

# Saving energy and increase workforce comfort

EcoStruxure™ Building Expert\* helps factory to achieve impressive energy savings while improving workforce comfort.

Norampac Inc., - Quebec, Canada

# EcoStruxure™

## Innovation At Every Level

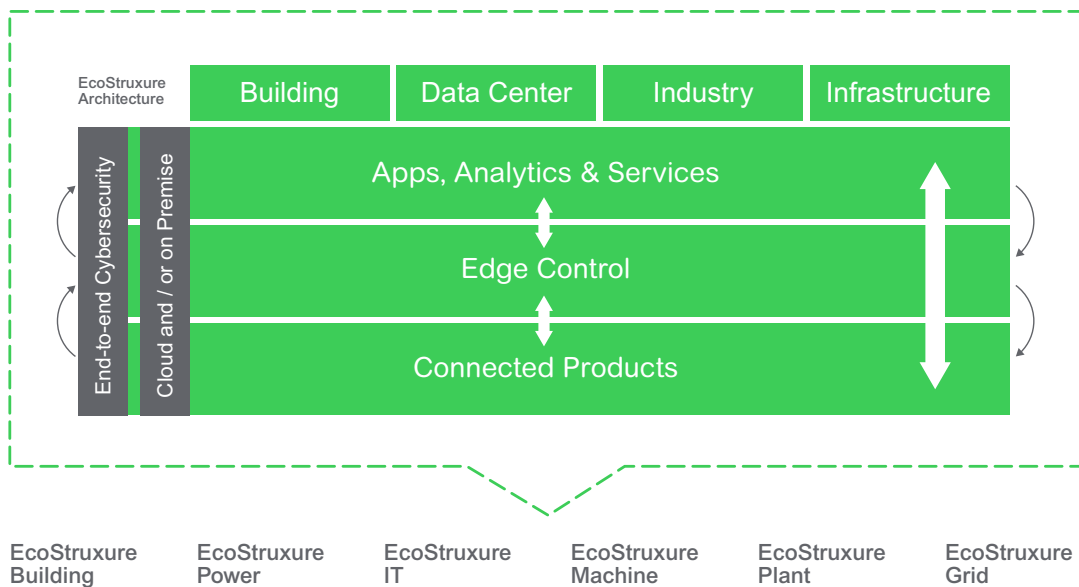
IoT-enabled solutions that drive operational and energy efficiency

EcoStruxure is Schneider Electric’s open, interoperable, IoT-enabled system architecture and platform.

EcoStruxure delivers enhanced value around safety, reliability, efficiency, sustainability, and connectivity for our customers.

EcoStruxure leverages advancements in IoT, mobility, sensing, cloud, analytics, and cybersecurity to deliver Innovation at Every Level including Connected Products, Edge Control, and Apps, Analytics & Services. EcoStruxure has been deployed in 450,000+ installations, with the support of 9,000 system integrators, connecting over 1 billion devices.

One EcoStruxure architecture, serving 4 End Markets with 6 Domains of Expertise



### Connected Products

The Internet of Things starts with the best things. Our IoT-enabled best-in-class connected products include breakers, drives, UPSs, relays, sensors, and more. Devices with embedded intelligence drive better decision-making throughout operations.

### Edge Control

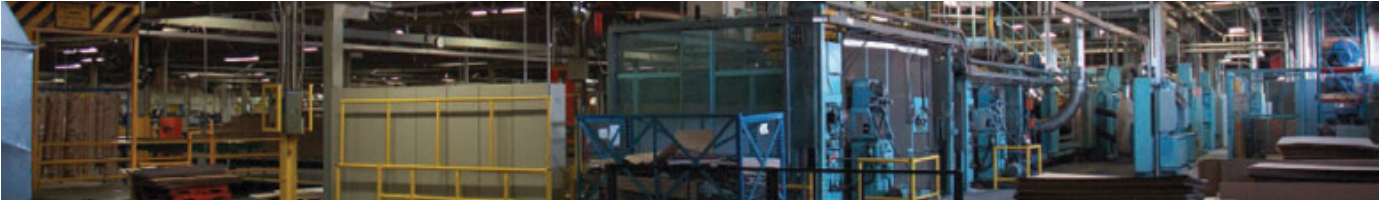
Mission-critical scenarios can be unpredictable, so control of devices at the edge of the IoT network is a must. This essential capability provides real-time solutions that enable local control at the edge, protecting safety and uptime.

### Apps, Analytis & Services

Interoperability is imperative to supporting the diverse hardware and systems in building, data center, industry, and grid environments. EcoStruxure enables a breadth of agnostic Applications, Analytics, & Services for seamless enterprise integration.

Find out more about EcoStruxure

[schneider-electric.com/ecostruxure](https://schneider-electric.com/ecostruxure)



## Background

The Norampac cardboard box factory of pulp and paper giant Cascades Inc., wanted to reduce heating costs and improve employee comfort. The factory has 25 steam coil air heaters spread over 427,000 square feet—all on one floor. Each heater is controlled by a local mechanical thermostat, resulting in excessive energy costs, uncomfortable working conditions, and lack of centralized monitoring and control.

