

# RADIANT OPTICS

**HotZONE™ *HeatProjector***

**HZE Series**

**ELECTRIC RADIANT HEATER**

**RADIANT OPTICS MFG., LLC**

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## 1.0 About your HotZONE™ HeatProjector

Congratulations on your purchase of a revolutionary HotZONE™ HeatProjector from Radiant Optics. The HeatProjector line of electric infrared heaters are the most efficient spot heaters on the market today – and not by just a little bit. Our high efficiency heat “projector” is made possible by the combination of two proprietary and innovative features. Infrared heat is generated with our unique Inverted Cone IR element and focused using our precision Compound Reflective Lens. These act to generate, collect, and concentrate heat rays into a beam that can be pointed at a target area.

HotZONE™ HeatProjectors come in 2 models: HZEHPe7500w and HZEHPe15000w

The e7500 delivers the equivalent energy of a 7500w non-lensed heater with only 1500w input;

The e15000 delivers the equivalent energy of a 15000w non-lensed heater with only 3000w input.

HeatProjectors are very low cost to run, have a smaller carbon footprint and can deliver a beam of heat to a target over a longer distance and with a defined edge between the heated and unheated areas.

Plan your installation by identifying the area you want to heat and how much of a temperature increase is desired. The temperature increase depends on the power of the heater, the mounting angle, and the distance from the target. See the HZE HeatProjector Product Guide available at [www.radiantoptics.com](http://www.radiantoptics.com) and refer to the Temperature Increase Map.

HotZone™ electric heaters are listed with ETL and ETLc (for Canada) by Intertek and are approved for use in dry and wet locations.

### Warranty

Radiant Optics Mfg., LLC warrants, to the original purchaser, our products to be free of defects in material or workmanship for six months from date of purchase. Parts found to be defective will be repaired or replaced at the option of Radiant Optics Mfg., LLC. This warranty of material and workmanship specifically excludes labor and ordinary and routine servicing and maintenance associated with the goods sold, including replacement of the element which has an expected service life of 2000 hours.

#### What is Not Covered By The Warranty

*The warranty does not cover:*

- (1) Installations not made in accordance with installation instructions;
- (2) Where the operation of the product varies substantially from our operating instructions;
- (3) Malfunctions resulting from misuse, negligence, alteration, accident or lack of maintenance;
- (4) Labor, loss of time, inconvenience, loss of use of the product, or other consequential damages;
- (5) Products with the manufacturer nameplate removed.

The above constitutes our sole warranty. THERE IS NO WARRANTY OF MERCHANTABILITY AND THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION OF THE FACE HEREOF.

## 2.0 Important Instructions

When using or working on electric heaters, basic precautions should always be followed to reduce the risk of fire, electric shock, and injury to persons, including the following:

1. Read all instructions before installing or using this heater.
2. This heater is hot when in use. To avoid burns, do not let bare skin touch hot surfaces. Keep combustible materials, such as furniture, pillows, bedding, papers, clothes, etc. and curtains at least 4 feet ( HZEHPe7500) or 5-1/2 feet (HZEHPe15000) from the front of the heater and keep them away from the sides and rear.
3. Extreme caution is necessary when any heater is used by or near children or invalids and whenever the heater is left operating and unattended.
4. Do not operate any heater after it malfunctions. Disconnect power at service panel and have heater inspected by a reputable electrician before reusing.
5. To disconnect heater, turn controls to off, and turn off power to heater circuit at main disconnect panel.
6. Do not insert or allow foreign objects to enter any ventilation or exhaust opening as this may cause an electric shock or fire, or damage the heater.
7. To prevent a possible fire, do not block air intakes or exhaust in any manner.
8. A heater has hot and arcing or sparking parts inside. Do not use it in areas where gasoline, paint, or flammable vapors or liquids are used or stored.
9. Use this heater only as described in this manual. Any other use not recommended by the manufacturer may cause fire, electric shock, or injury to persons.
10. Burned-out elements cannot be safely repaired and must be replaced.
11. Heater must be installed according to NEC and other local electric codes.
12. Use supply wires suitable for 90°C.
13. Use high-temperature hardware (stainless steel) to connect element leads to power leads.
14. Do not install closer than Minimum Clearance to any surface.
15. Do not install less than Minimum Mounting Height from the floor.
16. Servicing should be done only while the heater is disconnected from the supply circuit.
17. "SAVE THESE INSTRUCTIONS"

## 3.0 Mounting and Electrical Installation

### 3.1 Mounting

Mount the heater according to the following installation instructions:

1. Mount the heater at or above the MINIMUM MOUNTING HEIGHT (See Table on page 5)
2. Ensure the MINIMUM DISTANCE TO COMBUSTIBLES is maintained above, below and around the heater. (See Table on page 5)
3. There are several methods for mounting your HZE *HeatProjector*. Each HZE *HeatProjector* comes with a 3/4" EMT compression fitting and enough high temperature lead wire for mounting at the minimum distance to combustibles.

