

Expanded Metal Variables

ASTM F1267-18(2023) Table 1 - Carbon Steel - Type I (Raised)					
Mesh	% open	ϵ	C_{fw}	Class 1	Class 2
				D_m (psf)	D_m (psf)
1/4" - 20 ga	42%	0.58	1.6	0.85	
1/4" - 18 ga	42%	0.58	1.6	1.13	
1/2" - 20 ga	71%	0.29	1.8	0.42	
1/2" - 18 ga	65%	0.35	1.6	0.69	
1/2" - 16 ga	65%	0.35	1.6	0.85	
1/2" - 13 ga	62%	0.38	1.6	1.41	1.63
1/2" - 13 ga (0.188)	25%	0.75	Solid Wall	2.77	3.10
3/4" - 16 ga	78%	0.22	1.8	0.54	
3/4" - 13 ga	79%	0.21	1.8	0.77	
3/4" - 10 ga	69%	0.31	1.6	1.17	
3/4" - 9 ga	67%	0.33	1.6	1.78	1.96
1" - 16 ga	83%	0.17	1.8	0.43	
1" - 13 ga	14%	0.86	Solid Wall	3.18	3.50
1" - 7 ga	52%	0.48	1.6	3.51	3.76
1" - 7 ga (2.25LWD)	50%	0.5	1.6	3.66	3.92
1-1/2" - 18 ga	90%	0.1	1.8	0.20	
1-1/2" - 16 ga	84%	0.16	1.8	0.40	
1-1/2" - 14 ga	6%	0.94	Solid Wall	2.86	3.18
1-1/2" - 13 ga	84%	0.16	1.8	0.58	
1-1/2" - 10 ga	79%	0.21	1.8	0.76	
1-1/2" - 9 ga	78%	0.22	1.8	1.19	
1-1/2" - 6 ga	69%	0.31	1.6	2.47	2.65
2" - 10 ga	82%	0.18	1.8	0.65	
2" - 9 ga	84%	0.16	1.8	0.88	

ASTM F1267-18(2023) Table 5 - Stainless Steel - Type I (Raised)				
Mesh	% open	ϵ	C_{fw}	D_m (psf)
1/2" - 18 ga	65%	0.35	1.6	0.69
1/2" - 16 ga	65%	0.35	1.6	0.87
1/2" - 13 ga	62%	0.38	1.6	1.43
3/4" - 18 ga	77%	0.23	1.8	0.46
3/4" - 16 ga	77%	0.23	1.8	0.57
3/4" - 13 ga	77%	0.23	1.8	0.87
3/4" - 9 ga	65%	0.35	1.6	1.94
1-1/2" - 16 ga	83%	0.17	1.8	0.43
1-1/2" - 13 ga	83%	0.17	1.8	0.65
1-1/2" - 9 ga	77%	0.23	1.8	1.30

ASTM F1267-18(2023) Table 6 - Stainless Steel - Type II (Flattened)				
Mesh	% open	ϵ	C_f	D_m (psf)
1/2" - 18 ga	61%	0.39	C_{fw}	0.66
1/2" - 16 ga	60%	0.40	1.6	0.84
1/2" - 13 ga	57%	0.43	1.6	1.36
3/4" - 18 ga	74%	0.26	1.8	0.43
3/4" - 16 ga	74%	0.26	1.8	0.54
3/4" - 13 ga	74%	0.26	1.8	0.83
3/4" - 9 ga	61%	0.39	1.6	1.85
1-1/2" - 16 ga	81%	0.19	1.8	0.41
1-1/2" - 13 ga	80%	0.20	1.8	0.62
1-1/2" - 9 ga	74%	0.26	1.8	1.24

ASTM F1267-18(2023) Table 4 - Carbon Steel - Type II (Flattened)					
Mesh	% open	ϵ	C_{fw}	Class 1	Class 2
				D_m (psf)	D_m (psf)
1/4" - 20 ga	37%	0.63	1.6	0.74	
1/4" - 18 ga	36%	0.64	1.6	1.00	
1/2" - 20 ga	68%	0.32	1.6	0.37	
1/2" - 18 ga	61%	0.39	1.6	0.61	
1/2" - 16 ga	61%	0.39	1.6	0.77	
1/2" - 13 ga	57%	0.43	1.6	1.26	
3/4" - 16 ga	76%	0.24	1.8	0.47	
3/4" - 14 ga	77%	0.23	1.8	0.56	
3/4" - 13 ga	77%	0.23	1.8	0.67	
3/4" - 10 ga	65%	0.35	1.6	1.02	
3/4" - 9 ga	64%	0.36	1.6	1.57	1.75
1" - 16 ga	80%	0.2	1.8	0.38	
1-1/2" - 16 ga	82%	0.18	1.8	0.35	
1-1/2" - 14 ga	83%	0.17	1.8	0.43	
1-1/2" - 13 ga	83%	0.17	1.8	0.51	
1-1/2" - 9 ga	76%	0.24	1.8	1.05	

Text in RED per ASTM F2780-20

- Class 1 - Uncoated
- Class 2 - Galvanized / Galvannealed
- Class 3 - Corrosion Resistant Steel

ϵ = solidity ratio
 C_{fw} = wind force coefficient
 D_m = estimated weight - check with supplier for actual weight

"Solid Wall" - C_f values must come from the ASCE 7 §29 Solid Wall Table

Ice Loading Variables not yet available.
 Assume flat plate icing, or estimate from chain link tables.

Galvanizing after forming would be expected to increase the wind area, but the ASTM F2780-20 tables make no distinction.