Cres Cor
Models H-137-UA-12B & 131-1816B
Hot Food Holding Cabinet Performance Test

Application of the Food Service Technology Center's
Standard Test Method for the Performance of
Hot Food Holding Cabinet

FSTC Report 5011.00.89

Food Service Technology Center
Final Report, December 2000

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The information in this report is based on data generated at Pacific Gas and Electric Company's Food Service Technology Center.

Acknowledgments

The establishment of a Food Service Technology Center reflects Pacific Gas and Electric Company's commitment to the food service industry. The goal of the research project is to provide Pacific Gas and Electric Company's customers with information to help them evaluate technically innovative food service equipment and systems and make informed equipment purchases regarding advanced technologies and energy sources. The project was the result of many people and departments working together within Pacific Gas and Electric Company and the support of the commercial equipment manufacturers who supplied appliances for testing.

Pacific Gas and Electric Company's Food Service Technology Center is supported by its National Advisory Group, which includes

California Café Restaurant Corporation
California Energy Commission (CEC)
California Restaurant Association (CRA)
Darden Restaurants, Inc.
Electric Power Research Institute (EPRI)
Enbridge/Consumer Gas
Gas Appliance Manufacturers Association (GAMA)
Gas Research Institute (GRI)
International Facility Management Association (IFMA)
McDonald's Corporation
National Restaurant Association
Round Table Pizza
Safeway, Inc.
Underwriters Laboratories (UL)
University of California, Berkeley (UC Berkeley)
University of California, Riverside (CE-CERT)

Specific appreciation is extended to Bill Delau and Cres Cor Products, for supplying the Food Service Technology Center with Models H-137-UA-12B & 131-1816B, hot food holding cabinets for controlled testing in the appliance laboratory.

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Executive Summary

This study documents the performance of two Cres Cor hot food holding cabinets, models H-137-UA-12B, an insulated hot food holding cabinet, and model 131-1816B, a non-insulated unit. This test method was based on an enhanced version of ANSI/NSF 4 - 1999 Performance of Enclosed Hot Food Holding Equipment and Hot Food Transport Cabinets. This test evaluated the cabinets preheat time and energy, idle energy consumption and temperature uniformity.

The preheat test is a measure of how much energy an appliance consumes in achieving a temperature of 150°F, from a temperature of 73°F. The idle energy test reports how much energy is required to maintain a 150°F set point. The control panels for the two hot food holding cabinets consist of an on/off switch and a temperature control dial. A summary of the test results are presented in Table ES-1.

Table ES-1. Summary of Cres Cor's Insulated and Non-Insulated Cabinets

Cabinet	Insulated Unit	Non-insulated Unit
Nameplate Rating (kW)	2.00	2.00
Measured Rating (kW)	1.93	1.99
Percent Different (%)	3.50	0.05
Preheat Time (min.)	17:25	20:10
Preheat Energy (Wh)	540	680
Preheat Degrees Per Minute (°F)	4.44	3.58
Idle Energy Rate (Wh)	410	1,335
Idle Duty Cycle (%)	20	67
Temp. Uniformity Difference (°F)	7.7	12.3

Executive Summary

The two Cres Cor holding cabinets tested, one insulated and one non-insulated unit, performed well under the rigorous conditions of the testing. Both cabinets performed effectively with respect to preheat times, reaching 150°F in 17:25 min. and 20:10 min., respectively. The insulated cabinet exhibited a particularly low idle energy rate of 410 Wh (20% idle duty cycle), whereas the non-insulated cabinet required 1335 Wh (67% idle duty cycle) to maintain 150°F as one might anticipate. In addition, each unit demonstrated a consistent temperature from top to bottom — the insulated unit had an average temperature gradient of only 7.7°F and the non insulated unit had an average temperature gradient of 12.3°F. The performance and energy benefits of the insulated package were clearly demonstrated.

The test results demonstrate that the Cres Cor hot food holding cabinets are very effective at holding foods at temperature along with excellent preheat performance, which is advantageous for the portability usage of hot food heating cabinets. Cres Cor has successfully developed an insulated hot food holding cabinet that combines quick preheats, energy efficiency and temperature uniformity.

1 Introduction

Background

The hot food holding cabinet is a widely used and versatile piece of equipment in a commercial kitchen. Though these cabinets are mostly used for keeping food at safe serving temperature, they are also used for keeping plates warm for service, as well as transporting food for catering events. In addition, these hot food holding cabinets are light weight for easy moving, yet strong enough for everyday use.

These hot food holding cabinets can be plugged into any wall outlet and utilize large wheels for ease of transport. In addition, the insulated cabinet utilizes such energy saving attributes such as magnetic door gaskets, auto door closers and Dutch doors.

…"real-world" performances, providing end users with valuable information…

The Pacific Gas and Electric Company's Food Service Technology Center developed a uniform testing procedure to evaluate the performance of hot food holding cabinets. This test method was based on an enhanced version of ANSI/NSF 4 - 1999 Performance of Enclosed Hot Food Holding Equipment and Hot Food Transport Cabinets.

This test method is pending ratification as an official ASTM Standard. Application of this test method determine preheat time and energy consumption, and idle energy consumption rates that correlate with "real-world" performance, providing end users with valuable information for purchasing and operating hot food holding cabinets. In addition, top to bottom temperature uniformity is characterized in the hot food holding cabinet.

The glossary in Appendix A is provided so that the reader has a quick reference to the terms used in this report.

Introduction

Objectives

The objective of this report is to examine the operation and performance of two Cres Cor hot food holding cabinets, models H-137-UA-12B (an insulated unit) & 131-1816B (an non-insulated unit), under the controlled conditions of an enhanced ANSI/NSF 4 - 1999 test method. The enhancements examine the preheat energy consumption and idle energy consumption conforming with the Food Service Technology Center's Standard Test Method for the Performance of Hot Food Holding Cabinets.

The scope of this testing is as follows:

1. Verify that the appliance is operating at the manufacturer's rated energy input.
2. Document the preheat energy consumption and time.
3. Document the idle energy consumption.
4. Characterize the vertical temperature uniformity within the cabinet.

