

COOPER LIGHTING - METALUX®

DESCRIPTION

The Arctic Bay Series is designed as a high efficiency solution to sub-zero ambient environments found in cold storage and refrigerated facilities. The Arctic Bay has been optimized to provide maximum performance with lamp and ballast systems that tolerate colder ambient temperatures. For legislative compliance and additional energy savings, an optional low temperature motion sensor is available.

Catalog #	Type
Project	
Comments	Date
Prepared by	

SPECIFICATION FEATURES

APPLICATION

The Arctic Bay Series high lumen package allows for the benefits of fluorescent lighting to be applied at high mounting heights that were traditionally exclusive to H.I.D. These benefits include exceptional color rendering, high system efficacy, 95% lumen maintenance, long lamp life, instant on, optional dimming, and uniform brightness control. Primary applications include cold storage, refrigerated facilities and environments with temperatures as low as -29°C (-20°F).

A ... Construction

Housing, end plates and socket tracks are die formed cold rolled steel. The housing features an integral ballast channel that adds strength and provides numerous KO's for easy installation. Die formed internal reflectors are

available in either a high reflectance specular material or a painted white polyester powder coat finish. A sealed and gasketed aluminum door frame in a clear or prismatic A12 pattern lens provide for a thermal environment for optimal lamp operation.

B ... Electrical

Class P ballast, rated for -29°C to 90°C operation, wired to rotor locked sockets. Optional passive infra-red motion sensor is rated for high humidity, low temperature application. Sensor provides 1400 sq. ft. of coverage in mounting heights up to 40'. MS/OB option keeps two inner lamps illuminated full time using outer lamps for occupancy control. MS/AO option relay rotates on/off cycle between 2 lamp and 4 lamp ballasts to minimize lamp degradation. UL/CUL listed. Suitable for damp location.

C ... Post Fabrication

Electrostatically applied baked white polyester powder coat finish is preceded by a multistage cleaning cycle, iron phosphate coating with rust inhibitor.

D ... Optics

Gasketed door frame and lens assembly is standard for subzero ambient environments.

E ... Mounting

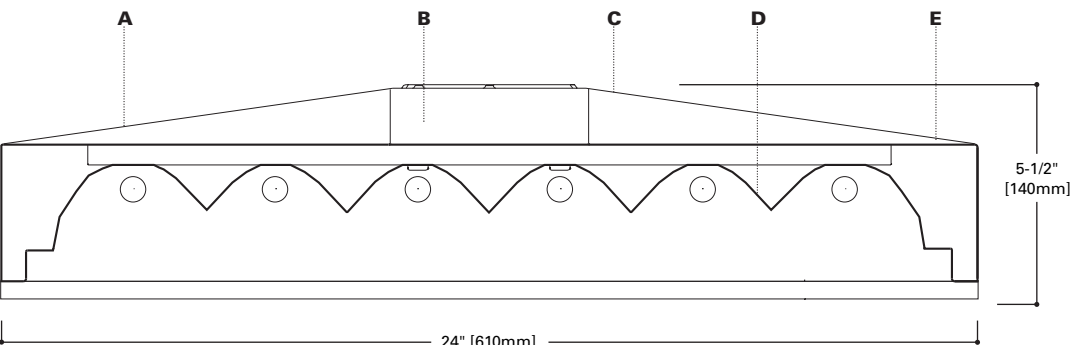
The fixture is ideally suited for surface, suspension mounting with optional wire hook and chain set, stem or cable mounting. Top connector box mounting is also available.



