

Selected Color Filters for B&W Cinematography  
Daylight exteriors

Kodak Wratten #	Color	Effect/Use	Average Exposure	
			Factor	T/stop Increase
3	Light Yellow	Slight correction	1.5	$\frac{1}{2}$
8	Yellow	Corrects color rendition to visual appearance as gray	2	1
12	Deep yellow	Slight over correction. Useful in aerial cinematography.	2	1
15	Deep yellow	Greater contrast. Useful with tele lenses and for aerial cinematography.	3-	$1\frac{1}{2}$
21	Orange	Same but stronger than #15. Makes blue water dark.	3+	$1\frac{1}{2}$
23A	Light red	Moderate over correction. not for close ups—whitens faces.	5	$2\frac{1}{2}$
25	Red	Very dark sky. Day-for-night (Complete red separation) No faces!	8 (Reversal film 10)	3 ( $3\frac{1}{2}$ )
29	Deep red	Black Sky, greenery. Day for night. No faces!	25 (Reversal film 40)	$4\frac{1}{2}$ ( $5\frac{1}{2}$ )
11	Yellowish green	Similar to #8 but better flesh tones and flower colors.	2	1
56	Light green	Darkens sky, lightens foliage.	4	2
58	Green	(Complete green separation) Lightens dark foliage, darkens sky.	6	$2\frac{1}{2}$
47	Blue	(Complete blue separation) Accentuates haze. Darkens reds, lightens blues.	5	$2\frac{1}{2}$
23A+56		Helps flesh rendition for Day-for-night. Darkens sky.	Day-for-night 6	$2\frac{3}{4}$

Color filters for altering B&W contrast of colored subjects

Wratten #	Color of Subject					Tungsten Exposure	
	Blue	Green	Yellow	Red	Factor	T/stop Increase	
3	Very Slightly Darker	Very Slightly Lighter	Very Slightly Lighter	Very Slightly Lighter	M/R		
8	Slightly Darker	Very Slightly Lighter	Slightly Lighter	Very Slightly Lighter	1.5	$\frac{1}{2}$	
12	Fairly Dark	Fairly Light	Light	Fairly Light	1.5	$\frac{1}{2}$	
15	Dark	Light	Very Light	Light	2	1	
21	Dark	Very Slightly Darker	Very Light	Very Light	4	2	
23A	Very Dark	Dark	Slightly Lighter	Very Light	3	$1\frac{1}{2}$	
25	Black	Very Dark	Fairly Light	Very Light	6	$2\frac{1}{2}$	
29	Black	Black	Very Light	White	4	2	
11	Fairly Dark	Light	Fairly Light	Medium Dark	3	$1\frac{1}{2}$	
56	Fairly Dark	Fairly Light	Slightly Lighter	Fairly Dark	6	$2\frac{1}{2}$	
58	Very Dark	Very Light	Light	Very Dark	8	3	
47	White	Dark	Very Dark	Black	8	3	
23A+56	Very Dark	Very Dark	White	Light			

Note: Relative to a neutral gray subject, any given filter will render its own color lighter and its complementary color darker.

16mm CAMERA DEPTH-OF-FIELD, HYPERFOCAL DISTANCE & FIELD OF VIEW												
LENS FOCAL LENGTH: 9.5mm												CIRCLE OF CONFUSION = .0006" (6/10,000")