Appliance Description

Hot food holding cabinets are mainly used for keeping food at temperature without further cooking the product or drying out the food. The two tested Cres Cor hot food holding cabinets (Figure 1.1 & 1.2) are similar in size and shape with the biggest difference being that one is insulated and the other in non-insulated.

Each unit's control panel consist of an "on/off" switch and a temperature dial. The heat source consists of a fan that circulates air over electric resistance elements which is forced up a vented chimney in the back of the unit for even heating from top to bottom. The fan in these units continues to run as the heating element cycles on and off. Both units' controls are accessible without opening the door. Each unit is equipped with heavy-duty, 5-inch swivel casters with two brakes. The bodies are constructed of non-corrosive, high tensile aluminum. The insulated unit has a twelve shelve capacity, Dutch doors, magnetic gaskets and auto door closers. The non-insulated unit has a seventeen shelve capacity and gravity latches.

Appliance specifications are listed in Table 1-1 & 1.2, and the manufacturer's literature is in Appendix B.

Table 1-1. Insulated Cabinet Specifications.

Manufacturer	Cres Cor
Model	H-137-UA-12B
Generic Appliance Type	Hot Food Holding Cabinet
Rated Input	2.0 kW
Voltage	120 V, single phase
Dimensions	28" x 35-3/8" x 21-3/4"
Construction	Aluminum body, 1-1/2 fiberglass insulation, self closing Dutch doors with latches, magnetic door gaskets, 5" dia. swivel casters (front caster w/breaks), and twelve adjustable shelves.
Controls	An on/off switch with an dial for temperature selection with digital readout.
Water Pan	3-1/2 pint capacity

Figure 1-1.
Cres Cor Insulated Hot Food Holding Cabinet

Table 1-2. Non- Insulated Cabinet Specifications

Manufacturer	Cres Cor
Model	131-1816B
Generic Appliance Type	Hot Food Holding Cabinet
Rated Input	2.0 kW
Voltage	120 V, single phase
Dimensions	28” x 35-3/8” x 21-3/4”
Construction	Aluminum body, gravity type latches, 5” dia. swivel casters (front caster w/breaks), and seventeen shelves.
Controls	An on/off switch with an dial for temperature selection with analog readout.
Water Pan	3-1/2 pint capacity

Figure 1-2.
Cres Cor Non-Insulated Hot Food Holding Cabinet

2 Methods

Setup and Instrumentation

FSTC researchers installed the hot food holding cabinets according to the manufacturer's instructions in an appropriate space. All sides of the hot food cabinet were a minimum of 3 ft from any wall, side partition, or other operating appliance. The associated heating or cooling system for the space maintained an ambient temperature of 73 ± 3° F within the testing environment. All test apparatus were installed in accordance with Food Service Technology Center's Standard Test Method for the Performance of Hot Food Holding Cabinets[1] and the ANSI/NSF 4 - 1999 test method.[2]

Power and energy were measured with a calibrated watt/watt-hour transducer that generated an analog signal for instantaneous power and a pulse for every 10 Wh. The transducer and thermocouples were connected to an automated data acquisition unit that recorded data every 5 seconds. A voltage regulator was used to maintain a constant voltage for all tests. Figure 2-1 illustrates the typical hot food holding cabinet test setup.

Figure 2-1.
Cres Cor Insulated Cabinet with Computer

Cavity temperature rise and uniformity were measured with K-type thermocouples. All data were logged using a Fluke Helios data logger and recorded on a PC. The door(s) were not opened during any of the testing. Five, 18 x 26 x 1 inch sheet pans were placed inside the cabinet for the idle energy rate tests.

Energy Input Rate and Thermostat Calibration

The energy input rate was determined by turning on the hot food holding cabinet and measuring the energy consumed from the time the elements cycled on to the time the elements cycled off. Peak input during this period was the measured input rate for the appliance. Thermostat calibration was verified by allowing the cabinet to operate with the thermostat set to 150°F for a period of one hour and then monitoring the cabinet cavity temperature for a period of thirty minutes. The controls were then adjusted to maintain 150±3°F in the center of the cabinet.

Preheat and Idle Rate Test

Preheat tests record the time and energy required for the cabinet to raise the cavity temperature from 73°F to a temperature of 150°F. Data recording began when the cabinet was first turned on. After the cabinet was preheated, it was allowed to stabilize for one hour. The idle energy consumption was monitored for a 2-hour period thereafter.

Hot food holding cabinets are not intended to “cook” food—the product is already at temperature when placed into the cabinet. In keeping with that scenario, the idle energy test does not use a food product. In addition, testing at the Food Service Technology Center has determined that idle energy consumption does not differ between an empty cabinet and a cabinet that has a food load, provided that it’s already at the holding temperature.

3 Results

Energy Input Rate

Prior to testing, the energy input rate was measured and compared with the manufacturer's nameplate value. This procedure ensured that the hot food holding cabinets were operating within their specified parameters.

Table 3-1. Energy Input Rates.

Holding Cabinets	Insulated Unit	Non-Insulated Unit
Nameplate Rating (kW)	2.00	2.00
Measured Rating (kW)	1.93	1.99
Percent Difference (%)	3.50	0.05

Preheats

Time and energy were monitored starting from the time the cabinets were first turned on. The preheat ended when the units reached 150°F. The results of the preheat test are presented in Table 3-2. Temperature and energy profiles are presented in Figures 3-1 and 3-2.

As expected the insulated cabinet had a quicker preheat which is a result of the insulation, however the non-insulated unit only needed about 3 additional minutes to reach the 150°F mark.

Table 3-2. Preheats Testing Results.

