



# Case Study Transcontinental

## A Flexible, Cost Effective Chilled Water System for Transcontinental

Transcontinental Inc. is one of the largest printing firms in North America (the largest in Canada) whose history has been marked by consistent growth and expansion into new markets. In 2004 the company established a US subsidiary, Transcontinental Direct.

As a leader in providing direct marketing services for today's businesses Transcontinental Direct meets its customer's needs by focusing on service, experience, innovation, and adoption of state of the art equipment. It comes as no surprise that when implementing a chilled water system for the 340,000 square foot printing facility in Warminster, Pennsylvania, Transcontinental Direct turned to AAON, the leader in HVAC engineering innovation. The AAON LL series chiller, a unique packaged outdoor mechanical room, and the AAON modular indoor air handler provided a flexible system that had no effect on production schedule, required minimal building impact, and provided substantial savings when compared with potential alternatives.



*Whether as a printer, publisher, direct marketer or door-to-door distributor of advertising material, Transcontinental touches the lives of millions of North Americans every day.*

## The Challenge of Rapid Expansion

When Transcontinental Direct moved into the Pennsylvania location, many changes were needed to make the building, originally an Apollo moon mission training facility, suitable for commercial printing. One important improvement needed was an HVAC system that would provide a comfortable

working environment for all plant personnel. The company began installing the equipment needed to supply the plant area with conditioned air, but it was also rapidly increasing production capacity which required additional equipment, employees, and floor space. The plant was growing so much

**1976**

*Transcontinental is born*

**1979**

*Transcontinental Publications*

**1984**

*Debut on the Montreal Exchange - GRT*

**1985**

*Debut on the Toronto Stock Exchange*

**1986**

*Ad-Bag/Publi-Sac and*

*Ad-Stand are born*

**1988**

*Éditions Transcontinental is born*

**1992**

*Becomes Canada's leading commercial printer*

**1998**

*Acquisition of Mexico's largest flyer printing outfit Refosa, renamed Impresora Transcontinental de México*

**2000**

*Acquisition of Telemedia's magazine publishing division*

**2003**

*Acquisition of CC3 - a momentous step forward in its U.S. direct marketing operations*

**2005**

*Acquisition of JDM, Inc. -doubles its direct marketing capacity in the United States*



more quickly than cooling equipment could be installed that by 2005 only about a quarter of the plant was being adequately cooled. This became a particularly serious issue when a summer heat wave caused the plant floor to experience temperatures in excess of 100°F. Transcontinental Direct considered potential cooling solutions, but the alternatives only presented more difficulties.

### **Alternative 1: Renovate the Chiller Plant**

The building included an existing chiller plant, but it was past its useful life and in need of complete replacement. This would require the removal of the existing equipment, renovation of the mechanical room space to make it large enough to house the new system, and installation of the new components.

Not only this, but Transcontinental Direct leased the printing plant space from the building's landlord, and did not have ownership of the equipment room. Negotiations would be required to secure use of the space and permission to renovate the equipment. All of these factors made replacing the chiller plant a costly and time consuming alternative.

### **Alternative 2: Rooftop Units**

Before committing to replace the chiller plant, Transcontinental Direct considered other potential alternatives. One option they closely examined was a packaged rooftop unit system.

They quickly realized that while rooftop equipment would satisfy the cooling and heating requirements, there were a few major difficulties with this course.

First, without significant structural renovations, the building's roof would not support the weight of the several rooftop units needed to provide effective air conditioning.

Secondly, and perhaps even more problematic, this solution did not have the support of the building's landlord. He was not in favor of cutting openings in the three foot thick concrete roof that would be necessary for the system installation.

Finally, Transcontinental Direct also recognized that if at any time they choose not to renew the lease, they would either be required to remove the rooftop units and restore the roof to its prior condition, or to leave the equipment behind and take a loss on any remaining value.

Transcontinental Direct realized that neither the renovation of the chiller plant nor installing packaged rooftop units was a desirable alternative. While those systems may provide adequate cooling, they did not offer what the company's needed: a solution that provided flexibility and minimized building impact without being prohibitively expensive. Transcontinental Direct needed another alternative; one that provided a solution rather than further complicating the problem.

### Alternative 3: Packaged Outdoor Chiller

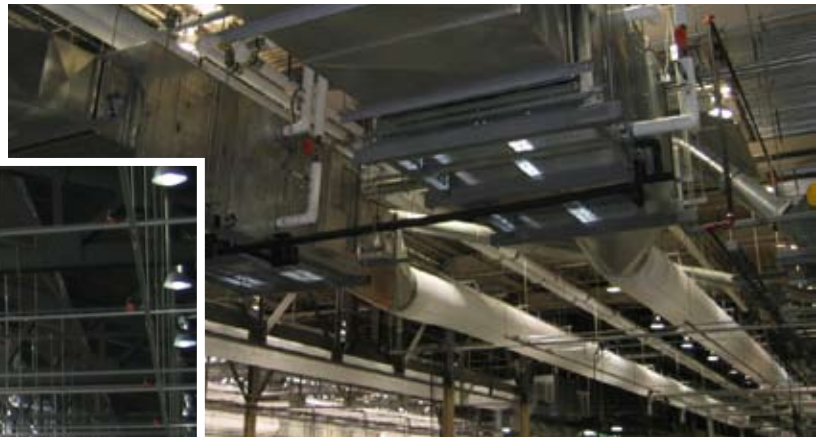
The climate engineering consultant team at Ecogenia recognized that the situation called for a different type of solution. Not only did they think “outside the box”, but they thought outside the building. The team specified two AAON LL Series 335 ton chillers for the project. The LL Series integrates the mechanical room components into a single packaged outdoor unit that includes the heat exchanger, pumping package, boilers, expansion tanks, and controls; all components are factory installed. Each AAON LL Series chiller is also equipped with an air-cooled or highly efficient evaporative-cooled condenser section; the system does not require a cooling tower.

