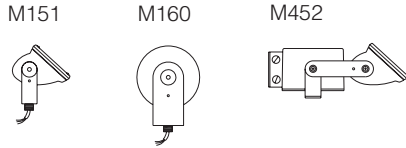


# Outdoor Footcandle Charts Ceramic Metal Halide

## Styles:



**Lamp** 70W ceramic single-ended metal halide rated 6200 lumens

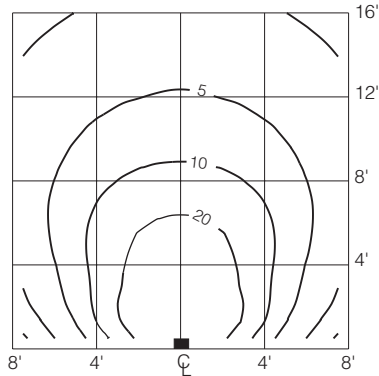
**Reflector** Small cross-section, nominal 11" long, **standard micro-prismatic glass lens**  
Reflector aiming is adjustable

## Multipliers for Other Lamps:

35W (MH35/T6/G12, 3300 lumens) 0.53  
150W (MH150/T6/G12, 13,500 lumens) 2.18

## Isofootcandle Diagram

Distance from surface 4'-0"



Charts illustrate the center section of a surface lighted by 6 or more luminaires. Values based on vertical and horizontal surface reflective factors of 0.30/0.10

25 5.0:1 2.5:1

Ratio of maximum FC to average FC (Max:Avg.)

Ratio of maximum FC to minimum FC (Max:Min.)

Footcandles average initial, perpendicular to wall (FCAI)

### 2'-6" from surface

	4' o.c.						6' o.c.						
12'	13	13	13	13	13	13	10	9	9	9	9	9	10
11'	16	16	16	16	16	16	11	11	11	11	11	11	11
10'	20	20	20	20	20	20	14	13	14	14	14	13	14
9'	24	24	24	24	24	24	16	16	16	16	16	16	16
8'	29	29	29	29	29	29	20	19	20	20	20	20	20
7'	35	35	35	35	35	35	24	24	24	24	24	24	24
6'	44	45	45	45	44	44	30	30	30	30	30	30	30
5'	58	59	59	59	58	58	42	40	38	37	38	41	42
4'	75	74	74	75	75	75	57	54	46	43	46	54	57
3'	89	86	83	86	89	89	72	65	50	43	50	65	72
2'	111	100	87	100	111	111	97	81	51	39	51	81	97
1'	136	109	83	109	136	136	126	94	46	29	46	94	126

51 10:1 2.6:1

35 13:1 3.6:1

### 3' from surface

	6' o.c.						8' o.c.								
11	11	11	11	11	11	11	9	8	8	9	9	9	8	9	9
14	13	13	13	13	13	14	10	10	10	10	10	10	10	10	10
16	16	16	16	16	16	16	12	12	12	12	12	12	12	12	12
19	19	19	19	19	19	19	15	14	14	14	14	14	14	14	15
22	22	22	22	22	22	22	17	17	17	17	16	17	17	17	17
27	27	27	27	27	27	27	21	21	20	19	19	19	20	21	21
34	33	33	33	33	33	34	27	27	25	23	23	23	25	27	27
44	43	41	40	41	43	44	38	36	31	27	25	27	32	36	38
54	52	47	44	47	52	54	49	45	37	29	26	29	37	45	49
63	59	49	44	49	59	63	58	53	39	28	23	28	40	53	58
81	71	51	41	51	71	81	77	66	42	25	20	25	43	66	77
93	75	47	34	47	76	93	91	72	41	20	15	20	41	72	91

