

# Why Heat Pipes?



Case Summaries

Dear reader,

First I would like to express my gratitude to the owners of the many businesses and homes who were kind enough to allow us to use their names in this case summary booklet. Then I would like to invite you to find out why they are so enthusiastic about our heat pipes.



I invented the Dinh™ Dehumidifier Heat Pipes more than ten years ago because I was not happy with conventional air conditioners. People were forced to put up with cold and clammy air that can make you feel like wearing a sweater in the summer! Humid conditions and today's high efficiency AC systems can make you feel *cold and uncomfortable* when what you really need is *cool and comfortable*.

Living in Florida, I have often heard Southern folks say: "*It ain't the heat, it's the humidity.*" There is much wisdom in this saying, and from an engineer's standpoint, it is **100% correct**. The human body feels cooler when it is dry. Down here in the South, the weather stations not only give you the temperature, but also a "Heat Index". It's just another way of telling you that the humidity can actually make you feel a lot hotter.

To build an AC system that can dehumidify properly, you need a really good heat exchanger, which first made me think of heat pipes. Using no energy, heat pipes perform an almost impossible task: they *passively* transfer massive amounts of heat from the warm return air and uses it to reheat the cold and clammy air leaving the AC cooling coil. The bottom line is that the AC unit now dehumidifies more (twice as much in some instances), providing exactly what ASHRAE (the AC engineering experts) have been recommending for years: *cool and dry* air, not *cold and wet*.

After more than ten years of research and development, Dinh™ Dehumidifier Heat Pipes are now on the market, serving thousands of satisfied customers such as those you will read about in this booklet. Patented in the US and in several foreign countries, this invention received many technology awards, including the prestigious *NASA Space Technology Hall of Fame Award*.

Please consider this breakthrough technology for your next building or project. I can guarantee to you that Dinh™ Dehumidifier Heat Pipes will provide you with superior indoor air quality at the lowest energy cost possible while giving you outstanding comfort and humidity protection for your interiors. You may also find that the heat pipes pay for themselves many times over in fossil fuels not burned. So, for the next 20 years (the life of our heat pipes), let us help you conserve energy while you enjoy the many benefits of this technology.

Sincerely,

A handwritten signature in blue ink that reads "Dinh" followed by a stylized flourish.

Khanh Dinh  
President/Inventor  
Heat Pipe Technology, Inc.

## Commercial Applications

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# FLORIDA MEDICAL CENTER, LTD.

Fort Lauderdale, FL

## Dinh™ Heat Pipes Lower Relative Humidity and Costs in Operating Rooms.



### PROBLEM

The Engineering Department at the Florida Medical Center could not control humidity inside the operating rooms. The high operating cost of using air conditioning

plus reheat or a desiccant system for dehumidification did not fit into the facility's budget.

### SOLUTION **Retrofit 90-ton AHU with Dinh™ Dehumidifier Wrap-Around Heat Pipes**

Health Science & Technology, Inc. advised Shoreline Air Systems, Inc. to retrofit **Dinh™ Dehumidifier Heat Pipes** into a 90 ton chilled water outdoor air handling unit which supplied air into operating room 2 at Florida Medical Center, Ltd.

After the installation, not only the relative humidity monitored between 50-55% in operating room 2, but operating room 1, 3, 7 and 8 were also significantly dehumidified. Operating room 2 currently operates at around 63°F, while bringing in 100% South Florida outside air.

### RESULT

*"We are well pleased and want to pass this on,"* says Tim James, Director of Plant Operations.

# SURGERY CENTER OF ST. PETERSBURG

*St. Petersburg, FL*

## Humidity Problem Affects Surgical Procedures. Staff Chooses Dinh™ Heat Pipe Remedy.

### PROBLEM

Average humidity levels of above 60% concerned the doctors and caused delicate medical equipment to rust. An expensive option to add larger AC equipment was suggested, but heat pipes provided a more economical solution.