Holding Cabinets	Insulated Unit	Non-Insulated Unit
Preheat Time (min.) 150°F	17:25	20:10
Preheat Energy (Wh)	540	680
Preheat Rate (°F/min)	4.44	3.58

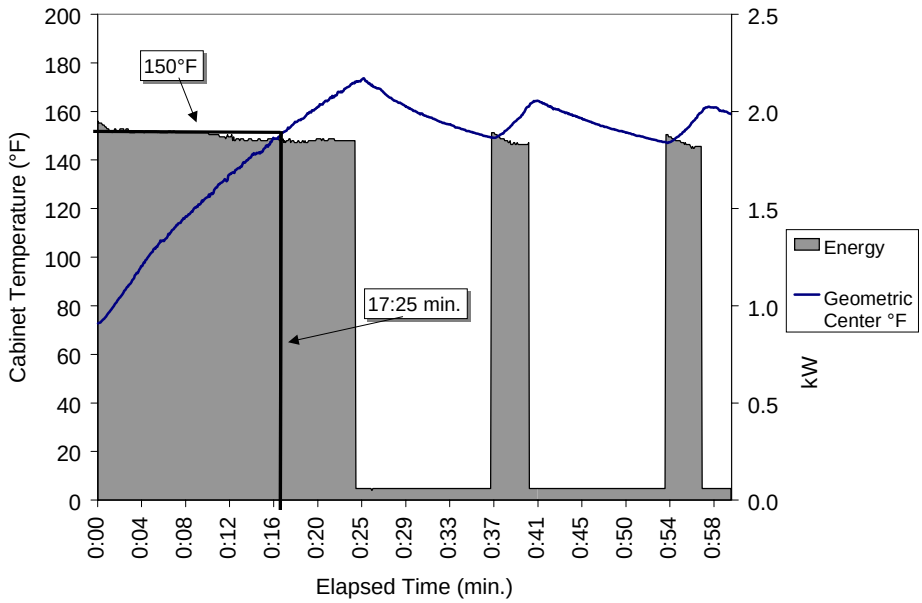

Figure 3-1.
Insulated Cabinet's Preheat

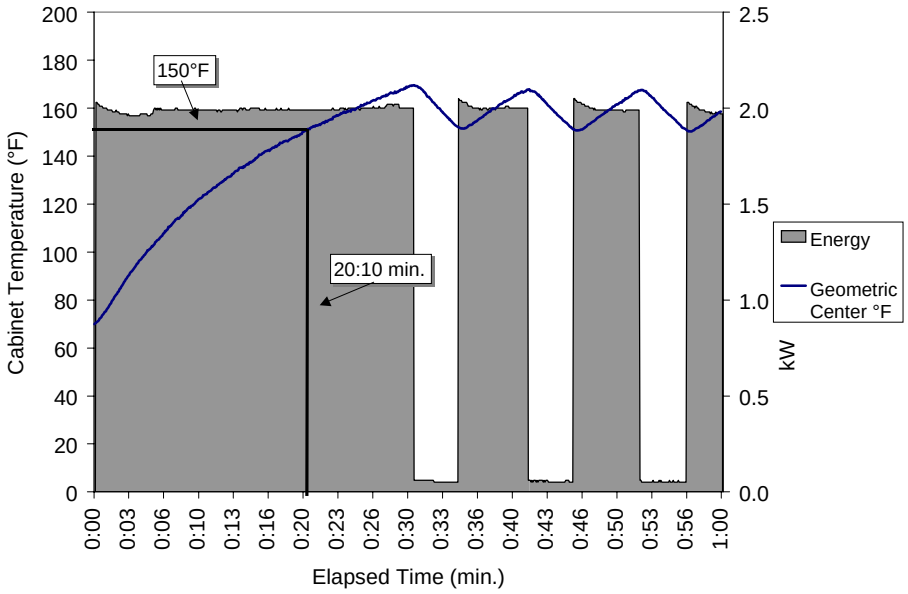

Figure 3-2.
Non-Insulated Cabinet's Preheat

Idle Test

For the idle test, researchers loaded five full-size sheet pans into the pre-heated cabinet. The sheet pans were positioned so that there was a equal amount of space between each pan. The cabinets were then allowed to stabilize for one hour. The thermostat was set to cycle on the elements when the cavity temperature dropped to 150°F during testing, preventing the cavity temperature from dropping below the set point. The average temperature was greater than 150°F as illustrated in Figure 3-1 and 3-2. After the stabilization period, the energy consumption was monitored over a 2-hour period. The door(s) remained closed during the idle test.

The idle energy rate and associated duty cycle of the insulated unit was about one-third that of the non insulated unit, which is demonstrated in Figures 3-3 and 3-4. Also to be noted is the temperature profile in both graphs. In Figure 3-3, the cabinet temperature reacted quickly when the heating elements were energized and then slowly cools down, a result of the insulation. In Figure 3-4 the opposite occurs: it takes longer to heat up than to cool down. The low energy use of the insulated cabinet can be credited to the insulation, generating a cabinet that is less susceptible to ambient temperature.

Table 3-3. Idle Energy Rates

Holding Cabinets	Insulated Unit	Non-Insulated Unit
Idle Energy Rate (Wh)	410	1,335
Idle Duty Cycle (%)	20	67

