

PilotLight

Four Seasons
CONTROLLED CLIMATES LTD.

Your first source for hot information on mechanical services.

Spring/Summer '99



- **Four Seasons helps world's largest wallpaper maker get bigger, faster, better**
- **Economizers can save you up to 30% on your cooling bill this summer**
- **Sick Building Syndrome: Is it hurting the productivity of your business?**
- **Four Seasons and Y2K ...and much more!**

Four Seasons helps world's largest wallpaper maker get *bigger, faster, better*

Imperial Home Decor Group (IHDG) is the largest designer, maker and distributor of residential wall coverings and related products worldwide. With operations in North America and Europe, the company employs 3700 people and has annual sales exceeding half a billion dollars. The group produces brands for several companies including Disney, Ralph Lauren and Nautica.

Bigger, Faster, Better

Recently, IHDG wanted to expand the capabilities of one of their main wallpaper making operations at their Brampton plant, in order to produce more sophisticated designs and increase production to meet growing demand. To meet the challenge, IHDG decided to install a new press line, but not just *any* new press line. This new press would have two claims to fame. First, it would be just that, first. That is, it would be the first nine-colour press of its kind in North America. Secondly, it would be the fastest press of its kind, producing up to 700 feet of wallpaper per minute.

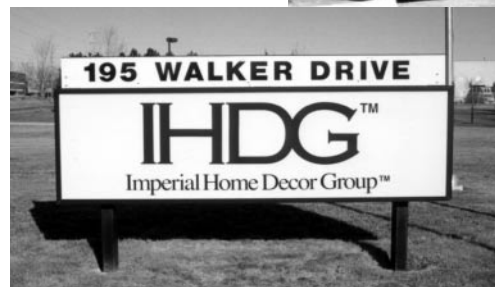
IHDG called on Four Seasons Controlled Climates to help them implement the project. Four Seasons' task was to design, build, and install a new heating/drying system, which would include a ventilation system, exhaust system and control/monitoring station for the new press line.

Challenges

The main challenges facing the Four Seasons team, which included the engineering department, the fabrication department and the installation department, were:



Imperial Home Decor Group's Brampton plant.



- The heating/drying system would have to accommodate the use of two different types of ink for the printing process, which have very different heating and drying requirements.
- Each press in the line would need a dedicated heating/drying sub-system.
- The new system would have to process unprecedented volumes of air to accommodate the speed of the line.
- The nature of the project precluded a predetermined design of the installation. The design would evolve as the project progressed, with each new stage presenting unforeseen challenges.
- The press line had to be operational in three weeks, a tight deadline for a project of this scale.

Despite the technical challenges and the tight deadline, Franco DeNicola, Four Seasons President and CEO assured the IHDG team that Four Seasons would work with them to do what ever it took to get the press line up and running on time.

The Solution

Four Seasons' solution for the heating/drying system included:

- 100% efficient burners with accurate temperature control within a specified range
- A sophisticated new control/monitoring station
- Light-weight, spiral ducts for the roof stack system, which made extensive roof reinforcement unnecessary
- An innovative, space-saving design that allowed all the necessary equipment to fit into a smaller than usual space

“Pardon me, I didn't see you there”

John Thompson, IHDG's Process Engineering Manager was very pleased with how little disruption the Four Seasons installation crew caused. At one point during the project, he called Franco DeNicola to ask when the roof stacks were going to be installed. To his surprise, he learned that the stacks had already been installed.

“Four Seasons was very good at anticipating our needs. They kept many little details from becoming big problems,” said Thompson.

“Come in! Come in! You're just in time!...”

The Four Seasons installation crew worked around the clock for three weeks, but the new press was completed in time for a demonstration of its operation to a group of visiting IHDG executives. The demonstration impressed the executives and instilled a renewed confidence and pride in the plant employees.

“We take great pride in knowing that we played a major role in helping a customer achieve their goals,” said Franco DeNicola.