35 8.4:1 2.7:1

27 11:1 3.4:1

### 3' from surface

	6' o.c.					
16'	6	6	6	6	6	6
15'	7	7	7	7	7	7
14'	8	8	8	8	8	8
13'	10	9	9	9	9	10
12'	11	11	11	11	11	11
11'	13	13	13	13	13	13
10'	15	15	15	15	15	15
9'	17	17	17	18	17	17
8'	21	21	21	21	21	21
7'	26	26	26	26	26	26
6'	32	32	32	32	32	32
5'	40	40	38	37	38	40
4'	48	47	42	40	42	48
3'	58	54	45	40	45	58
2'	81	70	49	40	49	81
1'	81	67	41	31	41	81

26 13:1 3.1:1

### 4' from surface

	8' o.c.						10' o.c.								
6	6	6	6	6	6	6	5	5	5	5	5	5	5	5	5
7	7	7	7	7	7	7	6	6	6	6	6	6	6	6	6
8	8	8	8	8	8	8	7	7	7	7	7	7	7	7	7
9	9	9	9	9	9	9	8	8	7	7	7	7	7	8	8
11	11	10	11	11	11	11	9	9	8	8	8	8	8	9	9
12	12	12	12	12	12	12	10	10	10	10	10	10	10	10	10
14	14	14	14	14	14	14	11	11	11	11	11	11	11	11	11
16	16	16	16	16	16	16	13	13	13	13	12	12	12	13	13
19	19	19	18	18	18	19	16	16	15	15	14	14	15	15	16
23	23	22	22	22	22	23	20	19	18	17	16	16	17	18	19
28	27	26	25	24	25	26	25	24	22	19	17	17	20	22	24
32	31	29	26	25	26	29	29	28	25	21	18	17	21	25	28
35	34	30	26	25	26	30	33	31	27	21	17	16	21	27	33
41	39	32	26	24	26	39	39	37	29	21	16	14	21	29	39
52	47	36	26	23	26	47	51	45	33	22	15	13	22	33	45
47	41	30	20	17	20	41	46	40	28	17	11	9	17	28	46

20 8.3:1 2.7:1

16 10:1 3.2:1

	4' from surface										5' from surface														
	8' o.c.					10' o.c.					10' o.c.					12' o.c.									
20'	9	9	9	9	9	7	7	7	7	7	9	9	9	9	9	7	7	7	7	7	9	9	9	9	9
18'	11	11	11	11	11	9	9	9	9	9	11	11	11	11	11	9	9	9	9	9	11	11	11	11	11
16'	14	14	14	14	14	11	11	11	11	11	13	13	13	13	13	11	11	11	11	11	13	13	13	13	13
14'	17	17	17	17	17	14	14	14	14	14	16	16	16	16	16	14	14	14	14	14	16	16	16	16	16
12'	21	21	22	21	21	17	17	18	18	17	20	20	20	20	20	17	17	17	17	17	22	22	21	21	22
10'	28	28	28	28	28	23	23	22	22	23	26	26	26	26	26	22	22	21	21	22	26	26	26	26	26
8'	40	39	39	39	40	34	32	30	30	32	36	34	33	33	34	32	30	26	25	27	36	34	33	33	34
6'	55	52	48	52	55	49	44	35	35	44	44	42	36	36	42	41	38	29	25	29	44	42	36	36	42
4'	71	61	51	62	71	66	54	35	35	54	55	48	36	36	48	52	44	29	23	29	55	48	36	36	48
2'	108	75	47	76	108	106	70	31	31	70	74	57	33	33	57	72	55	28	18	28	74	57	33	33	57

34 13:1 3.2:1

28 15:1 3.8:1

27 8.5:1 2.7:1

23 9.9:1 3.2:1

	5' from surface										6' from surface									
	10' o.c.					12' o.c.					16' o.c.									
24'	6	6	6	6	6	6	6	6	6	6	5	5	5	5	5					
22'	7	7	7	7	7	7	7	7	7	7	6	5	5	5	5					
20'	9	9	9	9	9	9	9	8	9	8	7	6	6	6	6					
18'	10	10	11	11	10	10	10	10	10	10	8	8	8	8	8					
16'	13	13	13	13	13	12	12	12	12	12	9	9	9	9	9					
14'	15	15	15	15	15	14	14	14	14	14	11	11	11	11	11					
12'	19	19	19	19	19	18	18	18	18	18	14	14	13	13	12					
10'	25	25	25	25	25	23	23	22	22	23	20	19	17	15	14					
8'	34	33	31	31	33	29	28	26	24	26	26	24	20	16	14					
6'	41	39	34	34	39	33	31	27	24	27	31	28	22	16	13					
4'	53	46	34	34	46	42	38	28	23	28	40	35	23	14	11					
2'	71	54	32	32	55	52	43	27	20	27	50	41	23	12	9					