### SOLUTION **Add Wrap-Around Heat Pipes to the Existing 25 Ton Rooftop Unit**

A local energy service company installed HPT's Dehumidifier Heat Pipes around the existing DX cooling coil in the rooftop unit.

### RESULT

Data showed that the **heat pipe reduced the electrical demand by 19 Kilowatts while stabilizing the humidity level.** The project cost of \$15,000 will pay for itself in about two years through energy savings and the Florida Power Corporation's heat pipe rebate program. Annual energy savings are projected to be \$4,969 while the FPC rebate totalled \$3,040.

The management and surgical staff said they were pleased, and reported increased reliability of the medical instruments.

# HILTON AT WALT DISNEY WORLD VILLAGE

Lake Buena Vista, FL

Dinh™ Heat Pipes Make Vacations More Comfortable for Guests.



## PROBLEM

A musty odor had taken over the corridors of the hotel. The rooftop air handling units were unable to properly dehumidify the 100% outside air which was being delivered to the corridors, causing registers to drip and rust. The excess moisture was causing damage to the carpet and the wallpaper to mildew frequently.

## SOLUTION      **Retrofit the Make-Up AHU with Dehumidifier Heat Pipes**

**Dinh™ Dehumidifier Heat Pipes** were retrofitted to the existing 4 rooftop AHUs. The air is now much drier, eliminating the mold and mildew problem. Walking into the hotel, customers can feel the fresh air.

## RESULT

*“We measured the condensation now coming from our machine. In two weeks we could fill our largest swimming pool!”* said John Steele, Director of Property Operations.

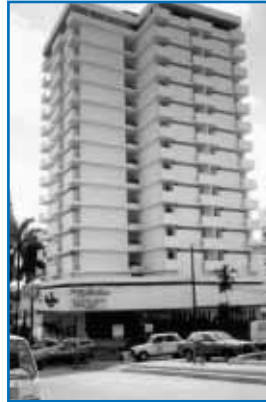
# THE EXECUTIVE HOTEL

*Panama City, Panama*

## Dinh™ Dehumidifier Fan Coils Solve Humidity Problems at Resort.

### PROBLEM

High relative humidity in the hotel's guest rooms was causing complaints, moisture damage and unpleasant odors. The conditions in the 96 rooms were 84% RH, with an average thermostat setting of 68°F and power use was high.



### SOLUTION     Dehumidifier Fan Coils by Heat Pipe Technology

After the 96 rooms were equipped with **Dinh™ Dehumidifier Fan Coil units**, the relative humidity dropped to below 60%, while allowing a higher thermostat setting of 74°F for comfort. Not only was the problem solved, the hotel realized an 18% savings in power consumed.

### RESULT

*“The management is ecstatic,”* said Mike Carney of Health Science & Technology. *“General Manager Mark Jacobsen is so pleased that he now recommends heat pipes to others.”*

# LAKE CITY COMMUNITY COLLEGE

*Lake City, FL*

## Administration Building at Lake City Community College Gets Comfort & Fresh Smelling Air.



### PROBLEM

The building had been just plain uncomfortable for nearly five years. Everyone felt “sticky” during the summer and stuffy in the winter. Mold was growing on the ceiling and air registers. Unhealthy mold was found growing in the air handlers, ductwork and registers. Average daily indoor relative humidity was 72-74%.

### SOLUTION    Dehumidifier Heat Pipes in Ductwork and Two BKP™ Dehumidifiers in Ceiling

Heat Pipe Technology, Inc. provided **custom dehumidifier heat pipes** and two stand-alone **BKP™ dehumidifiers** for the 10,000+ square foot area.

### RESULT

For the first time in five years, heat pipes created a pleasantly comfortable work environment at an average humidity level of 50% to the happy occupants.



# ST. JOHN'S RIVER COMMUNITY COLLEGE

Palatka, FL

## Dinh™ Heat Pipes Solve College Humidity Problems & Saves 50% in Energy Consumption.

### PROBLEM

In an attempt to lower humidity levels in the riverside campus facilities, reheat was used in the HVAC system, resulting in high utility bills. Library books were covered with mold and mildew, as the indoor air was stale and unhealthy.