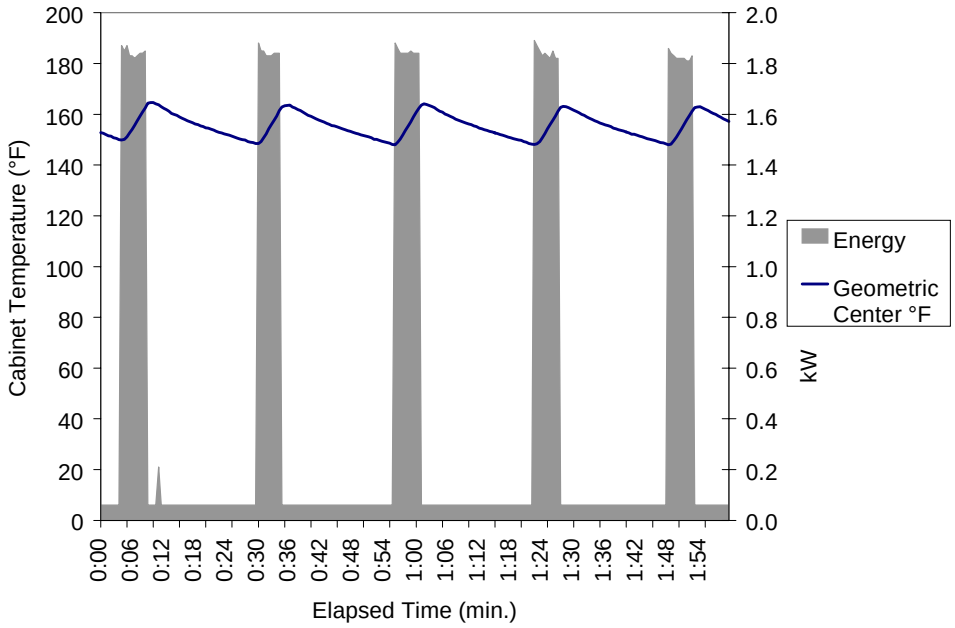

Figure 3-3.
Insulated Cabinet's Idle Rate

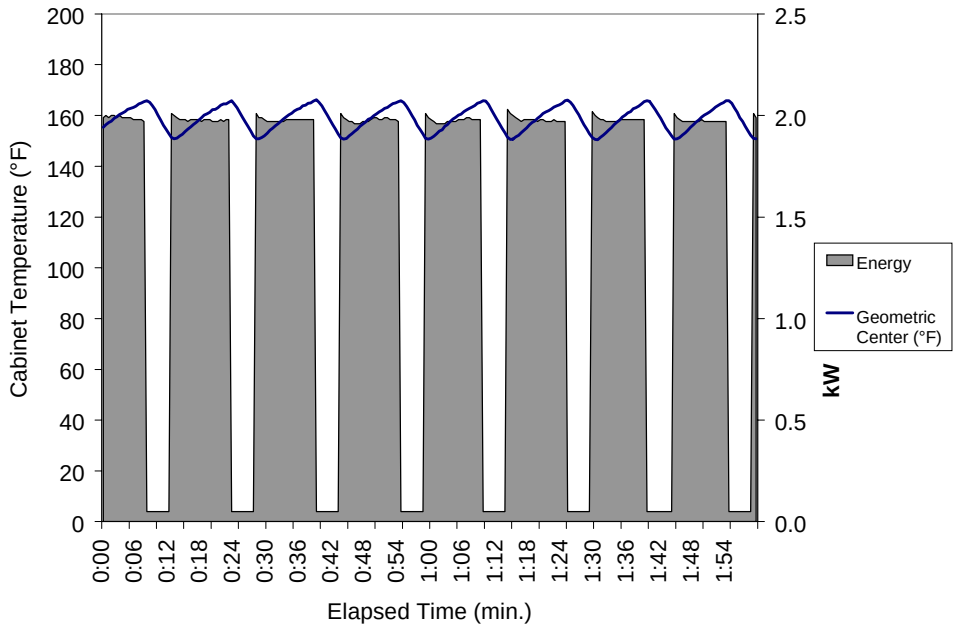

Figure 3-4.
Non-Insulated Cabinet's Idle Rate

Temperature Uniformity/ Stratification

For this test, temperatures were measured in five different locations. Two thermocouples are located 5 ½ inches from the top and the bottom of the cabinet, and one thermocouple was located in the geometric center of the unit. The two remaining thermocouples were evenly spaced between the top (and bottom) thermocouples and the center thermocouples. See Table 3-4 and Figures 3-5 and 3-6.

Table 3-4. Internal Temperature Uniformity

Holding Cabinets at 150°F	Insulated Unit	Non-Insulated Unit
Average Range (°F)	7.7	12.3
Minimum Range(°F)	2.9	7.9
Maximum Range(°F)	17.4	15.4

