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## Common Installation, Operation & Maintenance Practices

### Proper Use:

Infrared heaters are designed to provide warmth and comfort for commercial, industrial and some approved residential applications.

Most infrared heaters are not approved for:

- Residential indoor living or sleeping areas.
- Process heating, such as paint booths, grain bins, material drying.
- Hazardous (class 1 or 2) environments.

### A Qualified Technician:

Infrared heaters must be installed by a qualified person or agency per applicable codes and the manufacturer's Installation, Operation and Service manuals. Also, an installer shall:

- Install the heater in accordance with the published minimum clearances to combustibles and other heater specifications.
- Provide access for servicing.
- Give a copy of the manufacturer's Installation, Operation and Service manual to the owner.
- Ensure there is adequate air circulation around the heater.
- Ensure the heater is placed in an approved application.

### Installation Considerations:

- Proper design
- Gas supply and pressure
- Mounting heights
- Clearance to combustibles
- Burner box location
- Chemicals or vapors in the space
- High moisture/harsh environment
- Venting lengths and locations
- Reflector angle
- Necessary guarding

### Specialty Applications:

Certain applications may require additional design and installation considerations. Contact the factory or your local representative for assistance when applying infrared heaters in applications such as:

- High altitude sites
- Residential applications
- Areas with non-standard gas
- CNG bus stations/service garages
- Agricultural applications
- Outdoor patios

### Applicable Standards and Codes

Installation must comply with national and local codes and requirements of the local gas company.

#### Gas Codes:

Refer to National Fuel Gas Code, ANSI Z223.1 – latest revision (same as NFPA 54).

#### Aircraft Hangars:

Refer to Standard for Aircraft Hangars, ANSI/NFPA 409 – latest revision.

#### Public Garages:

Standard for Parking Structures NFPA 88A – latest revision or the Code for Motor Fuel Dispensing Facilities and Repair Garages, NFPA 30A – latest revision.

#### Electrical:

Refer to National Electrical Code®, ANSI/NFPA 70 – latest revision.

#### Venting:

The venting must be installed in accordance with the unit's Installation, Operation and Service manual and the following codes. Refer to NFPA 54/ANSI Z223.1 – latest revision, National Fuel Gas Code.

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### Did You Know?



The effectiveness of an infrared surface to a person or object may be diminished with wind speeds above 5 mph. The use of adequate wind barrier(s) may be required.

When possible, locate the thermostat in a neutral location to avoid a false sensing scenario. Avoid direct placement on outside cold walls.



## Did You Know...

Source D.O.E.

...that 30% of a building's total energy is used inefficiently or unnecessarily?

...that 20 billion dollars could be saved annually if the energy efficiency of all commercial buildings improved by 10%?

...that improving the energy efficiency of commercial and industrial buildings by 10% can significantly reduce greenhouse gas emissions?

## Do Your Part!

Gas-fired infrared heating appliances are a great method to efficiently heat many applications when properly applied and maintained. By actively following the tips listed here, infrared heaters can potentially increase a building's overall efficiency ratio, reduce the output of greenhouse gases, and increase comfort levels in the building. Do your part and own an energy efficient building!

## Tips for Improved Infrared Operating Efficiencies



**Energy Star:** Install an Energy Star rated programmable controller and have an automatic setback during times of zero occupancy. Most applications can recover from a setback within 20-30 minutes.



**Two-Stage:** Utilize two-stage technology in your heating appliances. This will lower annual fuel consumption, reduce greenhouse gas production, and increase comfort levels in the space.



**Controls:** Utilize advanced control options. Today's climate control technology provides an excellent means to directly monitor and improve your building's overall efficiency and can also allow for individualized zoning. Consider using programmable thermostats, locking guards, remote sensors and in some cases, advanced DDC controls.



