

WEIGHTS OF CONSTRUCTION MATERIALS IN pcf

MATERIAL		Weight
MISCELLANEOUS	Gypsum, Loose	70
	Hay, Moist	12
	Ice	57.2
	Masonry, Ashlar	140-165
	Masonry, Brick	100-140
	Paper	50
	Slate	172
	Stone, Quarried	82-107
	Terra Cotta	72-120
	Tin	459
	Water, Fresh	62.4
	Water, Sea	64
	WOOD SEASONED	Douglas Fir
Hemlock Fir		28
S. Yellow Pine		37
Redwood		28
Western Hemlock		32
ROOF TRUSS OR RAFTER @ 24" O.C	2x4 Top Chord*	.7 (psf)
	2x6 Top Chord*	1.1 (psf)
	2x8 Top Chord*	1.5 (psf)
	2x10 Top Chord*	1.9 (psf)
	2x12 Top Chord*	2.2 (psf)
	2x4 Webs and Plates**	.8 (psf)
	2x6 Webs and Plates**	1.3 (psf)
	* Measure along rake ** Accounts for 1/2 truss weight	
SHEATHING	Decking, 2"	5 (psf)
	Gypsum, 1/2"	2 (psf)
	Plywood, 3/8"	1.1 (psf)
	Plywood, 1/2"	1.5 (psf)
	Plywood, 5/8"	1.8 (psf)
	Plywood, 3/4"	2.3 (psf)
	Plywood, 1"	3 (psf)
	Plywood, 1 1/8"	3.4 (psf)
	Wood, 1"	3 (psf)
SHINGLES & TILES	Asbestos-Cement	4 (psf)
	Asphalt, 1/4"	2 (psf)
	Wood, 1"	3 (psf)
	Cement (Tile)	15- 20 (psf)
	Cement Asbestos, 3/8" (Tile)	4 (psf)

WEIGHTS OF CONSTRUCTION MATERIALS IN psf

MATERIAL		Weight
Tile, Clay	Book Tile, 3" 20 *	20
	Ludowici 10 *	10
	Roman 12 *	12
	Shingle Type 12-14 *	12-14
	Spanish 19 *	19
	Slate, 3/8" 12-15 *	12-15
	* (Add 10 psf for mortar to listing above)	
WATERPROOFING MEMBRANES	Gravel Covered	5.5
	Bituminous, Smooth Surface	1.5
	Liquid Applied	1
	Single-Ply, Sheet	.7

WELDED WIRE FABRIC (WWF)

2.1. Introduction

This chapter presents information for specifying and estimating welded wire fabric (WWF) used in building construction. Discussion of epoxy-coated WWF, and handling, shipping, unloading and placing of WWF are also included.

2.2. ASTM Specifications

Welded wire fabric consists of wires arranged in a square or rectangular configuration. The wires are welded at their intersections. WWF must conform to ASTM A185 if made of plain wire or to ASTM A497 if made of deformed wire or a combination of deformed and plain wire. These specifications require tensile, reduction of area and bend tests on the fabric, and shear tests on the welded intersections. A minimum yield strength of 65,000 psi [450 MPa] is required for plain WWF (A185) and a minimum of 70,000 psi [485 MPa] for deformed WWF (A497). ASTM A82 (plain wire) and A496 (deformed wire) are companion specifications that prescribe the requirements for the wire used for manufacturing welded wire fabric.

Unless otherwise specified by the Architect/Engineer, welded wire fabric conforming to ASTM A185 will be furnished.

Welded wire fabric can be produced with high-strength wires of minimum yield strengths to 80,000 psi [550 MPa]. Higher minimum yield strengths allow the use of less material in certain applications.

Welded wire fabric can be fabricated to make beam stirrups and column ties.

2.3. Style Identification

Plain wire is denoted by the letter "W" ["MW"] and deformed wire by the letter "D" ["MD"]. The letter is followed by a number indicating cross-sectional area in hundredths of a square inch [square millimeters].

Welded wire fabric is usually shown on project drawings with the abbreviation WWF followed by spacings of longitudinal wires and then transverse wires and last by the sizes of longitudinal and transverse wires.

An example style designation (see Figure 2-1) is: WWF 6 × 12—W16 × W8 [152 × 305 – MW103 × MW52]. This designation identifies a style of plain welded wire fabric in which:

Spacing of longitudinal wires	=	6 in.	[152 mm]
Spacing of transverse wires	=	12 in.	[305 mm]
Longitudinal wire size	=	W16	[MW103]
Transverse wire size	=	W8	[MW52]

A deformed WWF style would be designated in the same manner with the appropriate D [MD] number wire spacings and sizes.

It is important to note that the terms "longitudinal" and "transverse" are related to the method of WWF manufacture and have no reference to the orientation of the wires with respect to the orientation of the reinforced concrete structure.

2.4. Specifying Welded Wire Fabric

The Architect/Engineer's selection of welded wire fabric styles should include production considerations as well as steel area requirements. Maximum economies in production and handling can be achieved by utilizing repetition of styles and duplication of sheet and/or roll dimensions to the fullest extent possible.