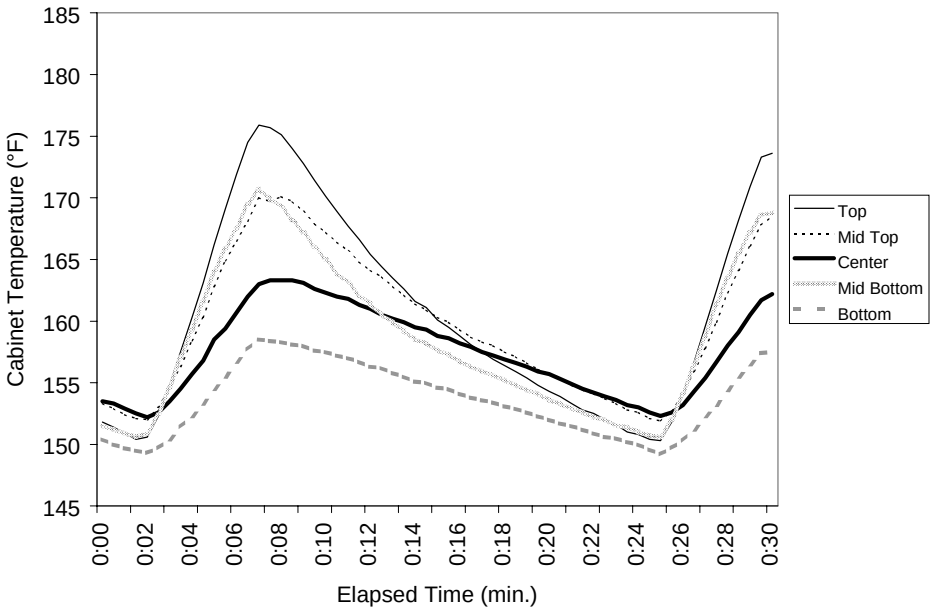

Figure 3-5. Insulated Cabinet's Temperature Uniformity

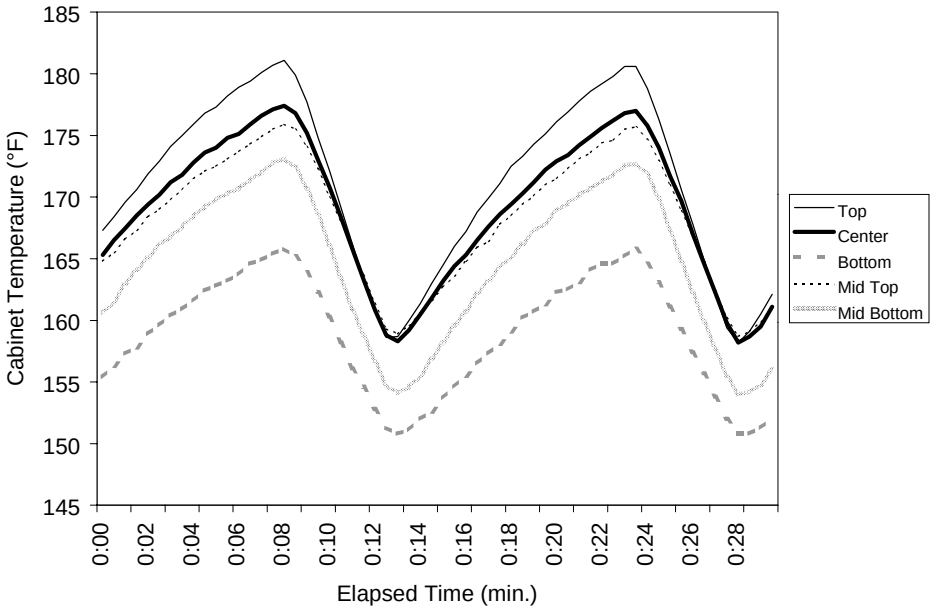

Figure 3-6. Non-Insulated Cabinet's Temperature Uniformity

Operational Cost Model

The initial capital cost of a hot food holding cabinet can vary dramatically based on the size, construction, and included options. Often cabinets can be identical in size and functionality, yet their energy consumption can be very different. Therefore, the energy use of a holding cabinet is helpful information that can be used to justify purchasing decisions. For instance, without knowing about energy use, the added first cost of an insulated holding cabinet can influence a purchaser into opting for the lower cost, non-insulated cabinet. But, when energy consumption is considered, the consumer can make a more informed purchasing decision which includes the return on investment for additional capital costs.

The two hot food holding cabinets in this report are prime examples of cabinets that have numerous similarities, but have different energy consumption profiles. The estimated annual cost to operate the insulated and non-insulated hot food holding cabinets is shown in Table 3-5. Also included in this table is the estimated payback period. The estimated payback period is based on the

cost difference between the insulated cabinet and the non-insulated cabinet and the associated time required to recoup the additional investment of purchasing the insulated cabinet. The payback period is directly related to the cost of electricity. If energy is inexpensive, the operational cost of a non-insulated cabinet is minimal, extending the payback period. But, if the energy is moderate to expensive, the payback period drops to 1.7 yr. or less.

Additionally, an insulated cabinet reduces the heat added to the kitchen space. It is estimated that a non-insulated hot food holding cabinet can add as much an additional 1/4 ton in air conditioning needs over an insulated cabinet.

Table 3-5. Operational Energy Consumption and Cost Model

Holding Cabinets	Insulated* Cabinet	Non-Insulated Cabinet	Cost Difference	Estimated Payback Period**
Estimated Retail Cost	$2,500	$1,650	$850	N/A
Idle Energy Rate (W)	410	1,335	925	N/A
Annual Cost @ $0.05 kWh – 15 h/d	$112	$365	$253	3.4 yr.
Annual Cost @ $0.10 kWh – 15 h/d	$225	$731	$506	1.7 yr.
Annual Cost @ $0.15 kWh – 15 h/d	$337	$1,096	$759	1.1 yr.

* The insulated unit (Table 1-1) has additional features that were not on the non-insulated unit, thus the suggested retail price is slightly higher for the additional functions.

** The estimated payback period is based on the cost difference ($850) between the insulated cabinet and the non-insulated cabinet and is the amount of time required to recoup, through energy savings, the added cost of the insulated cabinet.

4 Conclusions

Cres Cor has successfully developed an insulated cabinet combining quick preheats, energy efficiency with a fine temperature uniformity.

The two Cres Cor holding cabinets tested, models H-137-UA-12B (insulated unit) and model 131-1816B (non-insulated unit) performed well under the rigorous conditions of the ANSI/NSF 4 performance test and the Food Service Technology Center's Standard Test Method for the Performance of Hot Food Holding Cabinets. Both the insulated and non insulated units performed well with respect to preheat time (a minimum of 150°F) in 17:25 and 20:10 respectively. The insulated unit demonstrated a very low idle energy consumption rate of 410 Wh at 150°F (20% idle duty cycle). The non-insulated unit consumed 1335 Wh at 150°F (67% idle duty cycle). In addition, each unit demonstrated a consistent temperature uniformity from top to bottom with the insulated unit averaging a temperature range of 7.7°F and the non insulated unit averaging a temperature range of 12.3°F.

Another consideration of the purchaser is the cabinet's estimated payback period, which is directly related to the cost of electricity. If energy is inexpensive, the operational cost of a non-insulated cabinet is minimal. But, if the energy is moderate to expensive, an insulated cabinet might be better suited for the operators needs and the payback period can be as low as 1.7 yr. or less.

Cres Cor has incorporated short preheat times with temperature uniformity ensuring the user that the cabinet's operate as preset on the temperature dial. They have also successfully developed an insulated hot food holding cabinet that combine quick preheats, energy efficiency with a fine temperature uniformity.

5 References

1. Food Service Technology Center. 2000 *Standard Test Method for the Performance of Hot Food Holding Cabinets.* Report 5011.00.89 prepared for Products and Services Department. San Francisco, California: Pacific Gas and Electric Company
2. ANSI/NSF 4. 1999. *Enclosed Hot Food Holding Equipment and Hot Food Transport Cabinets.* Ann Arbor, Michigan

Appendixes

A Glossary

Cooking Energy (kWh or kBtu)

The total energy consumed by an appliance as it is used to cook a specified food product.