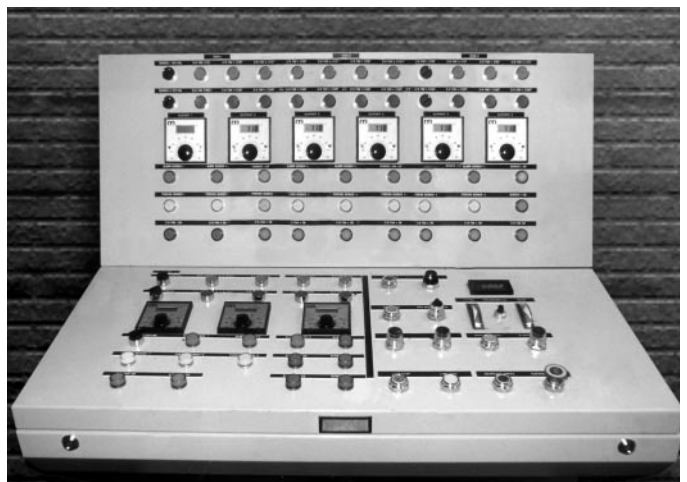
With the success of the project, plans are in the works for the installation of two more press lines which are being designed by Four Seasons as of this writing.



The new heating/drying system with its 100% efficient burners, installed above the newly assembled press line.



The innovative spiral duct, roof stack system, eliminated the need for extensive roof reinforcement.



The monitoring/control station that keeps the advanced press line running smoothly.

Is Sick Building Syndrome affecting the productivity of your business?

The following article comes from the Environmental Health Center, a division of the National Safety Council. For more information see them on the WEB at www.nsc.org/ehc

What Is Sick Building Syndrome?

Sick building syndrome (SBS) is a situation in which occupants of a building experience acute health effects that seem to be linked to time spent in a building, but no specific illness or cause can be identified. The complaints may be localized in a particular room or zone, or may be widespread throughout the building.

Frequently, problems result when a building is operated or maintained in a manner that is inconsistent with its original design or prescribed operating procedures. Sometimes indoor air problems are a result of poor building design or occupant activities.

What Are the Symptoms of SBS?

Building occupants complain of symptoms associated with acute discomfort. These symptoms include headaches; eye, nose, and throat irritation; a dry cough; dry or itchy skin; dizziness and nausea; difficulty in concentrating; fatigue; and sensitivity to odors. With SBS, no clinically defined disease or specific chemical or biological contaminant can be determined as the cause of the symptoms. Most of the complainants feel relief soon after leaving the building.

SBS reduces worker productivity and may also increase absenteeism.

What Causes SBS?

While specific causes of SBS remain unknown, the following have been cited as contributing factors to sick building syndrome. These elements may act in combination or may supplement other complaints such as inadequate temperature, humidity, or lighting.

- Chemical contaminants from outdoor sources: Outdoor air that enters a building can also be a source of indoor pollution. Pollutants from motor vehicle exhausts, plumbing vents, and building exhausts (bathrooms and kitchens) can enter the building through poorly located air intake vents, windows, and other openings. Combustion by-products can

also enter a building from a nearby garage.

- Chemical contaminants from indoor sources: Most indoor air pollution comes from sources inside the building. For example, adhesives, upholstery, carpeting, copy machines, manufactured wood products, cleaning agents and pesticides may emit volatile organic compounds (VOCs) including formaldehyde. Research shows that some VOCs can cause chronic and acute health effects at high concentrations, and some are known carcinogens. Low to moderate levels of multiple VOCs may also produce acute reactions in some individuals. Environmental tobacco smoke and combustion products from stoves, fireplaces, and unvented space heaters all can put chemical contaminants into the air.

- Biological contaminants: Biological contaminants include pollen, bacteria, viruses, and molds. These contaminants can breed in stagnant water that has accumulated in humidifiers, drain pans, and ducts, or where water has collected on ceiling tiles, insulation, or carpet. Biological contaminants can cause fever, chills, cough, chest tightness, muscle aches, and allergic reactions. One indoor air bacterium, Legionella, has caused both Pontiac Fever and Legionnaire's Disease.

- Inadequate ventilation: In the 1970s the oil embargo led building designers to make buildings more airtight, with less outdoor air ventilation, in order to improve energy efficiency. These reduced ventilation rates have been found to be, in many cases, inadequate to maintain the health and comfort of building occupants.

