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# Energy Resource Guide

## “Serving Up Solutions for Food Service Operations”

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# Natural Gas Comfort Solutions for Food Service Operations

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# Natural Gas Comfort Solutions for Food Service Operations

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# Natural Gas Serving Up Solutions for Food Service Operations

*Natural gas is a clean, efficient and reliable fuel for use in a variety of applications in food service operations.*



## ***Use natural gas for the following:***

Natural Gas Offers  
Profitable Solutions



- Space Heating**
- Water Heating**
- Booster Water Heaters**
- Cooking Equipment**
- Air Conditioning**
- Humidity Control**
- Outdoor Appliances**
- Power Generation**

*For a review of your facility's energy and savings potential using natural gas technology, please contact us.*





# Natural Gas Serving Up Solutions for Food Service Operations

*Natural gas is a clean, efficient and reliable fuel for use in a variety of applications in food service operations.*

## **Natural Gas Boilers and Furnaces**

- Furnace efficiencies of over 90%
- Variable-speed fan capabilities maintain a more even and comfortable temperature
- Faster, warmer and more economical
- Furnaces and boilers are well suited for new construction or replacement of existing boilers

## **Natural Gas Water Heating**

- Efficiencies of over 90%
- Operating cost typically 50% less than electric water heaters
- More hot water delivered than electric water heater
- Recovers in almost 1/3 of the time of electric water heaters

## **Booster Water Heaters**

- Delivers superior sanitizing without chemicals
- Reduces electric and peak demand charges
- Safe for all types of dining ware
- Reduces the risk of wet, slippery floors

## **Cooking Equipment**

- Professional chefs and foodservice facility design consultants prefer natural gas for many pieces of commercial foodservice equipment
- Precise temperature control
- Instant on – instant off

## **Natural Gas Air Conditioning**

- Reduces electric demand and avoid electric ratchet penalties
- Adds flexibility to your system and increase reliability
- No CFCs with absorption chillers

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# Natural Gas Serving Up Solutions for Food Service Operations

*Natural gas is a clean, efficient and reliable fuel for use in a variety of applications in food service operations.*

## **Humidity Control**

- Maintaining 45% – 55% relative humidity year round provides a healthier and more comfortable environment for patrons and staff
- Dehumidification reduces problems with mold, mildew, damage to walls and facilities, condensation on inner surfaces of windows, etc.
- Proper humidification in the winter may help control the spread of viruses

## **Creating Ambience – Natural Gas Fireplaces, Fire Pits, Patio Heaters, Torches and Gaslights**

- Welcome guests with a cozy, inviting natural gas fireplace.
- Patio heaters extend your serving area for dining or waiting guests and improve your profitability.
- Gaslights light walkways with a warm, nostalgic glow even during power outages
- Create an exotic atmosphere while lighting the night and warming your guests with natural gas torches and fire pits

## **Infrared Heating**

- Warms people and objects, not air
- Ideal for hard-to-heat areas – entrances, valet stands, snowy walkways, and loading docks
- Lowers energy costs

## **Natural Gas Generators**

- Keeps you in business and profitable even during a power outage
- Reliable – goes to work the minute electric service is interrupted
- No “refueling” required – no storing, spilling or leaking fuel and no odors
- Pay for fuel only when needed
- No unsightly storage tanks

## **Combined Heat and Power (CHP)**

- Makes the most of your energy dollars
- Lowers electric and overall energy costs
- Improves power reliability and quality
- Helps the environment

# Choosing The Best Energy Value

When purchasing new or replacement equipment for your business, consider more than just energy prices to ensure that your long-term investment will give you high value for your energy dollar.

## Beyond Energy Prices

Energy prices rise and fall based on changes in supply and demand, weather and economic activity, and world events. Historical price trends are an important indicator of long-term potential energy savings. This graph compares the wholesale prices of natural gas and oil and shows that natural gas prices have remained significantly lower than oil prices over time. Local natural gas utilities further help cushion price fluctuations through storage, hedging and contracts.

## Natural Gas – An Abundant, Domestic Energy

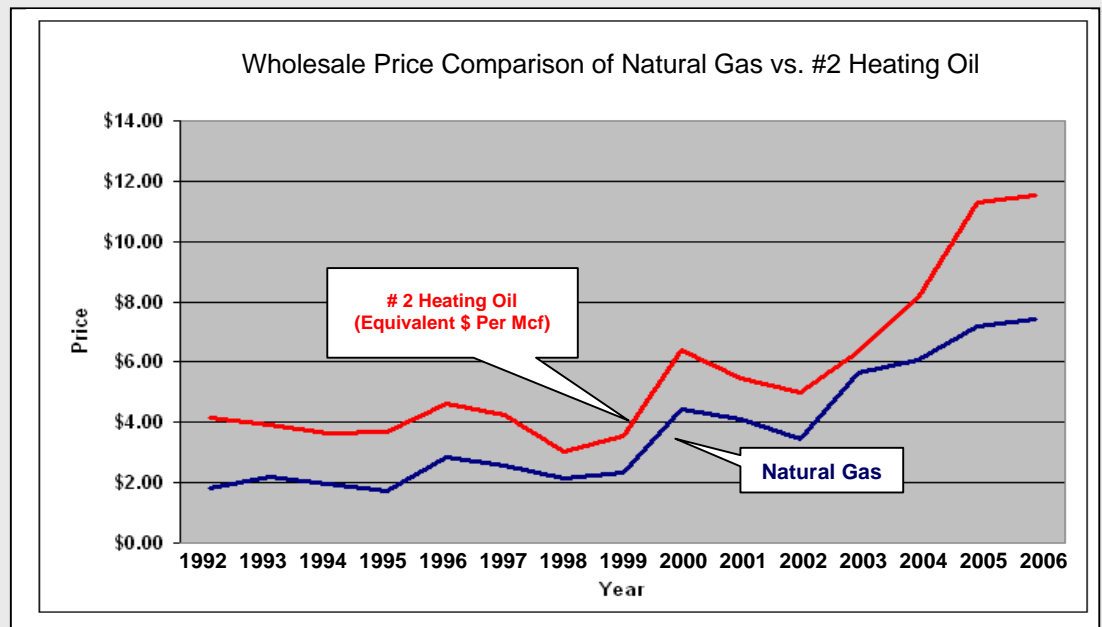
Unlike imports of oil from unreliable foreign sources, the majority of natural gas is produced in North America and in abundant supply. Estimates predict sufficient natural gas from U.S. sources to meet over 93 years of domestic production.\*

## Get All The Facts Before You Decide

Energy savings are easily quantified, but some fuels offer benefits that can be just as important as energy cost. Before deciding on the best equipment for your business, consider these factors when choosing an energy source.

- Overall seasonal efficiency
- Auxiliary electric costs
- Maintenance costs
- Onsite storage needs
- Air quality
- Reliability
- Noise levels
- Comfort
- Ease of control
- Serviceability
- Environmental liability
- Equipment cleaning

\* Based on U.S. production levels in 2000 and National Petroleum Council estimates.



Annual Average U.S. Energy Prices: Base Case (Nominal Dollars)  
Energy Information Administration/Short-Term Energy Outlook (July 2005)

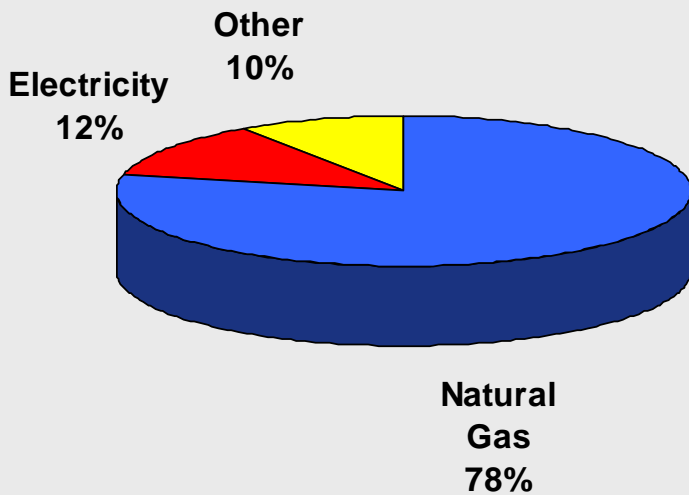


# Natural Gas Serving Up Solutions for Food Service Operations

Natural gas is a clean, efficient and reliable fuel for use in a variety of applications in food service operations.



**78%** of food service operations choose natural gas for space heating



## Energy use in U.S. food service establishments for space heating

Per Energy Information Administration  
U.S. Department of Energy

Electricity	5 Trillion Btus per year
Natural Gas	33 Trillion Btus per year
Other	4 Trillion Btus per year

**All Energy 447 Trillion Btus per year**

**9%**

of the energy consumed in food service operations is for space heating

*For a review of your facility's energy and savings potential using natural gas technology, please contact us.*



# Infrared Heating – Summer Warmth on Winter Days

For restaurants, cafeterias, fast food chains and other businesses engaged in food service, maintaining a warm environment at customer entrances, valet stands, in high-ceilinged areas and around loading docks can be a challenge. With conventional warm air heating systems, heat hovering near ceilings or lost through open doors can waste energy dollars and leave customers and employees uncomfortably cold. During cooler months, unused outdoor dining areas cut into food and beverage sales and reduce revenue. Winter's snow and ice bring added concerns as employees struggle to keep sidewalks and entries clear. Gas-fired infrared heaters can be a practical and economical solution for these hard-to-heat areas.

## Warm People, Not Air



In contrast to conventional warm-air heating, infrared heaters operate much like the sun, giving off radiant energy and directing that energy downward to heat objects—people, furniture, floors and walkways. Heat loss is minimized and recovery from heat loss is much quicker, making infrared heaters an ideal choice for worker and customer comfort. Infrared heaters are flexible enough to heat either an entire facility or selected zones such as entryways, valet stands, snowy walkways and loading docks.