Options:

- a. Use 3/4" EMT conduit

(1) Radiant Optics recommends using the 3/4" EMT compression fitting provided to mount your heater using 3/4" EMT conduit.

(2) Enough high temperature lead wire is provided to mount the heater at the minimum distance to combustibles: 6" for the HZEHPe7500 model and 9" for the HZEHPe15000 model. Additional lengths of lead wire and ground wire can be attached to the wires provided using a butt splice or connection inside a conduit body. Splices must be done per the NEC and local codes.

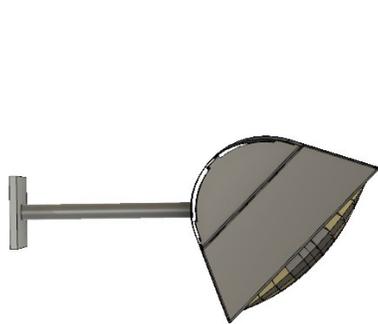
(3) Comfort is best obtained with the heater off to one side and angled at 30°. Straight EMT from heater to wall or ceiling will give a 45° mounting angle. Bend EMT as necessary to attain desired mounting angle.

- b. Use chains and flexible conduit

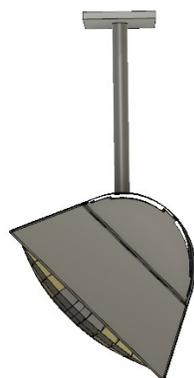
(1) the heater can also be hung by 4 corners using chain. Connect chain to the heater lip by drilling 4 holes for hooks or attach chains mechanically. Position the heater to obtain a mounting angle between 20° and 45°.

(2) Use metal flexible conduit to electrically connect leads per NEC and local codes.

- c. Optional Mounting kits from Radiant Optics—Radiant Optics offers several different mounting kits for both wall and ceiling mounting as well as in-ceiling mounting options (continued on next page).



Wall Mount



Ceiling Mount

## 3.1 Mounting (Continued)

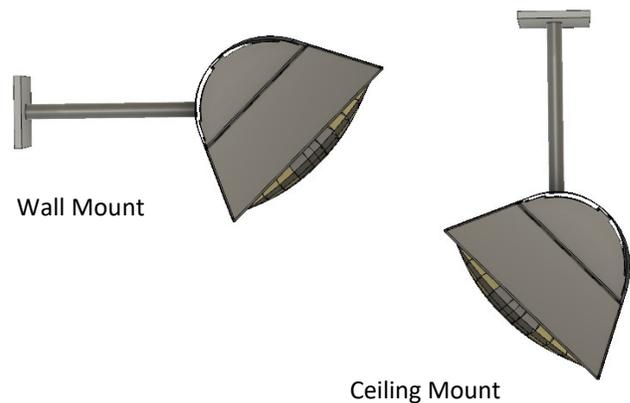
### Optional Mounting kits from Radiant Optics

#### Wall and Ceiling Mounting kits

Radiant Optics offers kits to facilitate Wall or Ceiling Mounting. These kits contain:

- universal mounting subassembly includes plate for attaching to a single or dual gang junction box of virtually any type, a cover plate, and a 3/4" EMT compression fitting;
- 3/4" EMT in length specified. Straight EMT provides a mounting angle of 45°. 30° Kits contain pre-bent EMT to obtain the mounting angle.
- Leadwire extension for kit length specified.