AB ARCTIC BAY SERIES

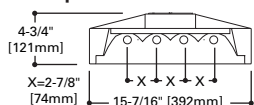
15" x 4', 2' x 4'
High-Bay
4 and 6 Lamp

HIGH-BAY INDUSTRIAL LUMINAIRE

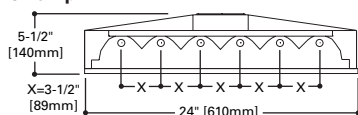


LAMP CONFIGURATIONS

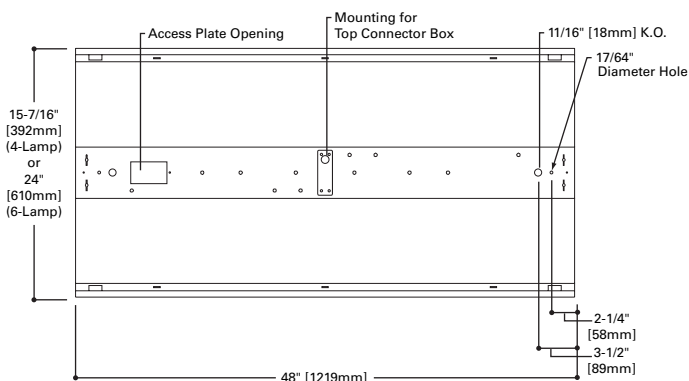
4-Lamp



6-Lamp



DIMENSION TOP VIEW



ENERGY DATA

Input Watts (@ 277V):

EB Ballast

454 = 229W

654 = 346W

Luminaire Efficacy Rating

LER =54

Catalog Number: 2AB-654T5-UNV-EBT2-U

Yearly Cost of 1000 lumens, 3000 hrs at .08 KWH = \$5.08

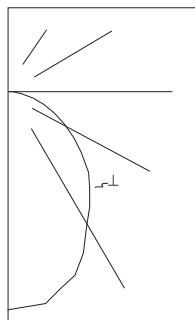
* Reference the lamp/ballast data in the Technical Section for specific lamp/ballast requirements

** Consult Pre Sales Technical Support.

LAMPS CONTAIN MERCURY. DISPOSE ACCORDING TO LOCAL, STATE OR FEDERAL LAWS

LINEAR DISCONNECT
Safe and convenient means of disconnecting power





2AB-654T5-UNV-EBTL2-U
 Electronic Ballasts
 (6) F54WT5HO lamps
 26400 lumens
 Spacing criterion:
 (II) 1.1 x mounting
 height, (⊥) 1.2 x
 mounting height
 Efficiency 65.1%
 Test Report:
 BAL13590.IES
 LER =FL59
 Yearly Cost of 1000
 lumens, 3000 hrs at
 .08 KWH = \$4.06

Candela

Angle	Along II	45°	Across ⊥
0	9670	9670	9670
5	9568	9543	9524
10	9513	9400	9324
15	9020	8844	8718
20	8661	8377	8137
25	7923	7588	7197
30	6907	6497	5917
35	6251	5809	5059
40	5582	5071	4188
45	5059	4466	3538
50	4194	3614	2863
55	3551	2952	2384
60	2901	2352	1968
65	2245	1778	1545
70	1665	1305	1192
75	1116	864	845
80	605	473	504
85	233	195	233
90	31	50	63

Coefficients of Utilization

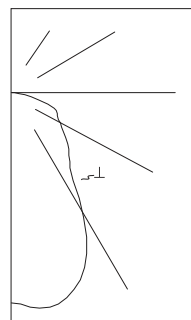
Effective floor cavity reflectance												20%											
rc	80%				70%				50%				30%				10%				0%		
rw	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0					
RCR																							
0	78	78	78	78	76	76	76	76	72	72	72	69	69	69	66	66	66	65					
1	71	69	66	64	70	67	65	63	64	63	61	62	60	59	60	58	57	56					
2	66	61	57	53	64	59	56	53	57	54	51	55	52	50	53	51	49	48					
3	60	54	49	45	59	53	48	45	51	47	44	49	46	43	48	45	42	41					
4	56	48	43	39	54	48	43	39	46	42	38	44	41	38	43	40	37	36					
5	51	44	38	34	50	43	38	34	42	37	34	40	36	33	39	36	33	32					
6	48	40	34	30	47	39	34	30	38	33	30	37	33	30	36	32	29	28					
7	45	36	31	27	43	36	31	27	35	30	27	34	30	27	33	29	26	25					
8	42	33	28	24	41	33	28	24	32	27	24	31	27	24	30	27	24	23					
9	39	31	26	22	38	30	25	22	30	25	22	29	25	22	28	25	22	21					
10	37	29	24	20	36	28	23	20	28	23	20	27	23	20	26	23	20	19					