*Snow-covered sidewalks, outdoor valet parking stands, and entry ways are ideally suited to gas-fired radiant heat.*

## Infrared Heating Saves Energy, Money and Space



Infrared heaters are easy on energy budgets. Their efficient operation, lower heat loss and quicker recovery can save significantly on energy costs—as much as 50%. Temperature controls allow for as much or as little heat as needed or the heaters can be turned off when not needed. And, because infrared heaters are installed above the areas to be heated, there is no loss of valuable floor space or impediments to foot traffic.

*Shopping mall courtyards and “eat streets” with high ceilings and consistently open doors can save as much as 50% on energy costs with infrared heating.*

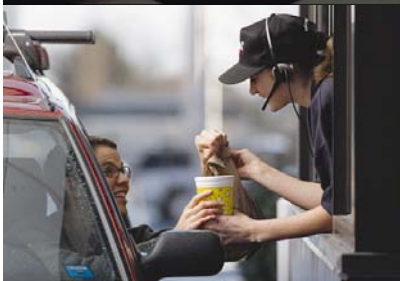
## Heat Up Your Bottom Line With Infrared

Add new seating, extend the use of your existing outdoor dining areas, and keep walkways and entries clear of ice and snow with infrared heating. The welcoming warmth of infrared will keep your customers coming back again and again and heat up your bottom line.

### **Infrared heaters offer important advantages compared to conventional warm-air heating.**

- Highly energy efficient
- Lower energy costs – up to 50%
- Less heat loss and quicker heat loss recovery
- Quiet, comfortable, draft-free heat
- Environmentally friendly
- Easy to install and maintain
- Many attractive design options
- Improved profitability – add new seating or make more productive use of existing outdoor dining areas





## Gas Patio Heaters –

Bring indoor warmth ... outdoors.



Extend the outdoor dining season and get more use from your patio area with a natural gas patio heater. Natural gas patio heaters provide just the right amount of heat to warm cool spring days and chilly autumn evenings for receptions, formal or casual dining...any outdoor occasion.

Infra-red patio heaters raise outside temperatures 10 to 30 degrees and envelop your guests and employees in a circle of soft, radiant heat up to 20-foot in diameter for hours of comfort and enjoyment.

Radiant heat warms people and objects, not the surrounding air, so natural gas infra-red patio heaters are economical to operate.

Free-standing models can be moved to any area where heat is needed or conveniently stored when not in use. Electronic ignition and independent controls make gas patio heaters easy to start and easy to use. They require no electricity and there are no tanks to fuss with. Natural gas is safe, clean and always there when you need it.

Make more productive use of your outdoor dining and entertaining areas while your customers enjoy the fun and beauty of the outdoors virtually year round in the warmth of natural gas patio heaters.

### Summer Lasts Longer With Natural Gas Patio Heaters

- Added warmth for cool spring or fall days or year round use of outdoor areas
- Economical – infrared heats people and objects, not air
- Warms an area up to 20-foot in diameter 10 to 30 degrees
- Requires no electricity or tanks
- Portable – quick disconnect connectors and flexible hoses for use anywhere or storage
- Improved profitability – adds new seating area and increases beverage/food sales to waiting customers

*For a review of your facility's energy and savings potential using natural gas technology, please contact us.*

# Snow Melting Systems Fueled by Natural Gas Keep Business Moving Through Winter's Worst

Let it snow. Let it snow. Let it snow. So goes the popular refrain. But when winter storms blanket sidewalks and roadways with snow and ice, business owners sing a different tune.

Typically, snow and ice removal methods include shoveling, plowing or applying salt or chemicals. Melting snow and ice with a natural gas fueled snow melt system can be a less expensive and more effective and environmentally friendly alternative. Snow melting reduces maintenance costs by eliminating surface damage caused by plowing or chemicals that can also kill landscaping, increase clean up costs and degrade concrete. Labor costs drop when pathways and roads require minimal or no shoveling or plowing. Often, insurance companies offer lower rates when a snowmelt system is installed because ice-free walkways help reduce injuries from falls and avoid the associated costs of a lawsuit. Clean, cleared sidewalks invite more business, make customers and employees feel safer and put an end to unsightly salt and water tracked indoors.

## Hydronic Snow Melt Systems

Hydronic snow melt systems use a boiler, heat exchanger, or a waste heat source to heat a fluid that is circulated through flexible piping imbedded in the solid surface of a floor, driveway, walkway or ramp. The most common hydronic snowmelt system uses boiler heat to warm a water/glycol mixture to between 110° to 140°F. The heated solution is then pumped through 1" to 3" diameter tubing of either cross-linked polyethylene (PEX) or synthetic rubber (EPDM).

Insulation helps direct radiant heat from the water/glycol solution to the snow and ice covered surface, and manual or automatic temperature/precipitation-sensing controls turn on and turn off the system. In general, hydronic snowmelt systems fall into one of three design classifications: those that melt snow after it has fallen, those that melt half the snow while it is falling and the remaining half after it has fallen, and those that melt all snow and ice while it is falling.

When engineering a hydronic snowmelt system, the designer considers both typical and extreme usage conditions for the area in which the system will be installed. Considerations include:

- Rate and density of snowfall
- Air temperature
- Wind velocity
- Humidity
- Slab surface temperature at start of snowfall
- Drainage
- Insulation
- Back losses from the underside of the slab
- Surface materials
- Heating fluid



# Snow Melting Systems Fueled by Natural Gas Keep Business Moving Through Winter's Worst

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## Infrared Heating

Infrared heaters operate much like the sun by giving off radiant energy in the form of infrared rays that heat solid objects in their path without heating the air through which they travel. That makes infrared heaters easy on budgets because all of their heat energy is used to warm the snow and ice covered surface with no heat loss to the intervening air. The heaters provide instantaneous, direct heat and the surface remains warm and dry so there is no refreezing.

In a natural gas infrared heater, a gas burner produces hot combustion gases that heat emitter tubes or ceramic burner surfaces causing them to give off radiant heat. Reflectors on the infrared heaters direct the radiant energy to ground level. The heaters are mounted on poles or suspended from the ceiling or other overhead structures. Infrared heaters are especially useful for spot applications such as entryways or stairways and for retrofit situations, but multiple heaters can be configured to cover larger areas.

Temperature controls allow for as much or as little heat as required or the heaters can be turned off when not needed.

Compared to a hydronic snow melt system of similar size and capability, infrared heaters require a lower capital investment.

**In addition to driveways, roadways and parking lots, applications for snow melt systems include:**

- **Brick pavers** – eliminates damage by chemicals and difficulty of shoveling or plowing
- **Sidewalks/Entrance Ramps/Handicap Access Ramps** – more inviting to customers and safer for customers and employees when cleared of snow and ice
- **Stairs** – eliminate dangerous slips and falls
- **Parking Garage Ramps** – make it easier for vehicles to negotiate slopes and turns
- **Loading Docks** – simplify truck loading and unloading

*Snow melt systems also work well ... virtually anywhere snow and ice are a problem.*

*For a review of your facility's energy and savings potential using natural gas technology, please contact us.*





## Make-up Air – Your Solution to Year Round Comfort

Proper ventilation in food service facilities is important to maintain good indoor air quality and the comfort and health of staff and diners. However, problems can result when air is pulled out through ventilators and exhaust hoods without introducing sufficient replacement or “make-up” air into the building. Indoor air can become polluted with odors and contaminants from cooking, floor coverings, cleaning agents and other materials. Additionally, cold drafts can develop, and exhaust and ventilating systems may not work properly. An air-starved building can leave occupants feeling cold and lead to a variety of health issues.

### What Are the Symptoms of Poor Ventilation?

- Doors that are difficult to open
- Persistent odors
- Equipment pilot light failures
- Weeping walls
- Cold building perimeters
- Metal corrosion
- High employee absenteeism
- Accumulation of debris near doors

### Make-up Air Heaters Are Efficient and Economical

Drawing on either outside air or a combination of indoor and outdoor air, make-up air heaters improve overall space heating efficiency by reducing the intake of uncontrolled cold air and decreasing building heating requirements. The heaters improve indoor air quality and contribute to greater occupant comfort without significantly increasing energy consumption.

### Natural Gas Make-up Air Heaters – A Simple Solution

Make-up air heaters protect your investment in your equipment and building, improve worker comfort and productivity, and maintain compliance with indoor air quality requirements. Natural gas make-up air equipment provides a simple, efficient and economical solution to inadequate ventilation problems and can help:

- Improve indoor air quality and reduce cooking and other odors by supplying an adequate supply of fresh make-up air
- Reduce cold air infiltration by heating outside air as it enters the building
- Reduce the infiltration of dust and dirt
- Improve occupant comfort and health by eliminating drafts
- Increase employee productivity and reduce absenteeism
- Improve overall building and systems efficiency and operation

***For a review of your facility’s savings potential using natural gas technology, please contact us.***

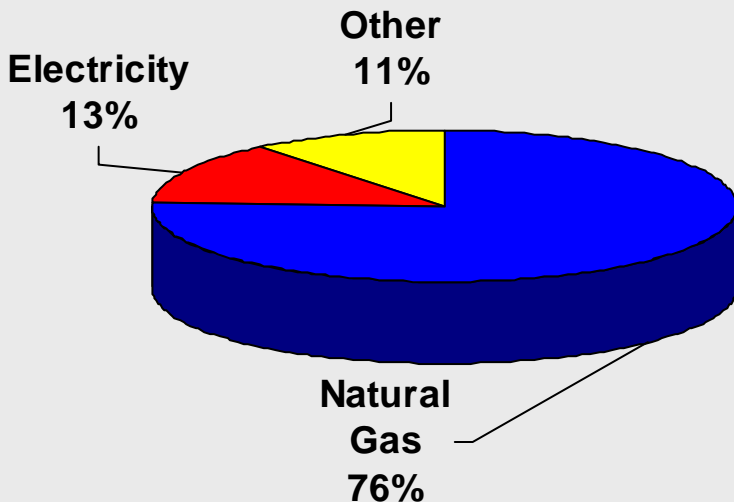
# Natural Gas

## Serving Up Solutions for Food Service Operations

Natural gas is a clean, efficient and reliable fuel for use in a variety of applications in food service operations.



