

METRO ROOF PRODUCTS

Panel & Accessory Estimating Formulas

GENERAL:

To accurately estimate the number of panels and accessories needed for the roof, Metro uses the exact panel count method, which includes waste panels for cuts at the Hip & Valley areas of the roof. Metro Tile & Shake panels use the same formulas and Roman Tile, and Shingle use formulas unique to these profiles. **△ Make sure you are using the correct formula for the profile you are estimating.**

ESTIMATING A STRAIGHT GABLE ROOF

(Tile or Shake)

Verify both rafters on each gable side are the same size, if they are not treat each side as a separate roof section as follows;

Rafter length 18' ÷ by 1.208 = **14.90 panels** (Rows Fascia to ridge)

Roof length = 50' ÷ by 4.166 = **12.00 panels** (Panels Gable to gable)

Section (A)

Rafter 15 panels

Roof X 12 panels

180 panels

X 2 other side of gable

360 panels ÷ by 20 (Panels per/Sq) = **18 Sq's.**

(NOTE: The panel qty was rounded up to nearest full panel and no Hip or Valleys so no extra panels are needed for waste).

ESTIMATING A COMPLEX ROOF

(Tile or Shake)

With a complex roof design that has multiple sections with Hips & Valleys it's necessary to select the largest section and convert to a straight gable. Label each section (A, B, C, etc.). The Hips & Valleys will be taken care of during the calculation for waste later on.

Section (A) (Tile or Shake)

Rafter length 11.45' ÷ by 1.208 = **10 panels** (Rounded up Fascia to ridge)

Roof length 37.99' ÷ by 4.166 = **10 panels** (Rounded up Gable to gable)

10 X 10 = 100 X 2 (both sides of roof) = **Section (A) 200 panels**

Section (B) (Tile or Shake)

Rafter length 9'.5" ÷ by 1.208 = **10 panels** (Rounded up Fascia to ridge)

Roof length 18' ÷ by 4.166 = **5 panels** (Rounded up Gable to gable)

10 X 5 = 50 X 2 (both sides of roof) = **Section (B) 100 panels**

Section (C) (Tile or Shake)

Rafter length 6'.7" ÷ by 1.208 = **6 panels** (Rounded up Fascia to ridge)

Roof length 8' ÷ by 4.166 = **2 panels** (Rounded up Gable to gable)

6 X 2 = 12 X 2 (both sides of roof) = **Section (C) 24 panels**

TOTALS:

Section (A) 200, + (B) 100, + (C) 24 panels = 324 Panels + Waste.

WASTE: (Formula is Lin ft X .4 = # of pcs extra)

Total lineal feet of **HIP & VALLEY 92' X .4 = 37 panels** for cuts

TOTAL PANELS 361 ÷ by 20 (pcs per Sq) = 18.05 Sq. Tile or Shake

Metro **TILE & SHAKE 20-pcs Sq.**

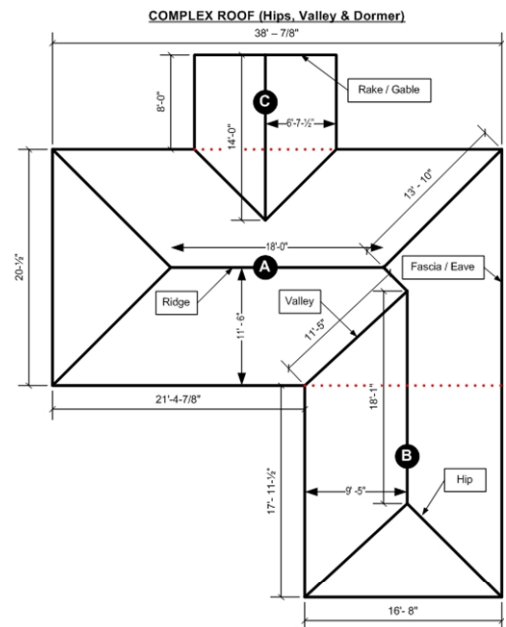
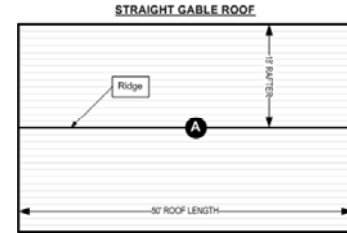
FORMULAS:

You can either use the attached **RAFTER** and **ROOF** length charts to calculate the exact number of course from Fascia-Ridge and Gable-Gable for a specific profile or use the following divisible formulas to calculate the number of courses from the fascia / eave to the ridge and from one side of the roof to the other.

TILE or SHAKE

RAFTER Lin ft ÷ by (14-1/2") or **1.208** = # courses (fascia-ridge)

ROOF Lin ft ÷ by (50") or **4.166** = # panels (gable-gable)



ESTIMATING ACCESSORIES (Tile or Shake)

TRIM CAPS: (Barrel or 'V' Trim)

Total Lin ft. of Ridge, Hip and Rake if trim caps will be used at this location), divide by 1.17 = # of caps plus extra for cuts.

117' + by **1.17** = 100 caps + 6 for cuts = **Total Caps = 106 pcs.**

OTHER ITEMS

Refer to the attached ORDER FORMS or visit the Metro Website www.metroroofs.com for these forms, that describe the respective per sq formulas.

TILE Panel Calculation Chart - 20-pcs / SQ

Rafter Length in feet	TILE PANEL Courses from Fascia to Ridge	Overall Roof Length in feet	TILE PANELS Across from rake to rake	TILE
1' - 1-1/2"	1	4' - 2-3/4"	1	TILE PANEL DIMENSIONS (Cover Lengths)
2' - 4"	2	8' - 5-1/2"	2	
3' - 6-1/2"	3	12' - 8-1/4"	3	
4' - 9"	4	16' - 11"	4	
5' - 11-1/2"	5	21' - 1-3/4"	5	
7' - 2"	6	25' - 4-1/2"	6	
8' - 4-1/2"	7	29' - 7-1/4"	7	
9' - 7"	8	33' - 10"	8	
10' - 9-1/2"	9	38' - 3/4"	9	
12' - 0"	10	42' - 3-1/2"	10	
13' - 2-1/2"	11	46' - 6-1/4"	11	Cover Length = 50-3/4"
14' - 5"	12	50' - 9"	12	COVER = 20 - panels per Sq
15' - 7-1/2"	13	54' - 11-3/4"	13	(actual = 20.30135panels)
17' - 10"	14	59' - 2-1/2"	14	
18' - 1-1/2"	15	63' - 5-1/4"	15	
19' - 3"	16	67' - 8"	16	
20' - 5-1/2"	17	71' - 10-3/4"	17	
21' - 8"	18	76' - 1-1/2"	18	
22' - 10-1/2"	19	80' - 4-1/4"	19	
24' - 1"	20	84' - 7"	20	
25' - 3-1/2"	21	88' - 9-3/4"	21	
26' - 6"	22	93' - 1/2"	22	
27' - 8-1/2"	23	97' - 3-1/4"	23	
28' - 11"	24	101' - 6"	24	
30' - 1-1/2"	25	105' - 8-3/4"	25	
31' - 4"	26	109' - 11-1/2"	26	
32' - 6-1/2"	27	114' - 2-1/4"	27	
33' - 9"	28	118' - 5"	28	
34' - 11-1/2"	29	122' - 7-3/4"	29	
36' - 2"	30	126' - 10-1/2"	30	
37' - 4-1/2"	31	131' - 1-1/4"	31	
38' - 7"	32	135' - 4"	32	
39' - 9-1/2"	33	139' - 6-3/4"	33	
41' - 0"	34	143' - 9-1.2"	34	
42' - 2-1/2"	35	148' - 1/4"	35	
43' - 5"	36	152' - 3"	36	
44' - 7-1/2"	37	156' - 5-3/4"	37	
45' - 10"	38	160' - 8-1/2"	38	
47' - 1/2"	39	164' - 11-1/4"	39	
48' - 3"	40	169' - 2"	40	
49' - 5-1/2"	41	173' - 4-3/4"	41	
50' - 8"	42	177' - 7-1/2"	42	
51' - 10-1/2"	43	181' - 10-1/4"	43	

