



Radiant Panels and Chilled Sails

PRICE[®]

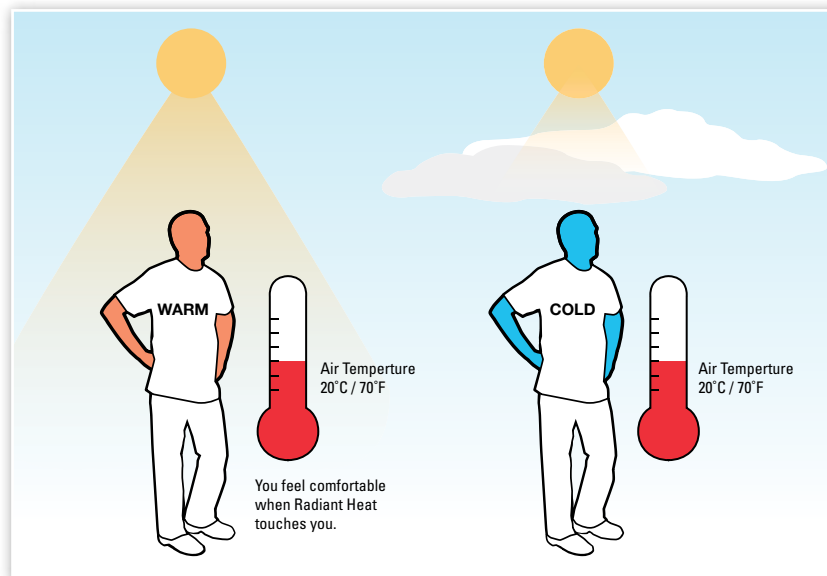
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Introduction

Radiant panels use thermal radiation to modify surface temperatures in order to provide sensible cooling and heating. Chilled sails heat using a combination of thermal radiation and natural convection.

Radiant systems use water to more efficiently condition a space's sensible load, relying on a separate ventilation system to provide ventilation and satisfy latent loads. This results in a greatly reduced supply air volume requirement, making these technologies extremely energy efficient.

All-Air Systems	Radiant Panels	Sails	Benefit
Use air for both sensible and latent load	Use water for sensible load and thermal comfort and air for latent load and ventilation	Use water for sensible load and thermal comfort and air for latent load and ventilation	Improved energy efficiency
Re-circulate air	Generally supply up to 100% outside air	Generally supply up to 100% outside air	Improved indoor air quality
Condition via convection	Condition via radiation	Condition via radiation and natural convection	Improved thermal comfort



Radiant panels and sails provide comfortable radiant heating, similar to the way the sun heats the earth.

Advantages

Energy Efficiency

Using panels or sails to satisfy sensible room loads instead of all-air systems, greatly reduces the supply air volume required (typically by 60-80%). This leads to reduced fan power requirements and associated energy savings.

Thermal Comfort

Radiation conditions a space more comfortably than convection. Since radiant heating/cooling uses minimum primary air quantities, air velocities are lower in the occupied space, minimizing draft risk.

Improved Air Quality

Radiant systems are typically partnered with dedicated outdoor air systems (DOAS) to deliver fresh outdoor air for ventilation purposes and avoid the recirculation of pollutants typical of all-air systems.

Quiet Operation

The reduction in air-side mechanical equipment inherent of a radiant systems results in less noise, and thus a quieter, more comfortable occupant experience.

At water velocities below 4 fps, radiant panels and sails produce imperceptible noise levels.

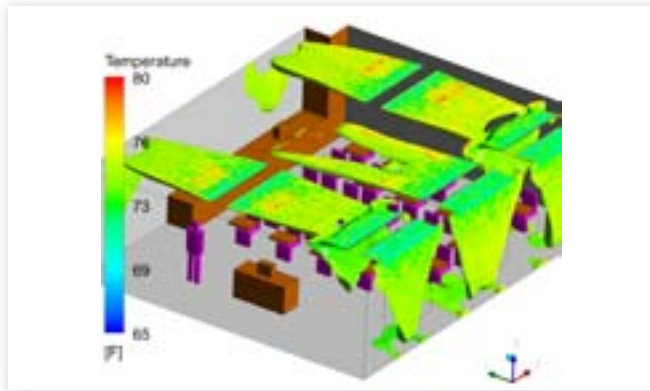
Smaller Footprint

The reduced supply air volume of a hydronic system reduces ductwork requirements, resulting in the ability to reduce plenum heights. This allows radiant systems to be installed in tight spaces, and creates the potential for lower construction costs, higher ceilings, and more usable floor space. In addition, the air handling equipment is often downsized – saving cost and providing more flexibility in locating the equipment.

Reduced Maintenance

Due to the reduction in moving parts and mechanical equipment associated with radiant panels, these systems have lower maintenance costs than all-air systems.

