



# THE HOTLINE

Current news and information from Cambridge Engineering, Inc.

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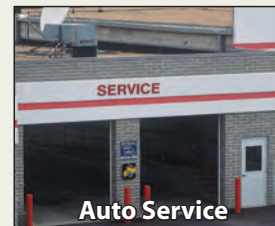
## Best Heating System at the Lowest Cost

Selecting the best and most energy efficient heating system for a building often requires a trade-off between performance and cost. This is not the case when it comes to heating large warehouses, manufacturing plants, maintenance buildings, automobile service areas, indoor sports facilities, aircraft hangars and other buildings with big open spaces that require ventilation.

**Cambridge Blow-Thru Heater**  
lowest total cost for both contractor and building owner.

The Cambridge Blow-Thru® heater is rated the #1 gas-fired industrial space heating technology with lowest overall total cost for both the contrac-

tor and building owner. This includes first costs, operating costs and facility impact costs. Engineers and contractors recommend energy efficient Genuine Cambridge equipment as the lowest total cost heating solution for new construction, rehab and retrofit projects.



Rank	Heating Technology	Type		Ratings - Lowest Total Heating Costs	First Costs			Operating Costs			Facility Impact Costs						
		Direct Gas-Fired	Indirect Gas-Fired		Design	Equipment	Installation	Energy	Maintenance	Repair	Improves IAQ	Reduces Negative Air	Summer Ventilation	Usable Space	De-Stratification	Employee Comfort	
<input checked="" type="checkbox"/> Best Buy	Industrial Gas-Fired Space Heating Equipment			<ul style="list-style-type: none"> <li>● Excellent</li> <li>◐ Very Good</li> <li>○ Good</li> <li>◑ Fair</li> <li>● Poor</li> </ul>													
<input checked="" type="checkbox"/>	1 Cambridge Blow-Thru	✓		92%	●	◐	●	●	●	●	◐	◐	○	●	●	●	●
<input type="checkbox"/>	2 Make-Up Air	✓		83%	◐	●	◐	○	◐	◐	●	●	●	◐	○	◐	◐
<input type="checkbox"/>	3 Recirculation	✓		70%	◐	○	◐	○	○	○	○	◐	◐	○	◐	◐	◐
<input type="checkbox"/>	4 Unit Heater		✓	53%	●	●	○	◐	◐	◐	●	●	●	○	●	●	●
<input type="checkbox"/>	5 Air Turnover		✓	52%	●	◐	○	○	◐	◐	●	●	●	●	◐	○	○
<input type="checkbox"/>	6 Infrared Radiant-Tube		✓	47%	○	◐	◐	◐	●	◐	●	●	●	◐	◐	○	○
<input type="checkbox"/>	7 Boiler System		✓	25%	◐	●	●	◐	●	●	●	●	●	●	●	●	◐

Cost categories summarized on back cover.

# From the President

## Genuine Cambridge – Get the Best for Less



John Kramer  
President

Cambridge Engineering is known for transforming the direct gas-fired heater industry. This earned us the reputation of providing the best industrial space heating and make-up air heating equipment you can buy. Being a family owned company with strong R&D, engineering, manufacturing and customer service roots that go back almost 50 years, we are very proud of that reputation.

Cambridge recognized early on that direct-fired heaters are the perfect solution for industrial space heating applications that really needed a more energy efficient and cost-effective way to provide both space heating and ventilation. However, Cambridge did not stop there. Understanding the distinct differences between space heating and draw-thru make-up air heating applications, we developed the more energy efficient Blow-Thru space heating

technology that puts our proprietary stainless steel Cambridge burner downstream of the blower.

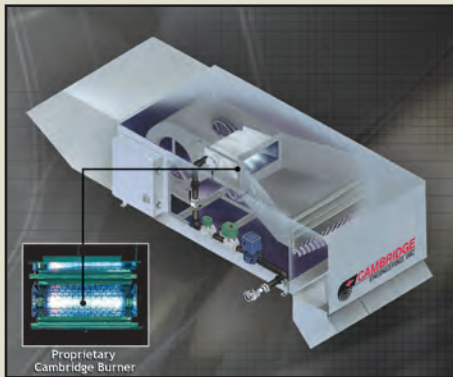
Unfortunately being the best also means some people think our equipment must be the most expensive, which is not true. In fact, Cambridge Blow-Thru technology provides lower initial equipment cost per usable BTU for industrial space heating.

Although every project is different, most individual cost factors are the same for each application. Cambridge heaters offer the lowest overall first cost, operating cost and facility impact cost of any industrial space heating technology.

Please use this newsletter to learn more about total industrial space heating costs and then let us know how we can help solve your next space heating or make-up air problem.