**Insulation:** Evaluate the soundness of your structure. Air leaks, poor or missing insulation, and degraded weather-stripping increases the amount of energy needed to maintain a constant temperature. Adding additional insulation will help to maximize your building's energy efficiency.



**Maintenance & Cleaning:** Clean and maintain your current units. Dust and debris can accumulate on the reflector and internal components, inhibiting the overall efficiency of the unit. Routine maintenance can help to keep your unit running at its optimal efficiency.



**Replace Older Units:** Replace older units with a more efficient one. The advancement of technology has yielded more efficient heating appliances. Also, as older units wear down, the efficiency may decay, thus requiring more energy consumption to heat a desired area.



**Educate:** Inform staff of the high costs associated with poor energy management practices. Discourage leaving dock doors open for extended periods of time. Also, instruct staff members that setting back the thermostat by just 2°F can save up to 6% on your heating costs.



**Barriers:** Seal off any areas where excessive air leaks are present. Isolate unoccupied areas with partitions. Areas that contain excessive air leaks can increase fuel consumption.



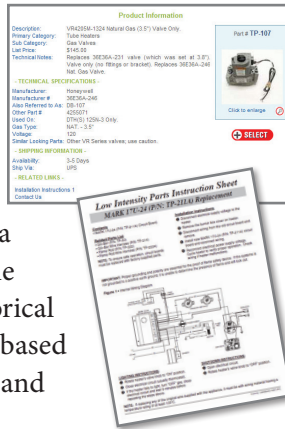
**Rebates:** Get rewarded! A wide array of government, state and local gas companies offer initiatives in the form of rebates and tax credits to encourage energy savings and green building. Conduct an energy audit and then contact your local gas providers to determine eligibility.



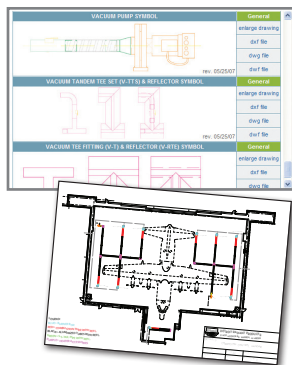
Our acclaimed and expansive website, [www.reverberray.com](http://www.reverberray.com), caters to engineers, contractors and end-users seeking information and access to our many lines of infrared heaters. Online tools include product brochures, specifications, manuals, a CAD library, a parts locator program, wiring diagrams, distributor information, troubleshooting guides and much more.

## Aftermarket Parts Replacement

During the cold winter months, the importance of properly providing and supporting aftermarket parts is critical. A custom database parts program, containing over 2000 items, is part of the Re-Verber-Ray® solution to this need. Browse our parts list or search for a specific part by product name, part number or via a reference library. Learn more about your applicable part including technical details, photographs, historical usage, list pricing and much more. Share this web based resource with your network for ease in identifying and obtaining the necessary components. Visit [www.reverberray.com/parts](http://www.reverberray.com/parts).



## Online CAD Library



Looking to design an infrared project and in need of a technical drawing? Try visiting our website to learn more about our free AutoCad compatible product CAD library. Download an extensive inventory of drawings consisting of assorted symbols, heaters, installation details, etc. in four commonly accepted file formats. Save time, money and ensure technical accuracy by visiting [www.reverberray.com/cad](http://www.reverberray.com/cad).

## Distribution Network

Detroit Radiant Products Co. offers a local distribution network designed to assist in pre and post sale support. Local representatives are factory trained to provide design assistance, quotations, technical support and aftermarket parts.

**Local Representative.** Your local representative may be found by entering your zip code online at [www.reverberray.com/locator](http://www.reverberray.com/locator).

**Master Part's Distributor.** A factory authorized national distributor is able to provide support, as listed below, for your Re-Verber-Ray® heater.