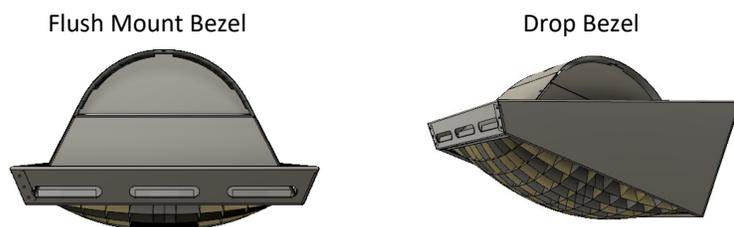
Kit Part Number	Length	Mounting Angle
HZEHPWCM6-45	6"	45°
HZEHPWCM9-45	9"	45°
HZEHPWCM24-45	24"	45°
HZEHPWCM48-45	48"	45°
HZEHPWCM6-30	6"	30°
HZEHPWCM9-30	9"	30°
HZEHPWCM24-30	24"	30°
HZEHPWCM48-30	48"	30°



#### In-Ceiling Mounting kits

In-Ceiling mounting can be obtained with either a flush or drop mounting kit. Ceiling spaces must be **well ventilated**. Flush mount bezels are only recommended for pitched ceilings. Contact Radiant Optics for additional information on ceiling cut-out dimensions and ventilation requirements.

Kit Part Number	Mounting Angle
HZEHPe7500FM	0°
HZEHPe15000FM	0°
HZEHPe7500DM	26°
HZEHPe15000DM	26°



# 3.1 Mounting (continued)

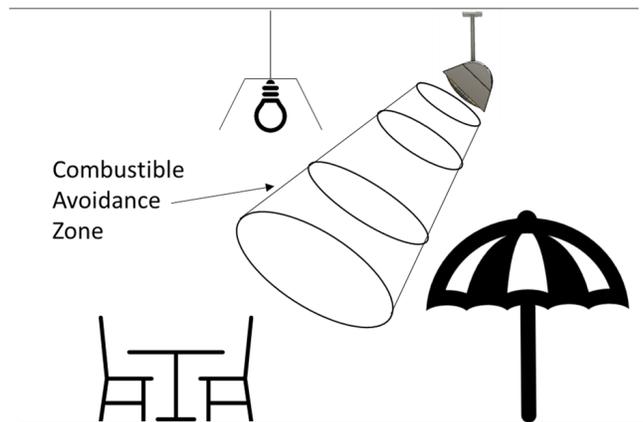
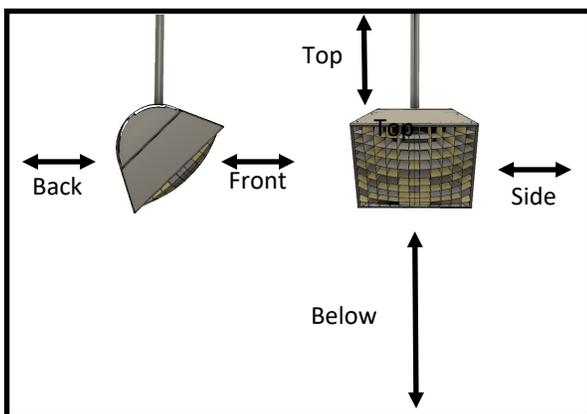
## Distance to Combustibles

The Radiant Optics *HeatProjector* projects a beam of energy at a target area. Items placed too close to the heater ***can overheat and can catch fire.*** Installers must mount the heater at or above the MINIMUM MOUNTING HEIGHT and ensure the MINIMUM DISTANCE TO COMBUSTIBLES is maintained above, below and around and the heater. (See Table on next page)

1. At minimum distance to combustibles, heaters will not raise the temperature of a highly absorptive surface >90° F
2. Many heater manufacturers exaggerate the minimum distance to combustibles to exaggerate the performance of their heaters. Our distances are true minimums.
3. The bulk of the heat radiates from the lens of the heater in a heat beam and care must be taken to keep combustibles out of the Combustible Avoidance Zone

INSTALLATION MOUNTING REQUIREMENTS		
Minimum Distance to Combustibles		
	<i>Distance minimale aux combustibles</i>	
	HZEHPe 7500	HZEHPe 15000
Angle <i>L'angle</i>	0°/45°	0°/45°
Side <i>Cote</i>	9"/9"	18"/18"
Front <i>Front</i>	9"/30"	18"/41"
Back <i>Arriere</i>	9"/9"	18"/18"
Top <i>Sommet</i>	6"/6"	9"/9"
Below <i>Dessous</i>	48"	66"
<b>Minimum Mounting Height</b>		
<i>Hauteur de montage minimale</i>		
	72"	72"
<b>Do not install heater directly above flammable materials</b>		

Diameter of Combustible Avoidance Zone Below Heater (inches)		
Distance from Lens	Model	
	HZEHPe 7500	HZEHPe 15000
12	26	32
24	36	42
36	46	52
48	56	62
60		72
72		82



## 3.2 Electrical

All wiring must be in accordance with the National and Local Electrical Codes. The heater housing must be properly grounded. Refer to the label on the heater for model identification.