**Our priority is your priority...the best solution at the lowest total cost.**

## Cambridge Blow-Thru® Space Heater - Ranked #1 Best Buy



Other Industrial Heating Systems	Energy Savings with Blow-Thru® Space Heaters
<b>Indirect Gas-Fired Systems</b>	
Boilers	40% to 70%
Unit Heaters	30% to 50%
Air Turnover Systems	25% to 70%
Infrared (Radiant)	15% to 40%
<b>Direct Gas-Fired Systems</b>	
Make-Up Air (MUA)	20% to 50%
Recirculation	20% to 50%



### Lowest First Cost

#### Design

- Dependable heat load calculations
- Straightforward heating system design
- Building studies document performance

#### Equipment

- Complete equipment package price
- EPA tax deductions & utility rebates
- Lower equipment cost per usable BTU

#### Installation

- No flue roof penetrations
- Five low cost mounting options
- Perfect for retrofit applications
- Lightweight design with small footprint
- Pre-piped, pre-wired & pre-tested
- Fewer heaters, less piping & wiring
- Designed for faster installation & start-up
- Provides temporary construction heat
- Best on-time delivery record

### Lowest Operating Cost

#### Energy Efficiency

- 40% to 70% documented energy savings
- 100% gas combustion efficiency
- Smaller motors reduce electric bill
- Patented Low-Fire Start technology
- 160°F max. temp. rise/discharge temp
- Electronic modulation temperature control
- High BTU/CFM ratio reduces heat load

#### Maintenance

- Stainless burner with non-clogging orifices
- Components in cold air stream extend life
- Hinged doors for easy equipment access
- No down time for routine maintenance
- Over 20 year low maintenance service life

#### Repair Costs

- Unmatched 5 year burner warranty
- Inexpensive, easily obtainable parts
- Industry's best factory parts & service

### Lowest Facility Impact Cost

#### Ventilation

- Use of 100% fresh air improves IAQ
- Addresses negative air building problems
- Provides free summer ventilation option

#### More Usable Space

- Allows more rooftop space for solar panels
- No loss of floor area & vertical racking space
- Increased profit producing activities

#### De-Stratification

- High velocity vertical throw de-stratifies
- Documented by actual building studies

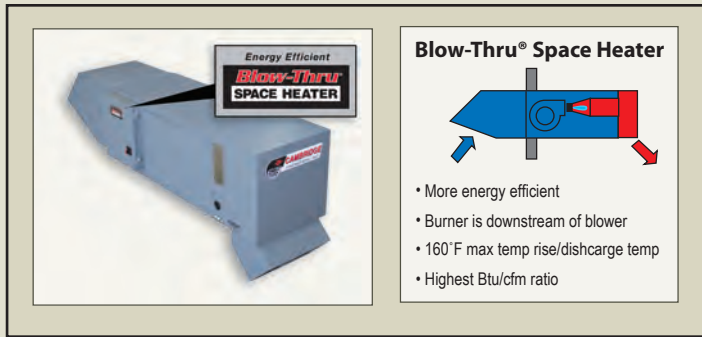
#### Employee Comfort

- No hot or cold spots increase comfort
- No complaints & higher productivity

#### System Performance

- No downtime associated with heating
- Guaranteed performance on coldest days

# Customer Testimonials - "Best for Less"



## Engineering/Consulting Firm - President

"Our Company does design work for all types of warehouses. Over 40 years experience has convinced me that Cambridge Blow-Thru space heaters offer the most economical form of warehouse heating. No heat exchangers to waste heat. No holes in the roof for flues. I've cut energy costs in half with these heaters. Believe me, it works"

## HVAC Service Contractor - Operations Manager

"The key to our success as an HVAC service contractor is providing value and services not offered by our competitors. A great example is the retrofit project with Cambridge. After comparing their proposal to others, I purchased and installed just three Blow-Thru units to heat an existing 133,000 sq. ft. facility. The performance and energy savings were unbelievable. My customer said the new heaters reduced fuel bills by 63% and also qualified for a local utility rebate."



## General Contractor - President

"The use of fresh air for indoor air quality is critical for indoor sports facilities. Cambridge heated this soccer facility and the air quality is great. My other big problem with past installations where I used air turnover units was usable floor space. Cambridge wall mounted heaters solved that problem and the installed cost was lower because I didn't have to penetrate the roof with a flue. We also needed temporary construction heat and had it instantly with the Cambridge system."



## General Contractor Saves 33%.

A general contractor documented the actual initial first cost savings for installing Blow-Thru heaters in two identical 500,000 sq ft. buildings. Switching to Cambridge heaters for the second building saved them 33% compared the original cost to purchase and install a competitor's heating system in the previous building. The project manager confirmed how easily the Cambridge system start-up went and how quickly the units heated the building on a bitterly cold day.

## Air Museum - Executive Director

"We used unit heaters and infrared heaters in other aircraft hangars. They interfered with the aircraft and we could not always get the heat where we wanted it. The maintenance of multiple infrared heaters was another problem. High fuel bills were the result of energy loss that escaped up the flues. An energy efficient, Blow-Thru space heater eliminated all these problems in our B-29 bomber hangar."