Cooking Energy Consumption Rate (kW or kBtu/h)

The average rate of energy consumption during the cooking period.

Cooking Energy Efficiency (%)

The quantity of energy input to the testing media; expressed as a percentage of the quantity of energy input to the appliance during the half- and full- energy input rate cooking energy efficiency tests.

Energy Input Rate (kW or kBtu/h)
Energy Consumption Rate
Energy Rate

The peak rate at which an appliance will consume energy, typically reflected during preheat.

Heating Value (Btu/ft^3)
Heating Content

The quantity of heat (energy) generated by the combustion of fuel. For natural gas, this quantity varies depending on the constituents of the gas.

Hot Food Holding Cabinet

Hot food holding cabinets are described as an kitchen appliance which is used to hold food (usually no greater than 200°F) which has been cooked in a separate appliance.

Idle Energy Rate (kW or Btu/h)
Idle Energy Input Rate
Idle Rate

The rate of appliance energy consumption while it is “idling” or “holding” at a stabilized operating condition or temperature.

Idle Temperature (°F, Setting)

The temperature of the cooking cavity/surface (selected by the appliance operator or specified for a controlled test) that is maintained by the appliance under an idle condition.

Measured Input Rate (kW or Btu/h)
Measured Energy Input Rate
Measured Peak Energy Input Rate

The maximum or peak rate at which an appliance consumes energy, typically reflected during appliance preheat (i.e., the period of operation when all burners or elements are “on”).

Pilot Energy Rate (kBtu/h)
Pilot Energy Consumption Rate

The rate of energy consumption by the standing or constant pilot while the appliance is not being operated (i.e., when the thermostats or control knobs have been turned off by the food service operator).

Preheat Energy (kWh or Btu)
Preheat Energy Consumption

The total amount of energy consumed by an appliance during the preheat period.

Preheat Rate (°F/min)

The rate at which the cook zone heats during a preheat.

Preheat Time (minute)
Preheat Period

The time required for an appliance to “preheat” from the ambient room temperature (75 ± 5°F) to a specified (and calibrated) operating temperature or thermostat set point.

Production Capacity (lb/h)

The maximum production rate of an appliance while cooking a specified test product in accordance with the heavy-load cooking test.

Production Rate (lb/h)
Productivity

The average rate at which an appliance brings a specified food product to a specified "cooked" condition.

Range Top

A device for cooking food by direct or indirect heat transfer from one or more cooking units to one or more cooking containers.

Rated Energy Input Rate (kW, W or Btu/h, Btu/h)
Input Rating (ANSI definition)
Nameplate Energy Input Rate
Rated Input

The maximum or peak rate at which an appliance consumes energy as rated by the manufacturer and specified on the nameplate.

Test Method

A definitive procedure for the identification, measurement, and evaluation of one or more qualities, characteristics, or properties of a material, product, system, or service that produces a test result.

Temperature Response

The temperature rise measure on the surface of a steel plate during the test period in accordance with the heat-up temperature response test.

Temperature Uniformity

The comparison of individual temperatures measured on a vertical line in the center of the hot food holding cabinet.

B Appliance Specifications

Appendix B includes the product literature for the Cres Core Insulated, model H-137-UA-12B and Non-Insulated, model 131-1816B hot food holding cabinets

CRES COR®

JOB: _____

ITEM NO: _____

INSULATED HOLDING CABINET MODEL H-137-UA-12B

FEATURES AND BENEFITS:

- Fully insulated holding cabinet keeps prepared foods at serving temperatures.
- Powerful, yet efficient, 2000 Watt heating system with humidity pan maintains the right temperature to properly hold products. Heats up to 200˚F. (93˚C.).
- Internal frame in body and doors maintains structural rigidity.
- Body constructed of non-corrosive, Hi-Tensile aluminum for strength and ease of mobility. One piece extended base protects cabinet body.
- Self-closing insulated Dutch doors prevent temperature loss; magnetic door gaskets for proper seal. Field reversible for flexibility.
- Standard with right hand hinging; left hand hinging available upon request.
- Full length extruded door handles for "easy open"; positive catch secures door during transport.
- Recessed push/pull handles on both sides prevent damage to walls; allows easy maneuvering.
- Twelve sets of extruded universal angles accommodate a large variety of pan sizes on adjustable 1-1/2" centers.
- Slanted control panel has easy-to-read thermometer; entire assembly removable for cleaning and maintenance.
- Heavy duty 5" swivel casters, two with brakes. Provides mobility when fully loaded.

H-137-UA-12B

NSF UL UL C

ACCESSORIES and OPTIONS (Available at extra cost):

- ❑ Lexan Door Windows
- ❑ Extra Universal Angles
- ❑ Corner Bumpers
- ❑ Perimeter Bumper
- ❑ Floor Lock (for use with 5" casters)
- ❑ Various Caster Options
- ❑ Digital Thermometer
- ❑ 208 or 240 Volt Service

See page B-20 for accessory details.

CRES COR®

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Sept., 1995

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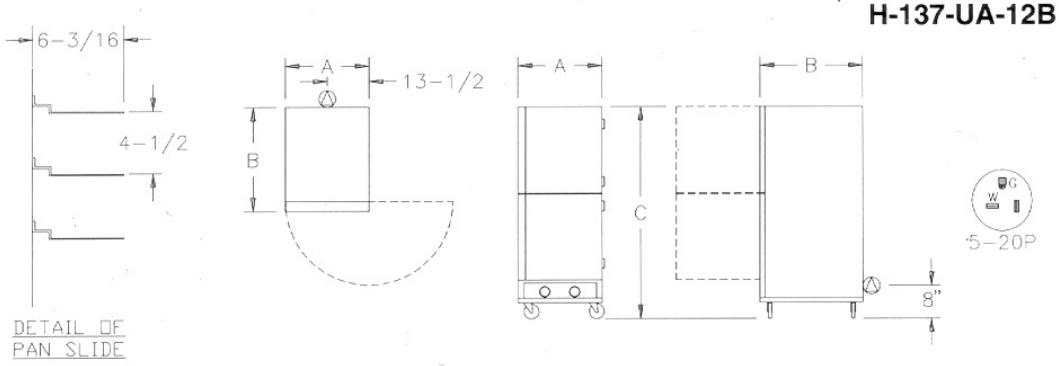