HYPER FOCAL DISTANCE	19.43'	13.88'	9.71'	6.94'	4.86'	3.47'	2.43'	1.77'	1.21'	0.88'	0.61'	FIELD OF VIEW (w/ projected Image)
	f/1	f/1.4	f/2	f/2.8	f/4	f/5.6	f/8	f/11	f/16	f/22	f/32	STD & TV (.380" x .286")
LENS FOCUS (FEET)	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	SUPER 16 1.85:1 AR (.463" x .251")
25	12' INF	9' INF	7' INF	5' INF	4' INF	3' INF	2' INF	1' INF	1' INF	1' INF	1' INF	25'.4" x 19'.1" 30'.11" x 16'.9"
15	8'.6" 66'	7'.3" INF	5'.11" INF	5' INF	4' INF	3' INF	2' INF	1' INF	1' INF	1' INF	1' INF	15'.3" x 11'.5" 18'.6" x 10'.1"
8	5'.8" 13'.7"	5'.1" 19'	4'.5" 45'	3'.9" INF	3'.0" INF	2'.5" INF	1'.10" INF	1'.5" INF	1'.0" INF	0'.10" INF	0'.7" INF	8'.1" x 6'.1" 9'.10" x 5'.4"
6	4'.7" 8'.8"	4'.2" 10'.7"	3'.9" 15'.8"	3'.3' 44'	2'.8" INF	2'.2" INF	1'.9" INF	1'.4" INF	1'.0" INF	0'.9" INF	0'.7" INF	6'.1" x 4'.7" 7'.5" x 4'.0"
4	3'.4" 5'.0"	3'.1 1/2" 5'.7"	2'.10" 6'.10"	2'.6" 9'.5"	2'.2" 23'	1'.10" INF	1'.6" INF	1'.3" INF	0'.11" INF	0'.9" INF	0'.6" INF	4'.0" x 3'.0" 4'.11" x 2'.8"
3	2'.7 1/4" 3'.6 1/2"	2'.5 1/4" 3'.10"	2'.3 1/2" 4'.4"	2'.1" 5'.3"	1'.10" 7'.10"	1'.7" 22'	1'.4" INF	1'.1" INF	0'.10" INF	0'.8" INF	0'.6" INF	3'.0" x 2'.3" 3'.8" x 2'.0"
2	1'.9 3/4" 2'.2 3/4"	1'.9" 2'.4"	1'.8" 2'.6"	1'.6 1/2" 2'.9 1/2"	1'.5" 3'.5"	1'.3" 4'.9"	1'.1" 11'.4"	0'.11" INF	0'.9" INF	0'.7" INF	0'.6" INF	2'.0" x 1'.6" 2'.5" x 1'.4"
1.5	1'.4 3/4" 1'.7 1/2"	1'.4 1/4" 1'.8 1/4"	1'.3 1/2" 1'.9 1/4"	1" 2'.3 1/4"	1'.1 3/4" 2'.2"	1'.1 1/2" 2'.7 1/2"	0'.11" 3'.1"	0'.9 1/2" 9'.11"	0'.8" INF	0'.6 1/2" INF	0'.5" INF	1'.6" x 1'.1" 1'.10" x 1'.0"
1	0'.11 1/2" 1'.1 1/2"	0'.11 1/4" 1'.1"	0'.11" 1'.1 1/4"	0'.10 1/2" 1'.2"	0'.10" 1'.3"	0'.9 1/4" 1'.4 3/4"	0'.8 1/2" 1'.8 1/2"	0'.7 3/4" 2'.4"	0'.6 1/2" 5'.8"	0'.5 1/2" INF	0'.4 1/2" INF	1'.0" x 0'.9" 1'.3" x 0'.8"

16mm CAMERA DEPTH-OF-FIELD, HYPERFOCAL DISTANCE & FIELD OF VIEW												
LENS FOCAL LENGTH: 12mm												CIRCLE OF CONFUSION = .0006" (6/10,000")
HYPER FOCAL DISTANCE	31.00'	22.14'	15.50'	11.07'	7.75'	5.54'	3.88'	2.82'	1.94'	1.41'	0.97'	FIELD OF VIEW (w/ projected Image)
	f/1	f/1.4	f/2	f/2.8	f/4	f/5.6	f/8	f/11	f/16	f/22	f/32	STD & TV (.380" x .286")
LENS FOCUS (FEET)	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	SUPER 16 1.85:1 AR (.463" x .251")
25	1' 4" 129'	1' 2" INF	1' 0" INF	8' INF	6' INF	5' INF	3' INF	3' INF	2' INF	1' INF	1' INF	20' 1" x 15' 1" 24' 6" x 13' 3"
15	10' 1" 29'	8' 11" 46'	7' 8" 465'	6' 4" INF	5' 1" INF	4' INF	3' INF	2' INF	2' INF	1' INF	1' INF	12' 0" x 9' 1" 14' 8" x 7' 11"