Welded wire fabric is manufactured in the form of sheets and rolls. Rolls are generally stocked in W1.4 to W4 [MW9 to MW26] wire sizes only. Roll widths vary from 5 to 8 feet [1.5 to 2.4 m]. Lengths vary with application and convenience of handling and shipping. Rolls should be straightened. Standard widths of sheets vary between 7 to 10 feet [2.1 to 3.1 m] for building construction and up to 13 feet [4 m] for pavement.

The maximum sheet size (width and/or length) may be limited by shipping restrictions as well as manufacturing limitations.

Development lengths and lap splice lengths for welded wire fabric must be specified by the Architect/Engineer in accordance with the ACI 318 Building Code. Lap splice lengths are usually a minimum of one wire space plus 2 in. [50 mm] for plain wire and 8 in. [200 mm] for deformed wire.

Certain styles of welded wire fabric as shown in Table 2-1 have been recommended by the Wire Reinforcement Institute as common styles. Manufacturers of WWF can meet specific steel area requirements when ordered for designated projects, or in some localities, may be available from inventory.

2.5. Detailing Welded Wire Fabric

The quantity of welded wire fabric detailed and supplied should include the net area shown on the project drawings or required in the project specifications plus sufficient material to include lap splices.

2.5.1 Width

Width is defined as the center-to-center distance between the outside longitudinal wires. Overall width is defined as the width plus side overhangs.

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The side overhangs of transverse wires should be no greater than one inch [25 mm] unless otherwise specified by the Architect/Engineer. Transverse wires may be specified to have a specific overhang or no overhang (flush sides).

2.5.2 Length

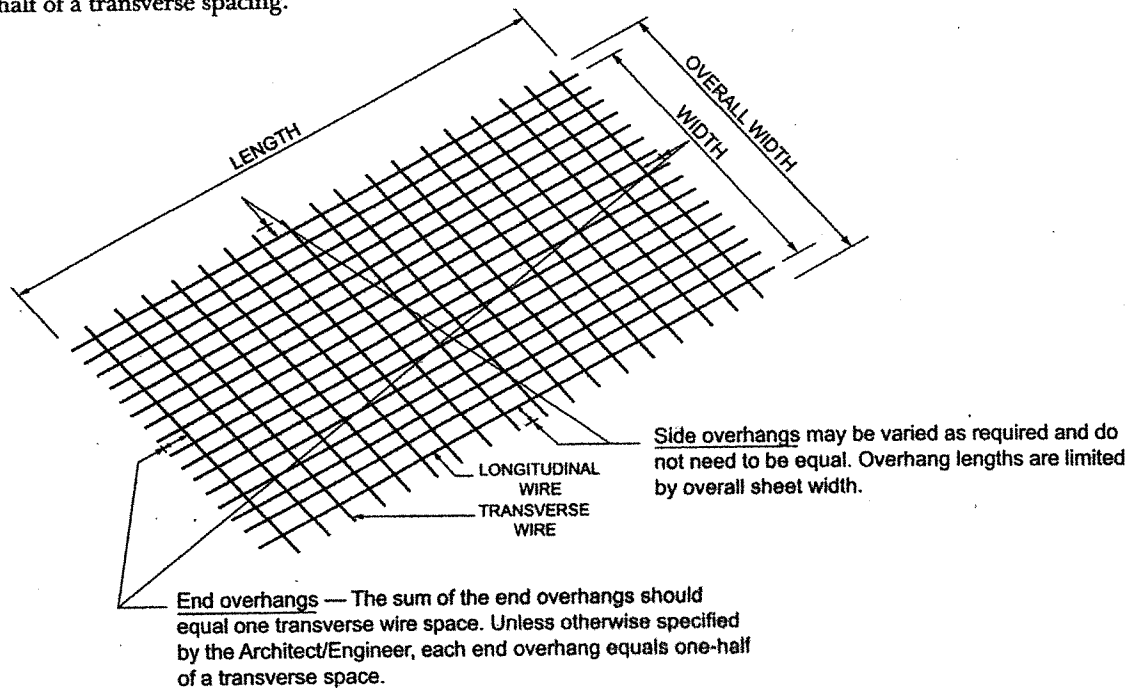
Welded wire fabric in roll form can be manufactured in various lengths, up to the maximum weight per roll convenient for handling. The lengths of rolls vary with the individual manufacturing practices of producers. Typical lengths are 100, 150 and 200 feet [31, 46 and 61 m]. Sheet or roll length is defined as the length, tip to tip, of longitudinal wires. This length should be a whole multiple of the transverse wire spacing.

The sum of the two end overhangs on either sheets or rolls should be equal to one transverse wire spacing. Unless otherwise specified, each end overhang equals one-half of a transverse spacing.

2.6. ASTM Specification for Epoxy-Coated Wire and Welded Wire Fabric

Epoxy-coated wire and welded wire fabric are used in reinforced concrete construction as a corrosion-protection system.