### SOLUTION **Retrofit Split Heat Pipes in Air Handlers**

By adding **Dinh™ Dehumidifier Heat Pipes** to the main AHUs, the college solved its humidity and indoor air quality problems. The heat pipes also allowed the removal of reheat, greatly reducing power consumption.

### RESULT

*“We are saving \$15,000/year on \$7,000 investment. The money we save on our utility bills is money we can use to improve our school,”* said college vice-president Dr. Gary Lott.

Dr. Lott added that the new system has solved the indoor air problems, and inhibited the growth of damaging mold and mildew to the library.

# SANTE FE COMMUNITY COLLEGE

*Gainesville, FL*

## College Indoor Air Quality Problems Avoided with DinH™ Heat Pipes - Santa Fe Community College Has Lower Humidity at Comfortable Temperature.



### PROBLEM

Two Santa Fe Community College buildings had potential “sick building syndrome” problems. Testing indicated a relative humidity level of about 80%, while indoor temperatures were kept as low as 68°F to compensate for the high humidity levels.

Two Santa Fe Community College buildings had potential “sick building syndrome” problems. Testing indicated a relative humidity level of about 80%, while indoor temperatures were kept as low as 68°F to compensate for the high humidity levels.

### SOLUTION **Retrofit Dehumidifier Heat Pipes Plus BKP™ Dehumidifiers**

HPT retrofitted the existing air conditioner with **Dehumidifier Heat Pipes**, passively precooling the return air and reheating the supply air to a more comfortable level. **Packaged BKP™ Dehumidifiers** were also installed to control humidity during off hours and low-load days.

### RESULT

After project completion, the dry-bulb temperature in one building registered a comfortable **72°F** with an average relative humidity of **only 57%**. In the second building, relative humidity came down to **50%** from the original 78%. This resulting dryness inhibits mold and mildew growth to the great joy of the college staff and students.

# LEESBURG CITY LIBRARY

Leesburg, FL

## Health Hazard Remedied: Library Staff & Volunteers Regain Productivity.

### PROBLEM

The cardboard pamphlet and magazine files were loaded with mold and mildew. Unidentified fungi were growing up the spines and across the tops of their specially bound collections. The air was sticky and clammy.



### SOLUTION Custom Heat Pipes in Ducts

The specially designed heat pipes from Heat Pipe Technology, Inc. were installed into the library ductwork.

The heat pipes solved the health problem and the library used 30% less energy. The Leesburg Library payback was only seven months.

### RESULT

*“The heat pipes were unbelievable!” exclaimed Leesburg Library Director Nancy Ellen Flint. “Within 24 hours of being installed, the area humidity dropped to 58%! It was pleasant, very comfortable...Not only was productivity restored, but... now no one worries about health risks!”*

# USDA LIBRARY

New Orleans, LA

## BKP™ Heat Pipe Dehumidifiers Solve Humidity Problems in Library.



### PROBLEM

Libraries in the U.S. Department of Agriculture's New Orleans office were subject to rampant mold and mildew growth due to high humidity. The interior and books were exposed to relative humidity levels from a minimum of 65% to 85% for extended periods.

### SOLUTION Two BKP™ 175s and One BKP™ 550-R

Two **BKP™ 175 Series** packaged heat pipe dehumidifiers and one **BKP™ 550-R** unit (equipped with a remote condenser for cooling) were installed. The dehumidifier with a remote condenser actually acts as a super-efficient air conditioner in the summer.

Since start up, the BKPs have kept the relative humidity in the libraries at an average of 44%, with lows of 39%. The result of "dry cooling" eliminated the possibility of mold growth and moisture damage.

