

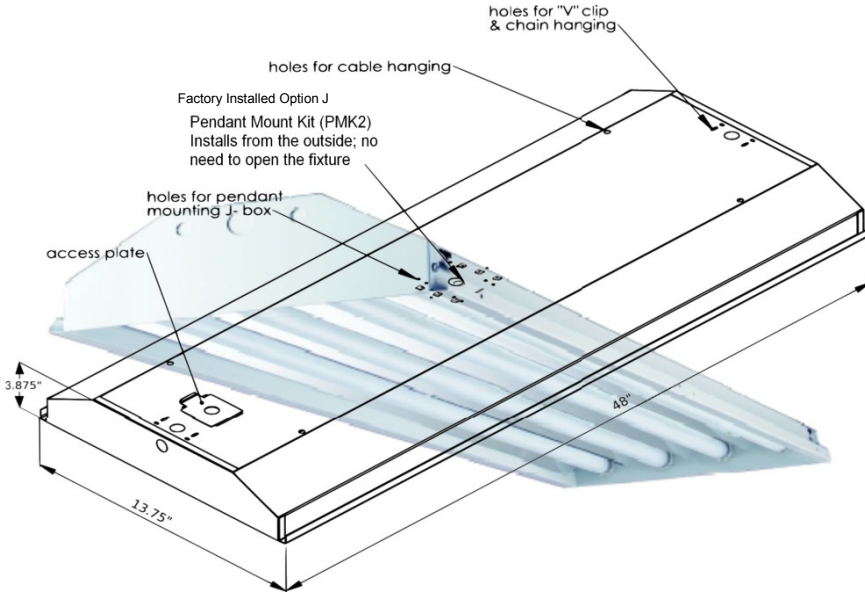
**HIGH BAY FLUORESCENT—FOUR LAMP**

**DESCRIPTION**

HFA2 series high-bay fluorescent fixture is a great energy saving alternative to traditional HID high-bay fixtures. This fixture operates four lamps and as a standard feature comes equipped with Howard ballasts.

Benefits of fluorescent high-bay luminaries include:

- Energy Saving Compared to HID systems
- Exceptional Color Rendering
- High System Efficacy
- Long Lamp Life
- Instant On/Re-strike Capability
- Howard Ballast and Howard Lamp as a system is covered by Howard Industries Warranty
- Quality Lamp holders
- Computer Designed Reflectors
- System Tested, Designed, Approved, and Manufactured by Howard Industries in Mendenhall Mississippi.
- Compliant with Safety and performance standards.

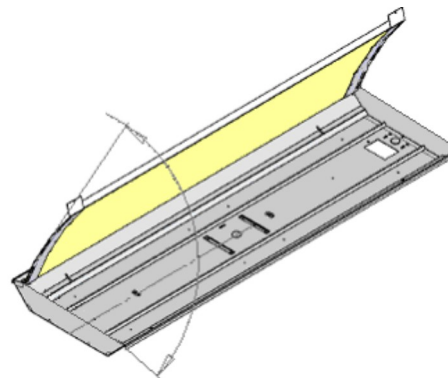


**APPLICATIONS**

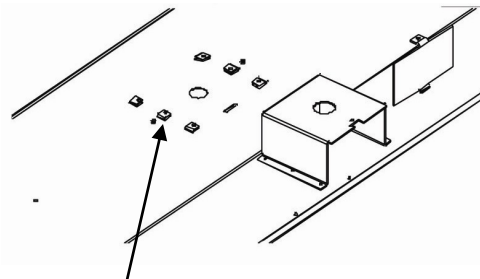
- Warehouse
- Manufacturing facility
- Retail Store
- Gymnasium
- Cafeteria
- Auditorium

**FEATURES**

- Easy access to wiring compartment & ballast
- Access plate provides access to electrical wiring without the need to open the fixture
- Knock-outs for easy electrical wiring and assembly
- Factory Installed Occupancy Sensor option
- Factory Installed Emergency ballast option
- Lamp Installation option available
- Multiple power cord set options, (voltage, length, gage)
- Pendant mount kit provides a top J-box to simplify HID retrofit installations. Can be used with a hook or rigid conduit and fasteners (Fixture must be specified with "J" option)
- Door and lens kit options available
- Choice of 86% Standard Specular Aluminum Reflector, 95% Specular Enhanced Aluminum Reflector or 91% White Reflector
- Heavy Duty pre-painted steel construction
- Factory Installed Wireguard option
- Custom configurations available
- Can be easily mounted by a single person
- Suspended or Pendant mounting insures a quick painless install
- Chain and V-Clip Hanging option
- Wire cable hanging option.
- Special wiring available upon request