8	6' 4" 10' 9"	5' 11" 12' 6"	5' 3" 16' 6"	4' 8" 29'	3' 11" INF	3' 3" INF	2' 7" INF	2' 0" INF	1' 7" INF	1' 0" INF	0' 10" INF	6' 5" x 4' 10" 7' 10" x 4' 3"
6	5' 1/2" 7' 5"	4' 9" 8' 3"	4' 4" 9' 9"	3' 11" 13' 1"	3' 5" 27'	2' 11" INF	2' 4" INF	1' 11" INF	1' 6" INF	1' 0" INF	0' 10" INF	4' 10" x 3' 7" 5' 10" x 3' 2"
4	3' 6 1/2" 4' 7"	3' 4' 1/2" 4' 10 1/2"	3' 2" 5' 5"	2' 11" 6' 3"	2' 8" 8' 3"	2' 4 14'	2' 0" INF	1' 8" INF	1' 4" INF	1' 0" INF	0' 9" INF	3' 2" x 2' 5" 3' 11" x 2' 1"
3	2' 9" 3' 3 3/4"	2' 7 3/4" 3' 5 3/4"	2' 6" 3' 8 1/2"	2' 4' 1/2" 4' 1"	2' 2" 4' 11"	1' 11" 6' 7"	1' 8" 13'	1' 5" INF	1' 2" INF	1' 0" INF	0' 9" INF	2' 5" x 1' 9" 2' 11" x 1' 7"
2	1' 10 1/2" 2' 1 3/4"	1' 10" 2' 2' 1/2"	1' 9 1/4" 2' 3' 1/2"	1' 8 1/4" 2' 5 1/4"	1' 7" 2' 8 1/2"	1' 5 1/2" 3' 2"	1' 4" 4' 2"	1' 2" 6' 11"	1' 0" INF	0' 10" INF	0' 8" INF	1' 7" x 1' 2" 1' 11" x 1' 0"
1.5	1' 5 1/4" 1' 7"	1' 4' 3/4" 1' 7 1/4"	1' 4' 1/2" 1' 8"	1' 3' 3/4" 1' 9"	1' 3" 1' 10 1/4"	1' 2' 1/2" 2' 1/2"	1' 1" 2' 5 1/2"	1' 0" 3' 2"	0' 10" 6' 8"	0' 9" INF	0' 7" INF	1' 2" x 0' 11" 1' 5" x 0' 9"
1	0' 11 3/4" 1' 1 1/4"	0' 11 1/2" 1' 1' 1/2"	0' 11 1/4" 1' 3' 1/4"	0' 11" 1' 1' 1/4"	0' 10 3/4" 1' 1' 3/4"	0' 10 1/4" 1' 2' 3/4"	0' 9 1/2" 1' 4' 1/4"	0' 9" 1' 6' 1/2"	0' 8" 2' 1"	0' 7" 3' 5"	0' 6" INF	0' 9" x 0' 7" 0' 11" x 0' 6"

16mm CAMERA DEPTH-OF-FIELD, HYPERFOCAL DISTANCE & FIELD OF VIEW												
LENS FOCAL LENGTH: 16mm											CIRCLE OF CONFUSION = .0006" (6/10,000")	
HYPER FOCAL DISTANCE	55.11'	39.37'	27.56'	19.68'	13.78'	9.84'	6.89'	5.01'	3.44'	2.51'	1.72'	FIELD OF VIEW (w/ projected Image)
	f/1	f/1.4	f/2	f/2.8	f/4	f/5.6	f/8	f/11	f/16	f/22	f/32	STD & TV (.380" x .286")
LENS FOCUS (FEET)	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	
50	26' 539'	22' INF	18' INF	14' INF	11' INF	8' INF	6' INF	5' INF	3' INF	2' INF	2' INF	30' 2" x 22' 8" 36' 9" x 19' 11"
25	17' 2" 46'	15' 4" 69'	13' 270'	11' INF	9' INF	7' INF	5' INF	4' INF	3' INF	2' INF	2' INF	15' 1" x 11' 4" 18' 4" x 9' 11"
15	12' 0" 20' 7"	10' 10" 24' 3"	9' 9" 33'	8' 6" 63'	7' 2" INF	5' 11" INF	5' INF	4' INF	3' INF	2' INF	2' INF	9' 0" x 6' 9" 11' 0" x 6' 0"
10	8' 6" 12' 3"	8' 0" 13' 5"	7' 4" 15' 8"	6' 8" 20'	5' 0" 36'	5' 0" INF	4' 1" INF	3' 4" INF	2' 7" INF	2' 0" INF	1' 6" INF	6' 0" x 4' 6" 7' 4" x 4' 0"
8	7' 0" 9' 4"	6' 8" 10' 0"	6' 2" 11' 3"	5' 8" 13' 6"	5' 1" 19'	4' 5" 43'	3' 8" INF	3' 1" INF	2' 5" INF	1' 11" INF	1' 5" INF	4' 9" x 3' 7" 5' 10" x 3' 2"
6	5' 5" 6' 9"	5' 2 1/2" 7' 1"	4' 11" 7' 8"	4' 7" 8' 8"	4' 2" 10' 7"	3' 9" 15' 4"	3' 3" 46'	2' 9" INF	2' 2" INF	1' 9" INF	1' 4" INF	3' 7" x 2' 8" 4' 4" x 2' 4"