The ASTM specification A884/A884M covers the epoxy coating of plain and deformed steel wire, and plain and deformed steel welded wire fabric. The specification includes requirements for the epoxy-coating material; surface preparation of the steel prior to application of the coating; the method of application of the coating; limits on coating thickness; and acceptance tests to ensure that the coating was properly applied. All damaged areas of coating on the wires, which occur during manufacture and handling to the point of shipment to the job-site, have to be repaired (touched-up) with patching material.



Industry Method of Designating Style:	
Example: WWF 6 x 12 — W16 x W8 [152 x 305 — MW103 x MW52]	
Longitudinal wire spacing 6 in. [152 mm]	Longitudinal wire size W16 [MW103]
Transverse wire spacing 12 in. [305 mm]	Transverse wire size W8 [MW52]

FIGURE 2-1 STYLE IDENTIFICATION OF WELDED WIRE FABRIC

WELDED WIRE FABRIC (WWF)

TABLE 2-1 COMMON STYLES OF WELDED WIRE FABRIC SHEETS

Inch-Pound Units			Metric Units		
Style	Area (in. ² /ft)	Weight* (lb/100 ft ²)	Style	Area (mm ² /m)	Mass* (kg/m ²)
4 x 4 – W1.4 x W1.4**	0.042	31	102 x 102 – MW9 x MW9**	88.9	1.51
4 x 4 – W2.0 x W2.0**	0.060	44	102 x 102 – MW13 x MW13**	127.0	2.15
4 x 4 – W2.9 x W2.9**	0.087	62	102 x 102 – MW19 x MW19**	184.2	3.03
4 x 4 – W3.1 x W3.1	0.093	65	102 x 102 – MW20 x MW20	196.9	3.17
4 x 4 – W4.0 x W4.0**	0.120	88	102 x 102 – MW26 x MW26**	254.0	4.30
6 x 6 – W1.4 x W1.4**	0.028	21	152 x 152 – MW9 x MW9 **	59.3	1.03
6 x 6 – W2.0 x W2.0**	0.040	30	152 x 152 – MW13 x MW13**	84.7	1.46
6 x 6 – W2.9 x W2.9**	0.058	42	152 x 152 – MW19 x MW19**	122.8	2.05
6 x 6 – W4.0 x W4.0**	0.080	58	152 x 152 – MW26 x MW26 **	169.4	2.83
6 x 6 – W4.2 x W4.2	0.084	60	152 x 152 – MW27 x MW27	177.8	3.08
6 x 6 – W4.4 x W4.4	0.088	63	152 x 152 – MW28 x MW28	186.3	3.22
6 x 6 – W4.7 x W4.7	0.094	68	152 x 152 – MW30 x MW30	199.0	3.32
6 x 6 – W7.5 x W7.5	0.150	108	152 x 152 – MW48 x MW48	317.5	5.52
6 x 6 – W8.1 x W8.1	0.162	116	152 x 152 – MW52 x MW52	342.9	5.66
6 x 6 – W8.3 x W8.3	0.166	119	152 x 152 – MW54 x MW54	351.4	5.81
12 x 12 – W8.3 x W8.3	0.083	63	305 x 305 – MW54 x MW54	175.7	3.08
12 x 12 – W8.8 x W8.8	0.088	66	305 x 305 – MW57 x MW57	186.3	3.22
12 x 12 – W9.1 x W9.1	0.091	69	305 x 305 – MW59 x MW59	192.6	3.25
12 x 12 – W9.4 x W9.4	0.094	71	305 x 305 – MW61 x MW61	199.0	3.47
12 x 12 – W15 x W15	0.150	113	305 x 305 – MW97 x MW97	317.5	5.52
12 x 12 – W16 x W16	0.160	120	305 x 305 – MW103 x MW103	338.7	5.61
12 x 12 – W16.6 x W16.6	0.166	125	305 x 305 – MW107 x MW107	351.4	6.25
12 x 12 – W17.1 x W17.1	0.171	128	305 x 305 – MW110 x MW110	362.0	6.25

ASSUME
SOME
SOIL
SUPPORT

* Weight [mass] based on 60-in. [1524-mm] wide sheets (c.-c.) with 1-in. [25-mm] side overhang and standard end overhang.

** These styles may be obtained in roll form. It is recommended that rolls be straightened and cut to size before placement.