CRES-COR MODEL NO.	PAN CAP/ANGLES	PAN SIZE		DIM "A" WIDTH	DIM "B" DEPTH	DIM "C" HEIGHT	INSIDE DIMENSIONS WIDTH	INSIDE DIMENSIONS DEPTH	INSIDE DIMENSIONS HEIGHT		WEIGHT ACT.
H-137-UA-12B	12	SEE NOTE	IN	28	35-5/8	69-3/4	21-3/4	28	54-11/16	LBS	309
	SETS	BELOW	CM	71.1	90.5	177.2	55.2	71.1	138.9	KG	140

NOTES: 1. Pan sizes 22" x 20" (55.8 x 50.8) Roast & Bake Pans, 10" x 20" (25.4 x 50.8) Roast & Bake Pans, 18" x 26" (45.7 x 66.0) Bun Pans, 14" x 18" (35.5 x 45.7) Service Trays, 12" x 20" (30.4 x 50.8) Steam Table Pans. Refer to Pan Size Chart at end of section.
2. When ordering bumpers, add 2" to overall dimensions.

ALL ALUMINUM CONSTRUCTION IS RIVETED, WELDED AND FINISHED.

CABINET:
- Body: .063 aluminum.
- Reinforcement: Internal framework of extruded angles, 1-1/4 x 1-1/4 x .188.
- Insulation (walls, doors, base, top): 1-1/2" fiberglass, thermal conductivity (K factor) is .23 at 75˚F.
- Air tunnel: .063 aluminum; lift-out type, mounted on back panel.
- Push/pull handles (4): Black plastic; 5-1/2" vertical; recessed.
- Water pan: 3-1/2 pint capacity; .063 aluminum.

BASE:
- One piece construction, .190 aluminum.
- Casters: 5" dia., swivel, neoprene tires, 1-1/4 wide, load cap. 200 lbs. each, temp. range -20˚/+160˚F. Bearings are sealed and permanently lubricated. Front casters equipped with brakes.

DUTCH DOORS:
- Field reversible.
- Exterior: Formed .063 brushed aluminum.
- Interior: 22 ga. 430 stainless steel.
- Latches: Positive transport type.
- Extruded handles.
- Hinges: Self closing, stays open past 90˚.
- Gaskets: Perimeter type, magnetic Santoprene.
- Pan stop channels: Riveted to inside of doors.

PAN SLIDES:
- Extruded angles, 2 x 6-3/16 x .110 mounted on lift-out posts.
- Spaced on 4-1/2" centers; adjustable on 1-1/2" centers.

HOT UNIT COMPONENTS:
- Removable bottom mount hot unit.
- Body: Formed .063 aluminum with black control panel.
- Thermostat: Electro-mechanical, room ambient to 200˚F. (93˚C.).
- Pilot light.
- Switch: Lighted ON-OFF rocker type.
- Power cord: Permanent, 6 ft., 12/3 ga. with molded right angle plug.
- Heater: 2000 Watts.
- Blower motor.
- Thermometer.

POWER REQUIREMENTS:
- 2000 Watts, 120 Volts, 60 Hz., single phase, 16.6 Amps.,

SHORT FORM SPECIFICATIONS

Cres-Cor Insulated Holding Cabinet Model H-137-UA-12B. Inner, outer and top liners of .063 aluminum, reinforced with internal extruded frame. (12) sets extruded universal angles for multiple pan sizes, adjustable spacing every 1-1/2". Field reversible Dutch doors, outer .063 brushed aluminum, inner 20 ga. 430 stainless steel. Fiberglass insulation in sides 2"; back and doors 1-1/2". Removable 2000 Watt, 120 Volt power unit. One piece insulated base, .190 aluminum. 5" swivel neoprene casters, permanently lubricated, sealed ball bearings. Load capacity 200 lbs. each. 2 year parts warranty. Provide the following accessories: ____ ____ ____. NSF, UL listed.

CRES COR®

12825 Taft Ave. • Cleveland, OH 44108-1683
Phone: 800/321-7174 • Fax: 216/851-9734

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Litho in U.S.A.

CRES COR®

JOB: _____

ITEM NO: _____

NON-INSULATED HOLDING CABINET MODEL 131-1816B

FEATURES AND BENEFITS:

- Non-Insulated holding cabinet to keep prepared foods at serving temperatures.
- Powerful, yet efficient, heating system maintains the right combination of heat and humidity to properly hold products. 2000 Watt heater holds foods at up to 180˚F. (82˚C.).
- Body constructed of non-corrosive, Hi-Tensile aluminum with extruded frame fully welded for strength and ease of mobility.
- Reinforced, field reversible brushed aluminum door for flexibility.
- Standard with right hand hinging; left hand hinging available upon request.
- Gravity type latch secures door during transport.
- Extruded angle ledge pan supports hold 18" x 26" pans on 3" centers.
- Controls accessible without opening door; allows adjustments without interrupting process.
- Slanted control panel has easy-to-read thermometer; entire assembly removable for cleaning and maintenance.
- Heavy duty 5" swivel casters, two with brakes. Provides mobility when fully loaded.

131-1816B

NSF UL C UL

ACCESSORIES and OPTIONS (Available at extra cost):

- ❑ Dutch Doors
- ❑ Lock Hasp
- ❑ Corner Bumpers
- ❑ Perimeter Bumper
- ❑ Floor Lock (for use with 5" casters)
- ❑ Various Caster Options
- ❑ Digital Thermometer
- ❑ 240 Volt Service

See page B-20 for accessory details.