5	4' 7" 5' 6"	4' 5 1/2" 5' 9"	4' 3" 6' 1"	4' 0" 6' 8"	3' 8" 7' 10"	3' 4" 10' 2"	2' 11" 18'	2' 6" INF	2' 1" INF	1' 8" INF	1' 3/4" INF	3' 0" x 2' 3" 3' 8" x 2' 0"
4	3' 8 3/4" 4' 3 3/4"	3' 7 1/2" 4' 5 1/2"	3' 6" 4' 8"	3' 4" 5' 0"	3' 1" 5' 8"	2' 10" 6' 9"	2' 6" 9' 7"	2' 3" 20'	1' 10" INF	1' 7" INF	1' 2" INF	2' 5" x 1' 9" 2' 11" x 1' 7"
3	2' 10 1/4" 3' 2"	2' 9 1/2" 3' 3"	2' 8 1/2" 3' 4 1/2"	2' 7 1/4" 3' 6 1/2"	2' 5 1/2" 3' 10"	2' 3 1/2" 4' 4"	2' 1" 5' 4"	1' 11" 7' 6"	1' 7" 23'	1' 4" INF	1' 1 1/8" INF	1' 9" x 1' 4" 2' 2" x 1' 2"
2	1' 11 1/4" 2' 1"	1' 10 3/4" 2' 1 1/4"	1' 10 1/4" 2' 2"	1' 9 3/4" 2' 2 3/4"	1' 9" 2' 4"	1' 8" 2' 6"	1' 6 1/2" 2' 10"	1' 5" 3' 4"	1' 3" 4' 9"	1' 1 1/2" 9' 11"	0' 11" INF	1' 2" x 0' 11" 1' 5" x 0' 9"

16mm CAMERA DEPTH-OF-FIELD, HYPERFOCAL DISTANCE & FIELD OF VIEW												
LENS FOCAL LENGTH: 25mm											CIRCLE OF CONFUSION = .0006" (6/10,000")	
HYPER FOCAL DISTANCE	134.6'	96.11'	62.27'	48.05'	33.64'	24.03'	16.82'	12.23'	8.41'	6.12'	4.20'	FIELD OF VIEW (w/ projected Image)
	f/1	f/1.4	f/2	f/2.8	f/4	f/5.6	f/8	f/11	f/16	f/22	f/32	STD & TV (.380" x .286")
LENS FOCUS (FEET)	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	SUPER 16 1.85:1 AR (.463" x .251")
50	36' 80'	33' 104'	29' 195'	25' INF	20' INF	16' INF	13' INF	10' INF	7' INF	5' INF	4' INF	19' 3" x 14' 6" 23' 6" x 12' 9"
25	21' 1" 30' 8"	19' 10" 33' 9"	18' 3" 40'	16' 5" 52'	14' 98'	12' INF	10' INF	8' INF	6' INF	5' INF	4' INF	9' 7" x 7' 3" 11' 9" x 6' 4"
15	13' 6" 16' 11"	13' 0" 17' 9"	12' 3" 19' 4"	11' 5" 21' 10"	10' 5" 27'	9' 3" 40'	7' 11" 139'	6' 9" INF	5' 5" INF	4' INF	3' INF	5' 9" x 4' 4" 7' 0" x 3' 10"
10	9' 3 1/2" 10' 9 1/2"	9' 1/2" 11' 2"	8' 9" 11' 9"	8' 3" 12' 7"	7' 9" 14' 3"	7' 1" 17' 2"	6' 3" 25'	5' 6" 55'	4' 7" INF	3' 10" INF	3' 0" INF	3' 10" x 2' 11" 4' 8" x 2' 6"
8	7' 6 1/2" 8' 6"	7' 4 1/2" 8' 9"	7' 2" 9' 1"	6' 10" 9' 7"	6' 6" 10' 6"	6' 0" 12' 0"	5' 5" 15' 3"	4' 10" 23'	4' 1" 164'	3' 6" INF	2' 9" INF	3' 1" x 2' 4" 3' 9" x 2' 0"
6	5' 9" 6' 3 1/4"	5' 7 3/4" 6' 4 3/4"	5' 6" 6' 7"	5' 4" 6' 10 1/2"	5' 1" 7' 4"	4' 10" 8' 0"	4' 5" 9' 4"	4' 0" 11' 9"	3' 6" 21'	3' 0" 317'	2' 6" INF	2' 3" x 1' 9" 2' 9" x 1' 6"
5	4' 9 3/4" 5' 2 1/4"	4' 9" 5' 3 1/4"	4' 7 3/4" 5' 4 3/4"	4' 6 1/4" 5' 7"	4' 4" 5' 10 1/2"	4' 1 1/2" 6' 4"	3' 10" 7' 1"	3' 7" 8' 5"	3' 2" 12' 4"	2' 9" 27'	2' 3" INF	1' 11" x 1' 5" 2' 4" x 1' 3"
4	3' 10 1/2" 4' 1 1/2"	3' 10" 4' 2"	3' 9 1/4" 4' 3"	3' 8 1/4" 4' 4 1/4"	3' 6 3/4" 4' 6 1/2"	3' 5" 4' 9 1/2"	3' 3" 5' 3"	3' 0" 5' 11"	2' 9" 7' 8"	2' 5" 11' 7"	2' 1" 82'	1' 6" x 1' 2" 1' 10" x 1' 0"