Example
Calculations: 6 x 6 – W4.0 x W4.0
Long. Wires (Table 2-2(a)) = 29.92
Tran. Wires (Table 2-2(c)) = 28.11
Total = 58.03 = 58 lb/100 ft²

152 x 152 – MW52 x MW52
Long. Wires (Table 2-2(b)) = 2.92
Tran. Wires (Table 2-2(d)) = 2.74
Total = 5.66 kg/m²

WELDED WIRE FABRIC (WWF)

TABLE 2-2(a) UNIT WEIGHT OF LONGITUDINAL WIRES FOR WELDED WIRE FABRIC (INCH-POUND)

Wire Size, W or D	Nom. Diam. (in.)	Weight (lb/100 ft ²)* of Longitudinal Wires Per Spacing (in.)								
		2	3	4	5	6	8	9	10	12
45	0.757	948.60	642.60	489.60	397.80	336.60	260.10	234.40	214.20	183.60
31	0.628	653.40	442.68	337.28	274.04	231.88	179.18	161.68	147.56	126.48
30	0.618	632.40	428.40	326.40	265.20	224.40	173.40	156.46	142.80	122.40
28	0.597	590.24	399.84	304.64	247.52	209.44	161.84	146.03	133.28	114.24
26	0.575	548.08	371.28	282.88	229.84	194.48	150.28	135.60	123.76	106.08
24	0.553	505.92	342.72	261.12	212.16	179.52	138.72	125.17	114.24	97.92
22	0.529	463.76	314.16	239.36	194.48	164.56	127.16	114.74	104.72	89.76
20	0.505	421.60	285.60	217.60	176.80	149.60	115.60	104.31	95.20	81.60
18	0.479	379.44	257.04	195.84	159.12	134.64	104.04	93.88	85.68	73.44
16	0.451	337.28	228.48	174.48	141.44	119.68	92.48	83.45	76.16	65.28
14	0.422	295.12	199.92	152.32	123.76	104.72	80.92	73.01	66.64	57.12
12	0.391	252.96	171.36	130.56	106.08	89.76	69.36	62.58	57.12	48.96
11	0.374	231.88	157.08	119.68	97.24	82.28	63.58	57.37	52.36	44.88
10.5	0.366	221.34	149.94	114.24	92.82	78.54	60.69	54.76	49.98	42.84
10	0.357	210.80	142.80	108.80	88.40	74.80	57.80	52.15	47.60	40.80
9.5	0.348	200.26	135.66	103.36	83.98	71.06	54.91	49.55	45.22	38.76
9	0.339	189.72	128.52	97.92	79.56	67.32	52.02	46.94	42.84	36.72
8.5	0.329	179.18	121.38	92.48	75.14	63.58	49.13	44.33	40.46	34.68
8	0.319	168.64	114.24	87.04	70.72	59.84	46.24	41.73	38.08	32.64
7.5	0.309	158.10	107.10	81.60	66.30	56.10	43.35	39.11	35.70	30.60
7	0.299	147.56	99.96	76.16	61.88	52.36	40.46	36.51	33.32	28.56
6.5	0.288	137.02	92.82	70.72	57.46	48.62	37.57	33.90	30.94	26.52
6	0.276	126.48	85.68	65.28	53.04	44.88	34.68	31.29	28.56	24.48
5.5	0.265	115.94	78.54	69.84	48.62	41.14	31.79	28.69	26.18	22.44
5	0.252	105.40	71.40	54.40	44.20	37.40	28.90	26.08	23.80	20.40
4.5	0.239	94.86	64.26	48.96	39.78	33.66	26.01	23.47	21.42	18.36
4	0.226	84.32	57.12	43.52	35.36	29.92	23.12	20.87	19.04	16.32
3.5	0.211	73.78	49.98	38.08	30.94	26.18	20.23	18.26	16.66	14.28
3	0.195	63.24	42.84	32.64	26.52	22.44	17.34	15.65	14.28	12.24
2.9	0.192	61.13	41.41	31.55	25.64	21.69	16.76	15.11	13.80	11.83
2.5	0.178	52.70	35.70	27.20	22.10	18.70	14.45	13.04	11.90	10.20
2	0.160	42.16	28.56	21.76	17.68	14.96	11.56	10.44	9.52	8.16
1.4	0.134	29.51	19.99	15.23	12.38	10.47	8.09	7.29	6.66	5.71

*Weight based on standard end overhang.

Note: This table should be used for estimating purposes only. Actual weights of welded wire fabric will vary from those shown above, depending upon the width of rolls or sheets and lengths of overhangs. No allowance is made in this table for the extra weight of fabric required for lap splices.

WELDED WIRE FABRIC (WWF)

TABLE 2-2(c) UNIT WEIGHT OF TRANSVERSE WIRES FOR WELDED WIRE FABRIC (INCH-POUND)