23 12:1 3.1:1

19 8.7:1 2.8:1

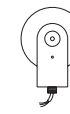
14 11:1 3.5:1

**Styles:**

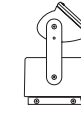
M151



M160



M452



**Lamp**

150W ceramic single-ended metal halide rated 13,500 lumens

**Reflector**

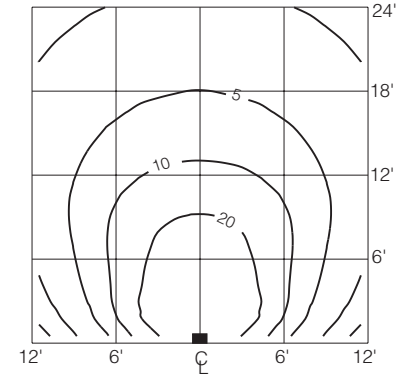
Small cross-section, nominal 11" long, **standard micro-prismatic glass lens**  
Reflector aiming is adjustable

**Multipliers for Other Lamps:**

35W (MH35/T6/G12, 3300 lumens) 0.24  
70W (MH70/T6/G12, 6200 lumens) 0.46

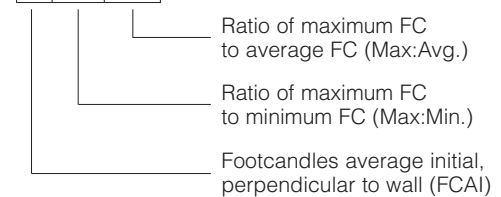
**Isofootcandle Diagram**

Distance from surface 6'-0"



Charts illustrate the center section of a surface lighted by 6 or more luminaires. Values based on vertical and horizontal surface reflective factors of 0.30/0.10

25 5.0:1 2.5:1



**Styles:**

M152      M153/M154      M454



**Lamp** 175W metal halide  
rated 13,300 lumens

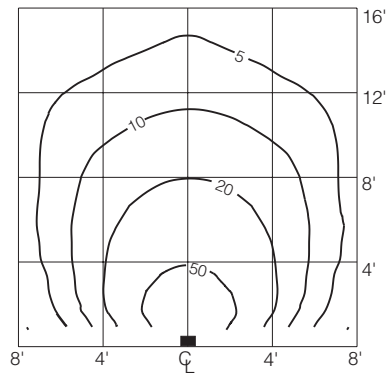
**Reflector** Large cross-section, nominal 17" long  
(nominal 12" long for Style 152),  
**optional micro-prismatic glass lens**  
Reflector aiming is adjustable

**Multipliers for Other Lamps:**

250W (MH250/T15, 19,600 lumens) 250W Horizontal Position Oriented (MS250/HOR/ED18, 22,000 lumens)	1.47
400W (MH400/T15, 34,000 lumens) 400W Horizontal Position Oriented (MS400/HOR/T15, 40,000 lumens)	1.65
	2.56
	3.01

**Isofootcandle Diagram**

Distance from surface 5'-0"