**76%** of food service operations choose natural gas for water heating



### Energy use in U.S. food service establishments for water heating

Per Energy Information Administration  
U.S. Department of Energy

Electricity	5 Trillion Btus per year
Natural Gas	28 Trillion Btus per year
Other	4 Trillion Btus per year

**All Energy 447 Trillion Btus per year**

**8%** of the energy consumed in food service facilities is for water heating

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# Natural Gas

## Serving Up Solutions for Food Service Operations

Natural gas is a clean, efficient and reliable fuel for use in a variety of applications in food service operations.

### Economical natural gas water heating pays for itself ... usually in 1-3 years

Water Heater Payback Chart (Gas versus Electric)

Gas (\$/MCF)	Electric (\$/KWH)											
	\$ 0.05	\$ 0.06	\$ 0.07	\$ 0.08	\$ 0.09	\$ 0.10	\$ 0.11	\$ 0.12	\$ 0.13	\$ 0.14	\$ 0.15	\$ 0.16
\$ 3.00	2.0	1.6	1.3	1.1	1.0	0.8	0.8	0.7	0.6	0.6	0.5	0.5
\$ 4.00	2.2	1.7	1.4	1.2	1.0	0.9	0.8	0.7	0.7	0.6	0.6	0.5
\$ 5.00	2.6	1.9	1.5	1.3	1.1	0.9	0.8	0.7	0.7	0.6	0.6	0.5
\$ 6.00	3.0	2.1	1.7	1.4	1.1	1.0	0.9	0.8	0.7	0.6	0.6	0.5
\$ 7.00	3.6	2.4	1.8	1.5	1.2	1.0	0.9	0.8	0.7	0.7	0.6	0.6
\$ 8.00	4.6	2.8	2.1	1.6	1.3	1.1	1.0	0.9	0.8	0.7	0.6	0.6
\$ 9.00	6.3	3.4	2.3	1.8	1.4	1.2	1.0	0.9	0.8	0.7	0.7	0.6
\$ 10.00	9.9	4.2	2.7	2.0	1.6	1.3	1.1	1.0	0.8	0.8	0.7	0.6

<= than 3 year Payback

<= 2 year payback

<= 1 year payback

Size (gal)	200	Gallons consumed per year	250000	Efficiency	Usage	Gas	1,030,000 BTU/MCF	
Installed cost	\$ 4,000	Desired ave. temperature rise (Deg. F)	80	Gas	70%	231 MCF	Electric	3412 BTU/KWH
		BTU's of energy to make hot water	166,712,000	Electric	90%	54,289 KWH	Water	8.3356 lbs/Gal.

Use the chart above to determine your payback period. Find your natural gas rate in the left-hand column. Then, find your electric rate across the top of the chart. Follow to the right from your gas rate and down from your electric rate. The point of intersection is your payback period in years.

#### Advantages of Natural Gas Water Heating

- Lower operating costs – saves money
- More efficient
- Faster recovery: Heats water up to three times faster than electricity
- More hot water from a tank gas water heater than an electric unit
- Safe and reliable
- Many models work without power and can still provide hot water in a black out
- Options include Standard Tank Water Heater, High Efficiency Tank Water Heater, Indirect Water Heaters (uses a boiler), Continuous Water Heater (Tankless), Combo heating (Boiler Summer-Winter hook up, or indirect water heating from boiler)
- Direct vent can be installed almost anywhere
- Continuous water heaters never run out of water and no downtime waiting for water heater to recover

**For a review of your facility's energy and savings potential using natural gas technology, please contact us.**





## Natural Gas Booster Water Heaters An Economical Choice for Superior Sanitizing

Properly cleaned and sanitized dishes and utensils are critical for any food service operation to meet customers' safety expectations and protect a business's valued name. A natural gas booster water heater provides the hot water needed for superior sanitizing results. Natural gas booster water heaters "boost" the temperature of 110-140°F hot water to 180°F for the final rinse, killing bacteria and destroying grease.

Food service owners/operators appreciate the increased efficiency and lower operating costs of natural gas booster water heaters. Booster water heaters also save money by decreasing drying time, eliminating the need for expensive sanitizing chemicals, and avoiding re-washes which saves on labor, water, sewer and per-cycle charges. And they're safe for silver, pewter and aluminum tableware.

Many booster water heater models and venting options are available to meet the size and requirements of any food service operation, including wall-mounted, under-the-counter and remotely located styles. A food service equipment dealer or your local gas utility can help you choose the booster water heater best suited to your business. Give them a call today.

### Natural Gas Booster Water Heaters – Sanitizing 180°F Water For:

- Restaurants
- Catering facilities
- Schools
- Cafeterias

### The Benefits Are Crystal Clear

- Lower operating costs
- Lower electricity and peak demand charges
- Clean, properly sanitized dishes with no unsightly lipstick residue or dried water spots
- Shorter drying time
- Safer – eliminates wet, slippery floors
- Less wear-and-tear on dishwashing equipment from re-washing and chemicals
- Environmentally friendly
- Improved profitability

**Compared to electric, operating a natural gas booster water heater can save you \$2,000 or more per year.**

	Cost per Meal	Meals Served Annually	Annual Cost
Gas	\$.0087	156,000	\$1,357
Electric	\$.024	156,000	\$3,744
<b>Savings with Natural Gas:</b>			<b>\$2,387</b>

Calculations based on average restaurant service of 3,000 meals per week.

# Food Service establishments choose natural gas more frequently than other energy sources for water heating



## Tankless Continuous Models

- Heat water as required
- Never run out of water, continuous supply
- No downtime waiting for water heater to recover and be ready for use
- Multiple units for higher flow rates



## Tank Style Water Heaters

- Saves money – costs less to operate than electric
- Heat water up to three times as fast as electricity
- Available in high efficiency models with 90%+ efficiencies
- Direct vent models require no chimney

***Gas water heaters recover faster and produce more hot water than electric water heaters – at a lower cost.***

Summary of Test Results			
Water Heating System	Test No 1	Test No 2	Test No 3
	Monthly Operating Costs	Hot Water Delivery (gal)	Recovery Time (min:sec)
Electric 40 Gal Tank	\$ 24.97	62.3	61:04
Natural Gas 40 Gal Tank	\$ 23.93	95.5	21:35
Gas Fired Instantaneous	\$ 15.58	Continuous Hot Water	No Recovery Required

\* Taken from Performance Comparison of Water Heating Systems for Okaloosa Gas District

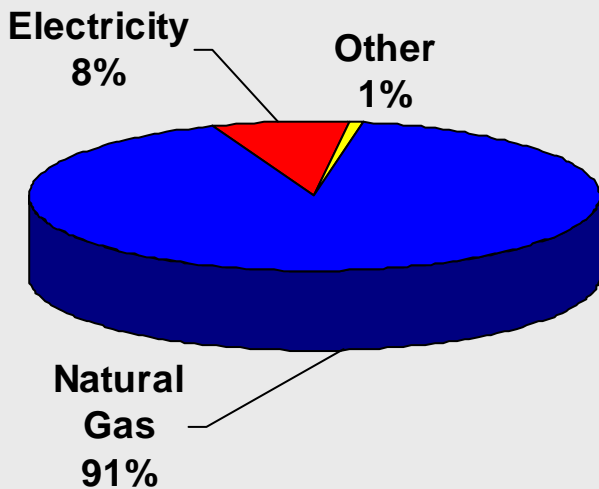
# Natural Gas

## Serving Up Solutions for Food Service Operations

Natural gas is a clean, efficient and reliable fuel for use in a variety of applications in food service operations.



**91%** of food service operations choose natural gas for cooking



### Energy use in U.S. food service establishments for cooking

Per Energy Information Administration  
U.S. Department of Energy

Electricity	8 Trillion Btus per year
Natural Gas	96 Trillion Btus per year
Other	1 Trillion Btus per year

**All Energy 447 Trillion Btus per year**

**23%** of the energy consumed in food service facilities is for cooking

*For a review of your facility's energy and savings potential using natural gas technology, please contact us.*





# Professional Chefs Prefer Natural Gas



Nine out of ten chefs prefer natural gas for cooking, and it's not surprising that they do. Precise temperature control and infinite temperature levels make it easy to perfectly cook delicate sauces at a simmer or pasta at a full boil.

The hotter burn temperatures of natural gas cook foods faster and more completely, saving you time, energy and money. More importantly, you'll serve with confidence.

## Greater Efficiency and Reliability Mean Better Economy

No electric elements to burn out or short out. Plus, gas equipment is durable and requires little maintenance.

Gas kitchens are not at a disadvantage compared to electric facilities when it comes to ventilation hoods. Most state codes require comparable ventilation for both gas and electric equipment to exhaust grease vapors, smoke, fumes, steam, odors and heat.

## Flexibility Is Key

Today's natural gas cooking equipment is more flexible than ever for all types of commercial food service cooking. From quick service to sit down restaurants, hospitals, schools, hotels & motels, and malls to military bases, all can benefit from natural gas cooking equipment. Combi-ovens, steamers, ranges, griddles, fryers, double sided cookers, large rack ovens and many other state-of-the-art gas appliances are all designed to increase production, reduce food and labor costs, and save time and money.

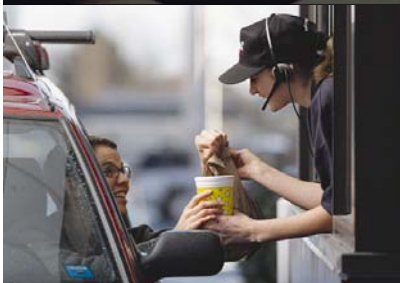
## Natural Gas ... Your Best Energy Value

Natural gas is affordable, offering lower operating costs and reducing electric demand charges. It's clean and better for the environment. And natural gas is good for homeland security reasons because it is a domestic energy, easing dependence on unreliable and volatile foreign energy sources.

There are many good reasons why professional cooks and food service operators prefer natural gas, but one of the most important is the versatility of cooking options. No matter what your menu specialties, there's a natural gas appliance to meet your needs. Natural gas offers the professional chef the right equipment for the job: gourmet to high volume, conventional to specialty equipment for every cooking style.