Wire Size, W or D	Nom. Diam. (in.)	Weight (lb/100 ft ²)* of Transverse Wires Per Spacing (in.)									
		2	3	4	5	6	8	9	10	12	
45	0.757	948.57	632.38	474.29	379.43	316.19	237.14	210.79	189.72	158.10	
31	0.628	653.48	435.65	326.74	261.39	217.83	163.37	145.22	130.70	108.91	
30	0.618	632.40	421.40	316.20	252.96	210.80	158.10	140.53	126.48	105.40	
28	0.597	590.24	393.49	295.12	236.10	196.75	147.56	131.17	118.05	98.37	
26	0.575	548.08	365.38	274.04	219.23	182.70	137.02	121.80	109.62	91.34	
24	0.553	505.92	337.28	252.96	202.37	168.64	126.48	112.43	101.18	84.32	
22	0.529	463.76	309.17	231.88	185.50	154.59	115.94	103.06	92.75	77.29	
20	0.505	421.60	281.06	210.80	168.64	140.53	105.40	93.69	84.32	70.26	
18	0.479	379.44	252.96	189.72	151.78	126.48	94.86	84.32	75.89	63.24	
16	0.451	337.28	224.85	168.64	134.91	112.43	84.32	74.95	67.46	56.21	
14	0.422	295.12	196.76	147.56	118.05	98.37	73.78	65.58	59.02	49.19	
12	0.391	252.96	168.64	126.48	101.18	84.32	63.24	56.21	50.59	42.16	
11	0.374	231.88	154.59	115.94	92.75	77.29	57.97	51.53	46.38	38.65	
10.5	0.366	221.34	147.56	110.67	88.54	73.78	55.34	49.19	44.27	36.89	
10	0.357	210.80	140.53	105.40	84.32	70.27	52.70	46.84	42.16	35.13	
9.5	0.348	200.28	133.51	100.13	80.11	66.76	50.07	44.50	40.05	33.38	
9	0.339	189.72	126.48	94.86	75.89	63.24	47.43	42.16	37.94	31.62	
8.5	0.329	179.18	119.45	89.59	71.67	59.73	44.80	39.82	35.84	29.86	
8	0.319	168.64	112.43	84.32	67.46	56.21	42.16	37.48	33.73	28.11	
7.5	0.309	158.10	105.40	79.05	63.24	52.70	39.53	35.14	31.62	26.35	
7	0.299	147.56	98.37	73.78	59.02	49.19	36.89	32.79	29.51	24.59	
6.5	0.288	137.02	91.35	68.51	54.81	45.68	34.26	30.45	27.41	22.84	
6	0.276	126.48	84.32	63.24	50.59	42.16	31.62	28.11	25.30	21.08	
5.5	0.265	115.94	77.30	57.97	46.38	38.65	28.99	25.77	23.19	19.33	
5	0.252	105.40	70.27	52.70	42.16	35.13	26.35	23.42	21.08	17.57	
4.5	0.239	94.86	63.24	47.43	37.95	31.62	23.72	21.08	18.97	15.81	
4	0.226	84.32	56.21	42.16	33.73	28.11	21.08	18.74	16.86	14.05	
3.5	0.211	73.78	49.19	36.89	29.51	24.60	18.45	16.40	14.76	12.30	
3	0.195	63.24	42.16	31.62	25.30	21.08	15.81	14.05	12.65	10.54	
2.9	0.192	61.13	40.75	30.56	24.45	20.38	15.28	13.58	12.23	10.19	
2.5	0.178	52.70	35.13	26.35	21.08	17.57	13.18	11.71	10.54	8.78	
2	0.160	42.16	28.11	21.08	16.86	14.05	10.54	9.37	8.43	7.03	
1.4	0.134	29.51	19.67	14.76	11.80	9.84	7.38	6.56	5.90	4.92	

* Weight based on 60-in. wide sheets (c.-c.) with 1-in. side overhang.

Note: This table should be used for estimating purposes only. Actual weights of welded wire fabric will vary from those shown above, depending upon the width of rolls or sheets and lengths of overhangs. No allowance is made in this table for the extra weight of fabric required for lap splices.

WELDED WIRE FABRIC (WWF)

TABLE 2-3(a) CROSS-SECTIONAL AREA AND WEIGHT OF WELDED WIRE FABRIC (INCH-POUND)