	3' from surface										4' from surface									
	6' o.c.					8' o.c.					8' o.c.					10' o.c.				
	16'	13	12	12	13	10	9	9	9	10	13	12	12	12	13	11	10	10	10	10
14'	18	17	17	18	14	13	12	13	14	18	17	16	17	18	15	14	13	13	14	15
12'	25	24	24	25	19	18	17	18	19	24	24	23	24	24	19	19	19	19	19	19
10'	35	34	34	35	25	26	26	26	25	31	32	32	32	31	25	25	26	26	25	25
8'	49	49	49	49	37	37	38	37	37	42	43	44	43	42	36	35	34	34	35	36
6'	71	72	72	71	58	53	50	54	58	59	57	54	57	59	52	48	40	40	48	52
4'	114	102	102	114	101	79	58	79	101	87	76	64	76	87	80	67	44	44	67	80
2'	211	136	137	211	202	114	53	114	202	133	97	63	97	133	129	89	41	41	90	129

61	17:1	3.4:1	47	22:1	4.3:1	46	11:1	2.9:1	38	13:1	3.4:1
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	4' from surface										5' from surface													
	8' o.c.					10' o.c.					10' o.c.					12' o.c.								
	20'	8	8	8	8	8	7	7	6	6	7	7	8	8	8	8	8	8	7	7	6	6	6	7
18'	11	10	10	10	11	9	8	8	8	8	9	11	10	10	10	10	11	9	9	8	8	8	9	9
16'	14	13	13	13	14	11	11	10	10	11	11	14	13	13	13	13	14	12	11	11	11	11	11	12
14'	18	17	17	17	18	14	14	14	14	14	14	17	17	17	17	17	17	14	14	14	14	14	14	14
12'	23	23	23	23	23	18	19	19	19	19	18	21	22	22	22	22	21	17	18	18	19	18	18	17
10'	30	31	31	31	30	24	24	25	25	24	24	27	27	28	28	27	27	23	23	23	23	23	23	23
8'	40	41	41	41	40	34	33	32	32	33	34	35	34	34	34	34	35	31	30	27	26	27	30	31
6'	56	54	52	54	56	49	45	38	38	45	49	47	44	40	40	44	47	43	40	32	29	32	40	43
4'	84	73	61	73	84	78	64	43	43	64	78	65	57	44	44	57	65	62	53	35	28	35	53	62
2'	130	94	60	94	130	127	87	39	39	87	127	90	72	44	44	72	90	88	68	36	24	36	69	88

37	17:1	3.5:1	31	20:1	4.2:1	30	12:1	3.0:1	25	14:1	3.5:1
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Charts illustrate the center section of a surface lighted by 6 or more luminaires. Values based on vertical and horizontal surface reflective factors of 0.30/0.10

25	5.0:1	2.5:1
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Ratio of maximum FC to average FC (Max:Avg.)

Ratio of maximum FC to minimum FC (Max:Min.)

Footcandles average initial, perpendicular to wall (FCAI)

Height	3' from surface				4' from surface			
	6' o.c.		8' o.c.		8' o.c.		10' o.c.	
	1	2	1	2	1	2	1	2
16'	18	18	14	13	18	18	14	14
14'	24	23	18	18	23	24	19	19
12'	31	31	24	24	30	30	25	25
10'	38	38	31	31	37	36	32	31
8'	46	46	37	37	40	40	35	34
6'	57	56	49	44	49	46	45	40
4'	89	79	81	63	72	62	68	55
2'	190	124	182	104	121	89	119	83

57	11:1	3.4:1	45	14:1	4.1:1	44	6.9:1	2.7:1	37	8.6:1	3.2:1
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**Styles:**

M152 M153/M154 M454



**Lamp**

175W metal halide rated 13,300 lumens

**Reflector**

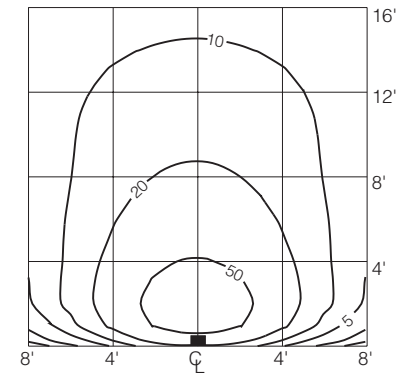
Large cross-section, nominal 17" long (nominal 12" long for Style 152), **standard clear flat glass lens**  
Reflector aiming is adjustable