### RESULT

*"We have been pleased with the operation of these units,"* said utility supervisor J.A. Jones. *"There has been no maintenance in regards to these units other than monthly filter inspection and cleaning."*

# SALVADOR DALI MUSEUM

*St. Petersburg, FL*

## Avant-Garde Technology to Preserve Avant-Garde Art

### PROBLEM

\$150 million in world-renowned surrealist art were at risk due to high humidity in St. Petersburg, FL. In fact, museums throughout the United States are finding that modern insulation techniques are sometimes creating humid indoor environments that contribute to accelerating materials deteriorations.



### SOLUTION **Add Heat Pipes on 40-Ton Rooftop Unit, Remove Electric Reheat.**

Florida Solar Energy Center (FSEC) selected the Salvador Dali Museum after reviewing 86 other national locations to establish a national prototype for preservation through the use of dehumidifying heat pipe technology. Heat Pipe Technology, Inc. custom designed and installed heat pipes for the former marine research facility and an 11,000 square foot expansion.

### RESULT

Florida Power Corporation's initial data-monitoring showed a 46% energy savings. The art can be cost-effectively preserved into the next century with anticipated savings up to \$5,000/year in the gallery area alone for a \$9,000 expenditure.

MARSH PRINTING, INC.  
Gainesville, FL

Solving Humidity Problem Puts  
Printing Work Back on Schedule.



PROBLEM

The facility's air conditioning system was unable to control humidity in the printing plant and in the corporate office space. The paper would curl and then wrinkle in the press

or stretch during color runs and not line up correctly. The staff was uncomfortable and production had become a disaster.

SOLUTION **Inexpensive , Residential Heat Pipe  
Equipment Solved Problems**

Heat Pipe Technology replaced most of the original A/C system and installed three **Dinh™ 3-ton Air Handlers**, and two **Dinh™ 5-ton "Z" Coils**.

RESULT

*"The offices have become very comfortable now and scheduling problems are a thing of the past...as a matter of fact, it's not even a concern anymore."*

Kevin Marsh, President of Marsh Printing.

# TELECTRONICS PACING SYSTEMS, INC.

Miami, FL

## Precision Calibration Room Problems Require Precision Dehumidification Solutions.



### PROBLEM

The Calibration Room personnel at TPC need to calibrate their equipment very precisely as they manufacture pacemakers for regulating heart beat. They were looking for an energy efficient way to maintain a relative humidity (RH) of  $45\% \pm 4\%$  and a temperature of  $69^{\circ}\text{F} \pm 2^{\circ}\text{F}$ .

### SOLUTION **Retrofit Heat Pipes and a BKP™ 200**

Health Science & Technology, Inc., the representative for Heat Pipe Technology, Inc. recommended changing from a 9-ton chilled water air handler with 30 KW reheat to a **4-ton unit with heat pipes and a BKP™ 200**. The heat pipe products not only serve the original calibration room, but now also serve the adjacent space!

### RESULT

*"We are very pleased with heat pipes," commented Ed Raffaniello, Facilities Engineer for Telectronics Pacing Systems. "We monitor the conditions every three minutes and, to date we have maintained a constant temperature of  $69^{\circ}\text{F} \pm 2^{\circ}\text{F}$ . The relative humidity is maintained at  $46\% \pm 2\%$  (RH)."*

# U.S. FUEL CELLS MANUFACTURING, INC.

West Palm Beach, FL

## Cleanroom Application of Heat Pipe Dehumidifiers for Fresh Air Circulation



### PROBLEM

The Cleanroom at U.S. Fuel Cells Manufacturing needed to maintain a relative humidity less than 40%. They needed to vent the buildup of fumes with a continuous supply of fresh air and still maintain low relative humidity in a tightly closed room. They also wanted to maintain the room at a comfortable temperature.

### SOLUTION A BKP™ 400-R

The easy-to-install, high efficiency **BKP™ 400-R** with a remote condenser was selected and installed.