To handle the indoor air distribution 14 AAON modular indoor air handlers were specified, including six with electric heat to supplement the building’s existing gas heat system. These units are easily configurable and all completely factory wired and assembled. Each modular air handler features foam panel composite construction with thermal break for a high thermal efficiency, direct drive plenum fans with optional premium efficiency motors and optional variable frequency drives for quiet, energy efficient operation. Units may be shipped completely factory assembled or in sections for applications with strict space requirements.

This alternative required fewer building modifications than the installation of rooftop units and was not as labor intensive as the replacement of the original chiller plant. It did not require any modifications to the mechanical room or additional floor space that could otherwise be used productively. The two packaged LL Series chillers, including primary pumping package, compressors circulating environmentally friendly R-410A refrigerant, air-cooled condenser section, and heat exchanger, kept all components outside. The indoor air handlers arrived fully assembled, and were suspension mounted from the ceiling without interrupting business (a 24/7 operation).

### A Flexible Solution

The AAON units also provided the much needed flexibility. No permanent equipment installations were needed. The LL Series chillers were placed at ground level in an unused area at the rear of the building, and could be relocated easily should it ever be necessary. The suspension mounted air handlers were joined with fabric ductwork that is easy to install and remove for washing which also benefits indoor air quality; clear advantages over standard ductwork.



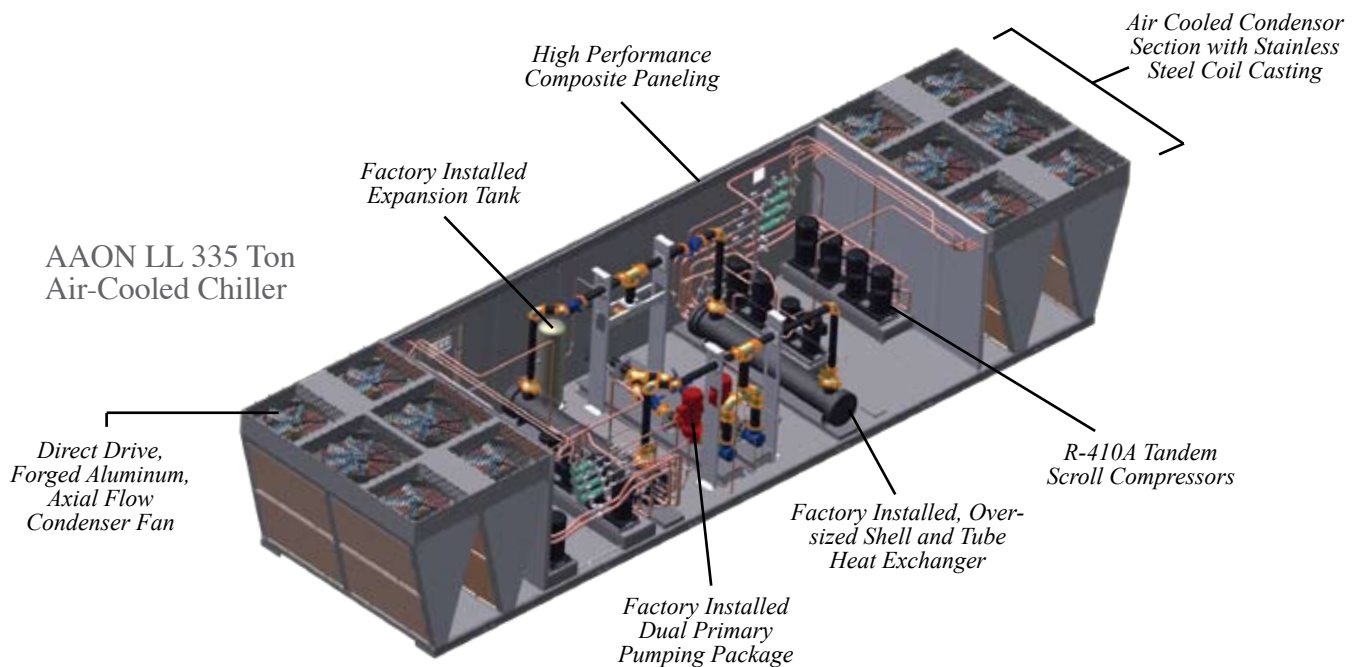
## A Cost Effective Solution

Ecogenia's goals in specifying AAON equipment for Transcontinental Direct also included providing the lowest total cost. According to Guy Crasnier, a member of Ecogenia's climate engineering consultant team, he wanted to specify the system so that "installation becomes a small part of the project". By minimizing installation requirements and eliminating the need for a chiller restoration service contract, or costs associated with placing rooftop units such as roof renovations and equipment lifting, and providing completely factory assembled, wired and tested equipment, the labor costs could be controlled. The initial estimated budget to restore the central chiller plant was 3.6 million dollars; however, the AAON solution was completed for only 1.8 million dollars.

## A Winning Solution

According to Marc Lacombe, Director of Procurement and Real Estate for Transcontinental the AAON system was "the most cost effective, both from an initial capital expenditure, and from an ongoing operational point of view." He added that, "It was really a winning solution."

The end result of the project pleased everyone involved. The landlord was satisfied that no serious alterations to the building were needed. The team at Ecogenia signed an agreement with Transcontinental to continue providing high quality environmental solutions for future projects throughout North America. And, most importantly, the system was implemented before the start of the next cooling season so that the plant now maintains a comfortable working environment for all plant employees.



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