3	2' 11 1/4" 3' 3/4"	2' 11" 3' 1 1/4"	2' 10 1/2" 3' 1 3/4"	2' 9 3/4" 3' 2 1/2"	2' 9" 3' 3 1/2"	2' 8" 3' 5 1/4"	2' 6 1/2" 3' 8"	2' 5" 3' 11 1/2"	2' 2 1/2" 4' 8"	2' 0" 5' 11"	1' 9" 10' 6"	1' 2" x 0' 10" 1' 4" x 0' 9"
2	1' 11 3/4" 2' 1/4"	1' 11 1/2" 2' 1 1/2"	1' 11 1/4" 2' 3/4"	1' 11" 2' 1"	1' 10 3/4" 2' 1 1/2"	1' 10 1/4" 2' 2 1/2"	1' 9 1/4" 2' 3 1/4"	1' 8 3/4" 2' 4 3/4"	1' 7 1/2" 2' 7 1/2"	1' 6" 2' 11 1/2"	1' 4 1/2" 3' 10"	0' 9" x 0' 7" 0' 11" x 0' 6"

16mm CAMERA DEPTH-OF-FIELD, HYPERFOCAL DISTANCE & FIELD OF VIEW												
LENS FOCAL LENGTH: 35mm											CIRCLE OF CONFUSION = .0006" (6/10,000")	
HYPER FOCAL DISTANCE	263.7'	188.4'	131.9'	94.18'	65.93'	47.09'	32.96'	23.97'	16.48'	12.0'	8.24'	FIELD OF VIEW (w/ projected Image)
	f/1	f/1.4	f/2	f/2.8	f/4	f/5.6	f/8	f/11	f/16	f/22	f/32	STD & TV (.380" x .286")
LENS FOCUS (FEET)	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	SUPER 16 1.85:1 AR (.463" x .251")
50	42' 0" 62'	40' 68'	36' 81'	33' 107'	28' 207'	24' INF	20' INF	16' INF	12' INF	10' INF	7' INF	13' 9" x 10' 4" 16' 9" x 9' 1"
25	22' 10" 27' 7"	22' 1" 28' 10"	21' 0" 30' 10"	19' 9" 34' 0"	18' 2" 40'	16' 4" 53'	14' 104'	12' INF	10' INF	8' INF	6' INF	6' 10" x 5' 2" 8' 4" x 4' 6"
15	14' 2 1/2" 15' 11"	13' 11" 16' 4"	13' 6" 16' 11"	12' 11" 17' 10"	12' 3" 19' 5"	11' 5" 22' 0"	10' 4" 28'	9' 3" 40'	7' 10" 167'	6' 8" INF	5' INF	4' 2" x 3' 1" 5' 0" x 2' 9"
10	9' 7 1/2" 10' 4 3/4"	9' 6" 10' 6 1/2"	9' 3 1/2" 10' 10"	9' 1/2" 11' 2"	8' 8" 11' 9"	8' 3" 12' 8"	7' 8" 14' 4"	7' 1" 17' 2"	6' 3" 25'	5' 5" 60'	4' 6" INF	2' 9" x 2' 1" 3' 4" x 1' 10"
8	7' 9" 8' 3"	7' 8" 8' 4 1/4"	7' 6 1/2" 8' 6"	7' 4 1/2" 8' 9"	7' 1 1/2" 9' 1"	6' 10" 9' 7"	6' 5" 10' 7"	6' 0" 12' 0"	5' 5" 15' 6"	4' 10" 24'	4' 1" 273'	2' 2" x 1' 8" 2' 8" x 1' 5"
6	5' 10 1/2" 6' 1 3/4"	5' 9 3/4" 6' 2 1/2"	5' 9" 6' 3 1/2"	5' 7 3/4" 6' 5"	5' 6" 6' 7"	5' 4" 6' 10"	5' 1" 7' 4"	4' 10" 8' 0"	4' 5" 9' 5"	4' 0" 12' 0"	5' 6" 22'	1' 7" x 1" 3" 2" 0" x 1' 1"
5	4' 11" 5' 1 1/4"	4' 10 1/2" 5' 1 3/4"	4' 9 3/4" 5' 2 1/2"	4' 9" 5' 3 1/4"	4' 7 3/4" 5' 5"	4' 6 1/4" 5' 7"	4' 4" 5' 10 1/2"	4' 1 1/2" 6' 4"	3' 10" 7' 2"	3' 6" 8' 7"	3' 1" 12' 9"	1' 4" x 1' 10" 1' 8" x 0' 11"
4	3' 11 1/4" 4' 3/4"	3' 11" 4' 1"	3' 10 1/2" 4' 1 1/2"	3' 10" 4' 2 1/4"	3' 9 1/4" 4' 3"	3' 8 1/4" 4' 4 1/2"	3' 6 3/4" 4' 6 1/2"	3' 5" 4' 9 1/2"	3' 2 1/2" 5' 3"	3' 0" 6' 0"	2' 8" 7' 9"	1' 1" x 0' 10" 1' 4" x 0' 9"