***For a review of your facility's energy and savings potential using natural gas technology, please contact us.***





# Fry with the Best in Natural Gas Fryers



Developments in natural gas fryer technology are making this widely used equipment more economical than ever, with fuel efficiencies exceeding 80%. Immersion tube burners enhance efficiency by immersing the heating tubes directly into the frying oil rather than under the frying container. Infrared fryers employ burner technology to transfer heat to the cooking oil faster, reduce flue temperature and provide greater efficiency.

The quick recovery of natural gas fryers ensures a better, more consistent and safer product for customers, and improved production time.

## General Purpose or Open Fryers

Frying oil is heated by high-efficiency or infrared burners located either under the unit or inside immersion tubes. Baskets of food are lowered into cooking oil heated to 300°F to 350°F.

## Pressure Fryers

Similar to general purpose fryers, but offering much greater production volume, pressure fryers have an airtight lid that traps steam from the food, thereby creating the pressure inside the fryer vat and achieving higher internal food temperatures.

## Specialty Fryers

Specialty fryers are designed for frying or cooking foods that must float on the surface of the cooking medium—either oil or water. Donuts, bagels, pasta, chicken and fish are a few examples. These fryers have a shallower, but wider and longer cooking pot allowing more surface area for floating food products.

### Natural gas fryers deliver quality results.

- Reduced operating costs
- Quicker recovery
- Computerized temperature and time control for perfect results
- Electronic ignition saves energy
- High-efficiency burner technology
- Automatic basket lifts for consistent frying results
- Built-in filter systems make filtering easier and safer
- Fuel efficiencies exceeding 80%
- Available in floor models and space-saving counter top styles

***For a review of your facility's energy and savings potential using natural gas technology, please contact us.***





## Bake Easy with Natural Gas Ovens



You can count on the precise temperature control of a natural gas oven for baking and so much more. Natural gas ovens also broil, roast, baste, reheat, defrost and put the finishing touches on your finest creations. The moist heat of natural gas delivers moister food products for longer shelf-life and reduced food and labor costs.

For many food service operations, a conventional oven provides years of reliable and economical operation. Other oven variations include radiant, convection or combination heating modes. Radiant models heat foods, rather than the surrounding air, to seal in

juices and nutrients. Convection ovens use a fan to circulate hot air around the food for more even heating and browning at rates 25% faster than conventional ovens. Combination ovens offer the best of convection and steam heat cooking.

**Natural gas ovens come in sizes and styles to accommodate a multitude of menu offerings. Some typical oven choices include:**

**Pizza/Deck Ovens** – High-production ovens, usually containing two or more decks at heights appropriate to the foods to be cooked. Operating at high Btu inputs and with higher temperature controls, pans of food such as pizza, cookies, pies and cakes are placed directly on the oven deck.

**Conveyor Ovens** – Conveyor belt moves foods through oven at a constant, controlled speed and temperature for consistent results with minimal waste. Operates two to four times faster than conventional ovens due to use of a fan to circulate hot air directly onto conveyor. Ideal for baking, reheating or finishing tasks.

**Revolving Ovens** – Food is loaded on trays, which are mounted Ferris-wheel style on a horizontal axle and rotated in baking chamber. Used for bakery products such as breads, rolls, pastries and bagels as well as for roasting meats.

**Rack/Tray Ovens** – Cooks very large quantities of identical or different foods at the same temperature quickly and consistently. Racks containing trays of food are rolled into the oven for baking or cooking, then rolled out to an unloading station.

**BBQ/Rotisserie Ovens** – Designed to whet customer appetites by displaying meat as it rotates and cooks on spits. Continuous turning and even heating preserve moisture.





# Bake Easy with Natural Gas Ovens

Natural gas ovens come in sizes and styles to accommodate a multitude of menu offerings. Some typical oven choices include:

**Convection Ovens** – Even more efficient and economical than conventional gas ovens, convection ovens use fans to circulate heat, allowing them to cook at lower temperatures and for a fourth to a third less time.

**Combination Ovens** – For maximum flexibility, combi ovens can't be beat. Operate as a convection oven, a pressureless steamer, or in combination—all with one cooking appliance.

Bake, roast or broil in convection mode; steam vegetables, eggs and seafood in the pressureless steamer; or use both for crusty breads, juicy meats, poultry, fish and baked dishes.

## Versatile natural gas ovens offer important advantages to food service operators.

- Moist heat prolongs food shelf-life, minimizing waste and saving labor and food costs
- Uniform temperatures
- Lower operating costs
- Faster cooking times
- Save time and money with infrared cooking
- Superior cooking results
- Styles and sizes to fit every food service menu and facility

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# Natural Gas Ranges – A Cooking Appliance for All Reasons

Ranges are the most common and multipurpose cooking appliance in food service kitchens, combining a cook top and oven in a single unit. They are sized for any kitchen space—from the smallest to the largest.

Styles include open burner ranges, hot top ranges, and griddle top ranges as well as a variety of specialty options such as grills and wok cook tops. Open burner ranges are especially useful for small, quick jobs when operating a larger piece of cooking equipment is impractical. Counter-top hot plates are an ideal choice for a wide variety of foods and when only minimal kitchen space is available.

For low-temp to very high-temp cooking, burners offer a range of energy levels. Many ranges combine low, medium and high temperature burners for greater cooking flexibility. Hot top burners feature a concentric configuration for ala carte sautéing or a straight line configuration for boiling, stewing or simmering.

Gas range ovens offer the choice of either conventional or energy-efficient, time-saving convection cooking. Even more efficient and economical than conventional gas ovens, convection ovens use fans to circulate heat, allowing them to cook at lower temperatures and for a fourth to a third less time.

Ranges are a basic staple in most food service kitchens, and natural gas ranges deliver great versatility for high-quality cooking and economical operation.

## Natural gas ranges can benefit virtually any food service kitchen.

- Instant-on, instant-off
- Precise temperature control
- Infinite temperature levels
- Efficient and economical – about half the operating cost of electric
- Convection ovens save time and energy
- Environmentally friendly
- Sizes from 24" to 72" wide and 36" to 42" deep
- Open burners from 15,000 to 30,000 Btu
- Low-temp burners for simmering
- Sealed burners for easy clean-up
- Options for ethnic specialties
- Automatic relight available on some models

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## Natural Gas Steamers – Fast, Efficient and Versatile



Natural gas steam equipment offers food facility managers and owners many important advantages. It is great for large volume cooking or for cooking small quantities of a wide variety of foods, including meat, seafood, and frozen or fresh vegetables. Gas steamers cook foods fast while retaining color, texture, moisture and nutrients.

Natural gas steamers operate on steam provided by the unit or a boiler. Depending on the food service facility, a dedicated boiler or one that is shared with other equipment can be used. Steam is provided by the new style units or from a central boiler.

Two types of natural gas steamers are available—the compartment style and the steam jacketed kettle.

**Compartment steamers** are highly versatile in that each compartment can cook a different type of food. This makes them an ideal choice for cooking small quantities of food or for cooking a variety of different foods because you use only those compartments that are needed. When selecting a compartment steamer, choose from either pressureless (atmospheric) steamers or pressurized steamers. For maximum flexibility, some compartment steamers offer both pressureless and pressurized cooking in a single unit.

**Pressureless (atmospheric) Steamers** cook without using pressure, making them especially suited to frozen foods and on-line cooking. Cooking begins after the steamer defrosts the food. Additionally, cooking starts and stops automatically, without depressurization, any time the door is opened during the cooking process. The constant exchange of fresh steam allows dissimilar foods to cook at the same time because there is no transfer of flavors.

**Pressurized Steamers** are an excellent choice for large volume production. Higher production is achieved by employing pressurized steam, which raises internal food temperatures 3°F above 212°F for every pound of pressure. Because pressurized steamers require depressurization, they work well in food service applications where food is allowed to cook completely without starts and stops. Pressurized steamers deliver excellent results with many types of unfrozen products.





## Natural Gas Steamers – Fast, Efficient and Versatile

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In contrast, **kettle steamers** cook food at very high speeds without scorching or hot spots. Available in quart and gallon sizes, steam jacketed kettles are a pot within a pot. Steam trapped in the space between the two pots cooks the contents of the inner pot. Steam jacketed kettles are floor, wall or counter mounted and can be either fully or partially jacketed.

**For fast, consistent, high-quality cooking, choose natural gas steamers**

- Fastest for commercial cooking
- Foods retain color, texture, moisture and nutrients
- Operates from dedicated, shared or existing central boiler
- No transfer of food flavors in pressureless steamers
- Fast, high-volume production with pressurized steamers
- Kettle steamers cook fast without scorching or hot spots
- Suited to many food varieties
- Many equipment options to meet virtually any cooking need

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# Quick, Flavorful Broiling With Natural Gas

Broilers use intense direct heat to cook foods, producing a distinctive appearance and appealing flavor enjoyed by diners.

Broilers and charbroilers are typically used for browning, melting, or adding final touches to food. Cheesemelters and salamanders are used to heat toppings, toast breads, heat pastries, finish cooking certain foods and melt cheese.

When speed is important, broilers utilizing infrared burners cook much faster than those with standard radiant burners. Infrared heating reaches high temperatures very quickly, cutting operating costs by as much as 50%. Additionally, infrared's short-wave frequencies heat only the food, not the surrounding air, so kitchens stay cooler reducing the work load and operating cost of cooling equipment.

For fast food chains, and similar high-volume operations, conveyor broilers deliver fast, consistent results. Using conveyor belts, food is cooked simultaneously on the top and bottom with minimum handling and no turning.

**Upright over fired broilers** – Heat is radiated downward to a grid that retains heat and gives food its distinctive markings. The grid can be raised, lowered or rolled in and out.

**Charbroilers** – Radiate heat—from ceramic or volcanic briquettes or radiants heated by burners—upward to grids. Like over fired broilers, the grids give charbroiled foods their customary grilling marks. Charbroilers also make use of the fats that cook off the meats to create a char flavor.

**Salamander broilers** – A smaller version of the upright over fired broiler, salamanders save space by mounting over the range and are generally used for light heating tasks and finishing touches.

**Cheesemelters** – Cheesemelters do more than just melt cheese. They are also used to brown or crisp delicate toppings or reheat certain foods.