What Are the Solutions to Sick Building Syndrome?

Solutions to SBS problems usually include combinations of the following measures:

- Increasing the ventilation rates and air distribution is often a cost-effective means of reducing indoor pollutant levels. At a minimum, heating, ventilating, and air conditioning (HVAC) systems should be designed to meet ventilation standards in local building codes. Make sure that the system is operated and maintained to ensure that the design ventilation rates are attained. If there are strong pollutant sources, air may need to be vented directly to the outside. This method is especially recommended to remove pollutants that accumulate in specific areas such as rest rooms, copy rooms, and printing facilities.

*SBS reduces
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- Removal or modification of the pollutant source is the most effective approach to solving a known source of an indoor air quality problem when this solution is practicable. Ways to do this include routine maintenance of HVAC systems; replacing water-stained ceiling tiles and carpets; banning smoking or providing a separately ventilated room; venting contaminant source emissions to the outdoors; using and storing paints, solvents, pesticides, and adhesives in closed containers in well-ventilated areas; using those pollutant sources in periods of low or no occupancy; and allowing time for building materials in new or remodeled

areas to off-gas pollutants before occupancy.

- Air cleaning has some limitations, but it can be a useful addition to source control and ventilation. Air filters are only effective at removing some, not all, of the pollution.
- Education and communication are important parts of any air quality management program. When everyone associated with the building, from occupants to maintenance, fully understands the issues and communicates with each other they can work more effectively together to prevent and solve problems.

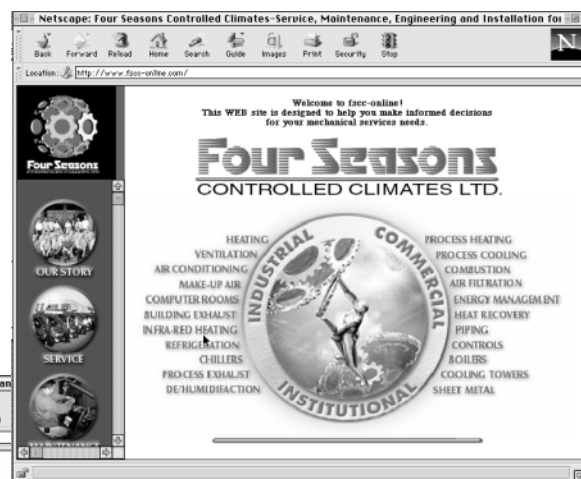
Find the information on the mechanical services you need at Four Seasons' new WEB SITE

Now, business owners, maintenance managers, plant engineers and operations managers looking for information on mechanical services have a new place to look: the Four Seasons WEB site at www.fsc-online.com.

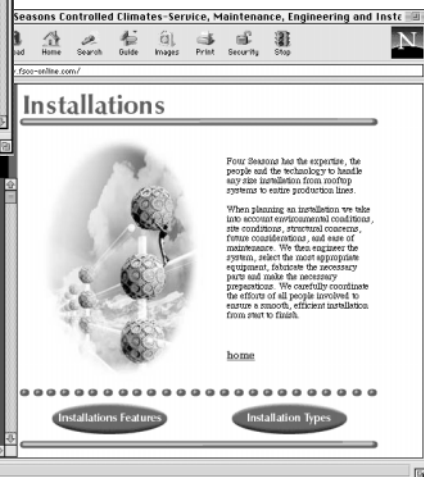
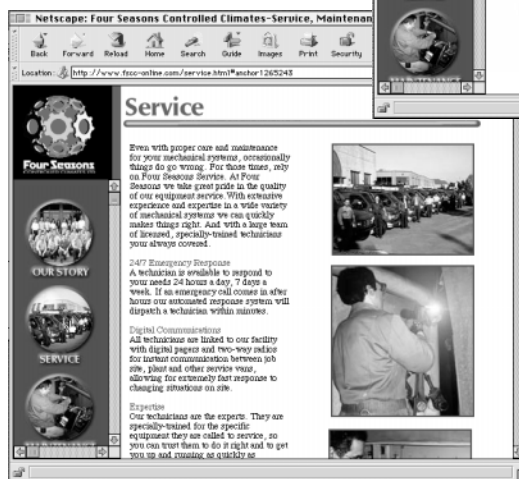
When the site launches, viewers are greeted with a simple-to-navigate interface featuring graphical links to the main pages throughout the entire site. The site is divided into several "pages", each containing detailed information on Four Seasons services, such as **Maintenance, Engineering, Installation, Custom-Built Equipment** and more.