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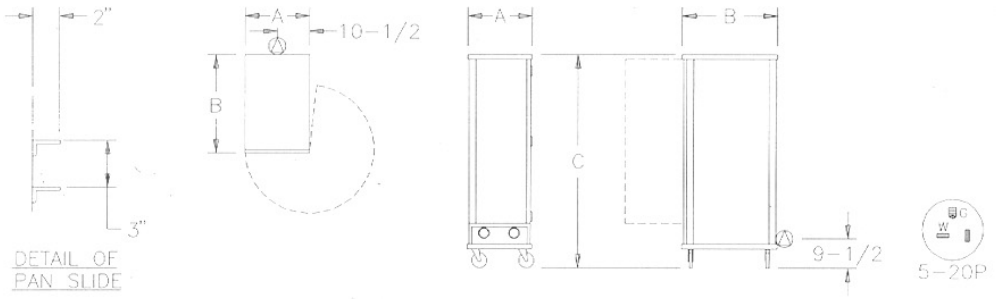
131-1816B



CRES-COR MODEL NO.	PAN CAP	PAN SIZE		DIM "A" WIDTH	DIM "B" DEPTH	DIM "C" HEIGHT	INSIDE DIMENSIONS WIDTH	INSIDE DIMENSIONS DEPTH	INSIDE DIMENSIONS HEIGHT		WEIGHT ACT.
131-1816B	17	18 x 26	IN	21	32-1/4	69-3/4	18-1/16	28-1/2	54-3/8	LBS	173
		45.7 x 66.0	CM	53.3	81.9	177.2	45.9	72.4	138.1	KG	78

When ordering bumpers, add 2" to overall dimensions.

ALL ALUMINUM CONSTRUCTION IS RIVETED, WELDED AND FINISHED.

CABINET:
- Top: One piece .100 aluminum.
- Posts: Extruded channels, 7/8 x 2-1/4 x .102, welded to top and base, form a solid frame.
- Sides and back: .063 panels riveted to posts.
- Back panel: Fitted into posts, riveted to top and reinforced.
- Air tunnel: .063 aluminum; lift-out type, mounted on back panel.
- Water pan: 3-1/2 pint capacity; .063 aluminum.

BASE:
- One piece construction, .190 aluminum.
- Drip trough: Formed .100 aluminum mounted to front of base; removable drip pan.
- Casters: 5" dia., swivel, neoprene tires, 1-1/4 wide, load cap. 200 lbs. each, temp. range -20˚/+160˚F. Bearings are sealed and permanently lubricated. Front casters equipped with brakes.

DOOR:
- Field reversible.
- Panel: .063 brushed aluminum, fitted into door stile extrusions, 3/4 x 1-7/16 x .187.
- Reinforcement: 1/4 x 1-1/2 extruded bars riveted and welded horizontally to top, center and bottom.
- Pan stop channel: Mounted to inside of door.
- Latch: Gravity type, nickel plated steel.
- Hinges (3): Butt style, nickel plated steel; swings 270˚.

PAN SLIDES:
- Extruded angle supports, 1 x 2 x .125; riveted to sides on 3" centers.

HOT UNIT COMPONENTS:
- Removable bottom mount hot unit.
- Body: Formed .063 aluminum with black control panel.
- Thermostat: Mechanical, room ambient to 180˚F. (82˚C.).
- Switch: Lighted ON-OFF rocker type.
- Power cord: Permanent, 6 ft., 12/3 ga. with molded right angle plug.
- Heater: 2000 Watts.
- Blower motor.
- Thermometer.

POWER REQUIREMENTS:
- 2000 Watts, 120 Volts, 60 Hz., single phase, 16.6 Amps., 20 Amp. service.

SHORT FORM SPECIFICATIONS

Cres-Cor Holding Cabinet Model 131-1816B. Formed and welded .100 aluminum top, .190 aluminum base. Extruded aluminum angles for (17) 18" x 26" pans, riveted on 3" centers. Field reversible brushed .063 aluminum door. Removable 2000 Watt, 120 Volt power unit. Controls accessible without opening door. 5" swivel neoprene casters, permanently lubricated, sealed ball bearings. Load capacity 200 lbs. each. 2 year parts warranty. Provide the following accessories: ____ ____ ____ . NSF, UL listed.

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C Results Reporting Sheets

Section 11.1 Test Oven Description

Date:	December 2000
Manufacturer:	Cres Cor
Models Number:	H-137-UA-12B (insulated unit)
Serial Number:	AJJ-K5573A
Fuel Type:	Electric
Size:	Full
Rated Input:	2.0 kW
Cabinet Cavity Volume:	33,300 cubic inches
Controls:	An on/off switch with an dial for temperature selection with digital readout.

Date:	December 2000
Manufacturer:	Cres Cor
Models Number:	131-1816B (non-insulated unit)
Serial Number:	EJJ-K5560A
Fuel Type:	Electric
Size:	Full
Rated Input:	2.0 kW
Cabinet Cavity Volume:	28,180 cubic inches
Controls:	An on/off switch with an dial for temperature selection with analog readout.

C Results Reporting Sheets

Section 11.2 Thermostat Accuracy

As-Received Condition:	Insulated Unit	Non-Insulated Unit
Center of Oven Temperature:	150°F	150°F
Oven Temperature Control Setting:	150°F	150°F
As-Adjusted Condition:		
Center of Oven Temperature:	150 ± 3°F	150 ± 3°F
Oven Temperature Control Setting:	150°F	150°F

Section 11.3 Energy Input Rate

Test Voltage	120 V	120 V
Rated Input	2.0 kW	2.0 kW
Measured Energy Input Rate:	1.93 kW	1.99 kW
Percent Difference Between Measured and Rated	3.50%	0.05%

Section 11.4 Preheat Energy and Time

Test Voltage	120 V	120 V
Starting Temperature	72.8°F	70.0°F
Preheat Energy Consumption	540 Wh	680 Wh
Preheat Time	17:25 min	20:10 Wh
Average Preheat Rate	4.44°F/min	3.58°F/min

Section 11.5 Idle Energy Rate

Test Voltage	120 V	120 V
Average Cabinet Temperature	155.4°F	158.7°F
Idle Energy Rate	410 Wh	1335 Wh