SHAKE Panel Calculation Chart - 20-pcs / SQ

Rafter Length in feet	SHAKE PANEL Courses from Fascia to Ridge	Overall Roof Length in feet	SHAKE PANELS Across from rake to rake	SHAKE	
1' - 1-1/2"	1	4' - 1-1/2"	1	SHAKE PANEL DIMENSIONS (Cover Lengths)	
2' - 4"	2	8' - 3"	2		
3' - 6-1/2"	3	12' - 4-1/2"	3		
4' - 9"	4	16' - 6"	4		
5' - 11-1/2"	5	20' - 7-1/2"	5		Cover Depth = 14-1/2"
7' - 2"	6	24' - 9"	6		Cover Length = 49-1/2"
8' - 4-1/2"	7	28' - 10-1/2"	7		COVER = 20 - panels per Sq
9' - 7"	8	33' - 0"	8		(actual = 20.0627panels)
10' - 9-1/2"	9	37' - 1-1/2"	9		
12' - 0"	10	41' - 3"	10		
13' - 2-1/2"	11	45' - 4-1/2"	11		
14' - 5"	12	49' - 6"	12		
15' - 7-1/2"	13	53' - 7-1/2"	13		
17' - 10"	14	57' - 9"	14		
18' - 1-1/2"	15	61' - 10-1/2"	15		
19' - 3"	16	66' - 0"	16		
20' - 5-1/2"	17	70' - 1-1/2"	17		
21' - 8"	18	74' - 3"	18		
22' - 10-1/2"	19	78' - 4-1/2"	19		
24' - 1"	20	82' - 6"	20		
25' - 3-1/2"	21	86' - 7-1/2"	21		
26' - 6"	22	90' - 9"	22		
27' - 8-1/2"	23	94' - 10-1/2"	23		
28' - 11"	24	99' - 0"	24		
30' - 1-1/2"	25	103' - 1-1/2"	25		
31' - 4"	26	107' - 3"	26		
32' - 6-1/2"	27	111' - 4-1/2"	27		
33' - 9"	28	115' - 6"	28		
34' - 11-1/2"	29	119' - 7-1/2"	29		
36' - 2"	30	123' - 9"	30		
37' - 4-1/2"	31	127' - 10-1/2"	31		
38' - 7"	32	132' - 0"	32		
39' - 9-1/2"	33	136' - 1-1/2"	33		
41' - 0"	34	140' - 3"	34		
42' - 2-1/2"	35	144' - 4-1/2"	35		
43' - 5"	36	148' - 6"	36		
44' - 7-1/2"	37	152' - 7-1/2"	37		
45' - 10"	38	156' - 9"	38		
47' - 1-1/2"	39	160' - 10-1/2"	39		
48' - 3"	40	165' - 0"	40		
49' - 5-1/2"	41	169' - 1-1/2"	41		
50' - 8"	42	173' - 3"	42		
51' - 10-1/2"	43	177' - 4-1/2"	43		

METRO ROOF PRODUCTS

Panel & Accessory Estimating Formulas

Metro **ROMAN TILE 21-pcs Sq.**

GENERAL:

To accurately estimate the number of panels and accessories needed for the roof, Metro uses the exact panel count method, which includes waste panels for cuts at the Hip & Valley areas of the roof. Metro Tile & Shake panels use the same formulas and Roman Tile, and Shingle use formulas unique to these profiles. **△ Make sure you are using the correct formula for the profile you are estimating.**