Zonal Lumen Summary

Zone	Lumens	%Lamp	%Fixture
0-30	6856	22.9	35.1
0-40	10426	34.8	53.4
0-60	16414	54.7	84.0
0-90	19532	65.1	100.0
0-180	19532	65.1	100.0

Luminance Data

Angle in Deg	Average 0-Deg cd/sm	Average 45-Deg cd/sm	Average 90-Deg cd/sm
45	11513	10163	8051
55	9962	8282	6688
65	8548	6770	5883
75	6939	5372	5254
85	4302	3600	4302



2AB-654T5-CL-UNV-EBTL2-U
 Electronic Ballasts
 (6) F54WT5HO lamps
 26400 lumens
 Spacing criterion:
 (II) 1.1 x mounting
 height, (⊥) 1.2 x
 mounting height
 Efficiency 69.5%
 Test Report:
 LM-63-2002
 LER =FL63
 Yearly Cost of 1000
 lumens, 3000 hrs at
 .08 KWH = \$3.81

Candela

Angle	Along II	45°	Across ⊥
0	8130	8130	8130
5	8092	8204	8289
10	7982	8279	8398
15	7798	8200	8179
20	7538	7895	7685
25	7204	7423	6844
30	6794	6751	5568
35	6317	5832	4145
40	5776	4601	3469
45	5168	3415	3096
50	4500	2812	2708
55	3783	2371	2344
60	3030	1925	2089
65	2261	1545	1928
70	1517	1251	1760
75	848	1031	1077
80	335	487	501
85	66	108	106
90	0	0	0

Coefficients of Utilization

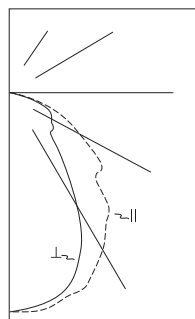
Effective floor cavity reflectance												20%											
rc	80%				70%				50%				30%				10%				0%		
rw	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0					
RCR																							
0	83	83	83	83	81	81	81	81	77	77	77	74	74	74	71	71	71	69					
1	76	73	71	68	75	72	69	67	69	67	65	66	65	63	64	62	61	60					
2	70	65	60	57	68	64	60	56	61	58	55	59	56	54	57	55	52	51					
3	64	58	52	48	63	57	52	48	55	50	47	53	49	46	51	48	45	44					
4	59	52	46	42	58	51	45	41	49	44	41	47	43	40	46	43	40	38					
5	55	47	41	36	53	46	40	36	44	39	36	43	39	35	42	38	35	34					
6	51	42	36	32	50	42	36	32	40	35	32	39	35	32	38	34	31	30					
7	47	39	33	29	46	38	33	29	37	32	28	36	32	28	35	31	28	27					
8	44	35	30	26	43	35	30	26	34	29	26	33	29	26	32	28	25	24					
9	42	33	27	24	41	32	27	24	31	27	23	31	26	23	30	26	23	22					
10	39	30	25	22	38	30	25	21	29	25	21	29	24	21	28	24	21	20					

Zonal Lumen Summary

Zone	Lumens	%Lamp	%Fixture
0-30	6390	24.2	34.8
0-40	9871	37.4	53.8
0-60	15445	58.5	84.2
0-90	18344	69.5	100.0
0-180	18344	69.5	100.0

Luminance Data

Angle in Deg	Average 0-Deg cd/sm	Average 45-Deg cd/sm	Average 90-Deg cd/sm
45	11454	7569	6862
55	10336	6478	6404
65	8384	5729	7149
75	5135	6243	6521
85	1187	1942	1906