Resources and Support



Computational Fluid Dynamics (CFD) Modeling

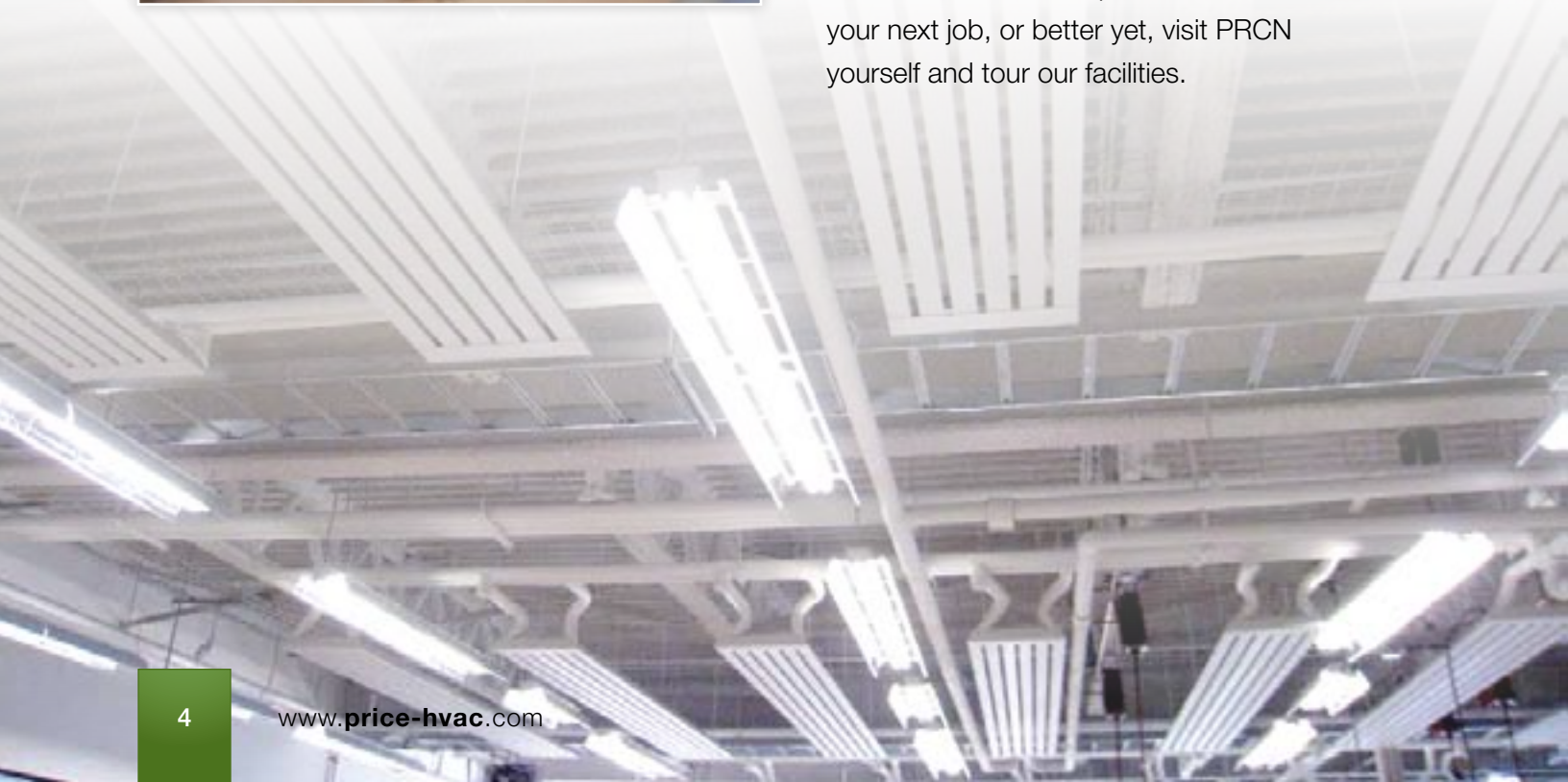
CFD provides a means to validate design before construction and the confidence that the system will perform as intended in the field. Price's CFD team is amongst the most experienced and proficient in the industry, and we encourage designers to work with us to validate their designs.



PRCN: Price Research Center North

Price's state-of-the-art research laboratory, Price Research Center North, features the most advanced hydronics lab in North America. This lab allows designers to simulate field conditions and evaluate system performance—providing them with the confidence that our products will perform as expected.

Ask about our mock-up services on your next job, or better yet, visit PRCN yourself and tour our facilities.





Applications Support

Price is a service oriented company and has a dedicated radiant systems applications team devoted to answering your questions quickly, completely, and correctly. We are here to help! Our applications team regularly provides support on:

- Model Selection
- Layout Assistance
- Calculation Assistance
- On-site Training
- On-site Performance Validation

