















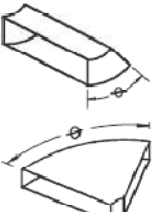
Appendix 3

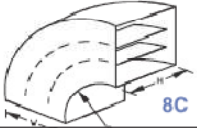

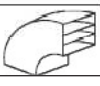

Group 8
Elbows and Offsets
 Reference Velocity = 900 Fpm
 Reference Friction Rate = 0.08 IWC per 100 Feet

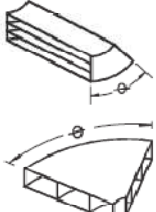
 R/D	Round and Oval Elbow EL Values							
	 Smooth	 4 or 5 Piece	 3 Piece	 Smooth Mitered	 Easy Bend	 Hard Bend	 3-Piece 45°	 2-Piece 45°
Mitered (R = 0)	—	—	—	75	4-Piece 25	4-Piece 30	10	15
0.75	20	30	35	—				
1.0	15	20	25	—	3-Piece 30	3-Piece 35		
1.5 or Larger	10	15	20	—				

 8A — Continued	For Smooth Radius Round Elbows Angles (θ) Less Than 90° Multiply EL by One of the Following Factors							
	20°	30°	45°	60°	75°	110°	130°	150°
	0.31	0.45	0.60	0.78	0.90	1.13	1.20	1.28

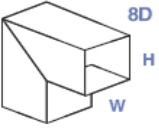



 R/W	Radius Elbow EL Values		
	 Hard Bend	 H / W = 1	 Easy Bend
Mitered (R = 0)	90	75	65
0.25	35	30	25
0.5 or Larger	20	15	10

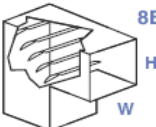



	For Angles (θ) Less Than 90° Multiply EL by One of the Following Factors		
	30°	45°	60°
	0.45	0.60	0.78

 R/W	Radius Elbow EL Values		
	 Hard Bend	 H / W = 1	 Easy Bend
Mitered (R = 0)	30	25	40
0.25	10	10	10
0.5 or Larger	5	5	5

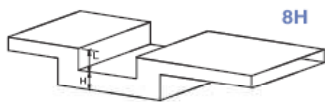
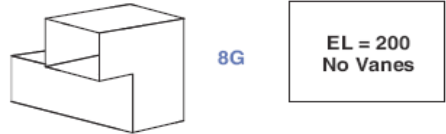
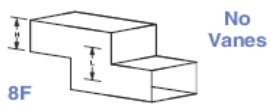
	For Angles (θ) Less Than 90° Multiply EL by One of the Following Factors		
	30°	45°	60°
	0.45	0.60	0.78

Group 8 — Continued
Elbows and Offsets
 Reference Velocity = 900 Fpm
 Reference Friction Rate = 0.08 IWC per 100 Feet

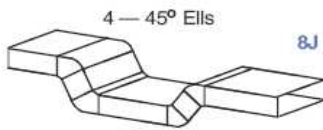
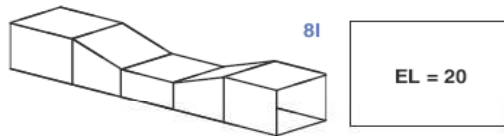
 8D No Vanes	Square Elbow EL Values		
	 Hard Bend	 H / W = 1	 Easy Bend
	80	80	65

 8E Single Thickness Turning Vanes	Square Elbow EL Values		
	 Hard Bend	 H / W = 1	 Easy Bend
	10	10	10

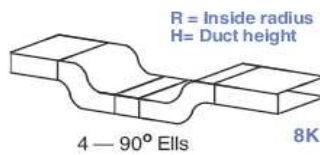
L/H	EL
1	160
2	260
4	190



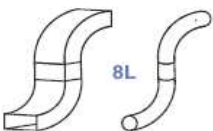
EL's H/L	No Vanes	With Vanes
0.5	55	—
1.0	330	55
1.5	430	55
2.0	470	55



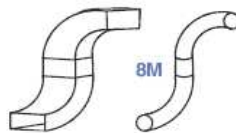
EL = 20



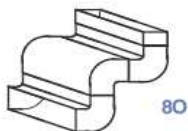
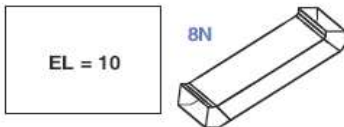
R/H	EL
Mitered (R=0)	250
0.25	100
0.50	20
1.00	20



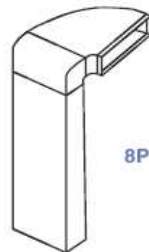
Double Ell — 1 Plane
 1.7 x EL value
for single elbow



Double Ell — 2 Plane
 2.0 x EL value
for single elbow



Inside Corner	EL
Miter (R=0)	235
R = 0.25	90
R > 0.50	45



EL Values	Inside Corners	
	Riser	Miter
3-1/4 x 10	75	60
3-1/4 x 12	90	75
3-1/4 x 14	90	75