## Infrared broilers save time, energy and money.

- Gives broiled food an appealing appearance and flavor
- Quick preheat saves energy and money
- Foods cook by direct intense heat
- Infrared burners reduce cooking time and keep kitchens cooler
- Sizes and types to suit the smallest and largest operations.

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# Tilting Braising Pan ... Exceptional Versatility in a Single Cooking Appliance

The types of food and kinds of cooking that can be accomplished with natural gas tilting braising pans is almost endless. Its ability to handle large quantities of food makes it an excellent choice for institutional and other large volume food service providers. However, tilting braising pans are also available in mid-size units, lower pan heights and sleeker designs to fit smaller spaces and cooking requirements.

The tilting braising pan can braise, sauté, stew, boil, simmer, steam, pan fry, grill, roast, proof dough, and keep foods hot. Some common uses include:

- Cooking eggs, bacon, sausage, potatoes and pancakes
- Grilling hamburgers, steaks, chicken and fish
- Cooking large volumes of soup, chili, vegetables and sauces
- Slow roasting whole turkeys or chickens

Natural gas tilting braising pans can reduce total cooking time by up to 25 percent and maintain constant cooking temperatures. Manual or power tilting makes the pans easy to handle and easy to clean.

Extend the use of your tilting braising pan and save time and money by putting it to work as a roaster. For oven-type roasting, a natural gas braising pan reduces cooking time by one-fourth to one-third compared to a conventional oven.

Or, prepare two different foods simultaneously by placing separate containers of foods in the braising pan. A tilting braising pan works equally well as a bain-marie or proof box by placing containers of food in the water-filled braising pan. The possibilities are endless.

## Natural gas tilting braising pans offers these important advantages:

- Reduce total cooking time up to 25%
- Maintain constant cooking temperatures
- Sealed controls keep out moisture
- Easy clean up with coved corners, bead blasted pan interiors, mounted fill faucets, and draw-off valve
- Manual or power tilting makes transferring food, straining liquid, and cleaning easier
- Thermostatic controls for greater energy efficiency
- High-tech heat exchanger and burner technology
- Insulated for efficiency and cool-to-touch safety
- Mid-size and large volume models available

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# Natural Gas Griddles Cook Up Quality in Short Order



Natural gas griddles are the workhorse of cooking equipment in many food service establishments, especially short-order restaurants. From breakfast eggs and pancakes to luncheon hamburgers and grilled sandwiches, griddles are flexible, durable and economical.

The excellent heat retention and precise heating temperatures of chromium-plated griddles result in less energy use and lower energy costs. Some models save even more by incorporating infrared burner technology to shorten preheating and heat recovery times.

Natural gas griddles provide fast cooking and quality performance. Precise and consistent temperatures offer even, edge-to-edge cooking, increasing production and maintaining product quality.

The plate surface of natural gas griddles is typically ½" to 1"-thick steel or chromium-plated steel that can be either smooth or grooved. Thicker plate surfaces deliver more even heat. The top surface of grooved griddles slopes slightly and features raised ridges that give foods the distinctive grid marks of a charbroiler at lower temperatures and without smoke or flare-ups.

Grease drains off easily through raised surface ridges or a drain hole and gutters, and clean up is simple.

A variety of sizes, styles and customizing features make it easy to find a natural gas griddle that can satisfy your most demanding cooking chores.

## Natural gas griddles make short work of cooking.

- Lower cooking temperatures save energy and money
- Manual or thermostatic controls
- Precise temperature control and edge-to-edge heat increase production and improve quality
- Steel or chromium-plated steel surfaces
- Smooth or grooved cooking surfaces
- Infrared models offer faster cooking and quick recovery
- Freestanding and counter top models available
- Sizes from 24" to 84"



# A Natural Gas Solution for Every Cooking Need

Some menu items demand unique cooking solutions and natural gas steps up to the plate with specialty appliances to meet those needs. You still enjoy the efficiency, economy, instant-on/instant-off convenience, and precise temperature control of natural gas. But, these equipment options include features necessary to the preparation of many ethnic foods and certain types of food service operations.

**Stock Pot Range** – Similar to regular ranges but designed to carry the heavier loads required by stock pots. Used for large-volume preparation of “from scratch” recipes, simmering, reheating and candy making.

**Wok** – Specially designed ranges that deliver concentrated, intense heat through two-ring, three-ring or jet burner configurations. Conveniently located valves, built-in water faucet and drain gutter make clean up easy.

**Rice Cooker** – Fast, thermostatically controlled rice cooking in a space-saving counter top appliance.

**Pasta Cooker** – At first glance, natural gas pasta cookers look like fryers but the similarity ends there. Pasta cookers use hot water instead of oil to cook perfect pasta every time. The self-contained units feature a section for cooking and warming and a second section for rinsing and holding.

**Taco Range** – Prepare refried beans, rice and other Mexican specialties on a range that features high-speed burners and large loop burners to accommodate the pans required for authentic Mexican cooking.

**Quick Disconnect Connector** – A real advantage for catering services and restaurants interested in expanding off-premise operations. In seconds, kitchens can be reconfigured or caster-mounted commercial cooking equipment can be disconnected from its usual gas source for off-site use or easier cleaning.

## Natural gas specialty appliances for food service facilities also include:

- Toasters
- Chinese smokers/roasters
- Coffee roasters
- Flour tortilla machines
- Vertical broilers for cooking gyro meat
- Shish kabob broilers
- Lamb ovens
- Tandoor ovens
- Hot food tables
- Coffee Makers
- Counter-top equipment

**Whatever your specialty, count on natural gas for superior cooking and maximum economy.**

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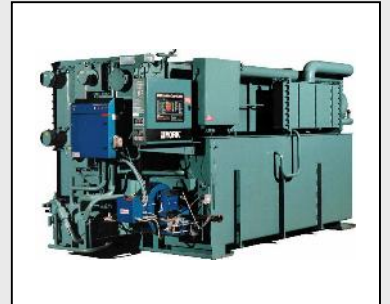


## Natural Gas Cooling Putting a Chill on High Energy Costs

Natural gas cooling options can help reduce energy costs in all food service facilities. New gas cooling technologies, developed and produced over the last decade, can lower operating costs and eliminate electric peak demand charges. Available as standard, larger packaged units or custom-designed systems, natural gas cooling requires less maintenance and offers improved environmental performance.

### Gas Cooling Options: Absorption and Engine-Driven

Absorption systems rely on a cycle of condensation and evaporation to produce cooling. The process is driven by a heat source—either a gas burner or recovered thermal energy—and is available in single or double-effect designs. Absorption systems are quiet and low-maintenance, making them well suited to food service facilities.



Engine-driven cooling systems operate in a manner similar to electric cooling systems, substituting a natural gas engine for the electric motor. Small packaged units are available in capacities ranging from less than 25 to over 1,000 tons.



#### Advantages of Natural Gas Cooling Systems

- Reduces energy costs
- Eliminates electric demand charges
- Good for the environment
- Reliable, plentiful energy source
- Options to suit virtually any application
- Avoid electric system upgrade charges when adding new cooling equipment

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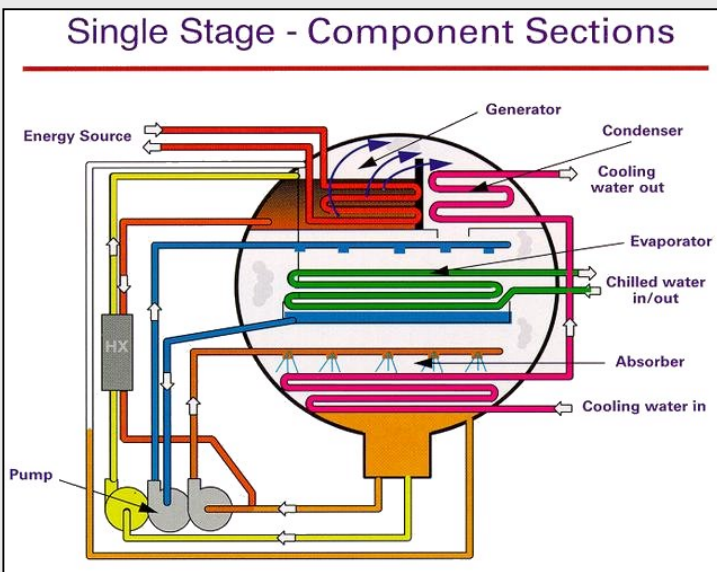


# Natural Gas Absorption Cooling

## Helping to Clear the Air Economically and Efficiently

Absorption cooling operates similarly to conventional electric vapor compression chillers with some very important differences. Absorption systems use distilled water and either nontoxic lithium bromide or ammonia, thereby eliminating harmful chlorofluorocarbons (CFCs) common to electric systems. Other significant differences include the use of heat, rather than a compressor, as the driving force, and lower pressure/vacuum conditions. Heat for the absorption process can be supplied directly by a gas burner or indirectly from the recovered waste heat of a cogeneration system, hot water or steam.

The differences between natural gas absorption cooling and traditional electric systems translate into significant benefits for food service facilities. These systems have no large rotating components which provides a safer and quieter operation, higher reliability and low maintenance. Natural gas absorption systems are available as chillers or chiller/heaters and incorporate heat exchanger technology to improve efficiency and lower operating costs.



### Simplified Diagram of a Single-effect Absorption Cycle

- Although the process is similar to conventional electric vapor compression systems, absorption cooling substitutes a generator and absorber, commonly called a thermal compressor, for the electric compressor.
- Efficiency and lower operating costs are achieved through the use of a pump, rather than a compressor, and a heat exchanger to recover and supply heat to the generator.
- Double-effect absorption cooling adds a second generator and condenser to increase the refrigerant flow and cooling effect for a fraction of the heat input of a single-effect system.