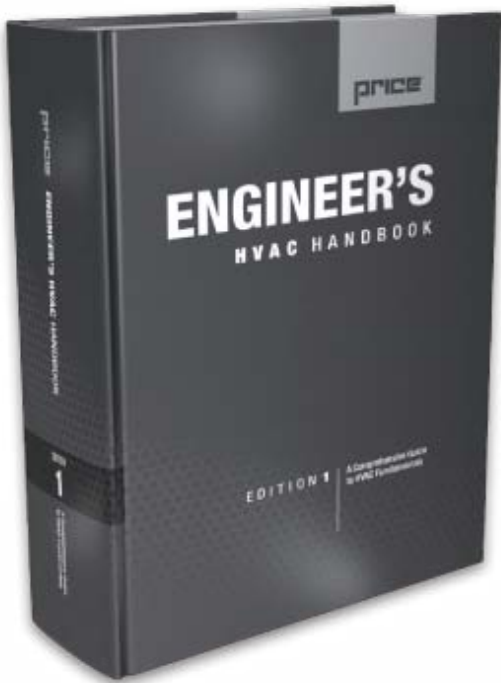
Price Training Programs and Webinars

Price Training Programs (PTP) provides Consulting and Design Engineers with the training needed to specify and select air distribution equipment to best meet their design criteria. The hydronics course covers everything you need to know about radiant products, including:

- History and Introduction to Hydronics
- Theory and System Design
- Applications
- Hydronic Heating and Cooling Products
- PRCN and Engineering Support

Our webinars are another excellent way to learn about specific topics while gaining professional development hours. Visit

www.price-hvac.com/ptp to register today!



Price Engineer's HVAC Handbook

The Most Comprehensive Guide to HVAC Fundamentals

The Price Engineer's HVAC Handbook is a compilation of the engineering knowledge related to the application of air distribution and noise control products and approaches gained at Price over the past 60 years.

The Handbook contains chapters on radiant systems and their applications, including liberal use of examples and graphics to help illustrate and explain concepts and systems.

Chapter 18: Introduction to Radiant Heating and Cooling

Contact your local Price sales representative to reserve your copy.



Price Sustainable Building Website

The Price Sustainable Building Website is the ultimate online resource for those looking to learn more about sustainable HVAC technologies like radiant panels and sails.

The site features:

- Product Information
- Research Papers
- Case Studies
- Training Modules
- Smoke Test Videos
- Product Videos

Visit www.price-hvac.com/sustainable today!

Price Hydronic Test Chamber

The Price Hydronic Test Chamber at Price Research Center North is the most advanced radiant testing facility in North America. Inspired by cutting-edge European laboratories, the hydronic test chamber is a fully automated testing environment, collecting 195 data points per second, and is able to accommodate all recognized test procedures including ASHRAE 138, DIN 14037, and DIN 14240.

In addition to aiding in rapid product development, the hydronic test chamber allows Price to perform mock-ups of radiant systems and allows Price to design, test, and manufacture custom radiant systems all in one North American facility with the most accurate and reliable performance data in the industry.



Complete Radiant Systems

Price offers a variety of radiant products with a wide selection of controls to complete the system.



Radiant Panels			Chilled Sails	
Rapid response to load demand and comfortable thermal radiation.			Higher capacity than panels and can be used as an architectural element	
Products Offered	Btu/ft ²		Products Offered	Btu/ft ²
	Cooling	Heating		Cooling
Modular	Up to 30	Up to 170*	Concealed	50-55
Linear	Up to 30	Up to 170*	Architectural	45-50

*Note: Price does not recommend exceeding Btu/ft² of 90 for interior applications, as higher temperatures can compromise thermal comfort. Operative temperature should be carefully considered when using high entering water temperatures (140 to 180°F).

Custom Panels

Price is the leader in custom panel design. We invite you to work with our design engineers to develop unique panel solutions for your application.



Price offers silkscreening on panels to match many ceiling patterns and colors.

Finish Options

- Silkscreen to match architectural ceilings
- Castellated or smooth face finish
- Perforated or solid

Options Available

- Field trimmable
- Foil back and acoustical insulation
- 2 pipe or 4 pipe systems
- Steel security panels
- Light shelf panels
- Wall mounted, surface mounted, and free hang installation available
- Bullnose or corner style

Product List

Radiant Panels



RPM
Modular Radiant Panel

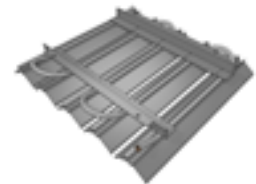


RPL
Linear Radiant Panel

Chilled Sails



CSA
Architectural Chilled Sails



CSC
Concealed Chilled Sails

Hydronic Controls



PIC-HP
Price Intelligent Controller
for Hydronic Products

Radiant Systems Accessories

Condensate Sensors

- Shut down or modulate cooling to avoid condensation on the element surface.

Hose Kits

- Isolation Valves
- Manual balancing valves
- Automatic balancing valves
- Stainless steel braided hoses
- Preassembled and pressure tested
- Push-on quick connect

Custom Systems

Don't see what you're looking for? Give us a call and we'll design a system to fit your specifications.

Project: Edmonton International Airport



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Product Improvement is a continuing endeavour at Price. Therefore, specifications are subject to change without notice. Consult your Price Sales Representative for current specifications or more detailed information. Not all products may be available in all geographic areas.

All goods described in this brochure are warranted as described in the Limited Warranty shown at the web site www.price-hvac.com.

The Price catalog is available online at www.price-hvac.com

Grilles & Diffusers	Critical Environments	Terminals & Controls	Sustainable Building	Noise Control