10a	8a	5a	4b	3b	2.5b
58	20	10a	6a	5b	3b	2.5b	2b
61	20	10a	6a	5b	3b	2.5b	2b
64	20	8a	6a	4b	3b	2.5b	2b
67	20	8a	6a	4b	3b	2.5b	2b
71	18	10a	8b	5b	3b	3b	2b
74	18	10a	8b	5b	3b	3b	2b
77	18	8b	6b	4b	3b	2.5	2c
80	18	8b	6b	4b	3b	2.5	2c
16 x 22	24	nr	nr	nr	nr	nr	5a
25	22	nr	nr	nr	nr	6a	5a
29	22	nr	nr	nr	8a	5a	4a
32	22	nr	nr	10a	6a	5a	4a
35	22	nr	10a	8a	6a	5a	3a
38	22	nr	10a	8a	5a	5a	3a
41	22	10a	10a	8a	5a	4a	3a
44	22	10a	10a	6a	5a	4a	3b
47	22	10a	8a	5a	4a	3b	2.5b
51	20	10a	10a	6a	5b	4b	3b
54	20	10a	8a	5a	4b	3b	2.5b
57	20	10a	8a	5a	4b	3b	2.5b
60	20	10a	6a	5b	3b	2.5b	2b
63	20	10a	6a	5b	3b	2.5b	2b
66	20	8a	6a	4b	3b	2.5b	2b
69	20	8a	6a	4b	3b	2.5b	2b

Spiral Duct							
Nominal Oval Size	Galv Ga.	Static Pressure (in w.g.)					
		0.5	1	2	4	6	10
16 x 73	18	10a	8b	5b	3b	3b	2b
76	18	10a	6b	5b	3b	3b	2b
79	18	8b	6b	4b	3b	2.5b	2c
18 x 24	24	nr	nr	nr	nr	nr	5a
27	22	nr	nr	nr	nr	6a	5a
31	22	nr	nr	nr	8a	5a	4a
34	22	nr	nr	10a	6a	5a	4a
37	22	nr	10a	8a	6a	5a	3a
40	22	nr	10a	8a	5a	5a	3a
43	22	10a	10a	8a	5a	4a	3a
46	22	10a	10a	6a	5a	4a	3b
49	20	10a	10a	6a	5b	4b	3b
53	20	10a	10a	6a	5b	4b	3b
56	20	10a	8a	5a	4b	3b	2.5b
59	20	10a	8a	5a	4b	3b	2.5b
62	20	10a	6a	5b	3b	2.5b	2b
65	20	10a	6a	5b	3b	2.5b	2b
68	20	8a	6a	4b	3b	2.5b	2b
72	18	10a	8b	5b	4b	3b	2.5b
75	18	10a	8b	5b	3b	3b	2b
78	18	10a	8b	5b	3b	3b	2b
20 x 26	22	nr	nr	nr	nr	nr	nr
29	22	nr	nr	nr	nr	6a	5a
33	22	nr	nr	nr	8a	5a	4a
36	22	nr	nr	10a	6a	5a	4a
39	22	nr	10a	8a	6a	5a	3a
42	22	nr	10a	8a	5a	5a	3a
45	22	10a	10a	8a	5a	4a	3a
48	22	10a	10a	6a	5a	4a	3b
51	20	10a	10a	6a	5b	4b	3b
55	20	10a	10a	6a	5b	4b	3b
58	20	10a	8a	5a	4b	3b	2.5b
61	20	10a	8a	5a	4b	3b	2.5b
64	20	10a	6a	5b	3b	2.5b	2b
67	20	10a	6a	5b	3b	2.5b	2b
70	18	10a	8b	5b	4b	3b	2.5b
73	18	10a	8b	5b	4b	3b	2.5b
77	18	10a	8b	5b	3b	3b	2b
80	18	10a	8b	5b	3b	3b	2b

Example: 8a
8 = distance in feet between angle
a = letter indicates size of angle

a = 1 1/2" x 1 1/2 " x 1/8"
b = 2" x 2" x 3/16"
c = 2 1/2" x 2 1/2" x 1/4"

nr = no reinforcement required