### RESULT

*“Installation was very simple, in fact, we did it ourselves,”* commented Floyd Marken of U.S. Fuel Cells Manufacturing. *“We had our doubts in the beginning, but we were very pleasantly surprised to find that our cleanroom maintains a constant 38% RH at a very comfortable 74°F. We are completely satisfied!”*



# BAYFRONT CENTER/MAHAFFEY THEATER

*St. Petersburg, FL*

## Performing Arts Center Suffers Humidity Discomfort. Dinh™ Heat Pipes Replace Electric Reheat, Save Energy.

### PROBLEM

Patron complaints of “clamminess” and discomfort continued to persist. To correct the problem, the building staff had to use electric reheat units after the air was subcooled. First the air was subcooled to remove the water. Electric reheat was then energized to control the theater temperature. This operation resulted in high energy costs.



### SOLUTION **Dinh™ Dehumidifier Heat Pipes Are Installed, Electric Reheat Removed**

The building management team decided to install **Dinh™ Dehumidifier Heat Pipes** from Heat Pipe Technology, Inc.

After the installation, the electrical data gathered during the year indicated that the total demand reduction was 323 KW in the winter and 293 KW in the summer.

### RESULT

The project cost of \$120,000 is recaptured through energy savings and a rebate from the Florida Power Corporation, in just over one year. FPC rebated the client a total of \$48,900 which was divided between \$100/KW for summer reduction and \$60/KW for winter.

# GASTON DUPRE PASTA FACTORY

Tampa, FL

Dinh™ Heat Pipes Triple French  
Noodle Sales to New York's "3 Stars!"



## PROBLEM

Pasta drying machines constantly released humidity-laden air, and the saturated heat created an indoor Amazon jungle. Outdoor conditions wouldn't allow opening the factory to outside air. The humidity was trapped inside. Drying time became so long that only one batch of pasta could be shipped daily.

SOLUTION Two Dinh™ "Z" Coils by HPT

DINH's response was to provide air handlers with special "Z" **Coil Dehumidifier Heat Pipes™** around the evaporators. Waste heat from the existing air conditioning was recovered to replace 15 KW of strip heaters to dry the pasta.

## RESULT

After the installation, **more than 800 pounds of moisture was removed daily and electric bills were reduced by two-thirds!**

With the humidity trap solved, Dupre is planning a second factory! Factory employees felt great! As one worker told Mr. Dinh, *"God Bless You!"*

TOUCAN ENTERPRISES, INC.  
New Orleans, LA

BKP 175 Solves Humidity Problems for  
Drink Powder Manufacturer.

PROBLEM

High relative humidity at David Ervin's drink mix manufacturing plant was causing damage to his product. He thus has to use anti-caking ingredients, which affected the flavor of his mixtures and increased the cost of production. The employees had



to wear dust masks due to the environment created by large amounts of anti-caking ingredients. Because many of the mixture ingredients are hygroscopic, the production room temperature was set at a chilly 50°F to combat the moisture level.

SOLUTION    The BKP™ 175

HPT's representatives from Product Engineering of Metairie, LA recommended a simple, effective solution: the **BKP™ 175**. The packaged dehumidifier utilizing Dinh™ Dehumidifier Heat Pipes solved the problems of high relative humidity and the need for low temperature settings.

The **BKP™ 175** removes approximately 175 pounds of water per day from the air. It is the only dehumidifier unit available with this capability that uses 115 volts.

RESULT

*"I would recommend Heat Pipe Technology, Inc. to anyone that packages or processes powders of any type... The filling equipment runs so much more efficiently. That alone more than justifies the purchase."* said owner David Ervin.

# TACO BELL

Baton Rouge, LA

## Heat Pipes Prove Themselves To Be the Most Efficient Tools in Dehumidification and Energy Savings.



### PROBLEM

Gulf States Utilities (GSU) and the Edison Electric Institute (EEI) had a joint venture to study the effect of heat pipes on environmental systems. The subjects

of the study are two Taco Bell stores which were built simultaneously in the Baton Rouge Area. The store without heat pipes suffered the high humidity problems and the fixtures in the store absorbed moisture. On a rainy day, the store without heat pipes had condensation on the windows.

### SOLUTION **Add Heat Pipes to the HVAC System**

Dehumidifier Heat Pipes are added to the rooftop units.