3	2' 11 3/4" 3' 1/4"	2' 11 1/2" 3' 1/2"	2' 11 1/4" 3' 3/4"	2' 11" 3' 1 1/4"	2' 10 1/2" 3' 1 3/4"	2' 9 3/4" 3' 2 1/2"	2' 9" 3' 3 1/2"	2' 8" 3' 5 1/4"	2' 6 1/2" 3' 8"	2' 5" 4' 0"	2' 2 1/2" 4' 9"	0' 10" x 0' 7" 1' 0" x 0' 6"
2	1' 11 3/4" 2' 1/4"	1' 11 3/4" 2' 1/4"	1' 11 3/4" 2' 1/4"	1' 11 1/2" 2' 1 1/2"	1' 11 1/4" 2' 3/4"	1' 11" 2' 1"	1' 10 3/4" 2' 1 1/2"	1' 10 1/4" 2' 2 1/4"	1' 9 1/4" 2' 3 1/4"	1' 8 1/2" 2' 4 3/4"	1' 7 1/4" 2' 7 1/2"	0' 6" x 0' 5" 0' 8" x 0' 4"

16mm CAMERA DEPTH-OF-FIELD, HYPERFOCAL DISTANCE & FIELD OF VIEW												
LENS FOCAL LENGTH: 50mm											CIRCLE OF CONFUSION = .0006" (6/10,000")	
HYPER FOCAL DISTANCE	538.2'	384.4'	269.1'	192.2'	134.6'	96.11'	67.27'	48.93'	33.64'	24.46'	16.82'	FIELD OF VIEW (w/ projected Image)
	f/1	f/1.4	f/2	f/2.8	f/4	f/5.6	f/8	f/11	f/16	f/22	f/32	STD & TV (.380" x .286")
LENS FOCUS (FEET)	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	SUPER 16 1.85:1 AR (.463" x .251")
50	45' 9" 55' 1"	44' 3" 57' 6"	42' 2" 61'	40' 68'	36' 80'	33' 104'	29' 195'	25' INF	20' INF	16' INF	13' INF	9' 7" x 7' 3" 11' 9" x 6' 4"
25	23' 11" 26' 3"	23' 6" 26' 9"	22' 11" 22' 7"	22' 2" 28' 9"	21' 1" 30' 8"	19' 10" 33' 9"	18' 3" 40'	16' 7" 51'	14' 97'	12' INF	10' INF	4' 9" x 3' 7" 5' 10" x 3' 2"
15	14' 7" 15' 5 1/4"	14' 5 1/8" 15' 7 1/2"	14' 2 1/2" 15' 10 1/2"	13' 11" 16' 3"	13' 6" 16' 11"	13' 0" 17' 9"	12' 3" 19' 4"	11' 6" 21' 8"	10' 5" 27'	9' 4" 39'	7' 11" 139'	2' 10" x 2' 2" 3' 6" x 1' 11"
10	9' 9 3/4" 10' 2 1/4"	9' 9" 10' 3 1/2"	9' 7 3/4" 10' 4 3/4"	9' 6" 10' 6 1/2"	9' 3 1/2" 10' 9 1/2"	9' 1/2" 11' 2"	8' 9" 11' 9"	8' 4" 12' 7"	7' 9" 14' 3"	7' 1" 16' 11"	6' 3" 25'	1' 11" x 1' 5" 2' 4" x 1' 3"
8	7' 10 1/2" 8' 1 1/2"	7' 10" 8' 2"	7' 9 1/4" 8' 3"	7' 8 1/4" 8' 4 1/4"	7' 6 1/2" 8' 6"	7' 4 1/2" 8' 9"	7' 2" 9' 1"	6' 11" 9' 7"	6' 6" 10' 6"	6' 0" 11' 11"	5' 5" 15' 3"	1' 6" x 0' 2" 1' 10" x 1' 0"
6	5' 11 1/4" 6' 3/4"	5' 11" 6' 1 1/4"	5' 10 1/2" 6' 1 3/4"	5' 9 3/4" 6' 2 1/4"	5' 9" 6' 3 1/4"	5' 7 3/4" 6' 4 3/4"	5' 6" 6' 7"	5' 4" 6' 10"	5' 1" 7' 4"	4' 10" 7' 11"	4' 5" 9' 4"	1' 2" x 0' 10" 1' 4" x 0' 9"
5	4' 11 1/2" 5' 1/2"	4' 11 1/4" 5' 3/4"	4' 11" 5' 1"	4' 10 1/2" 5' 1 1/2"	4' 9 3/4" 5' 2 1/4"	4' 9" 5' 3 1/4"	4' 7 3/4" 5' 4 3/4"	4' 6 1/2" 5' 7"	4' 4" 5' 10 1/2"	4' 2" 6' 3"	3' 10" 7' 1"	0' 11" x 0' 8" 1' 2" x 0' 7"
4	3' 11 3/4" 4' 1/4"	3' 11 1/2" 4' 1/2"	3' 11 1/4" 4' 3/4"	3' 11" 4' 1"	3' 10 1/2" 4' 1 1/2"	3' 10" 4' 2"	3' 9 1/4" 4' 3"	3' 8 1/2" 4' 4 1/4"	3' 6 3/4" 4' 6 1/2"	3' 5 1/2" 4' 9 1/2"	3' 2 3/4" 5' 3"	0' 9" x 0' 7" 0' 11" x 0' 6"