**Multipliers for Other Lamps:**

250W (MH250/T15, 19,600 lumens)	1.47
250W Horizontal Position Oriented (MS250/HOR/ED18, 22,000 lumens)	1.65
400W (MH400/T15, 34,000 lumens)	2.56
400W Horizontal Position Oriented (MS400/HOR/T15, 40,000 lumens)	3.01

**Isofootcandle Diagram**

Distance from surface 5'-0"



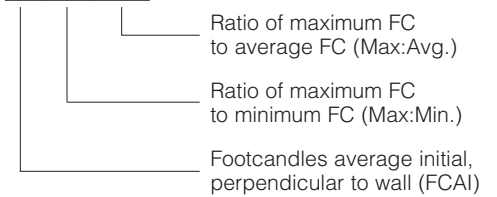
Height	4' from surface				5' from surface			
	8' o.c.		10' o.c.		10' o.c.		12' o.c.	
	1	2	1	2	1	2	1	2
20'	11	11	10	9	10	11	10	10
18'	14	14	11	11	14	14	12	12
16'	18	18	15	15	18	18	15	15
14'	23	23	19	19	23	22	18	18
12'	28	28	23	23	27	27	20	20
10'	33	32	26	26	29	29	22	22
8'	36	36	31	30	32	31	26	25
6'	46	44	40	37	38	36	34	31
4'	71	61	66	54	56	49	55	46
2'	120	88	117	81	85	67	82	63

36	11:1	3.3:1	30	13:1	3.9:1	30	8.2:1	2.8:1	24	8.6:1	3.4:1
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Charts illustrate the center section of a surface lighted by 6 or more luminaires. Values based on vertical and horizontal surface reflective factors of 0.30/0.10

25 5.0:1 2.5:1

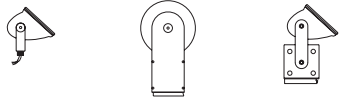






**Styles:**

M152      M153/M154      M454



**Lamp** 400W horizontal position oriented metal halide rated 40,000 lumens

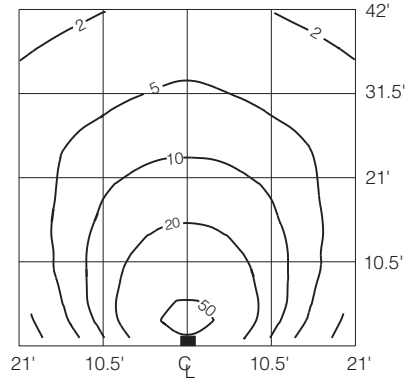
**Reflector** Large cross-section, nominal 17" long, optional micro-prismatic glass lens Reflector aiming is adjustable

**Multipliers for Other Lamps:**

175W (MH175/U/MED, 13,300 lumens)	0.33
250W (MH250/T15, 19,600 lumens)	0.49
250W Horizontal Position Oriented (MS250/HOR/ED18, 22,000 lumens)	0.55
400W (MH400/T15, 34,000 lumens)	0.85

**Isofootcandle Diagram**

Distance from surface 10'-6"



Charts illustrate the center section of a surface lighted by 6 or more luminaires. Values based on vertical and horizontal surface reflective factors of 0.30/0.10

25    5.0:1    2.5:1

Ratio of maximum FC to average FC (Max:Avg.)

Ratio of maximum FC to minimum FC (Max:Min.)

Footcandles average initial, perpendicular to wall (FCAI)