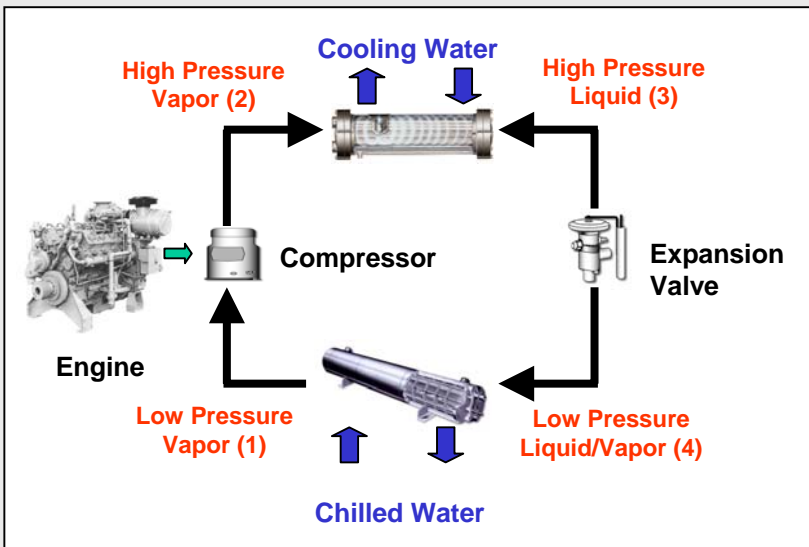
### Advantages of Natural Gas Absorption Cooling

- Heat and cool with the same unit
- Usually lower operating costs – higher efficiency on a source basis
- Eliminates environmentally harmful CFCs and HCFCs
- Safe, quiet and dependable operation
- Reliable, low maintenance
- Direct-fired Absorber has a smaller footprint than an electric chiller with boiler
- Effective for heat recovery applications
- Initial costs quickly offset by energy savings
- Innovative leasing options and shared savings programs make converting easy
- Available as dedicated chiller or chiller/heater in single or double-effect systems
- Can use waste heat from a CHP System or in a hybrid cooling system

# Natural Gas Engine-Driven Cooling

## An Economical Alternative to High Electric Costs

Significant cost savings, coupled with superior performance, make this technology an ideal choice for food service facilities. Like an electric-powered system, natural gas engine-driven cooling systems use vapor compression equipment and a vapor compression cycle to cool and dehumidify building air. In the gas system, an engine replaces the electric motor, allowing for variable-speed operating capability and greater efficiency when operating partial loads, an important feature in air conditioning applications. Efficiency is further enhanced when waste heat from the engine jacket and exhaust gas is recovered to supply thermal energy for domestic hot water, steam generation and other applications which reduces total energy needs. Gas engine-driven cooling is an economical alternative to high electric costs and electric peak demand charges, providing operating cost savings that can easily offset equipment cost.



### Simplified Diagram of a Vapor Compression Water Chiller Cycle

Smaller units use air coils, rather than chilled water, to remove heat from the condenser and to cool and dehumidify the conditioned air with the evaporator. Depending on tonnage requirements, a reciprocating, screw, or single or multiple-stage centrifugal compressor may be used. Replacing the electric motor with a natural gas engine facilitates more efficient part load operation, thermal energy recovery, and reduced total operating cost.

### Advantages of Natural Gas Engine-Driven Cooling

- Potentially lower operating costs
- Variable speed for efficient part load operation
- Engine heat recovery for domestic hot water and other thermal energy needs
- Environmentally friendly
- Initial costs quickly offset by energy savings
- Innovative leasing options and shared savings programs make converting easy
- Sizes as small as 25 tons to over 1,000 tons
- Capable of providing leaving chilled water temperatures below 42°F

***For a review of your building's energy and savings potential using natural gas technology, please contact us.***



# Humidity Control – A Healthy Choice for Food Service Operations

*Natural gas is a clean, efficient and reliable fuel for use in a variety of applications in food service operations.*

- **Keep warmer thermostat settings and more comfortable patrons**
- **Improve air quality**
- **Reduce energy costs**
- **Control condensation on cold surfaces**
- **Protect expensive equipment and furnishings**
- **Contribute to patron and employee health and comfort**
- **Inhibit growth of disease-causing microbes**

## Importance of Good Indoor Air Quality

Heightened efficiency concerns, resulting in more tightly constructed buildings with less ventilation, have created an entirely new set of issues with regard to indoor air quality. Indoor air pollutants contributed by combustion sources, furnishings, cleaning products and construction materials can adversely affect the health and comfort of building occupants to varying degrees. Likewise, humidity levels can also affect human health and comfort.

The optimum humidity level for health is considered to be in the 45% to 55% range. Higher or lower levels can be a problem. High humidity levels encourage the growth of disease-causing microbes and condensation on cold surfaces. When humidity levels climb in the kitchen, cooking personnel lower thermostat temperatures, resulting in a chilly dining room. Low humidity aggravates asthma and other allergy and respiratory-related illnesses. Both high and low humidity contribute to customer and worker discomfort.

## Humidity Control Improves Your Bottom Line

Humidity control offers significant bottom line advantages. Air that is too dry or too moist can adversely affect “dry store” foods that do not require refrigeration. Dry air contributes to static electricity, which can negatively impact computers and cash registers. Too much or too little moisture can damage furnishings, wall coverings, flooring and ceiling tiles, and supplies. Additionally, well-maintained humidity levels help control odors from cleaning and disinfecting products and from the growth of mold and mildew.

Natural gas humidification and dehumidification systems can add moisture to indoor air during cold, dry winter months and wring excess moisture from hot, humid indoor air during the summer, contributing to improved indoor air quality.

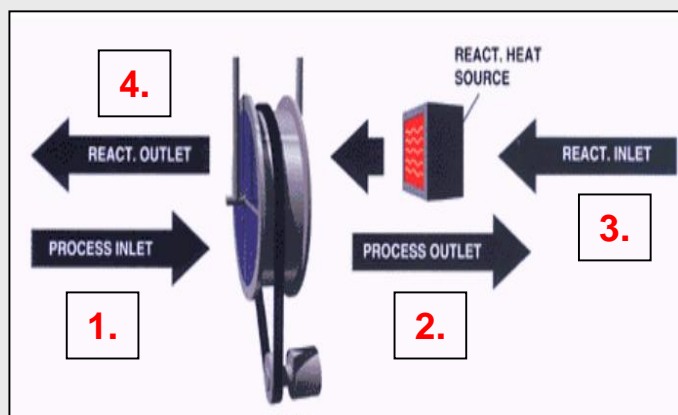
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# Desiccant Dehumidification – How It Works

Maintaining cooling comfort during hot, humid periods is accomplished by regulating both the temperature (sensible cooling) and the humidity (latent cooling) of the indoor air. With conventional air conditioning, moisture-laden air is passed over a cooling coil, which causes the moisture to condense. The air is cooled and some moisture is removed. Since conventional air conditioning attempts to do two jobs, this compromise of temperature and humidity control can result in losses to either efficiency or comfort. A desiccant dehumidification system assumes responsibility for the humidity component (latent cooling)—usually at least 30% of the total cooling load—allowing the air conditioning unit to be set for optimal temperature control (sensible cooling) which allows for the use of a smaller compressor, eliminating excess chiller capacity.

A desiccant system uses special crystal-like materials (a desiccant) that “adsorb,” rather than condense, the moisture from the incoming air. In a typical system, the desiccant is mounted on a rotating wheel. As the wheel turns, the desiccant passes alternately through the incoming process air where the moisture is adsorbed and through a regenerating zone where the desiccant is dried and the moisture expelled.

Typically, about three-fourths of the desiccant wheel is exposed to the incoming air throughout the process. During regeneration, the desiccant is heated by a direct-fired gas burner or indirect-fired water or steam coil. Working together, conventional air conditioning and desiccant technology can more efficiently handle temperature and humidity control, but desiccant dehumidification can be used as a stand-alone system.



## 1. Process Inlet—Air to be dried.

May be outside, inside or, more commonly, a mixture of air with high humidity content.

## 2. Process Outlet—Air is dried by desiccant wheel. May be cooled, filtered or otherwise handled.

Relative humidity is substantially lower and temperature slightly raised.

**3. Reactivation Inlet**—Air flow, usually outside air, that drives moisture off wheel. Reactivation air is heated by direct-fired gas burner or indirect-fired water or steam coils.

**4. Reactivation Outlet**—Hot, wet air from wheel is exhausted outside or passed through an air-to-air heat exchanger. Using a heat exchanger to preheat incoming process air offers substantial savings in northern climates.

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# The Advantages of Natural Gas Humidification and Dehumidification for Food Service Operations

## Natural gas desiccant dehumidification systems dry indoor air to . . .

- Reduce growth of disease-causing microbes
- Control odors, mold and mildew
- Eliminate condensation
- Increase diner, employee and chef comfort
- Prevent damage to furnishings, carpeting, tiles, and other building materials

## Natural gas humidification systems add moisture to dry indoor air to . . .

- Inhibit respiratory infections and allergy-related illnesses
- Eliminate dangers of static electricity
- Prevent damage to furnishings, wall coverings, flooring and ceiling tiles
- Improve staff and diner comfort

## Natural gas humidification and dehumidification can improve your bottom line and . . .

- Allow HVAC systems to operate at maximum efficiency
- Reduce employee sick-time absences
- Increase staff productivity
- Eliminate environments that foster microbial growth and odors
- Protect expensive equipment and furnishings
- Ensure precise temperature and humidity control for dining rooms, kitchens and storage rooms