**Competing priorities: increase worker comfort, reduce energy spend, minimize installation costs**

The factory's management had clear objectives to reduce energy costs associated with heating while increasing worker comfort by centrally managing temperature setpoints according to schedules. They also had to keep tight control of the project's costs. In order to minimize direct and indirect costs, the installation had to be performed without affecting facility operations. Production downtime was not an option.

## Working around built-in challenges

The sheer size of the factory presented the biggest challenge to the project. A traditional "wired" control option would require the installation of conduits for the wires, resulting in high material and labor costs, and a significant disruption to factory operations.

The project plan needed to:

- Limit wiring installation to a minimum while making no compromise on control.
- Use wireless mesh networking to ensure communication even if large, dense equipment or objects are moved within the facility.
- Integrate the new hardware to the existing BACnet IP system, which was being used to manage the small "office" section of the factory.

## Goal

Creating a productive work environment and installing a centralized monitoring & control system.

## Story

25 air heaters were spread over 427,000 sq. ft., each heater controlled by a standalone mechanical thermostat, resulting in excessive wastage, poor working conditions and lack of centralized monitoring & control.

## Solution

- EcoStruxure™ Building Expert\*

## Results

- 25% savings in heating costs
- \$45k savings on labor and material
- 40% less time spent on the job

## A seamless, integrated solution

### 1. Schneider Electric controllers are added to the BACnet system

Because the Schneider Electric controllers are based on open protocols, they can easily communicate with third party BACnet IP systems. By simply connecting one or more Schneider Electric nodes to the LAN, all the other controllers are joined to the network.

### 2. Both wired and wireless communication for seamless integration

All Schneider Electric units network with their peers wirelessly (ZigBee mesh network) for networking without wires.

- 16 Schneider Electric units control heaters wirelessly with EnOcean relays.
- 9 Schneider Electric units are hard-wired to nearby heaters.

### 3. EnOcean wireless relays complete the picture

The EnOcean devices turn heaters on/off in response to commands by Schneider Electric controllers.

## Results

25% savings on heating costs

Year 1: \$37,000 energy savings

Year 2: \$42,500 energy savings

## Savings on installation

\$45,000 savings on labor & materials

40% less time on the job

- *contractor estimate*

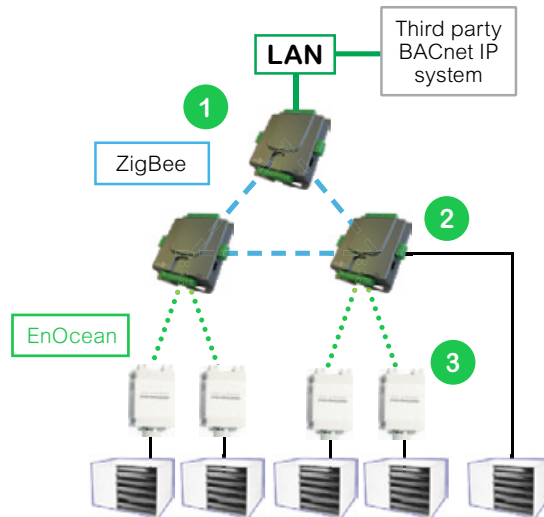
### Savings on installation

- 4,000 ft of electrical metallic tubing (EMT) and wiring didn't have to be installed
- No switches or repeaters were needed

### Savings on integration

- No extra gateway or router needed
- BACnet IP compatibility built-in

## Solution Architecture

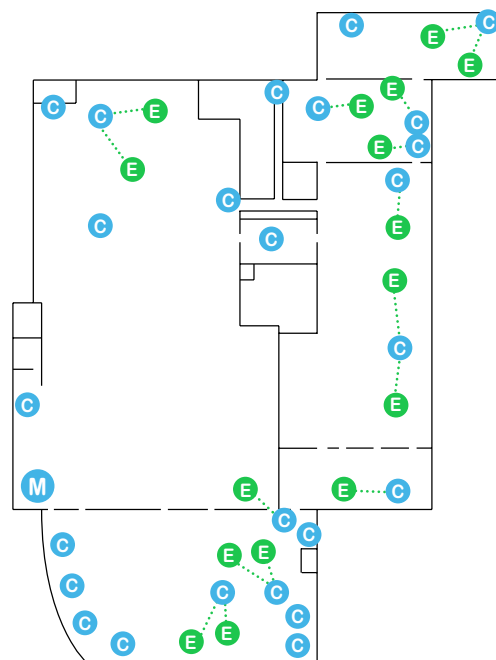


“The (Schneider Electric) system allowed us to centralize temperature control and generate interesting energy savings. The installation was done without disrupting our operations, which was very important. This would’ve been impossible with traditional wired control solutions.”

— Fabien Demougeot, Eng.  
Technical Supervisor,  
Cascades Inc.

## Solution Layout

Factory floor plan (427,000 ft<sup>2</sup>)



- M** Schneider Electric controller with LAN connection
- C** Schneider Electric controllers
- E** EnOcean relays

# Learn More



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Discover EcoStruxure™ Building



Discover Efficient & Connected Buildings



Contact us to start your journey



Schneider Electric Canada



Junior Achievement

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June 2017

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