7' from surface

9' from surface

Distance	7' from surface						9' from surface														
	15' o.c.						18' o.c.						21' o.c.								
36'	7	7	7	7	7	7	8	7	7	7	7	7	8	7	7	6	6	6	6	7	7
33'	9	9	8	8	9	9	10	9	9	9	9	9	10	8	8	8	8	8	8	8	8
30'	11	11	10	10	11	11	12	11	11	11	11	11	12	10	10	9	9	9	9	10	10
27'	14	13	13	13	13	14	14	14	14	13	14	14	14	12	12	12	12	12	12	12	12
24'	17	17	16	16	17	17	17	17	17	16	17	17	17	14	14	15	15	15	15	14	14
21'	21	21	21	21	21	21	20	21	21	21	21	21	20	17	17	18	18	18	18	17	17
18'	26	26	27	27	26	26	25	25	25	26	25	25	25	22	22	21	22	22	21	22	22
15'	33	34	34	34	34	33	31	30	30	30	30	30	31	28	27	25	25	25	25	27	28
12'	44	43	42	42	43	44	38	38	36	35	36	38	38	35	34	31	28	28	31	34	35
9'	60	57	51	51	57	60	49	47	41	38	41	47	49	46	43	36	30	30	36	43	46
6'	88	76	58	58	77	88	66	59	46	40	46	59	66	64	56	41	30	30	41	56	64
3'	129	99	56	56	99	129	85	72	48	37	48	72	85	83	70	43	27	27	43	70	83

34    19:1    3.8:1

28    12:1    3.1:1

24    14:1    3.5:1

9' from surface

10' from surface

Distance	9' from surface						10' from surface														
	18' o.c.						21' o.c.						24' o.c.								
42'	6	5	5	5	5	6	5	5	5	5	5	5	5	5	5	4	4	4	5	5	5
39'	7	7	6	6	6	7	7	6	6	6	6	6	7	6	6	5	5	5	5	6	6
36'	8	8	8	8	8	8	8	7	7	7	7	8	8	7	7	6	6	6	6	7	7
33'	10	9	9	9	9	10	9	9	9	9	9	9	9	8	8	8	8	8	8	8	8
30'	12	11	11	11	11	12	11	11	11	10	10	11	11	9	9	9	9	9	9	9	9
27'	14	14	14	13	14	14	13	13	13	13	13	13	13	11	11	11	11	11	11	11	11
24'	16	17	17	16	17	16	15	15	15	15	15	15	15	13	13	13	14	14	14	13	13
21'	20	20	20	20	20	20	18	18	18	18	18	18	18	16	16	16	16	16	16	16	16
18'	24	24	24	25	24	24	22	21	21	22	22	21	21	20	19	18	18	18	18	19	20
15'	29	29	29	29	29	29	26	26	25	24	24	25	26	24	24	22	21	20	21	22	24
12'	37	36	35	33	35	36	33	32	29	28	28	29	32	31	30	26	23	22	23	26	30
9'	48	46	40	37	40	46	42	40	34	30	30	34	40	40	38	31	25	22	25	31	38
6'	65	58	46	39	46	58	56	51	40	31	31	40	51	55	49	37	25	22	26	37	49
3'	83	70	46	35	46	70	68	58	40	27	27	40	58	67	57	38	22	18	22	38	57

24    16:1    3.4:1

21    13:1    3.3:1

18    15:1    3.6:1

	7' from surface						9' from surface															
	15' o.c.						18' o.c.						21' o.c.									
36'	9	9	9	9	9	9	10	10	9	9	9	10	10	9	8	8	8	8	8	8	8	9
33'	11	11	11	11	11	11	12	12	11	11	11	12	12	10	10	10	9	9	10	10	10	10
30'	14	13	13	13	13	14	14	14	13	13	13	14	14	12	12	12	11	11	12	12	12	12
27'	17	16	16	16	16	17	17	17	16	16	16	17	17	14	14	14	14	14	14	14	14	14
24'	20	19	19	19	19	20	19	19	19	19	19	19	19	16	16	16	17	17	16	16	16	16
21'	23	23	23	23	23	23	21	22	22	23	22	22	21	18	19	19	20	20	19	19	18	18
18'	26	27	28	28	27	26	24	24	25	26	25	24	24	21	21	21	22	22	21	21	21	21
15'	31	32	33	33	32	31	27	27	27	27	27	27	27	24	24	23	22	22	23	24	24	24
12'	37	37	36	36	37	37	32	32	31	30	31	32	32	29	29	26	25	25	26	29	29	29
9'	50	48	44	44	48	50	41	39	35	32	35	40	41	39	36	30	25	25	30	37	39	39
6'	80	68	50	50	69	80	61	54	41	34	41	54	61	58	51	37	26	26	37	51	58	58
3'	120	92	54	54	92	120	80	67	46	36	46	67	80	78	65	41	26	26	41	65	78	78