Reflector Assembly pivoted open after removal of 2 Screws



Pendant mount option assembly

Pendant Mount lances included only if Factory Installed Option "J" is selected



Specifications subject to change without notice

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Ordering Information:

Model Family	Reflector/ Lens	No. of Lamps	Lamp Type/ Wattage	CRI/CCT	Ballast	Input Volts	Factory Installed Options	Cord/Plug Description	TBA	Packaging
<b>HFA2</b>	<b>E</b>	<b>4</b>	<b>54</b>	<b>A</b>	<b>PS</b>	<b>MV</b>	<b>ACJ</b>	<b>01</b>	<b>0</b>	<b>I</b>
HFA2	A Standard specular aluminum (86%) E: Enhanced specular aluminum (95%) W: Reflective white (91%)	4	28: F28T8 30: F30T8 32: F32T8 54: F54T5HO	<b>CRI CCT High Lumen T5 T8</b> A: No lamps installed B: 75 3000 No C: 75 3500 No D: 75 4100 No E: 75 5000 No F: 85 3000 No G: 85 3500 No H: 85 4100 No I: 85 5000 No J: 85 6500 No K: 85 3000 Yes L: 85 3500 Yes M: 85 4100 Yes N: 85 5000 Yes x x x x x x x x x x x x x	HI: High BF Electronic Instant Start (T8 only) LI: Low BF Electronic Instant Start (T8 only) SI: Standard BF Electronic Instant Start (T8 only) HE: High BF Electronic Instant Start CEE Listed High Efficiency (T8 only) LE: Low BF Electronic Instant Start CEE Listed High Efficiency (T8 only) SE: Standard BF Electronic Instant Start CEE Listed High Efficiency (T8 only) PS: Programmed Start Electronic (T8 CEE Listed) <sup>(1)</sup>	02: 120V 08: 277V 09: 347V MV: 120-277V Universal HV: 347-480v Universal (T5HO only) AX: 480-477 Step-down autotransformer <sup>(2)</sup>	000: No factory installed options A: Occupancy sensor with extender arm <sup>(3)</sup> B: Emergency ballast (specify lumen requirement) C: Door with lens <sup>(4)</sup> and safety cable D: Door with lens <sup>(4)</sup> G: Wireguard I: Special wiring instructions J: J-Box (Pendant Mount) Configuration. <sup>(5)</sup> T: Toggle switch bi-level lighting control <sup>(6)</sup>	00 Standard luminaire power disconnect (No Cord) 01 6' SJT 18/3; no plug 02 10' SJT 18/3; no plug 03 6' SJT 18/3; L5-15 twist lock (120V) 04 10' SJT 18/3; L5-15 twist lock (120V) 05 6' SJT 18/3; 5-15 non twist lock(120V) 06 10' SJT 18/3; 5-15 non twist lock(120V) 07 6' SJT 18/3; L7-15 twist lock (277V) 08 10' SJT 18/3; L7-15 twist lock (277V) 09 6' SJT 18/3; 7-15 non twist lock(277V) 10 10' SJT 18/3; 7-15 non twist lock(277V) 11 16/3 no plug; specify length 12 6' SJT 16/4 16 16' SJT 18/3; 7-15 non twist lock(277V) 17 18/3 no plug; specify length 18 6' SJT 16/3; L8-20 twist lock (480v) 19 10' SJT 16/3; L8-20 twist lock (480v) 20 16' SJT 18/3; L5-15 twist lock (120V) 21 16' SJT 18/3; L7-15 twist lock (277V) 22 6' SJT 16/3; L7-20 twist lock(277V) 23 6' SJT 18/3; L6-15 twist lock (240V) 25 3' SJT 16/3; L8-20 twist lock (480v) 26 NEMA L6-20 6'L 240V CSET 27 NEMA L6-20 10'L 240V CS 28 20' SJT 16/3; L8-20 twist lock (480v) 29 14/3 no plug; specify length 30 10' SJT 18/3; L6-15 twist lock (240V) 31 10' SJT 16/3; L7-20 twist lock(277V) 32 6' SJT 16/3; L5-20 twist lock (120V) 51 White 6' SJT 18/3; no plug 52 White 10' SJT 18/3; no plug 53 White 6' SJT 18/3; L5-15 twist lock (120V)	TBA	I: Single X: Special