Wire Size, W or D	Nom. Diam. (in.)	Nom. Weight (lb/ft)	Area of Steel (in. ² /ft) Per Wire Spacing (in.)						
			2	3	4	6	8	10	12
45	0.757	1.530	2.700	1.800	1.350	0.900	0.675	0.540	0.450
31	0.628	1.054	1.860	1.240	0.930	0.620	0.465	0.372	0.310
30	0.618	1.020	1.800	1.200	0.900	0.600	0.450	0.360	0.300
28	0.597	0.952	1.680	1.120	0.840	0.560	0.420	0.336	0.280
26	0.575	0.884	1.560	1.040	0.780	0.520	0.390	0.312	0.260
24	0.553	0.816	1.440	0.960	0.720	0.480	0.360	0.288	0.240
22	0.529	0.748	1.320	0.880	0.660	0.440	0.330	0.264	0.220
20	0.505	0.680	1.200	0.800	0.600	0.400	0.300	0.240	0.200
18	0.479	0.612	1.080	0.720	0.540	0.360	0.270	0.216	0.180
16	0.451	0.544	0.960	0.640	0.480	0.320	0.240	0.192	0.160
14	0.422	0.476	0.840	0.560	0.420	0.280	0.210	0.168	0.140
12	0.391	0.408	0.720	0.480	0.360	0.240	0.180	0.144	0.120
11	0.374	0.374	0.660	0.440	0.330	0.220	0.165	0.132	0.110
10.5	0.366	0.357	0.630	0.420	0.315	0.210	0.158	0.126	0.105
10	0.357	0.340	0.600	0.400	0.300	0.200	0.150	0.120	0.100
9.5	0.348	0.323	0.570	0.380	0.285	0.190	0.143	0.114	0.095
9	0.339	0.306	0.540	0.360	0.270	0.180	0.135	0.108	0.090
8.5	0.329	0.289	0.510	0.340	0.255	0.170	0.128	0.102	0.085
8	0.319	0.272	0.480	0.320	0.240	0.160	0.120	0.096	0.080
7.5	0.309	0.255	0.450	0.300	0.225	0.150	0.113	0.090	0.075
7	0.299	0.238	0.420	0.280	0.210	0.140	0.105	0.084	0.070
6.5	0.288	0.221	0.390	0.260	0.195	0.130	0.098	0.078	0.065
6	0.276	0.204	0.360	0.240	0.180	0.120	0.090	0.072	0.060
5.5	0.265	0.187	0.330	0.220	0.165	0.110	0.083	0.066	0.055
5	0.252	0.170	0.300	0.200	0.150	0.100	0.075	0.060	0.050
4.5	0.239	0.153	0.270	0.180	0.135	0.090	0.068	0.054	0.045
4	0.226	0.136	0.240	0.160	0.120	0.080	0.060	0.048	0.040
3.5	0.211	0.119	0.210	0.140	0.105	0.070	0.053	0.042	0.035
3	0.195	0.102	0.180	0.120	0.090	0.060	0.045	0.036	0.030
2.9	0.192	0.099	0.174	0.116	0.087	0.058	0.044	0.035	0.029
2.5	0.178	0.085	0.150	0.100	0.075	0.050	0.038	0.030	0.025
2	0.160	0.068	0.120	0.080	0.060	0.040	0.030	0.024	0.020
1.4	0.134	0.048	0.084	0.056	0.042	0.028	0.021	0.017	0.014

Notes:

1. The above listing of plain and deformed wire sizes represents wires normally selected to manufacture welded wire fabric to specific areas of reinforcement. Wire sizes other than those listed above, including larger sizes, may be available if the quantity required is sufficient to justify manufacture.
2. The nominal diameter of a deformed wire is equivalent to the diameter of a plain wire having the same weight per foot as the deformed wire.
3. The ACI Building Code requirements for tension development lengths and tension lap splice lengths of welded wire fabric are not included in this chapter. These design requirements are covered in *Reinforcement Anchorages and Splices* available from CRSI. For additional information, see *Manual of Standard Practice—Structural Welded Wire Fabric* and *Structural Detailing Manual*, both published by the Wire Reinforcement Institute.

WELDED WIRE FABRIC (WWF)

2.7. Handling, Shipping and Unloading Welded Wire Fabric

Welded wire fabric is shipped in two forms—rolls or sheets. If shipped in roll form, several rolls may be bundled together for efficient handling. Individual rolls are securely tied, so uncoiling will not occur when the bundles are cut.

Sheets are bundled in quantities depending on size and weight [mass] of sheets. Generally, bundles of rolls or sheets will weigh between 2,000 and 5,000 pounds [900 to 2300 kg]. Banding is used for shipping stability only. Bundles should never be lifted by the steel banding.

If required by the Buyer, bundles can be assembled by flipping alternate sheets, allowing the sheets to "nest."

This arrangement allows for a greater number of sheets to be stacked in a given height and provides some benefit in added stability. Unless required by the Buyer, sheets are not flipped.

At the shipping destination (either job-site or storage facility), the bundles are unloaded with a forklift, or a front end loader equipped with lifting chains, or a crane.

Sheet bundles are usually placed on dunnage spaced every 3 to 4 feet [900 to 1200 mm] for unloading with either a forklift (from beneath the bundle) or a crane (with a sling chain hooked or threaded through the bundle).

At all times during unloading of materials, caution must be exercised and all safety regulations and practices must be observed.