32 | 14:1 | 3.7:1

27 | 8.7:1 | 3.0:1

23 | 10:1 | 3.4:1

	9' from surface							10' from surface																	
	18' o.c.							21' o.c.							24' o.c.										
42'	7	7	7	7	7	7	7	7	7	6	6	7	7	7	6	6	6	6	6	6	6	6	6	6	
39'	9	8	8	8	8	8	9	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
36'	10	10	9	9	9	10	10	10	9	9	9	9	9	10	10	9	9	9	9	9	9	9	9	9	9
33'	12	12	11	11	11	12	12	11	11	11	10	10	11	11	11	11	11	11	11	11	11	11	11	11	11
30'	14	13	13	13	13	14	13	12	12	12	12	12	12	13	13	12	12	12	12	12	12	12	12	12	12
27'	15	15	15	15	15	15	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
24'	17	18	18	18	18	17	15	16	16	17	17	16	16	15	14	14	14	15	15	14	14	14	14	14	14
21'	19	20	21	21	21	19	17	18	18	19	19	18	18	17	15	16	15	16	16	15	16	15	16	15	15
18'	22	22	23	24	23	22	20	19	19	20	20	19	19	20	18	18	17	17	16	17	17	18	18	18	18
15'	25	25	25	25	25	25	22	22	22	21	21	22	22	22	21	20	19	18	18	19	20	21	21	21	21
12'	31	31	30	29	30	31	28	27	25	24	24	25	27	28	26	25	22	20	19	20	22	25	26	26	26
9'	41	39	34	31	34	39	36	34	29	25	25	30	34	36	35	32	27	21	18	21	27	32	35	35	35
6'	60	54	41	34	41	54	51	46	36	27	27	36	47	51	50	45	33	23	20	23	33	45	50	50	50
3'	80	67	45	35	45	67	66	56	38	27	27	38	56	66	65	55	36	22	17	22	36	55	65	65	65

23 | 12:1 | 3.4:1

20 | 10:1 | 3.3:1

18 | 12:1 | 3.7:1

**Styles:**

M152 M153/M154 M454



**Lamp**

400W horizontal position oriented metal halide rated 40,000 lumens

**Reflector**

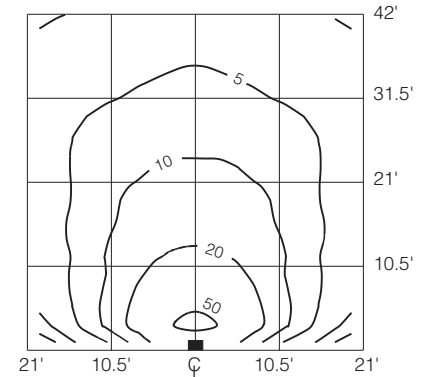
Large cross-section, nominal 17" long, **standard clear flat glass lens** Reflector aiming is adjustable

**Multipliers for Other Lamps:**

175W (MH175/U/MED, 13,300 lumens)	0.33
250W (MH250/T15, 19,600 lumens)	0.49
250W Horizontal Position Oriented (MS250/HOR/ED18, 22,000 lumens)	0.55
400W (MH400/T15, 34,000 lumens)	0.85

**Isofootcandle Diagram**

Distance from surface 10'-6"



Charts illustrate the center section of a surface lighted by 6 or more luminaires. Values based on vertical and horizontal surface reflective factors of 0.30/0.10

25 | 5.0:1 | 2.5:1

- Ratio of maximum FC to average FC (Max:Avg.)
- Ratio of maximum FC to minimum FC (Max:Min.)
- Footcandles average initial, perpendicular to wall (FCAl)