Field Installed Options	
<b>HFA2-WG</b>	Wire Guard
<b>HF-WCH</b>	Wire cable hanging kit (2 pcs. Per kit)
<b>HF SK1</b>	Stabilizer kit: Hub, collar and wire cable <sup>(5)</sup>
<b>HF 2CV</b>	2' hanging chain & v-clips
<b>HF 3CV</b>	3' hanging chain & v-clips

**Sample Ordering Number**  
**HFA2 E 454A PS MV 0CJ 01 0 I**

HFA1 Series Hi-Bay Fluorescent  
Enhanced Specular Aluminum  
4 lamp design; no lamps installed  
F54T5HO Lamp Program Start Ballast  
w/ Universal Input (120-to-277v)  
Factory installed Occupancy sensor (A),  
Door with lens and safety cable ( C )  
and J-Box mounting plate (J)  
6 foot 18/3 SJT cord  
Individual Box Packaging

**Footnotes:**  
 (1) T8 Programmed Rapid Start recommended only in the case of abnormally frequent switching (as with an occupancy sensor). Instant Start T8 is appropriate for most ordinary applications.  
 (2) Allows hook-up of standard MV ballast to 480V  
 (3) Recommend use of programmed rapid start with occupancy sensor  
 (4) Standard Acrylic Prismatic, Pattern 12, 0.100" thick. Call for options.  
 (5) Unless otherwise specified, fixture will include field installed J-box. Supply wires will exit the center of the fixture, not the access plate. J-box can be installed without entering the fixture.  
 (6) Allows for separate control of two ballasts through simple "toggling" of a standard wall switch. Recommend use of programmed rapid start ballast with this control.

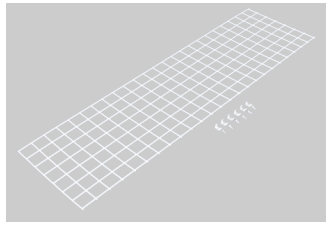


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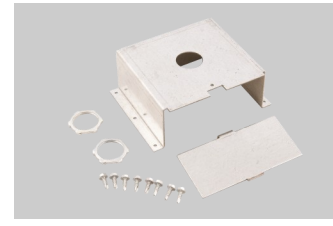
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Wireguard w/ hardware



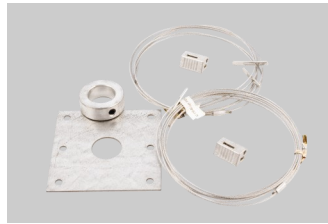
Wire Cable Hanging Kit



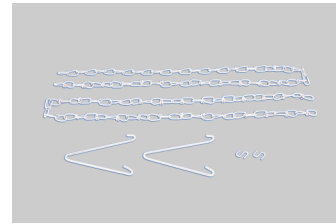
Pendant Mount Kit



Our Fluorescent fixtures can be ordered with lamps already installed. Call factory for details, availability and lead times.