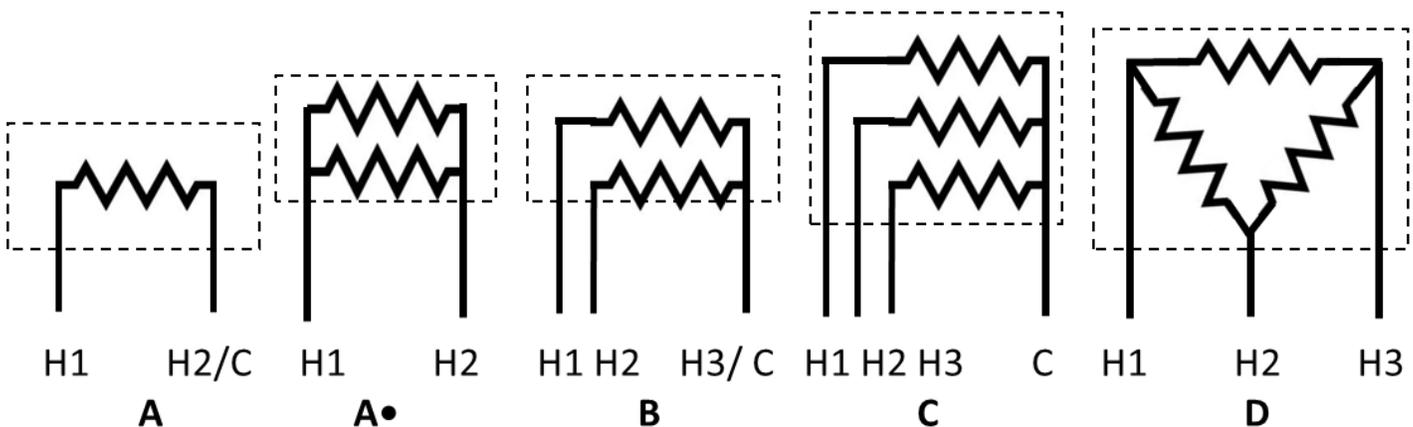
1. Install circuit protection for each heater or bank of heaters as required by the NEC and local codes.
2. Connect the service to the heater with properly sized conductors. Use waterproof conduit or flex if installed outdoors or in wet areas.
3. Use high temperature grounding lead (identified with green tape) to connect to ground per NEC and local codes.
4. Connect service to the high temperature wires according to the wiring schematics below. Heaters have two, three or four wires with the neutral and/or ground marked accordingly.
5. Supply heater control equipment as required to turn heaters on and off. Consider additional controls to allow the heater to a) come on in stages for heaters with staged elements b) be dimmed or c) be controlled by timers.

		Ampacity & Schematics	
		Refer to instructions for schematics	
Voltage AC		HZEHPe 7500 1500W	HZEHPe 15000 3000W
	120		12.5 A
208		7.2 A	14.4 A
208 S2			14.4 B
208Y‡			8.3 C
208D‡			8.3 D
240		6.3 A	12.5 A
277		5.4 A	10.8 A
277 S2			10.8 A•

S2=Stages Elements, ‡3Φ Power "Y", "D"

A= 2 Wire Series. A•=2 Wire Parallel

B=3 Wire Series, C=4 Wire Wye D=3 Wire Delta



## 4.0 Maintenance

HotZone™ heaters have no moving parts and require very little maintenance. We recommend the following be done at least once a year:

- With an air hose regulated to 30 psi or less, blow off any dust and dirt that has accumulated on the reflective surfaces of the heater and reflective lens. Accumulated dirt can degrade performance .
- Blow off any accumulated dirt on the vent gaps of the heater and make sure the cover is not bent such that the vent area is reduced.
- When not installed or in use, store the heater in a dry, dust-free place and be sure the lens assembly is protected from any possible damage.

## 5.0 Troubleshooting

At full power and after two to three minutes of warm-up time, the heater element should glow a warm orange color, similar to the color of coals in a hot fire.

### **If the element does not warm up at all:**

- Check that the power is on at the circuit breaker and/or any installed switch or dimmer.
- Check that the element has not failed. Burned out elements normally have visible burn marks on the face of the element. If there is no evidence of damage, and you still suspect the element, turn off the power at the circuit breaker, disconnect the service power and check element resistance. It should be between 10 and 50 ohms, depending on the element.