3	2' 11 3/4" 3' 1/4"	2' 11 3/4" 3' 1/4"	2' 11 3/4" 3' 1/4"	2' 11 1/2" 3' 1/2"	2' 11 1/4" 3' 3/4"	2' 11" 3' 1 1/4"	2' 10 1/2" 3' 1 3/4"	2' 10" 3' 2 1/2"	2' 9" 3' 3 1/2"	2' 8" 3' 5"	2' 6 1/2" 3' 8"	0' 7" x 0' 5" 0' 8" x 0' 4"
2	2' 0" 2' 0"	2' 0" 2' 0"	2' 0" 2' 0"	1' 11 3/4" 2' 1/4"	1' 11 3/4" 2' 1/4"	1' 11 1/2" 2' 1/2"	1' 11 1/4" 2' 3/4"	1' 11" 2' 1"	1' 10 3/4" 2' 1 1/2"	1' 10 1/4" 2' 2 1/4"	1' 9 1/2" 2' 3 1/4"	0' 4" x 0' 3" 0' 5" x 0' 3"

16mm CAMERA DEPTH-OF-FIELD, HYPERFOCAL DISTANCE & FIELD OF VIEW												
LENS FOCAL LENGTH: 85mm											CIRCLE OF CONFUSION = .0006" (6/10,000")	
HYPER FOCAL DISTANCE	1555'	1111'	778.7'	555.5'	389.9'	277.8'	194.4'	141.4'	97.21'	70.70'	48.61'	FIELD OF VIEW (w/ projected Image)
	f/1	f/1.4	f/2	f/2.8	f/4	f/5.6	f/8	f/11	f/16	f/22	f/32	STD & TV (.380" x .286")
LENS FOCUS (FEET)	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	SUPER 16 1.85:1 AR (.463" x .251")
100	94' 0" 106' 10"	91' 9" 109' 11"	89' 115'	85' 122'	80' 135'	74' 156'	66' 206'	59' 342'	49' INF	41' INF	33' INF	11' 4" x 8' 6" 13' 10" x 7' 6"
50	48' 5" 51' 8"	47' 10" 52' 4"	47' 0" 53' 5"	45' 11" 54' 11"	44' 4" 57' 4"	42' 5" 61'	40' 67'	37' 77'	33' 103'	29' 171'	25' INF	5' 8" x 4' 3" 6' 11" x 3' 9"
25	24' 7 1/4" 25' 5"	24' 5 1/2" 25' 7"	24' 2 1/2" 25' 10"	23' 11" 26' 2"	23' 6" 26' 9"	22' 11" 27' 6"	22' 2" 28' 8"	21' 3" 30' 4"	19' 11" 33' 8"	18' 6" 39'	16' 6" 51'	2' 10" x 2' 1" 3' 5" x 1' 10"
15	14' 10 1/4" 15' 1 3/4"	14' 9 1/2" 15' 2 1/2"	14' 8 3/4" 15' 3 1/2"	14' 7 1/4" 15' 5"	14' 5 1/2" 15' 7"	14' 3" 15' 10 1/2"	13' 11" 16' 3"	13' 7" 16' 9"	13' 0" 17' 9"	12' 5" 19' 0"	11' 6" 21' 8"	1' 8" x 1' 3" 2' 0" x 1' 1"
10	9' 11 1/4" 10' 3/4"	9' 11" 10' 1"	9' 10 1/2" 10' 1 1/2"	9' 9 3/4" 10' 2 1/4"	9' 9" 10' 3"	9' 7 3/4" 10' 4 1/2"	9' 6" 10' 6 1/2"	9' 4" 10' 9"	9' 3/4" 11' 2"	8' 9" 11' 8"	8' 4" 12' 8"	1' 1" x 0' 10" 1' 4" x 0' 8"
8	7' 11 1/2" 8' 1/2"	7' 11 1/4" 8' 3/4"	7' 11" 8' 1"	7' 10 3/4" 8' 1 1/2"	7' 10" 8' 2"	7' 9 1/4" 8' 3"	7' 8 1/4" 8' 4"	7' 6 3/4" 8' 5 3/4"	7' 4 1/2" 8' 8 1/2"	7' 2 1/2" 8' 0"	6' 10" 9' 7"	0' 1" x 0' 8" 1' 1" x 0' 7"
7	6' 11 3/4" 7' 1/4"	6' 11" 7' 1/2"	6' 11 1/4" 7' 3/4"	6' 11" 7' 1"	6' 10 1/2" 7' 1 1/2"	6' 10" 7' 2 1/4"	6' 9" 7' 3"	6' 8" 7' 4 1/4"	6' 6 1/4" 7' 6 1/2"	6' 4 1/2" 7' 9"	6' 1 1/2" 8' 2"	0' 9" x 0' 7" 0' 11" x 0' 6"
6	5' 11 3/4" 6' 1/4"	5' 11 3/4" 6' 1/4"	5' 11 1/2" 6' 1/2"	5' 11 1/4" 6' 3/4"	5' 11" 6' 1"	5' 10 1/2" 6' 1 1/2"	5' 9 3/4" 6' 2 1/4"	5' 9" 6' 3 1/4"	5' 7 3/4" 6' 4 3/4"	5' 6 1/4" 6' 6 1/2"	5' 4" 6' 10"	0' 8" x 0' 6" 0' 9" x 0' 5"