Stabilizer Kit



Hanging Chain & V-clips

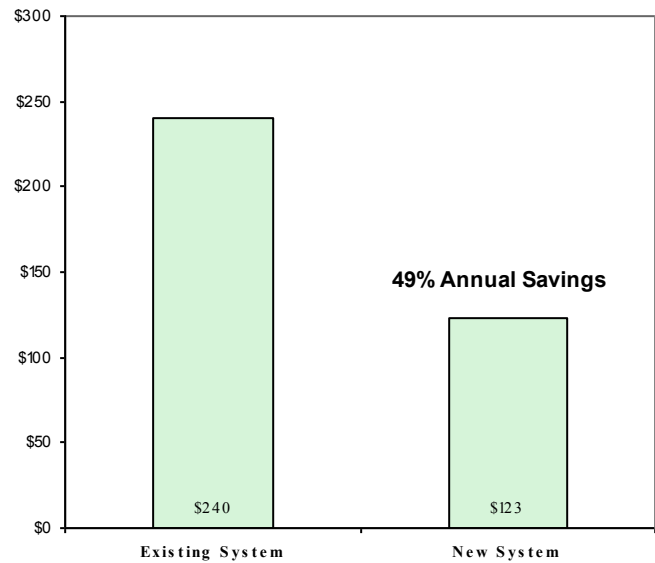
## Energy Cost

		Existing System		New System	
		400 Watt MH High Bay		HFA2E454APS Program Start T5 Ballast Fluorescent Highbay	
Hours burned per year	4368	Number of Fixtures	1000	Number of Fixtures	1000
Cost per kWh \$	0.12	Watts per Fixture (existing system)	458	Watts per Fixture (new system)	234
		(ballast input watts)		(ballast input watts)	

<b>Energy Cost Estimation</b>	Energy used per yr. (existing system)	\$240	Energy used per yr. (new system)	\$123
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**Potential Yearly Savings: \$117**

### \$ Energy Cost per Year



Howard Industries provides this tool to examine the potential impact of lighting decisions. This tool provides an ESTIMATE only. The analysis of this tool does not warrant or guarantee the actual costs or savings that will be realized as the analysis suggested. You can find the full version of this cost saving tool at the Howard Lighting Website—[www.howardlightingproducts.com](http://www.howardlightingproducts.com). Click "Cost of Ownership Calculator".

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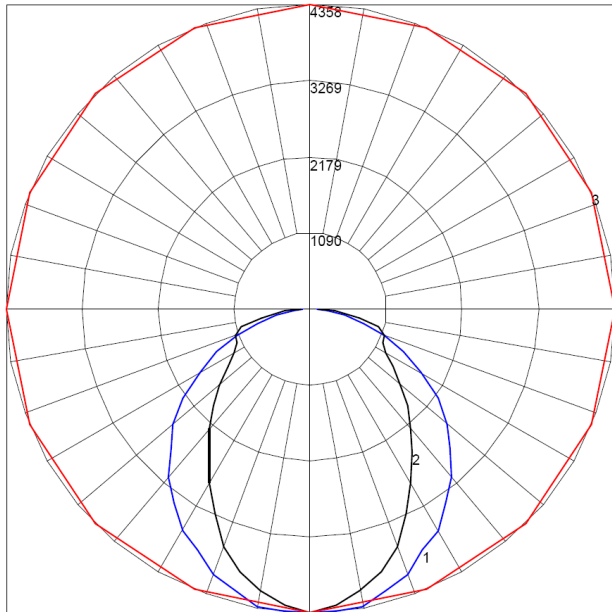
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Photometric Data - 4 Lamp T8 (HFA2E432)

Candela Polar Plot



Luminaire Efficiencies\*

Reflector Type	T8
Enhanced Specular	91%
Specular	86%
White	86%

\*Luminaire efficiency is the ratio of light output emitted by the luminaire to the light output emitted by its lamps.

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	3025.59	26.10	28.80
0-40	4723.33	40.70	44.90
0-60	7839.79	67.60	74.60
0-90	10510.33	90.60	100.00
0-180	10510.33	90.60	100.00

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	10207	6623	5976
55	9802	5726	5941
65	8605	5849	7791
75	7250	7410	7863
85	5523	4788	4835

HFA2 E 4 32

Test report: HFA2E432.IES

Spacing Criteria (0-180): 1.26  
 Spacing Criteria (90-270): 0.92  
 Spacing Criteria (Diagonal): 1.16

Maximum Candela = 4358.13

Located At Horizontal Angle = 0, Vertical Angle = 0  
 # 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)  
 # 2 - Vertical Plane Through Horizontal Angles (45 - 225)  
 # 3 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