### **If the heater barely glows:**

- Check any installed dimmer is turned full on and operating correctly,
- Check for the correct line voltage (under load condition).
- Confirm the heater is wired correctly. See Wiring Diagrams.

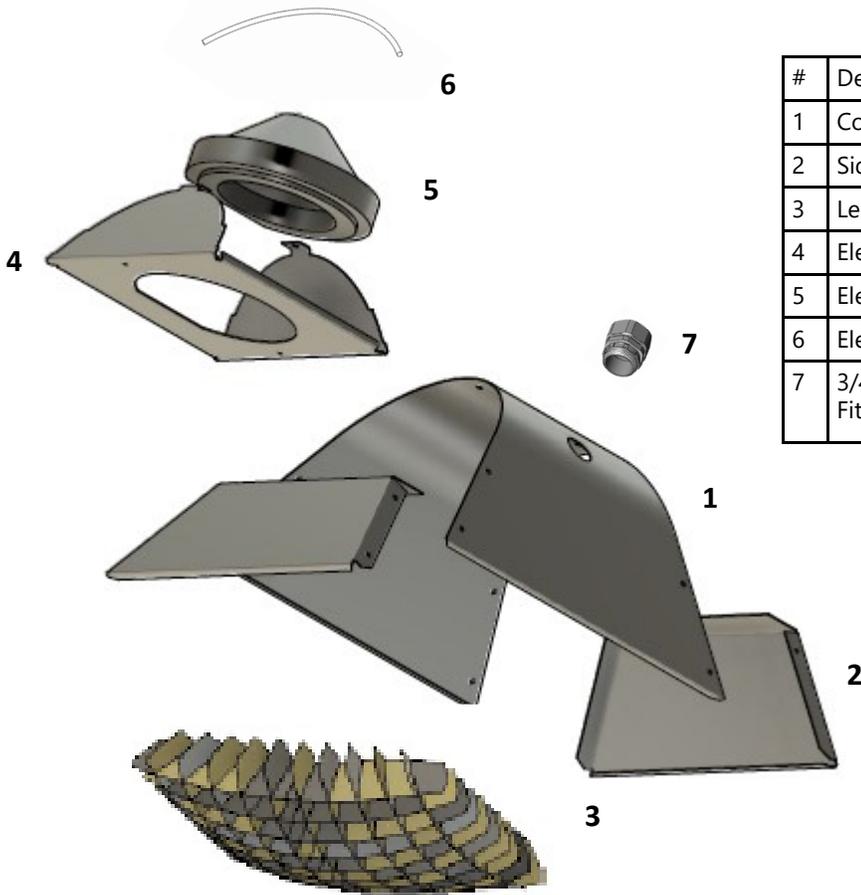
### **If the heater glows a bright orange-white, and heats up very quickly, the heater is receiving too much power and will burn out very quickly if it is not turned off.**

- The line voltage is too high.

### **Lens Repair**

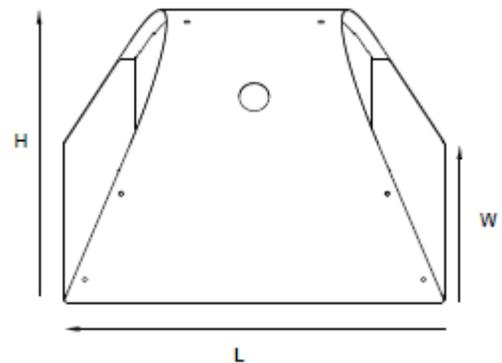
Heater lenses are manufactured from thin aluminum and are easily bent and damaged. Heater performance deteriorates when the lenses are bent or damaged. In most cases the lenses can be bent back into shape by hand or with pliers. If the lens cannot be repaired, it can be replaced.

## 6.0 Parts List and Dimensions



#	Description	e7500	e15000	e25000
1	Cover	1	1	1
2	Side	2	2	2
3	Lens	1	1	1
4	Element Bracket	1	1	1
5	Element	1	1	1
6	Element Hold-down***	1	2	2
7	3/4" EMT Compression Fitting	1	1	1

Model	L	W	H	Weight	Power Input
e7500	15"	15"	9"	4LBS	1500 Watts
e15000	21"	21"	12"	7LBS	3000 Watts



### Replacement Elements

The estimated life of the element is approximately 2000 hours. Information on replacement elements can be found at [www.radiantoptics.com](http://www.radiantoptics.com).