

A PRACTICAL GUIDE



RETAIL and WAREHOUSE HEATING

Reznor®

THE NAME FOR WARM AIR

RETAIL STORES

HEATING REQUIREMENTS

- Retail buildings are generally well insulated, low-energy environments that require even heat distribution.
- Prestigious stores may require a heating system with a high degree of aesthetic integration.
- Environments should be free from draughts and excessive noise.
- Statutory ventilation requirements may determine the need for make-up air, summer ventilation or sometimes cooling.
- Maintenance disruptions should be kept to a minimum.

HEATING SOLUTIONS

- Selection of a heating scheme is based on the nature and ambience of the particular building concerned. In general terms heating in these environments can be fulfilled by either unit heaters or ducted warm air.
- Where false ceilings are fitted, ducted warm air is the ideal solution.
- Where false ceilings are not present, free blowing units or air induction systems may be used.



- Where buildings are open to the public there may be a statutory requirement to introduce ventilation. This could typically be between 5 and 12 litres per person per hour depending on local authority standards. In these cases warm air units can be fitted with fresh air intake ducts and automatic dampers, to give minimum fresh air requirements in winter and increase fresh air in summer.

ENERGY & ENVIRONMENT

The Reznor range of gas fired heating equipment is manufactured in accordance with the very latest technology, ensuring that all products meet the environmental demands of today's buildings.

Natural gas is now established as the most cost-effective, practicable form of energy. It is a clean energy source, not only in its production, but more particularly at the point of use.

Reznor gas fired suspended unit heaters utilise fuel and space efficiently. They can provide flexible zone control and both heating and ventilation from a single unit. Heaters can easily interface with building energy management systems or be supplied with a range of optional controls to give the most efficient and appropriate working or shopping environment.

These factors all contribute greatly to the reduction of



unavoidable fossil fuel consumption, through the improvement of thermal and seasonal heating efficiencies. In turn this reduces the emission of carbon dioxide (CO²) and heater models are available for the stringent reduction of Nitrogen Oxides (NO_x).

REZNOR PRODUCT RANGE

Gas Fired Unit Heaters

Warm air unit heaters are used extensively for retail and warehouse heating. They provide simple low cost, reliable solutions.

In addition to the standard range of unit heaters Reznor also produces units complete with special induction heads that promote better mixing of the heated air within the building. This allows the units to be mounted higher whilst reducing heat stratification.

Reznor high efficiency models operating at over 93% (gross c.v.) provide good pay-back periods for applications where there will be long hours of operation.



Ducted Units

Where there are low false ceilings or where there is a requirement for fresh air, for statutory ventilation or fresh air/summer cooling, Reznor ducted units provide the ideal solution.

High air capacities and quiet operation are important features that make Reznor the ideal choice. A wide range of air-flows is available plus a comprehensive range of options, including automatic dampers, modulating burner control and a selection of filters, so that systems can be tailor made for each application.



WAREHOUSES

HEATING REQUIREMENTS

- Heating systems should take account of the type of materials being stored and their tolerable limits to heat or cold. Clearance distances from combustible materials are critical.
- Sprinkler systems must always be protected from frost damage. This requires a minimum air temperature of 4°C.
- Requirements for constant annual temperatures may result in summer ventilation in addition to winter heating.
- There may be a legal necessity for ventilation, especially where vehicle exhaust fumes are present.
- Air infiltration rates could be high due to loading doors being open. In these cases over door air curtains may need to be considered.



Units are available for indoor applications and may be suspended or sited in a plant room. Alternatively, fully weather proofed units may be supplied for outdoor or roof top installation.

Air Mixing®

Reznor Air Mixing® is a lightweight, aesthetic PVC coated duct that incorporates a large number of computer designed nozzle outlets down its length that are matched to the exact requirements of the building. The nozzle pattern provides a very evenly diffused distribution of warm air and is ideal for open warehouses or retail areas without false ceilings. The system is extremely lightweight compared with conventional metal duct systems and also permits the use of smaller duct diameters. This reduces the weight on the building structure and makes installation simpler and quicker.

The multiple nozzles of the Air Mixing® system not only ensure even distribution, they also induce warm air from above the duct into the discharge air stream thereby recirculating 'free heat' from lighting etc. and recycling heat that has risen to the roof space and would normally be wasted.

HEATING SOLUTIONS

- Warm air unit heaters provide evenly distributed heat especially in racked or storage areas, where goods need to be maintained at specific air temperatures.
- Where fresh air is required for summer cooling or for dilution of vehicle fumes, warm air units fitted with fresh air intake ducts and automatic dampers can provide minimum statutory fresh air or 100% fresh air.
- In higher racked areas, 100% fresh air in conjunction with extract ventilation provides an effective way of alleviating excess temperatures during the summer.
- Stock protection and other environments requiring background temperatures of between 4° C and 10° C are best provided by warm air unit heaters plus air recirculation fans, or air induction systems with special induction heads that improve mixing of heated air into the building.
- Adequate sprinkler system protection is governed by the height and density of any racking present and based on the following guidelines:
 - High level sprinklers only - warm air unit heaters
 - High and low level sprinklers - warm air unit heaters, plus air re-circulation fans or ducted air induction systems

The result is very evenly distributed heat at low air velocities and low noise levels; additionally it eliminates excess heat stratification and the need for air re-circulation fans.

The diffuser Air Mixing® duct can be manufactured in a range of colours to suit the decor of the building and requires no additional decorative finish on site. The system may be used in a variety of applications with mounting heights between 2.5 metres and 15 metres.

Novojet®

The Novojet® system is an alternative air induction system. The induction nozzles may be applied either as large groups of nozzles on plenums, or may be spaced out along a conventional duct system.

When used as a group of induction nozzles on a plenum, these may either be located around the perimeter of the building or spaced out at a high level. This system allows large open spaces, such as market halls etc to be heated from only a few points of distribution. The nozzles induce large volumes of secondary air thereby achieving very good air mixing and long air-throws. The inductive effect eliminates high level temperature gradients and recirculates high level warm air removing the need for air recirculating fans.

In open space areas the nozzles would be fitted between 5 and 15 metre intervals, along the length of the duct. For warehouse use the nozzles may be specifically located to provide heat down the aisles with more heat distribution concentrated in packing areas and over the loading doors. The system may also be used in areas where false ceilings are fitted at higher levels. Ductwork may be run in the ceiling void and nozzles fitted in the ceiling grid. Each of the nozzles may be adjusted and either black or white is offered so that the system can easily blend in with the building decor.



Reznor has over 30 years experience in the design and application of high efficiency heating systems for retail stores, shopping malls and warehouses. The Company offers the most comprehensive range of high technology gas fired heating equipment, that has been developed to meet the specific requirements of building operators, facilities managers and specifiers in the retail and warehousing sectors.

Reznor is the largest supplier of gas fired unit heaters in Europe and, with other manufacturing plants throughout the world, is the largest world-wide supplier with sales in excess of 100,000

units per annum.

The Company's philosophy is based on a tradition of combining the benefits of gas fired heating with the values of outstanding product quality, long life, low maintenance and high efficiency. This approach, together with a focus on customer requirements has bestowed the Company with stability, success and growth.



Company Standards and Services

All Reznor products are tested and approved to CE standards.

Reznor manufacturing plant is assessed to BS EN ISO 9001:1994 Quality Assurance.

Reznor offers a design service to its customers; including budget schemes, on site technical support and a comprehensive after-sales service package.

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