AB-454T5-CL-UNV-EBTL1-U
 (2) Electronic Ballasts
 (4) F54W T5HO lamps
 26400 lumens
 Spacing criterion:
 (II) 1.1 x mounting
 height, (⊥) 1.0 x
 mounting height
 Efficiency 62.8%
 Test Report: 14005
 LER =FL58
 Yearly Cost of 1000
 lumens, 3000 hrs at
 .08 KWH = \$4.13

Candela

Angle	Along II	45°	Across ⊥
0	5741	5741	5741
5	5782	5745	5670
10	5778	5649	5407
15	5547	5390	5110
20	5531	5385	5110
25	5186	4959	4312
30	4798	4301	3272
35	4329	3428	2463
40	3989	2711	1973
45	3099	1720	1466
50	3120	1595	1487
55	2560	1282	1309
60	1999	1035	1256
65	1461	851	1148
70	949	733	792
75	495	452	463
80	178	183	102
85	32	26	21
90	0	0	0

Coefficients of Utilization

Effective floor cavity reflectance												20%																				
rc	80%						70%						50%						30%						10%						0%	
rw	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0					
RCR																																
0	75	75	75	75	73	73	73	73	70	70	70	67	67	67	64	64	64	63														
1	70	67	65	63	68	66	64	62	63	62	60	61	60	59	59	58	57	56														
2	65	61	57	54	63	59	56	53	57	55	52	55	53	51	53	52	50	49														
3	60	55	50	47	59	54	50	46	52	48	46	50	47	45	49	46	44	43														
4	56	49	45	41	54	48	44	41	47	43	40	46	42	40	44	41	39	38														
5	51	44	39	36	50	44	39	35	42	38	35	41	38	35	40	37	34	33														
6	48	40	35	32	47	40	35	32	39	34	31	38	34	31	37	33	31	30														
7	44	37	32	28	43	36	32	28	35	31	28	34	31	28	34	30	28	26														
8	41	33	28	25	40	33	28	25	32	28	25	31	28	25	31	27	25	23														
9	38	30	25	22	37	30	25	22	29	25	22	29	25	22	29	24	22	21														
10	36	28	23	20	35	27	23	20	27	23	20	26	22	20	26	22	20	19														

Zonal Lumen Summary

Zone	Lumens	%Lamp	%Fixture
0-30	4324	24.6	39.1
0-40	6484	36.8	58.7
0-60	9542	54.2	86.4
0-90	11049	62.8	100.0
0-180	11049	62.8	100.0

Luminance Data

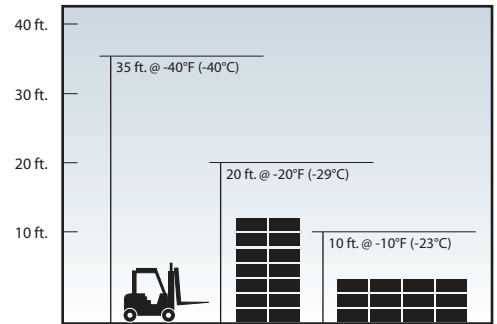
Angle in Deg	Average 0-Deg cd/sm	Average 45-Deg cd/sm</
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Thermal Performance

Cooper Lighting thermally tested each configuration to determine the optimal luminaire operating temperature range. When specifying luminaires use the lowest temperature the luminaire will be exposed to during operating hours. However, facility temperatures fluctuate and luminaires exposed to temperatures less than stated are not recommended.

To maximize energy efficiency, some facilities will operate chillers only during off-peak hours. In this case the facility will chill the space -40°F (-40°C) to maintain the targeted temperature during operating hours. Fluorescent luminaires exposed to -40°F (-40°C) temperatures are not recommended. Energy efficient HID sources may be a better alternative.

Freezer Temperature Ranges



Temperature Control Capability

Cooper Lighting recommends the following lamp operation when implementing a control system in colder ambient environments.