TABLE 2-4 WIRE SIZE CONVERSION *

W or D	Inch-Pound Units			Metric Units			
	Area (in. ²)	Diam. (in.)	Weight (lb/ft)	MW or MD	Area (mm ²)	Diam. (mm)	Mass (kg/m)
45	0.450	0.757	1.530	290	290	19.23	2.277
31	0.310	0.628	1.054	200	200	15.96	1.569
30	0.300	0.618	1.020	194	194	15.70	1.518
28	0.280	0.597	0.952	181	181	15.17	1.417
26	0.260	0.575	0.884	168	168	14.61	1.316
24	0.240	0.553	0.816	155	155	14.04	1.214
22	0.220	0.529	0.748	142	142	13.44	1.113
20	0.200	0.505	0.680	129	129	12.82	1.012
18	0.180	0.479	0.612	116	116	12.16	0.911
16	0.160	0.451	0.544	103	103	11.46	0.810
14	0.140	0.422	0.476	90	90	10.72	0.708
12	0.120	0.391	0.408	77	77	9.93	0.607
11	0.110	0.374	0.374	71	71	9.51	0.557
10.5	0.105	0.366	0.357	68	68	9.29	0.531
10	0.100	0.357	0.340	65	65	9.06	0.506
9.5	0.095	0.348	0.323	61	61	8.83	0.481
9	0.090	0.339	0.306	58	58	8.60	0.455
8.5	0.085	0.329	0.289	55	55	8.36	0.430
8	0.080	0.319	0.272	52	52	8.11	0.405
7.5	0.075	0.309	0.255	48	48	7.85	0.379
7	0.070	0.299	0.238	45	45	7.58	0.354
6.5	0.065	0.288	0.221	42	42	7.31	0.329
6	0.060	0.276	0.204	39	39	7.02	0.304
5.5	0.055	0.265	0.187	35	35	6.72	0.278
5	0.050	0.252	0.170	32	32	6.41	0.253
4.5	0.045	0.239	0.153	29	29	6.08	0.228
4	0.040	0.226	0.136	26	26	5.73	0.202
3.5	0.035	0.211	0.119	23	23	5.36	0.177
3	0.030	0.195	0.102	19.4	19.4	4.96	0.152
2.9	0.029	0.192	0.099	18.7	18.7	4.88	0.147
2.5	0.025	0.178	0.085	16	16	4.53	0.126
2	0.020	0.160	0.068	13	13	4.05	0.101
1.4	0.014	0.134	0.048	9	9	3.39	0.071

* Inch-Pound wire sizes were soft-metricated.

TABLE II—SCHEDULED UNIT WEIGHTS FOR ESTIMATING WELDED WIRE FABRIC*
(Approximate weights in pounds per 100 square feet)

Wire Size Number		Nominal Diameter, Inches.	Spacing and Weight of Longitudinal Wires					Spacing and Weight of Transverse Wires					
Plain	Deformed		2"	3"	4"	6"	12"	3"	4"	6"	8"	10"	12"
W20	D20	0.505	422	286	218	150	82	281	211	141	105	84	70
W18	D18	0.479	379	257	196	135	73	253	190	126	95	76	63
W16	D16	0.451	337	228	174	120	65	225	169	112	84	67	56
W14	D14	0.422	295	200	152	105	57	197	148	98	74	59	49
W12	D12	0.391	253	171	131	90	49	169	126	84	63	51	42
W11	D11	0.374	232	157	120	82	45	155	116	77	58	46	39
W10.5	D10	0.366	221	150	114	79	43	148	111	74	55	44	37
W10		0.357	211	143	109	75	41	141	105	70	53	42	35
W9.5		0.348	200	136	103	71	39	134	100	67	50	40	33
W9	D9	0.338	190	129	98	67	37	126	95	63	47	38	32
W8.5	D8	0.329	179	121	92	64	35	119	90	60	45	36	30
W8		0.319	169	114	87	60	33	112	84	56	42	34	28
W7.5		0.309	158	107	82	56	31	105	79	53	40	32	26
W7		0.299	148	100	76	52	29	98	74	49	37	30	25
W6.5	D6	0.288	137	93	71	49	27	91	69	46	34	27	23
W6		0.276	126	86	65	45	24	84	63	42	32	25	21
W5.5		0.265	116	79	60	41	22	77	58	39	29	23	19
W5		0.252	105	71	54	37	20	70	53	35	26	21	18
W4.5		0.239	95	64	49	34	18	63	47	32	24	19	16
W4	D4	0.226	84	57	44	30	16	56	42	28	21	17	14
W3.5	3/16"	0.211	74	50	38	26	14	49	37	25	18	15	12
W3		0.195	63	43	33	22	12	42	32	21	16	13	11
W2.9		0.192	61	41	32	22	12	41	30	20	15	12	10
W2.5		0.178	53	36	27	19	10	35	26	18	13	11	9
W2.1		1/8"	0.162	43	29	22	15	8	29	22	15	11	9
W2	0.160		42	29	22	15	8	28	21	14	11	8	7
W1.5	0.138		32	21	16	11	6	21	16	11	8	6	5
W1.4	0.134		30	21	16	11	6	20	15	10	7	6	5

*Based on 60" width, 1" side overhang each side (62" overall width), and standard end overhangs.

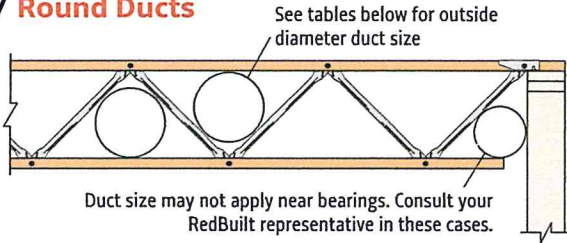
Note: This table is to be used for estimating purposes only. Exact weights of welded wire fabric will vary from those shown above, depending upon width of rolls or sheets and lengths of overhangs. No allowance is made in this table for the extra weight of fabric required for laps or splices.