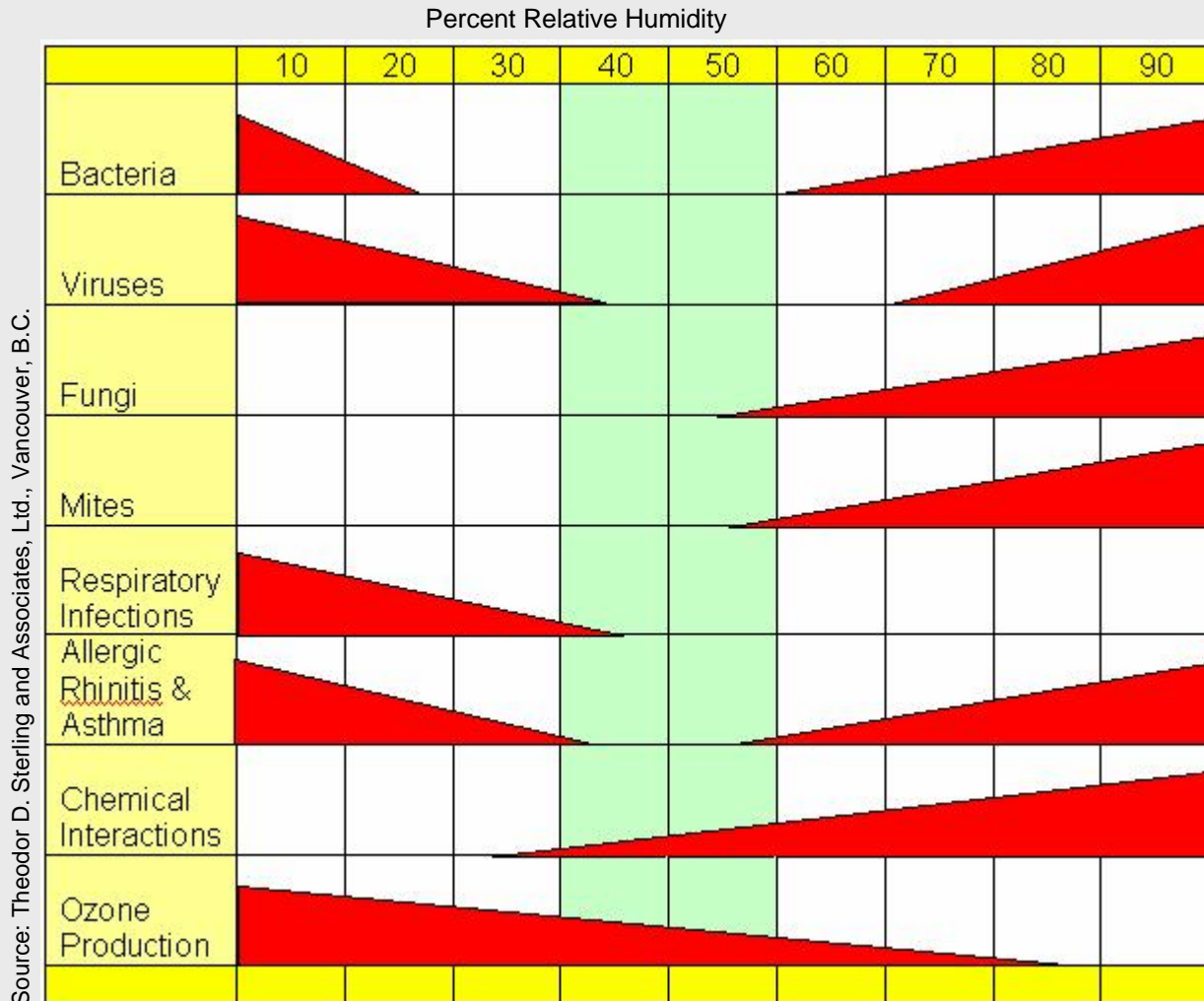


*Improve your bottom line satisfaction with natural gas humidification and desiccant dehumidification. Contact us to find out how.*



# Optimum Relative Humidity Ranges for Healthier Indoor Air

Numerous studies done by ASHRAE and other indoor air quality experts suggest an optimum relative humidity (Rh) range of 45 to 55%. Too much or too little moisture can cause a variety of health threats and illnesses.



## Optimum Relative Humidity Range = 45% to 55%

This chart shows the humidity levels at which the listed microbes and health problems are likely to flourish. As the width of the bar increases, potential health problems increase and indoor air quality diminishes. For example, virus growth is unsupported at humidity levels of 50% to 70%, but its growth rates steadily increase above and below this range with maximum growth at 0% and 100% relative humidity.

***Learn if natural gas equipment for humidification and desiccant dehumidification can improve indoor air quality in your facility. Contact us to find out how.***

# Natural Gas Sets the Mood for a Pleasant Dining Experience

When dining out, your customers expect more than just a tasty meal and great service. Whether their visit is simply an escape from the chores of cooking or a celebration of that once-in-a-lifetime event, natural gas can help turn a pleasant evening out into a memorable occasion that keeps customers coming back again and again. Whether it's a cozy fireplace or a blazing outdoor fire pit, a softly glowing gaslight or a flaming torch, natural gas lets you create an atmosphere that sets your establishment apart from the competition. From elegant to exotic, cozy to contemporary, there's a natural gas option to complement virtually any decor.

And, there are many practical, bottom line reasons for including these specialty gas appliances in your design plan. Patio heaters keep outdoor bar and dining patrons comfortable and let you put these areas to profitable use during cool weather. Outdoor fireplaces and fire pits also extend the productive use of outdoor areas and offer a great gathering place for good conversation while customers dine or wait for seating. Gaslights and torches provide extra lighting for added safety and security along walkways and sidewalks.

Create a distinctive ambience and make your food service facility more profitable with:

## Natural Gas Fireplaces and Fire Pits



- Outdoor models provide warmth on cool evenings, extending the profitable use of outdoor bars and dining areas
- Instant-on, instant-off convenience
- No messy ashes to clean up or wood to carry
- Safe – no flying sparks or popping embers
- Creates a distinctive atmosphere and focal point for conversation
- Uses clean-burning, environmentally friendly natural gas

## Natural Gas Patio Heaters



- Quick disconnect connectors let heaters move when and where you need them
- Allows customers to eat a meal or share a drink on a patio, walkway or entry area when the weather turns cool
- Increases seating area without a costly expansion
- Warms patrons while they wait for the valet to bring them their car
- Push-button ignition, ready-to-use
- Convenient and clean burning
- Weatherproof -- corrosion-resistant stainless steel construction
- Adjustable heat controls and 100% safety shut-off
- Requires no electricity

## Gaslights and Natural Gas Torches



- Soft, pleasant glow with no harsh glare
- Stays lit even during power outages
- Improves safety and security around driveways, walkways, entries and patio
- Doesn't attract flying insects
- Adds charm, ambience and value to your business
- Attractive designs and versatile installation options, including post, pier and wall-mounted styles to enhance your décor



## Natural Gas Makes Grilling Easy

*Natural gas is a clean, efficient and reliable fuel for use in a variety of applications in food service operations.*



Nothing beats the aroma of food grilled outdoors, and grilling on your outdoor patio rewards your customers with the ultimate in dining fun. Charcoal and lighter fluid or refilling propane tanks is a thing of the past with a natural gas grill. Grilling is easy with instant-on, instant-off controls and cleanup is a breeze. Cart-mounted and deck grills can move anywhere, including to storage, thanks to new quick connect/disconnect technology. For the ultimate in grilling convenience and style, high-end grills in free standing or built-in models are available. Increase the appeal and usefulness of your outdoor patio area with clean-burning natural gas grills.

- More economical than propane
- Never run out of fuel
- Instant-on, instant-off
- Quicker, more even cooking
- Transforms juices and drippings into flavor-enhancing smoke
- No need for charcoal and lighter fluid
- No tanks to refill
- Grill even during power outages

***For a review of your building's energy and savings potential using natural gas technology, please contact us.***



## Add Ambience and Value to Your Dining Room with a Natural Gas Fireplace

*Natural gas is a clean, efficient and reliable fuel for use in a variety of applications in food service operations.*



There's nothing like a cozy fireplace on a cool spring or fall evening or a snowy winter night. Today's natural gas fireplaces with their realistic gas logs, flickering flames and glowing embers are difficult to distinguish from a wood-burning fireplace.

A natural gas fireplace will warm your bottom line as well, making your dining or waiting area more attractive to customers and adding to the value of your property. The cleanliness and safety of a natural gas fireplace will charm your customers. With natural gas, there's no wood to store and carry, no danger of flying sparks or popping embers, and no ashes to clean up. Natural gas fireplaces also eliminate creosote build-up and the cost of annual chimney cleanings.

The variety of styles and models lets you install a natural gas fireplace virtually anywhere, including one of the newest models designed for outdoor use. Fireplaces are also available that provide heat along with a decorative fireplace.

For fine dining, natural gas fireplaces add warmth, beauty and ambience to any establishment.

### Get Cozy with the Advantages of a Natural Gas Fireplace

- Highly efficient – Instant-on, instant-off push-button convenience
- Realistic appearance – without the work and mess of a wood-burning fireplace
- Easy to install and maintain -- install virtually anywhere
- Safe – no flying sparks or popping embers, no creosote buildup
- Requires no electricity – uses clean-burning natural gas
- Attractive feature that improves property value



## Food Service Facilities Depend on Electric Power – Natural Gas Backup Generators Deliver



Weather, accidents, failed utility equipment, brownouts or blackouts, and natural or manmade disasters can interrupt the electric service to your business at any time. When that happens, you're out of business. Meal preparation stops, costly food products begin to spoil, electronic equipment and computers go down, servers and cooking personnel are idle, and customers are left in the dark.

For many businesses, a power loss can be costly. For some, a long-term power loss can mean potential bankruptcy. If your business can't afford a power outage, a natural gas back-up generator is the answer. A natural gas back-up generator goes to work supplying electricity for cooking equipment, computerized ordering systems and cash registers, refrigeration, essential lighting, anywhere electricity is needed.

The generator operates on a dependable, efficient natural gas engine. It turns on automatically whenever electric service is interrupted and transfers the electric load back to the utility once power is restored. Most gas generators are equipped with controls to handle brief electric interruptions.

With natural gas generators, there is no worry about storing, spilling or leaking fuel and no fuel odors. The generator runs off the existing natural gas lines currently serving your business. The units run continuously unlike liquid fueled systems that can only run uninterrupted for 2-3 days. And you pay for the natural gas only when you need it. Compared to gasoline, natural gas generators cost less to operate and eliminate the hazard of storing a flammable fuel. Cleaner combustion and quieter engine operation make natural gas generators a superior choice for food service facilities.