- Toll-free staffed assistance (Mon.-Fri., 9am-5pm local time).
- Technical troubleshooting assistance.
- Stocked Re-Verber-Ray® parts.
- Visa and MasterCard services.
- 24-hour shipping, via UPS, anywhere in the USA.
- Fair and competitive parts pricing with Trade discounts.
- Visit [www.reverberray.com/locator/mpdist.html](http://www.reverberray.com/locator/mpdist.html).

**W.W. Grainger, Inc.** A leading business-to-business distributor of MRO and HVAC equipment. Dayton® brand infrared heaters, as manufactured by Detroit Radiant Products Co., were first introduced in the late 1960's and are presently available at any of the 440+ Grainger branch outlets.

## Did You Know?



That re-sellers of Re-Verber-Ray® Series 3 tube heaters may display their logo and contact information on the product.


Enroll in our personalized label program at [www.reverberray.com/labels](http://www.reverberray.com/labels).

## Maintenance Tips



The fan is a critical tube heater component and must be kept clean.

When cleaning the fan, be sure to clean each fin on the impeller fan (squirrel cage) to ensure proper air movement. Oil the motor annually using SAE 20 or SAE 30 Motor Oil.

A heater that hangs in a dirty or moist operating environment should be covered or removed during the summer months. 

A dirty reflector will adversely impact the output and performance of an infrared heater. Clean reflectors annually using a wet rag or sponge. If your aluminum reflector is stained or discolored, try cleaning it with Alumiprep 33 by Henkel Technologies.



To avoid blockages in the venting from birds nesting, a screen can be installed on your vent cap with squares spaced 1/4 to 1/2 inches across.

If using high pressure air to clean a ceramic heater DO NOT exceed 30 psi or you risk removing the gasket material that lines each ceramic. High pressure air should be applied carefully and from a distance of 3 to 5 feet. DO NOT apply high pressure air to a gas valve or air pressure switch as this will rupture the component's internal diaphragm.



When checking the combustion chamber noted on the annual inspection checklist, pay particular attention to the integrity of the top portion of the tube nearest the burner (the first 10-feet) as this is where the failure risk is greatest.

## Infrared Heater Inspection Checklist

For optimum performance and safety, it is recommended that all installation, service and annual inspection be performed by a qualified person or agency.

### Make sure that:

- Clearances to combustibles warning signs are posted as described in Chapter 4.
- The manufacturer's Installation, Operation and Service manual is legible. Keep manual in a clean, dry place. Contact the manufacturer for replacement labels or manuals.
- All warning labels are attached and legible.
- The area around the heater is free of combustible materials.
- Reflector is in good condition and free of dust and debris. Clean outside surface with a damp cloth, if needed. Reflector must be properly resting on mounting brackets and not the tube itself.
- Vent pipe and outside air inlet are free of dirt, obstructions, cracks, gaps in the sealed areas or corrosion. Look for bird or insect nests. Remove any carbon deposits. Tubes are connected and suspended securely. There should be no holes, cracks or distortion on any part of the tube, especially the top.
- Gas line has no gas leaks. Check gas connection and verify proper inlet pressures are satisfied; refer to the manufacturer's Installation, Operation and Service manual.
- Combustion chamber and burner observation windows are clean and free of cracks or holes.
- Blower impeller fan and motor are clean.
- Burner and orifice are clean.
- Igniter and electrode are not cracked, broken, eroded or showing signs of wear. Replace as needed.
- Thermostats, sensors and control devices have no exposed wire nor damage to the device or its wiring. Verify that clearance to combustible placards are posted and in accordance with manufacturer's requirements.
- Suspension of the heater is secure and in accordance with manufacturer's requirements. Look for signs of wear on the chain or ceiling.
- Pump and blower inlets and outlets are free of blockage or soot.
- Ceramic tiles in burner assembly are not operating in a flashback condition (burning behind grids).
- Ceramic tiles are not cracked. Ceramic burner assembly gaskets must be in place. Do not clean with high pressure air.

For a complete checklist, reference the manufacturer's Installation, Operation and Maintenance manual.