### RESULT

Relative humidity levels **never exceeded 58%** and the temperature was very comfortable. The kitchen temperature ranged from 73°F to a high of 76°F and from 68°F to 73°F for the dining room.

*“For us, we have decided to roll heat pipes on a nationwide basis... They have proven to reduce humidity in our buildings,”* said Suzanne Hopkins, Project Engineer, Taco Bell Corporation.

# BURGER KING

Clearwater, FL

## Study Confirmed the Facts that Heat Pipes Are the Cure for Humidity Problems in Restaurants

### PROBLEM

The unique outside air requirements make Burger King restaurants subject to extremely humid interior conditions, premature building deterioration, and interior water condensation.



### SOLUTION Heat Pipe Installation Solved Problems

Dehumidification research by Florida Power Corporation was conducted in July of 1990 to find solutions to extreme interior humidity conditions found in Burger King restaurants. Heat pipes were installed in the existing air-conditioning equipment at the test site.

### RESULT

After the installation, the test results showed that **moisture removal capacity increased by 30%**. The **interior relative humidity was reduced by 10%**. There was also no evidence of water condensation on any ventilation registers or lighting fixtures.

*"We installed heat pipes in five stores in various parts of the southern United States and one in Detroit and found they did an excellent job at taking humidity out...In the future, all Burger King locations below the 'Mason-Dixon line' will have heat pipes as a standard feature,"* said Alan Robart, Director of Construction, Burger King Corporation.

# TEST SUPERMARKET (MONITORED)

Lithonia, GA

## Heat Pipes Help Dehumidify Supermarkets Without Energy Use



### PROBLEM/CHALLENGE

One of the first studies of heat pipes in supermarkets was conducted by Georgia Power Co. in 1989-90. Supermarkets represent approximately 10% of the commercial load for Georgia Power.

### SOLUTION **Wrap Around Dehumidifier Heat Pipes**

A rooftop unit enhanced by heat pipes was placed in operation at a 35,000 sq. ft. supermarket in Lithonia, GA in July 1989.

### RESULT

Heat pipe-enhanced a/c operation was found to be capable of **maintaining a 47°F dewpoint temperature** through the worst summer heat and humidity.

Energy consumption by the refrigerated cases was found to **decrease by 23 kWh/day**, (1%) for every degree the dewpoint was reduced below the design 55°F. Heat pipes were found to increase the latent capacity of the AC by 20%. Additionally, heat pipes increased the **condensate removed per day from 2,774 to 3,367 lbs.)** at a store interior dewpoint of 47°F. They also decreased the total energy used by the a/c by 13.4%.

*“In all, heat pipe-enhanced air conditioners are competitive with gas desiccant systems from a performance standpoint, and are considerably less complex and expensive.”*

# SHAW'S SUPERMARKETS

*Boston, MA*

## Heat Pipes Dehumidify Supermarkets in Colder Climates As Well

### PROBLEM/CHALLENGE

Seasons 4, an HPT original equipment manufacturer, has used heat pipes for years in many southern supermarket applications, but had questions regarding heat pipe use in northern climates. The singular load distribution in supermarkets make them ideal candidates for heat pipes. Because of open frozen food cases, humidity control is a major part of the supermarket load, regardless of the climatic region.



### SOLUTION **Specially Designed Heat Pipe Installation for the Climate**

Seasons 4 worked with Shaw's and Heat Pipe Technology to develop a heat pipe installation that could be dampered into the system when needed, and bypassed when not required.

Eulie Rushton, Engineering Manager at Seasons 4 was able to provide a design concept that made Shaw's eligible for a rebate from the utility. This rebate helped defray the additional equipment cost.

### RESULT

In conjunction with this design and other equipment enhancements, Shaw's had eliminated the use of heat reclaim coils, and still maintain desired conditions, even in Boston's colder climate.