ESTIMATING A STRAIGHT GABLE ROOF

(Roman Tile)

Verify both rafters on each gable side are the same size, if they are not treat each side as a separate roof section as follows;

Rafter length 18' ÷ by 1.208 = **14.90 panels** (Rows Fascia to ridge)

Roof length = 50' ÷ by 4.000 = **12.50 panels** (Panels Gable to gable)

Section (A)

Rafter 15 panels

Roof X **13 panels**

195 panels

X 2 other side of gable

390 panels ÷ by 21 (Panels per/Sq) = **18.6 Sq's.**

(NOTE: The panel qty was rounded up to nearest full panel and no Hip or Valleys so no extra panels are needed for waste).

ESTIMATING A COMPLEX ROOF

(Roman Tile)

With a complex roof design that has multiple sections with Hips & Valleys it's necessary to select the largest section and convert to a straight gable. Label each section (A, B, C, etc.). The Hips & Valleys will be taken care of during the calculation for waste later on.

Section (A) (Roman Tile)

Rafter length 11.45" ÷ by 1.208 = **10 panels** (Rounded up Fascia to ridge)

Roof length 37.99' ÷ by 4.000 = **10 panels** (Rounded up Gable to gable)

10 X 10 = 100 X 2 (both sides of roof) = **Section (A) 200 panels**

Section (B) (Roman Tile)

Rafter length 9'.5" ÷ by 1.208 = **10 panels** (Rounded up Fascia to ridge)

Roof length 18' ÷ by 4.000 = **5 panels** (Rounded up Gable to gable)

10 X 5 = 50 X 2 (both sides of roof) = **Section (B) 100 panels**

Section (C) (Roman Tile)

Rafter length 6'.7" ÷ by 1.208 = **6 panels** (Rounded up Fascia to ridge)

Roof length 8' ÷ by 4.000 = **2 panels** (Rounded up Gable to gable)

6 X 2 = 12 X 2 (both sides of roof) = **Section (C) 24 panels**

TOTALS:

Section (A) 200, + (B) 100, + (C) 24 panels = 324 Panels + Waste.

WASTE: (Formula is Lin ft X .4 = # of pcs extra)

Total lineal feet of **HIP & VALLEY 92' X .4 = 37 panels** for cuts

TOTAL PANELS 361 ÷ by 21 (pcs per Sq) = 17.20 Sq. Roman Tile

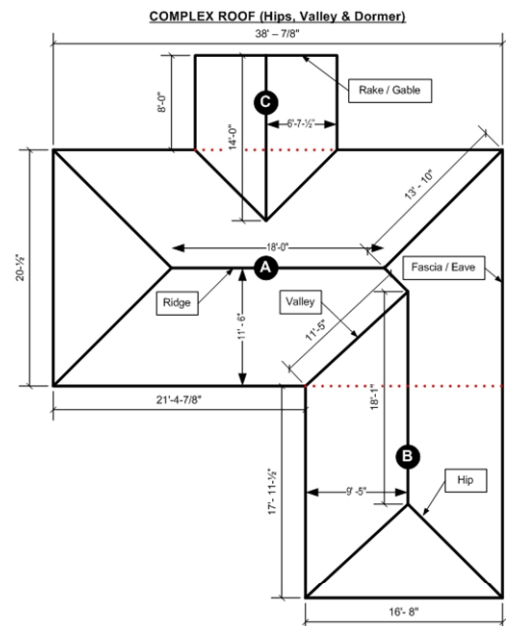
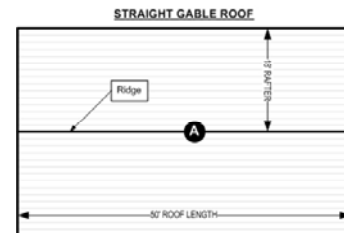
FORMULAS:

You can either use the attached RAFTER and ROOF length charts to calculate the exact number of course from Fascia-Ridge and Gable-Gable for a specific profile or use the following divisible formulas to calculate the number of courses from the fascia / eave to the ridge and from one side of the roof to the other.