5	4' 11 3/4" 5' 1/4"	4' 11 3/4" 5' 1/4"	4' 11 3/4" 5' 1/4"	4' 11 1/2" 5' 1/2"	4' 11 1/4" 5' 3/4"	4' 11 1/2" 5' 2 1/4"	4' 10 1/2" 5' 1 1/2"	4' 10" 5' 2 1/4"	4' 9" 5' 3 1/4"	4' 8" 5' 4 1/2"	4' 6 1/4" 5' 7"	0' 6" x 0' 5" 0' 8" x 0' 4"
4	4' 0" 4' 0"	4' 0" 4' 0"	3' 11 3/4" 4' 1/4"	3' 11 3/4" 4' 1/4"	3' 11 1/2" 4' 1/2"	3' 11 1/4" 4' 3/4"	3' 11" 4' 1"	3' 10 3/4" 4' 1 1/2"	3' 10" 4' 2"	3' 9 1/2" 4' 3"	3' 8 1/2" 4' 4 1/4"	0' 5" x 0' 4" 0' 6" x 0' 3"

16mm CAMERA DEPTH-OF-FIELD, HYPERFOCAL DISTANCE & FIELD OF VIEW													
LENS FOCAL LENGTH: 100mm							CIRCLE OF CONFUSION = .0006" (6/10,000")						
HYPER FOCAL DISTANCE	2153'	1538'	1076'	768.9'	538.2'	384.4'	269.1'	196.8'	134.6'	97.85'	67.27'	FIELD OF VIEW (w/ projected Image)	
	f/1	f/1.4	f/2	f/2.8	f/4	f/5.6	f/8	f/11	f/16	f/22	f/32	STD & TV (.380" x .286")  SUPER 16 1.85:1 AR (.463" x .251")	
LENS FOCUS (FEET)	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR		
200	183' 220'	177' 230'	169' 246'	159' 270'	146' 318'	132' 417'	115' 778'	99' INF	80' INF	66' INF	50' INF		19' 3" x 14' 6" 23' 6" x 12' 9"
100	95' 7" 104' 10"	93' 11" 106' 11"	91' 6" 110'	88' 115'	84' 123'	79' 135'	73' 159'	66' 204'	57' 389'	49' INF	40' INF		9' 7" x 7' 3" 11' 9" x 6' 4"
50	48' 10" 51' 2"	48' 5" 51' 8"	47' 9" 52' 5"	47' 0" 53' 6"	45' 9" 55' 1"	44' 3" 57' 6"	42' 2" 61'	40' 67'	36' 80'	33' 103'	29' 195'		4' 9" x 3' 7" 5' 10" x 3' 2"
25	24' 8 1/2" 25' 3 1/2"	24' 7 1/4" 25' 5"	24' 5" 25' 7"	24' 2 1/2" 25' 10"	23' 11" 26' 3"	23' 6" 26' 9"	22' 11" 27' 7"	22' 2" 28' 8"	21' 1" 30' 8"	19' 11" 33' 7"	18' 3" 40'	2' 5" x 1' 9" 2' 11" x 1' 7"	
15	14' 10 3/4" 15' 1 1/4"	14' 10 1/4" 15' 1 3/4"	14' 9 1/2" 15' 2 1/2"	14' 8 1/2" 15' 3 1/2"	14' 7" 15' 5 1/4"	14' 5 1/2" 15' 7 1/4"	14' 2 1/2" 15' 10 3/4"	13' 11" 16' 3"	13' 6" 16' 11"	13' 0" 17' 9"	12' 3" 19' 4"	1' 5" x 1' 1" 1' 9" x 0' 11"	
10	9' 11 1/2" 10' 1 1/2"	9' 11 1/4" 10' 3/4"	9' 11" 10' 1"	9' 10 1/2" 10' 1 1/2"	9' 9 3/4" 10' 2 1/4"	9' 9" 10' 3 1/4"	9' 3 3/4" 10' 4 3/4"	9' 6" 10' 6 1/2"	9' 3 1/2" 10' 9 1/2"	9' 1" 11' 2"	8' 9" 11' 9"	0' 11" x 0' 8" 1' 2" x 0' 7"	
8	7' 11 3/4" 8' 1/4"	7' 11 1/2" 8' 1/2"	7' 11 1/4" 8' 3/4"	7' 11" 8' 1"	7' 10 1/2" 8' 1 1/2"	7' 10" 8' 2"	7' 9 1/4" 8' 3"	7' 8 1/2" 8' 4"	7' 6 1/2" 8' 6"	7' 5" 8' 8 1/2"	7' 2" 9' 1"	0' 9" x 0' 7" 0' 11" x 0' 6"	
6	5' 11 3/4" 6' 1/4"	5' 11 3/4" 6' 1/4"	5' 11 3/4" 6' 1/4"	5' 11 1/2" 6' 1/2"	5' 11 1/4" 6' 3/4"	5' 11" 6' 1 1/4"	5' 10 1/2" 6' 1 3/4"	5' 9 3/4" 6' 2 1/4"	5' 9" 6' 3 1/4"	5' 7 3/4" 6' 4 3/4"	5' 6" 6' 7"	0' 7" x 0' 5" 0' 8" x 0' 4"	