You will also find PilotLight online the web version of Four Seasons' newsletter. PilotLight online will contain much of the information published in PilotLight, and more, including articles on topics such as **plant maintenance, indoor air quality, environmental issues, and case studies** of various Four Seasons projects.

"We hope the [web] site will be a real benefit to our customers and prospective customers, by providing information to help them make informed decisions regarding their mechanical needs." says Franco DeNicola, Four Seasons President and CEO.



Pages from the new Four Seasons WEB site (www.fsc-online.com): Helping customers make informed decisions.



Take My Advice

by Rick Andrus, Service Manager
Four Seasons Controlled Climates Ltd.



“Spring Start Up” should be part of your maintenance strategy

Did you know we do over **25 separate inspections** or checks on all rooftop heat/cool units during a **SPRING START UP**. Each one is extremely important to ensure safe, reliable operation.

The main difference between the **SPRING START UP** and other types of inspections is the operation tests on the compressor(s). For the operation tests, we run and record a **complete test log** for each unit. We verify the refrigerant charge, oil level and super heat adjustment. We inspect for vibrations and unusual noises in bearings and we check for any evidence of moisture in the system. By recording the oil suction and discharge pressure

we check for refrigerant leaks and determine if coil cleaning is required.

SPRING START UP will prevent costly breakdowns, and allow you to project costs by giving you a complete analysis on your equipment. With a proper tune-up and cleaning, the rooftop heat/cool unit will run more efficiently with no costly downtime.

Take my advice; if you have a rooftop heat/cool unit, call us today to perform a **SPRING START UP** and start the season off right.

Save 30% in energy and improve ventilation with an **ECONOMIZER**

All ventilation systems use outdoor air for cooling and dilution of CO₂ inside buildings. A new breed of high-tech, yet inexpensive Economizers make the process far more efficient.

Economizers employ sensors that continually monitor the indoor and outdoor air conditions (temperature, humidity and CO₂ levels). Using this information, actuators automatically adjust the outdoor air dampers to let more or less outdoor air into the building, depending on conditions. This optimizes the amount of outdoor air used for cooling and for controlling CO₂ levels,

thereby lessening the load on the mechanical air conditioning system or heating system. The result is energy savings of up to 30% on average. **For a more detailed description on how economizers work see the next page.**

Economizers can be installed into your existing ventilation system, with the savings in energy far outweighing the small initial cost.

Take my advice; call me at 416-736-8424, Ext. 112, and let's discuss installing an economizer into your ventilation system.

HOW IT WORKS

Economizers

What they do

When installed into a rooftop unit, an economizer optimizes the amount of outdoor air introduced into a building for cooling and ventilation.

The benefits

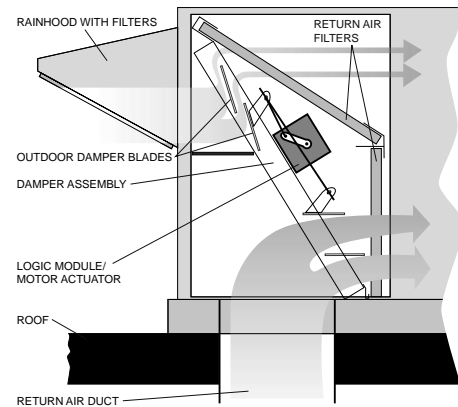
The most obvious benefit is the energy savings. Economizers reduce the need for mechanical cooling or heating, saving up to 30% on average in energy costs. Another benefit is the reduction of CO₂ levels inside the building. High CO₂ levels can affect employee productivity by making them sluggish and less alert.