ROMAN TILE

RAFTER Lin ft ÷ by (14-1/2") or **1.208** = # courses (fascia-ridge)

ROOF Lin ft ÷ by (48") or **4.000** = # panels (gable-gable)



ESTIMATING ACCESSORIES (Roman Tile)

TRIM CAPS: (Barrel Trim)

Total Lin ft. of Ridge, Hip and Rake if trim caps will be used at this location), divide by 1.17 = # of caps plus extra for cuts.

117' + by **1.17** = 100 caps + 6 for cuts = **Total Caps = 106 pcs.**

OTHER ITEMS

Refer to the attached ORDER FORMS or visit the Metro Website www.metroroofs.com for these forms, that describe the respective per sq formulas.

ROMAN Panel Calculation Chart - 21-pcs / SQ

Rafter Length in feet	ROMAN PANEL Courses from Fascia to Ridge	Overall Roof Length in feet	ROMAN PANELS Across from rake to rake	ROMAN
1' - 1-1/2"	1	3' - 11-3/4"	1	ROMAN PANEL DIMENSIONS (Cover Lengths) Cover Depth = 14-1/2" Cover Length = 47-75" COVER = 21 - panels per Sq (actual = 20.79798panels)
2' - 4"	2	7' 11-1/2"	2	
3' - 6-1/2"	3	11' - 11-1/4"	3	
4' - 9 "	4	15' - 11"	4	
5' - 11-1/2"	5	19' - 10-3/4"	5	
7' - 2"	6	23' - 10-1/2"	6	
8' - 4-1/2"	7	27' - 10-1/4"	7	
9' - 7"	8	31' - 10"	8	
10' - 9-1/2"	9	35' - 9-3/4"	9	
12' - 0"	10	39' - 8"	10	
13' - 2-1/2"	11	43' - 9-1/4"	11	
14' - 5"	12	47' - 9"	12	
15' - 7-1/2"	13	51' - 8-3/4"	13	
17' - 10"	14	55' - 8-1/2"	14	
18' - 1/2"	15	59' - 8-1/4"	15	
19' - 3"	16	63' - 8"	16	
20' - 5-1/2"	17	67' - 7-3/4"	17	
21' - 8"	18	71' - 7-1/2"	18	
22' - 10-1/2"	19	75' - 7-1/4"	19	
24' - 1"	20	79' - 7"	20	
25' - 3-1/2"	21	83' - 6-3/4"	21	
26' - 6"	22	87' - 6-1/2"	22	
27' - 8-1/2"	23	91' - 6-1/4"	23	
28' - 11"	24	95' - 6"	24	
30' - 1-1/2"	25	99' - 5-3/4"	25	
31' - 4"	26	103' - 5-1/2"	26	
32' - 6-1/2"	27	107' - 5-1/4"	27	
33' - 9"	28	111' - 5"	28	
34' - 11-1/2"	29	115' - 4-3/4"	29	
36' - 2"	30	119' - 4-1/2"	30	
37' - 4-1/2"	31	123' - 4-1/4"	31	
38' - 7"	32	127' - 4"	32	
39' - 9-1/2"	33	131' - 3-3/4"	33	
41' - 0"	34	135' - 3-1/2"	34	
42' - 2-1/2"	35	139' - 3-1/4"	35	
43' - 5"	36	143' - 3"	36	
44' - 7-1/2"	37	147' - 2-3/4"	37	
45' - 10"	38	151' - 2-1/2"	38	
47' - 1/2"	39	155' - 2-1/4"	39	
48' - 3"	40	159' - 2"	40	
49' - 5-1/2"	41	163' - 1-3/4"	41	
50' - 8"	42	167' - 1-1/2"	42	
51' - 10-1/2"	43	171' - 1-1/4"	43	