Effective Floor Cavity Reflectance 0.20																		
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
0	108	108	108	108	105	105	105	105	101	101	101	96	96	96	92	92	92	91
1	98	93	89	85	95	91	87	83	87	84	81	83	81	78	80	78	76	74
2	88	81	74	69	86	79	73	68	76	71	66	73	68	65	70	66	63	61
3	81	71	63	57	78	69	62	56	67	60	55	64	59	54	62	57	53	51
4	74	63	55	48	72	62	54	48	59	53	47	57	51	47	55	50	46	44
5	68	56	48	42	66	55	47	42	53	46	41	51	45	41	50	45	40	38
6	63	51	43	37	61	50	42	37	48	41	36	47	41	36	45	40	36	34
7	59	46	38	33	57	46	38	33	44	37	32	43	37	32	42	36	32	30
8	55	42	35	29	53	42	34	29	41	34	29	39	33	29	38	33	29	27
9	51	39	32	27	50	39	31	26	37	31	26	36	30	26	36	30	26	24
10	48	36	29	24	47	36	29	24	35	28	24	34	28	24	33	28	24	22



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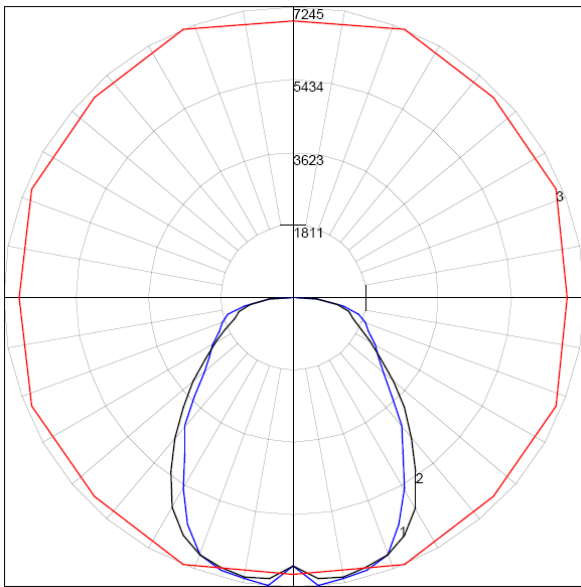
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Photometric Data - 4 Lamp T5 (HFA2E654)

Candela Polar Plot



HFA2 E 4 54A PS

Test report: HFA2E454.IES

Spacing Criteria (0-180): 1.32  
 Spacing Criteria (90-270): 1.20  
 Spacing Criteria (Diagonal): 1.32

Maximum Candela = 7245.18

Located at Horizontal Angle = 67.5, Vertical Angle = 5  
 1 – Vertical Plane Through Horizontal Angles (67.5 – 247.5) (Max Cd.)  
 2 – Vertical Plane Through Horizontal Angles (45 – 225)  
 3 – Horizontal Cone Through Vertical Angle (5) (Max Cd.)

Luminaire Efficiencies\*

Reflector Type	T5
Enhanced Specular	94%
Specular	89%
White	89%

\*Luminaire efficiency is the ratio of light output emitted by the luminaire to the light output emitted by its lamps.

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	5570.54	27.90	29.60
0-40	8871.01	44.40	47.10
0-60	14660.99	73.30	77.80
0-90	18842.01	94.20	100.00
0-180	18842.01	94.20	100.00

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	17691	13785	11702
55	16775	11103	10989
65	15299	10000	11227
75	13001	10801	13185
85	8582	8610	7941

COEFFICIENTS OF UTILIZATION -ZONAL CAVITY METHOD

Effective Floor Cavity Reflectance 0.20																		
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	112	112	112	112	110	110	110	110	105	105	105	100	100	100	96	96	96	94
1	102	97	93	89	99	95	91	88	91	88	85	87	85	82	84	82	80	78
2	93	85	78	73	90	83	77	72	80	75	70	77	72	69	74	70	67	65
3	85	75	67	61	82	73	66	60	70	64	59	68	63	58	65	61	57	55
4	78	66	58	52	76	65	57	51	63	56	51	61	55	50	59	54	49	47
5	72	60	51	45	70	59	51	45	57	50	44	55	49	44	53	48	43	41
6	66	54	45	39	65	53	45	39	51	44	39	50	43	39	48	43	38	36
7	62	49	41	35	60	48	40	35	47	40	35	45	39	34	44	38	34	32
8	58	45	37	31	56	44	37	31	43	36	31	42	35	31	41	35	31	29
9	54	41	34	28	52	41	33	28	40	33	28	39	32	28	38	32	28	26
10	51	38	31	26	49	38	31	26	37	30	26	36	30	26	35	29	25	24



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