- Dependable – keeps you in business and profitable even during a power outage
- Reliable – goes to work the minute electric service is interrupted
- No "refueling" required – no storing, spilling or leaking fuel and no odors
- Pay for fuel only when needed
- No unsightly storage tanks
- Safe
- Clean burning

***For a review of your building's energy and savings potential using natural gas technology, please contact us.***



# Combined Heat and Power (CHP) Cooks Up Energy Savings and Reliability for Food Service Businesses



Combined heat and power (CHP) and cogeneration are just two of the most common terms referring to the application of technologies to generate electricity and thermal energy from a single, highly efficient, and economically integrated system.

In contrast to traditional central power generation from a local utility, CHP systems are located on or near the user's facility and satisfy all or part of its electricity requirements. Conventional power generation converts on average only about a third of its fuel's potential energy into electricity, throwing off substantial heat during the process. The CHP system captures this wasted heat, achieving total system efficiencies of 75% to 85%, and turns it into usable thermal energy for hot water, space heating, cooling, even dehumidification. It does this more efficiently, economically, reliably and with less harm to the environment than centralized, dedicated electric production.

## CHP: A Brief History

CHP systems date back more than 100 years and were the most common electricity generators in the U.S. until improved cost and reliability of central power production made it more convenient for users to purchase their electricity. With the energy crisis of the 70s, U.S. industries re-discovered the benefits of CHP. Currently, approximately 56,000 MW of CHP generation is in operation in the U.S. The CHP industry, DOE and EPA are committed to doubling that number by 2010.

## CHP Is Right for Businesses Today.

Technological developments in the 90s have made a wider range of cost effective CHP systems suitable for hospitals, malls, restaurants, fast food chains, cafeterias and other buildings with food service facilities. Many large food service facilities with high and year-round thermal loads can take advantage of these benefits offered by CHP:

- Improves overall energy efficiency and fuel utilization
- Lowers electric and overall energy costs
- Reduces NOx, SOx and CO<sub>2</sub> emissions
- Offers power reliability during outages
- Enhances power quality

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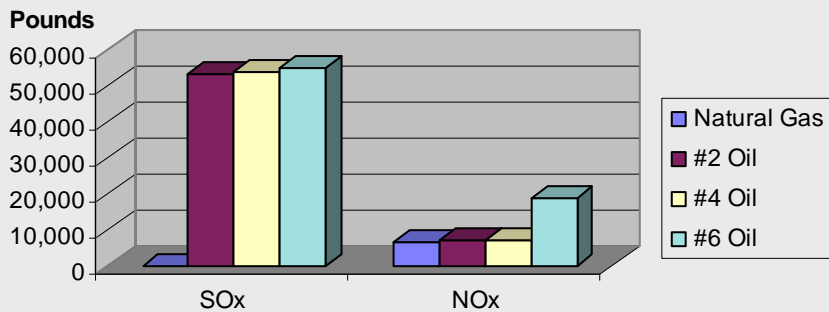


# Green Buildings –

## Save Money and the Environment

Today, energy efficiency and environmental impacts are on everyone's mind. By reducing energy usage, you can reduce the impact of harmful air emissions. Natural gas has lower emissions than other forms of energy.

**Uncontrolled Boiler Emissions**  
(per 50,000 MMBtu input)



The use of natural gas allows for the replacement or downsizing of underground oil storage tanks which have a tendency to leak over time.

**A Green Building Project does not have to cost more up front. In fact, building green often costs less.**

*– Rocky Mountain Institute.*

### L.E.E.D. (Leadership in Energy and Environmental Design):

- A holistic design approach to a building whereby points are assigned based on energy efficiency or environmentally friendly design. The number of points obtained determines the level of certification.
- Installation of gas fired technologies can add to the number of points received for the building.
- Energy efficiency over standard installations also earns points
- Points are awarded for saving money

### U.S. Green Buildings Council:

- Defines programs by establishing a common standard of measurement
- Promotes integrated, whole-building design practices
- Recognizes environmental leadership in the building industry
- Stimulates Green competition
- Raises consumer awareness of green building benefits
- Transforms the building market

***If you're building or renovating, please contact us to learn about how natural gas technologies can save you energy and money, make your facility more environmentally friendly, and improve your LEED rating.***



## Natural Gas – Protecting Our Nation’s Environment and Security



Recent events have highlighted the need to strengthen our energy position and our national security. Diminishing energy resources, terrorism, unpredictable foreign policies and weather threaten the economic vitality of U.S. businesses. Likewise, global warming, ozone depletion, smog, and acid rain damage the environment and pose serious health problems for Americans.

Natural gas can significantly contribute to a cleaner environment and greater national security by reducing pollution, maintaining a clean and healthy environment, and reducing our reliance on foreign energy sources.

Greater reliance on our abundant supply of natural gas can reduce our need for foreign oil and our dependence on unpredictable and expensive sources of oil. Using natural gas equipment in place of electric equipment helps minimize our growing need to produce electricity. Our underground natural gas transmission and distribution system is protected from damage that can be caused by weather or attacks, making it a secure, safe and reliable source of energy.

Natural gas is the cleanest burning of all the fossil fuels. Unlike coal and oil, natural gas produces much lower levels of the harmful emissions that can create an unhealthy environment. Natural gas also contributes to a cleaner environment when used in place of coal or oil in the production of electricity.

### Using natural gas helps reduce:

- Reliance on unpredictable or expensive foreign energy sources
- Vulnerability of energy distribution systems to attack or damage
- Overall and peak power production requirements and costs
- Electric transmission and distribution costs
- Standby electric requirements
- Electric panel and electrical infrastructure
- Water consumption for power generation
- Emission of harmful pollutants



# Gas Piping Made Easy – Corrugated Stainless Steel Tubing

Corrugated stainless steel tubing (CSST), used in place of black-iron pipe, is taking the hassle out of installing gas piping in new and remodeled buildings or reconfiguring kitchen layout.

CSST offers many advantages. Most importantly, CSST installs easily without threading or welding at every turn and bend. Installers appreciate that CSST eliminates the chore of lugging and working with heavy iron pipe. Since CSST requires fewer fittings, the potential for leaks is less, and connections and joints behind walls are virtually eliminated.

CSST can go just about anywhere—around corners and obstacles, between joists and studs, behind and through walls to upper floor levels as well as indoors, outdoors and above or, if sleeved, below ground.

CSST makes it easy to configure a new kitchen, reconfigure an existing kitchen or run gas lines to outdoor appliances such as grills and patio heaters.

## For Maximum Flexibility...

Gas convenience outlets are a safe and inexpensive option that allows for quick connection and disconnection of gas appliances. In food service kitchens, gas equipment can be reconfigured as needed or cleaned just by “unplugging” from the gas convenience outlet. Outside, gas convenience outlets allow natural gas patio heaters, grills and other portable equipment to be easily connected or disconnected and moved or stored. CSST and gas convenience outlets are making it easier than ever to take advantage of clean, economical, dependable and safe natural gas.

### The Advantages of CSST...

- Saves time and labor costs – saves up to 75% of installation time
- Easier to install than black-iron pipe – requires fewer connections and fittings and simple installation tools
- Flexible – pulls like electric wire and installs easily around corners and obstacles and through walls
- Safe – less potential for leaks and fewer connections behind walls

### ... and Gas Convenience Outlets

- Allows for quick, convenient connection/disconnection of appliances for cleaning, moving or storing
- Safe – automatic shut-off valves and safety interlocking feature mean fewer open gas lines and decreased potential for fuel fed fires

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# Energy Performance Contracting

## One Way to Make It Happen



The use of Energy Performance Contracting (EPC) is a practical and attractive way for building owners to finance and acquire needed energy improvement projects where the resulting energy and related cost savings pay for the project over an extended contract term.

EPCs are offered by Energy Service Companies (ESCOs) who guarantee that the energy and cost savings produced by the project will cover all the costs associated with implementing a comprehensive capital energy project. Such costs may include energy auditing services, project design and engineering,

equipment selection and purchase, construction management and equipment installation, financing, technical training services, maintenance, measurement and performance monitoring services.

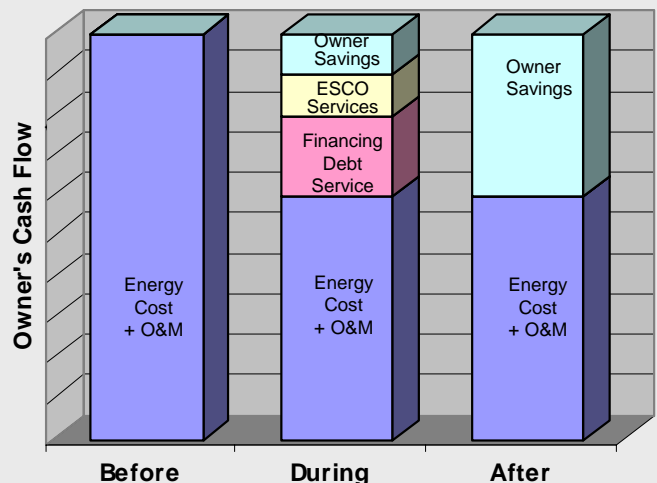
The basic premise of EPC is fairly simple. An investment-grade technical energy audit of the owner's buildings is conducted by the ESCO to identify and analyze opportunities to save energy and operational costs through the installation of high-efficiency equipment replacements or upgrades as well as through improved building operations and maintenance. Based on the results of the audit, the ESCO makes recommendations which when implemented will produce sufficient energy and cost savings to pay for the entire cost of the project over an extended contract term.

ESCOs provide comprehensive technical services as a part of the EPC project and look for ways to achieve energy savings from the widest possible array of cost effective measures. In addition to analyzing building energy consumption and designing comprehensive projects that will pay for themselves out of long-term savings, ESCOs can arrange sources of project financing and provide ongoing equipment maintenance, project monitoring, and measurement and verification services to ensure persistent and reliable project performance.

Owners may feel more comfortable having an independent Owner's Representative help them through this process as they negotiate with an ESCO, since there are some technical and contractual issues such as:

- Establishing the energy baseline from which savings will be measured
- Determining the best arrangement for sharing annual energy cost savings for the owner - to protect their interests and meet their financial needs
- Computing the annual energy savings
- Monitoring and verifying project results over the life of the agreement

**Reallocated Energy Payments due to Energy Service Contract**



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