METRO ROOF PRODUCTS

Panel & Accessory Estimating Formulas

Metro **SHINGLE 31-pcs Sq.**

GENERAL:

To accurately estimate the number of panels and accessories needed for the roof, Metro uses the exact panel count method, which includes waste panels for cuts at the Hip & Valley areas of the roof. Metro Tile & Shake panels use the same formulas and Roman Tile, and Shingle use formulas unique to these profiles. **△ Make sure you are using the correct formula for the profile you are estimating.**

ESTIMATING A STRAIGHT GABLE ROOF

(Shingle)

Verify both rafters on each gable side are the same size, if they are not treat each side as a separate roof section as follows;

Rafter length 18' ÷ by .770 = **23.37 panels** (Rows Fascia to ridge)

Roof length = 50' ÷ by 4.166 = **12.00 panels** (Panels Gable to gable)

Section (A)

Rafter 24 panels

Roof X 12 panels

288 panels

X 2 other side of gable

576 panels ÷ by 31 (Panels per/Sq) = **18.6 Sq's.**

(NOTE: The panel qty was rounded up to nearest full panel and no Hip or Valleys so no extra panels are needed for waste).

ESTIMATING A COMPLEX ROOF

(Shingle)

With a complex roof design that has multiple sections with Hips & Valleys it's necessary to select the largest section and convert to a straight gable. Label each section (A, B, C, etc.). The Hips & Valleys will be taken care of during the calculation for waste later on.

Section (A) (Shingle)

Rafter length 11.45' ÷ by .770 = **15 panels** (Rounded up Fascia to ridge)

Roof length 37.99' ÷ by 4.166 = **10 panels** (Rounded up Gable to gable)

15 X 10 = 150 X 2 (both sides of roof) = **Section (A) 300 panels**

Section (B) (Shingle)

Rafter length 9'.5" ÷ by .770 = **13 panels** (Rounded up Fascia to ridge)

Roof length 18' ÷ by 4.166 = **5 panels** (Rounded up Gable to gable)

13 X 5 = 65 X 2 (both sides of roof) = **Section (B) 130 panels**

Section (C) (Shingle)

Rafter length 6'.7" ÷ by .770 = **9 panels** (Rounded up Fascia to ridge)

Roof length 8' ÷ by 4.166 = **2 panels** (Rounded up Gable to gable)

9 X 2 = 18 X 2 (both sides of roof) = **Section (C) 36 panels**

TOTALS:

Section (A) 300, + (B) 130, + (C) 36 panels = 466 Panels + Waste.

WASTE: (Formula is Lin ft X.4 = # of pcs extra)

Total lineal feet of **HIP & VALLEY 92' X .66** = 61 panels for cuts

TOTAL PANELS 527 ÷ by 31 (pcs per Sq) = 17 Sq. Shingle

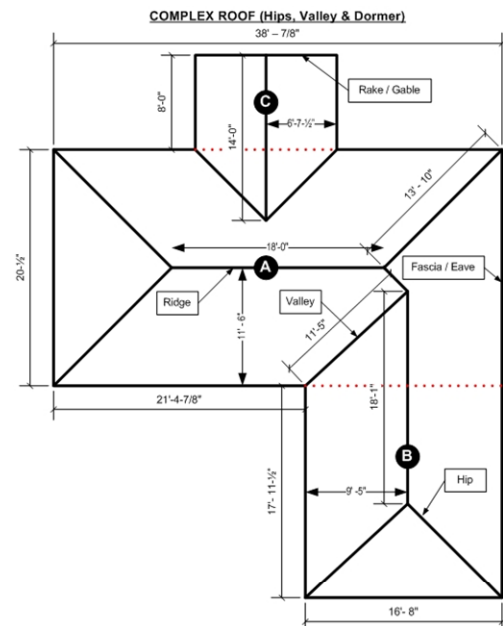
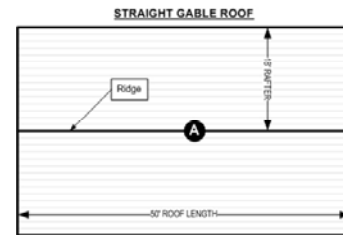
FORMULAS:

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SHINGLE

RAFTER Lin ft ÷ by (9-1/4") or .770 = # courses (fascia-ridge)

ROOF Lin ft ÷ by (50") or 4.166 = # panels (gable-gable)



ESTIMATING ACCESSORIES (Shingle)

TRIM CAPS: (Shingle Cap)

Total Lin ft. of Ridge & Hip, divide by .77 = # of caps plus extra for cuts.

117' + by .77 = 152 caps + 6 for cuts = **Total Caps = 158 pcs.**

OTHER ITEMS

Refer to the attached ORDER FORMS or visit the Metro Website www.metroroofs.com for these forms, that describe the respective per sq formulas.

SHINGLE Panel Calculation Chart - 31-pcs / SQ

Rafter Length in feet	SHINGLE PANEL Courses from Fascia to Ridge	Overall Roof Length in feet	SHINGLE PANELS Across from rake to rake	SHINGLE
9-1/2"	1	4' - 3/4"	1	SHINGLE PANEL DIMENSIONS (Cover Lengths)
1' - 7"	2	8' - 1-1/2"	2	
2' - 4-1/2"	3	12' - 2-1/4"	3	Cover Depth = 9-1/2"
3' - 2"	4	16' - 3"	4	Cover Length = 48-3/4"
3' - 11-1/2"	5	20' - 3-3/4"	5	COVER = 31 - panels per Sq
4' - 9"	6	24' - 4-1/2"	6	(actual = 31.09312panels)
5' - 6-1/2"	7	28' - 5-1/4"	7	
6' - 4"	8	32' - 6"	8	
7' - 1-1/2"	9	36' - 3/4"	9	
7' - 11"	10	40' - 7-1/2"	10	
8' - 8-1/2"	11	44' - 8-1/4"	11	
9' - 6"	12	48' - 9"	12	
10' - 3-1/2"	13	52' - 9-3/4"	13	
11' - 1"	14	56' - 10-1/2"	14	
11' - 10-1/2"	15	60' - 11-1/4"	15	
12' - 8"	16	65' - 0"	16	
13' - 5-1/2"	17	69' - 3/4"	17	
14' - 3"	18	73' - 1-1/2"	18	
15' - 1/2"	19	77' - 2-1/4"	19	
15' - 10"	20	81' - 3"	20	
16' - 7-1/2"	21	85' - 3-3/4"	21	
17' - 5"	22	89' - 4-1/2"	22	
18' - 2-1/2"	23	93' - 5-1/4"	23	
19' - 0"	24	97' - 6"	24	
19' - 9-1/2"	25	101' - 6-3/4"	25	
20' - 7"	26	105' - 7-1/2"	26	
21' - 4-1/2"	27	109' - 8-1/4"	27	
22' - 2"	28	113' - 9"	28	
22' - 11-1/2"	29	117' - 9-3/4"	29	
23' - 9"	30	121' - 10-1/2"	30	
24' - 6-1/2"	31	125' - 11-1/4"	31	
25' - 4"	32	130' - 0"	32	
26' - 1-1/2"	33	134' - 3/4"	33	
26' - 11"	34	138' - 1-1/2"	34	
27' - 8-1/2"	35	142' - 2-1/4"	35	
28' - 6"	36	146' - 3"	36	
29' - 3-1/2"	37	150' - 3-3/4"	37	
30' - 1"	38	154' - 4-1/2"	38	
30' - 10-1/2"	39	158' - 5-1/4"	39	
31' - 8"	40	162' - 6"	40	
32' - 5-1/2"	41	166' - 3/4"	41	
33' - 3"	42	170' - 7-1/2"	42	
34' - 1/2"	43	174' - 8-1/4"	43	