EXAMPLE: Approximate weight of 6x6 — W4xW4
 Longitudinal = 30
 Transverse = 28

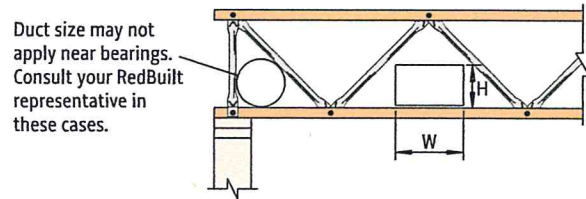
58 lbs. per 100 sq. ft.

6x6 lbs/sqft
 $10/10 = 21$
 $8/8 = 30$
 $6/6 = 42$
 $4/4 = 58$

77 Round Ducts



78 Rectangular Ducts



Red-L™ and Red-W™ Trusses

Truss Depth	Round Duct Size	Rectangular Duct Height			
		4"	6"	8"	10"
14"	8"	9"	7"	4"	-
16"	8"	10"	8"	5"	3"
18"	9"	11"	9"	7"	5"
20"	10"	12"	10"	8"	6"
22"	10"	12"	10"	9"	7"
24"	10"	12"	11"	9"	8"
26"	11"	13"	11"	10"	8"
28"	12"	14"	12"	11"	9"
30"	13"	15"	14"	12"	11"
32"	14"	17"	15"	14"	12"
34"	15"	18"	17"	15"	14"
36"	16"	19"	18"	17"	15"
38"	17"	21"	19"	18"	17"
40"	18"	22"	21"	19"	18"

Red-M™ Trusses

Truss Depth	Round Duct Size	Rectangular Duct Height			
		4"	6"	8"	10"
20"	7"	8"	6"	5"	3"
22"	8"	8"	7"	5"	4"
24"	8"	8"	7"	6"	5"
26"	8"	9"	8"	6"	5"
28"	9"	9"	8"	7"	6"
30"	9"	10"	9"	8"	7"
32"	10"	11"	10"	9"	8"
34"	11"	12"	11"	10"	9"
36"	12"	13"	12"	11"	10"
38"	13"	14"	13"	12"	11"
40"	13"	16"	14"	13"	12"
42"	14"	17"	16"	14"	13"
44"	15"	18"	17"	16"	14"
46"	16"	19"	18"	17"	16"
48"	17"	20"	19"	18"	17"
50"	18"	21"	20"	19"	18"
52"	18"	22"	21"	20"	19"

Red-S™ Trusses

Truss Depth	Round Duct Size	Rectangular Duct Height			
		4"	6"	8"	10"
16"	7"	7"	5"	3"	2"
18"	7"	8"	6"	4"	3"
20"	8"	8"	7"	5"	4"
22"	8"	9"	7"	6"	5"
24"	9"	10"	9"	7"	6"
26"	10"	12"	10"	9"	7"
28"	11"	13"	12"	10"	9"
30"	12"	14"	13"	12"	10"
32"	13"	16"	14"	13"	12"
34"	14"	17"	16"	14"	13"
36"	15"	18"	17"	16"	14"
38"	16"	20"	18"	17"	16"
40"	17"	21"	20"	18"	17"
42"	18"	23"	21"	20"	18"
44"	19"	24"	23"	21"	20"
46"	20"	25"	24"	23"	21"
48"	21"	27"	25"	24"	23"

Red-H™ Trusses

Truss Depth	Round Duct Size	Rectangular Duct Height			
		4"	6"	8"	10"
24"	7"	7"	6"	5"	4"
26"	7"	8"	7"	5"	4"
28"	8"	8"	7"	6"	5"
30"	9"	9"	8"	7"	6"
32"	9"	10"	9"	8"	7"
34"	10"	11"	10"	9"	8"
36"	11"	12"	11"	10"	9"
38"	12"	14"	12"	11"	10"
40"	13"	15"	14"	12"	11"
42"	14"	16"	15"	14"	12"
44"	14"	17"	16"	15"	14"
46"	15"	18"	17"	16"	15"
48"	16"	19"	18"	17"	16"
50"	17"	20"	19"	18"	17"
52"	18"	21"	20"	19"	18"
54"	18"	22"	21"	20"	19"
56"	19"	23"	22"	21"	20"
58"	20"	24"	23"	22"	21"
60"	21"	25"	24"	23"	22"
62"	22"	26"	25"	24"	23"
64"	23"	27"	26"	25"	24"
66"	23"	29"	27"	26"	25"
68"	24"	30"	29"	27"	26"
70"	25"	31"	30"	29"	27"
72"	26"	32"	31"	30"	29"

General Notes

- Widths shown are the minimum allowable openings based on heaviest loads (shortest panels). Check with your RedBuilt representative for more precise sizing, including larger openings.
- Tables are applicable only for uniform loads.

For trusses designed for office floor conditions requiring concentrated loads, or for any other non-uniform loads, contact your RedBuilt representative.