How they work

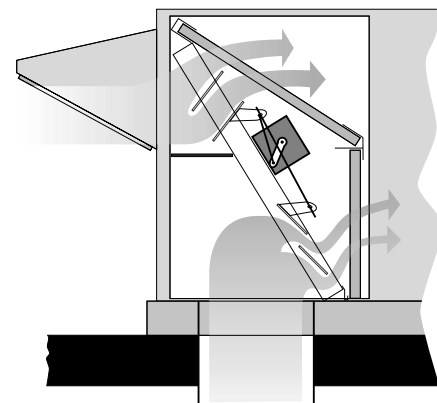
Sensors mounted at various locations inside the rooftop unit monitor temperature and humidity inside and outside the building, as well as the CO₂ level inside the building. This information is used to control a logic module/motor actuator which automatically adjusts the angle of the damper blades in the outdoor damper assembly to regulate the amount of outdoor air introduced into the building.

Economizer packages can be included with new rooftop units or retrofitted into older ones. They are an effective way to improve ventilation and conserve energy.

PARTIAL VIEW OF A TYPICAL ROOFTOP UNIT WITH ECONOMIZER INSTALLED



During colder months or when the outdoor humidity level is high, the outdoor damper blades are set to the minimum position to allow only 15% to 20% outdoor air into the building while mechanical cooling or heating is engaged.



During warmer months when the outdoor air is cooler than the indoor air or when the CO₂ level inside the building rises, the damper blades are angled to allow more fresh air into the building for cooling or to lower the CO₂ level.

TECHNOLOGY

Y2K A-OK @ FSCC

There are a lot of doomsday predictions going around regarding the impending Y2K problem: cars stopping dead on highways, airplanes falling from the skies, failure of power grids, and general mayhem all around.

While some people may be stockpiling food and stuffing cash into a hole in the ground, Four Seasons customers can be assured that **Four Seasons Controlled Climates is Y2K ready.**

We have upgraded all our PC hardware and software to make sure that operations will continue smoothly with our records, our services and our sanity intact come January 1, 2000

If you have any questions about our Y2K readiness program or you just want to know where to find a good solar-powered generator, give us a call at 416-736-8424, or e-mail us at fsc@idirect.com.

LIFE LESSONS

Yesterday, Today & Tomorrow

There are two days in every week we should not worry about; two days which should be kept free from fear and apprehension. One of these days is YESTERDAY with its mistakes, faults, blunders, aches and pains. YESTERDAY has passed, forever beyond our control. All the money in the world cannot bring back YESTERDAY. We cannot undo a single act we performed; we cannot erase a single word we said. YESTERDAY is gone.

The other day we should not worry about is TOMORROW, with its possible adversities, its burdens, its large promise and poor performance. TOMORROW is also beyond our immediate control. TOMORROW's sun will rise, either in splendor, or behind a mask of clouds- but it will rise. Until it does, we have no stake in TOMORROW, for it is as yet unborn.

This leaves only one day- TODAY. Any man can fight the battles of just one day. It is only when you and I add the burdens of those two awful eternities- YESTERDAY and TOMORROW- that we break down.

It is not the experience of TODAY that drives men mad- it is remorse and bitterness for something which happened YESTERDAY and the dread of what TOMORROW may bring.

*Old Willy's
Words of
Wisdom*



"It's unwise to pay too much, but it's worse to pay too little. When you pay too much, you lose a little money, that's all. When you pay too little you sometimes lose everything, because the thing you bought was incapable of doing the thing it was bought to do. The law of business balance says you can't pay a little and get a lot -it can't be done. If you deal with the lowest bidder, it is well to add something for the risk you run, and if you do that you will have enough to pay for something better."

BODILEE FUNCTIONS: The life adventures of Andy Bodilee

I'm trying to
loosen this
jar lid

That's an improper
way to use a hammer.
I'll open the jar
for you.



Stand back, Becky.
Daddy is about to
show us the proper
way to use a hammer.



FOUR SEASONS
CONTROLLED CLIMATES LTD.

100 Carlauren Rd, Woodbridge, L1L 8A8
Tel: 905-856-4488 Toronto: 416-736-8424
Fax: 416-736-7165 e-mail: fsc@idirect.com
www.fsc-online.com