Arctic Bay (AB) Series			Motion Sensor Options (Number of Lamps Controlled)	
-20°F (-29°C)				
Fixture	# Lamps	Lamp Type	Routine Use	Occasional Use ⁽³⁾
AB-454T5	4 Lamp	T5HO	Not Recommended	2
2AB-654T5	6 Lamp	T5HO	Not Recommended	2
0°F (-18°C)			Motion Sensor Options (Number of Lamps Controlled)	
Fixture	# Lamps	Lamp Type	Routine Use ⁽¹⁾	Occasional Use ⁽²⁾
AB-454T5	4 Lamp	T5HO	2	ALL
2AB-654T5	6 Lamp	T5HO	2	4
32°F (0°C) – 50°F (10°C)			Motion Sensor Options (Number of Lamps Controlled)	
Fixture	# Lamps	Lamp Type	Routine Use ⁽¹⁾	Occasional Use ⁽²⁾
AB-454T5	4 Lamp	T5HO	2	ALL
2AB-654T5	6 Lamp	T5HO	2	4

NOTES: ⁽¹⁾Luminaire achieves 40% or greater of relative light output at the indicated temperature in under 60 seconds. ⁽²⁾Luminaire achieves 40% to 80% of relative light output at the indicated temperature in under 7 minutes. ⁽³⁾Consult factory.

ORDERING INFORMATION

SAMPLE NUMBER: 2AB-654T5-UNV-EBT2-MS/OB-U

Width Blank=15" 2=24"	Series AB=Arctic Bay	Mounting Arrangement Blank=Stand Alone R=Continuous Row Mount	No. of Lamps 4=4 Lamps (AB) 6=6 Lamps (2AB)	Lamp Type 54T5=T5HO Lamps (48")	Distribution Blank=Medium (Specular Aluminum) G=Wide (White Painted)	Shielding Blank=Prismatic Acrylic Lens w/Gasketed Doorframe CL=Clear Acrylic Lens w/Gasketed Doorframe	Voltage⁽²⁾ UNV=Universal 120/277 Voltage UNC=Universal 347/480 Voltage (T5 linear only) 120V=120 Volt 277V=277 Volt 347V=347 Volt	Options Lamps Installed L5835=T5 Lamp, 80CRI 3500K L5841=T5 Lamp, 80CRI 4100K L5850=T5 Lamp, 80CRI 5000K GL=Single Element Fuse GM=Double Element Fuse Emergency=Please Consult Factory ⁽²⁾	Ballast Type EBTL=T5 Linear Electronic Program Rapid Start. Total Harmonic Distortion < 10% Minimum Start Temp. -20°F (-29°C) No. of Ballast 1, 2 or 3 DIM=Consult Factory ⁽⁶⁾	Packaging U=Unit Pack PAL=Palletized Out of Carton PALC=Job Pack In Carton	Accessories (order separately) AYC-CHAIN/SET/U=(2) Hooks, 36" Chain Sets w/S-Hooks ⁽⁷⁾ RH-1=Retrofit Hanger FH-1=Fixture Hook FL-1=Fixture Loop HB-SPS=Single Point Cable Kit (13" Drop Length) Grapple Y=Y Mounting Toggle, #2 Cable (Specify 10' or 30') TCB=Top Connector Box SCA-48=Stem Set Adjustable 48" length SCF=Stem Set Fixed (specify length) SCS=Stem Set 45° Swivel (specify length)
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NOTES: ⁽¹⁾Requires use of voltage specific modular cord assembly. See accessories. ⁽²⁾Voltage must be specified when ordered with plugs, motion or emergency ballasts. ⁽³⁾Specify voltage. ⁽⁴⁾Requires (2) ballasts. Not available in 480V. ⁽⁵⁾Dimming ballasts not recommended for use at temperature < 0°F (-18°C). ⁽⁶⁾Refer to Temperature Control Capability chart for recommended sensor options at various cold ambient environments. ⁽⁷⁾Not for use in high abuse applications such as gymnasiums.

SHIPPING INFORMATION

Catalog No.	Wt.
AB-454-UNV-U	25 lbs.
2AB-654-UNV-U	27 lbs.