# HOME WITH RETROFIT WRAP-AROUND HEAT PIPES

*Gainesville, FL*

## Heat Pipe Dehumidification for a Residential Application



### PROBLEM

A 1,200 sq. ft. house in Gainesville, FL originally had a low EER 3-ton General Electric unit air conditioner, approximately 10 years old. A new high efficiency system is installed.

As with many high SEER units in humid climates, moisture removal was inadequate. The higher efficiency unit ran a warmer evaporator coil which could not dehumidify enough to meet the comfort needs of the owners. Indoor RH levels reached 70%.

### SOLUTION **Dehumidifier Heat Pipes Are Added Around the New Evaporator.**

### RESULT

The addition of heat pipes decreased the relative humidity in the house to 50% RH, and the new unit uses **50% less power!** THE monthly electric bill dropped from an average of \$250 per month to \$150, allowing the \$1800 investment to pay for itself in three years.

An advantage of installing heat pipes in the home includes an overall healthier indoor environment. Not only is mold and mildew reduced in visible areas, but also in the ductwork. People with allergies often find a less humid environment beneficial.



# Z-COIL EQUIPPED HOME

Ocala, FL

## Humidity Problems Solved by Heat Pipes in Florida Home.

### PROBLEM

Bob Burns' 2,300 square ft. home was built in the early 1970s. The block construction contains no insulation in the exterior walls and no vapor barrier; therefore, the house was plagued by humidity problems every summer.



### SOLUTION **Z-Coil Dehumidifier/Evaporator**

Bob Burns made the decision to incorporate a **Z-Coil dehumidifier/evaporator** to his air conditioning, utilizing **Dinh™ Dehumidifier Heat Pipes**. He was among the first to request Heat Pipe Technology's residential products. He has kept records of his utility costs since the installation of the Z-Coil and Hot Plate, showing an average consumption in 1986 of approximately 40.2 kW per day before replacement, compared to a 33.2 kW average in 1992.

### RESULT

*"I maintain about **55 percent relative humidity** in the summer," said Burns. "I have an old three-ton unit that runs about half the time, so I know it's not fully loaded. I have an electronic thermostat that I keep set at **78 degrees.**"*

*"I think it is unique and effective. I feel it is a superior product that will have to be explained to the public. They have to know to ask for it."*

# BRICKEL HARBOR CONDOMINIUMS

*Miami, FL*

## Condominium Residents Breathe 100% Fresh Air with Heat Pipe Technology



### PROBLEM

Humidity levels in the common areas and hallways were so high that condensed moisture ran from the walls, damaging the structure, carpets, and interiors. Mold and mildew were visibly present throughout the walkways.

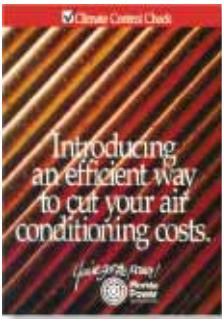
### SOLUTION **Install Dehumidifier Heat Pipes on the 60-Ton Fresh Air A/C Unit.**

The existing 60-ton rooftop air conditioner was retrofitted with wrap-around heat pipes.

After installing **Dinh™ Dehumidifier Heat Pipes**, the unit delivers 100% outside air, passively dehumidified by the heat pipes. Humidity problems were eliminated without the energy penalty associated with other dehumidification methods.

### RESULT

*“It is a considerable difference over what we had before. Now it is a real pleasure to walk down the hallways. We were lucky to hear about heat pipes and get in touch with Mike Carney of Health Science and Technology...it was the right solution at the right time.”* said Katheryn Meadows, Manager.



Florida Power Corporation

The benefits of heat pipes have been recognized by a number of prestigious organizations and companies.

Here are a few examples of literature produced by other experts.



Virginia Power



Eddison Electric Institute



Electric Power Research Institute (EPRI)



Other informative materials on heat pipes have been produced by:

- Mississippi Power
- Tampa Electric Company
- S&P Coil (UK)
- NASA
- The Department of Energy
- Georgia Power
- Gulf Power

Heat Pipe Technology, Inc. products have been certified by ARI and/or ETL.