## Bottling Plant - Maintenance Supervisor



"The local Indiana gas utility came out to check our meter. They couldn't understand why we were using so little gas in our operations. I told them the major reason was we installed new fuel efficient Cambridge Blow-Thru Heaters."

## Paper Products Company - Corporate Director

"I know the heaters work, and I know what I'm going to get. I'm familiar with the other direct-fired competitors and I'm pleased with the results of our Cambridge heaters. We have experienced no problems; from the coldest climates in Canada to more moderate U.S. installations. The long term benefit of these heaters lies in the reduced operating costs you enjoy year after year."



## 30 Year Testimonial

The owner of a midwest cleaning company says, "I have used Cambridge heaters in our buildings for over thirty years, and have always been impressed with their quality, fuel efficiency and, on those rare occasions when service is needed, their ease of maintenance. I also appreciate Cambridge dependability and long service life. We replaced other heaters with Cambridge units and found the retrofit process to be simple. Whenever we need technical assistance their personnel are always available."



# Lowest Total Heating Costs

It is important to determine the lowest total costs for each project. Don't let what appears to be the lowest cost bidder determine what is important to you when it comes to reducing installation, operating, and facility impact costs.

## Initial First Costs

The initial first costs for a contractor and building owner include more than just equipment cost.

<b>Design Costs</b> <i>Get It Right the First Time</i>	A poorly designed heating system is always the most expensive heating system for both the contractor and building owner. Use companies like Cambridge that have the experience to help determine correct heat loads and the best way to heat/ventilate industrial buildings.
<b>Equipment Cost</b> <i>Apples vs. Oranges</i>	Make sure equipment meets all requirements specified by the engineer, contractor and building owner. Don't compare apples to oranges. For example, do not attempt to substitute any other heater for a Cambridge Blow-Thru® Space Heater. The technologies are different, ability to heat the building will be jeopardized and energy costs will increase. Heaters that qualify for EPAct Federal tax deductions and utility rebates help justify energy retrofit projects.
<b>Installation Cost</b> <i>Consider Hidden Costs</i>	Installation cost often exceeds equipment cost. Consider potential hidden costs. For example, indirect fired heaters require flue installations, roof penetrations and newer designs need condensate piping. Wall mounted heaters require no roof penetrations or structural building modification. Fewer heaters require less gas piping and electrical wiring, reducing costs. Pick vendors that deliver on-time. Equipment arriving late to a jobsite means additional costs and penalties.

## Heater Operating Costs

Owners and tenants care more about heater operating costs because they exceed initial first costs.

<b>Energy Efficiency</b> <i>Fight the High Cost of Energy</i>	Select heating systems with energy efficiency ratings above 90%. Save electrical energy by using units with smaller motors that don't have to run continuously to heat the building or reduce stratification. Consider infiltration rates, large door use and building ventilation when determining the most energy efficient way to heat both the space and outside air entering the building.
<b>Maintenance Costs</b> <i>Lower the Better</i>	Low cost heating systems are the ones that require the least amount of annual maintenance to efficiently heat your building. They work so well you forget they're there.
<b>Repair Costs</b> <i>You Don't Want Any</i>	You want a reliable heating system to last at least 20 years that, when necessary, can be quickly repaired with inexpensive, easily obtainable parts.

## Facility Impact Costs

The best heating system adds value, solves problems and reduces facility operating costs. The wrong heating system impacts your building in ways that cost you every day.

<b>Indoor Air Quality</b> <i>More Ventilation, Better IAQ</i>	Industrial buildings require ventilation. All direct-fired heaters use outside air to help improve indoor air quality. Indirect-fired heaters typically do not supply any ventilation. A space heating system not providing adequate air movement or any building ventilation is, in effect, costing you money.
<b>Negative Air Problems</b> <i>Building Starved for Make-Up Air</i>	Mechanical exhaust systems in buildings with indirect-fired heaters can be starved for outside air. This creates problems associated with negative building pressure, which renders the exhaust system ineffective and pulls in unneeded cold outside air when doors open. The use of direct fired heaters helps solve negative air problems, save energy and reduce costs.
<b>Summer Ventilation</b> <i>An Extra Benefit</i>	A benefit of all direct-fired heaters is they provide a free built-in summer ventilation option not available with indirect fired heaters that only recirculate existing hot building air.
<b>Usable Space</b> <i>More Profit</i>	The best heating system design provides maximum usable floor area and vertical racking space, increasing production, storage space and other profit producing activities.
<b>De-Stratification</b> <i>Saves Energy</i>	Floor-to-ceiling temperature stratification in buildings with high ceilings wastes energy. This is typically due to a lack of adequate air movement.
<b>Employee Comfort</b> <i>Increases Worker Productivity</i>	Employees that are too hot, too cold or uncomfortable from poor indoor air quality complain to management and are less productive.