

**NISSAN**

# CLIMATE CONTROL AND EXTRA CARGO SPACE

A COMMERCIAL FACILITY  
CASE STUDY

The Armstrong Design Assist service reduced the required floor space for HVAC equipment. The IPC 11550, delivered as part of a packaged system, automates the output of the HVAC system to maintain comfort and minimize energy usage.

“Armstrong’s Design Assist services helped Nissan save almost \$70,000 in piping and associated costs in the mechanical room. The IPC 11550 central plant control system is performing as designed to save Nissan energy and reduce operating costs.”

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## Nissan USA, Corporate Headquarters

The Armstrong Design Assist service helps customers optimize the layout of mechanical rooms using space-saving solutions and innovative design.

The Armstrong Integrated Plant Controller (IPC) 11550 is a chilled-water plant automation system designed to provide industry-leading energy efficiency as well as improved occupant comfort through all-variable-speed operation.

### Background

The headquarters for Nissan America are located in Franklin Tennessee in a 10-story office building. Prior to building the facility, Nissan already operated two assembly plants and a forging plant in Tennessee, so it was an easy decision to locate the new office building in Franklin.

Rome Eddelman & Associates Inc (REA), the local Armstrong representative, had an existing relationship with facility executives from Nissan based on previous projects in the assembly plants.

The original plans for the building called for a pumping system designed by another manufacturer. Chris Reeves of REA and Peter Thomsen from Armstrong met with managers at IC Thomasson the engineering firm on the project, to deliver a presentation on Armstrong’s packaged system capabilities and the Design Assist service.

### Armstrong solution

As a result of that discussion, Armstrong became the basis of design for the final building plans. The cooling system called for 1350 tons of cooling, using two chillers and two cooling towers. Armstrong designed and delivered a complete packaged system including three condenser water pumps, three chilled water pumps, a PFX heat exchanger for free cooling and the IPC 11550 automated plant control system. The IPC 11550, uses patented control logic to Monitor and adjust the operating speed of each component. Relying on a control curve assembled from extensive pump performance testing, the IPC 11550 is constantly

adjusting the output of all components to meet HVAC requirements and minimize energy usage.

### Benefits

Through the Design Assist service, Armstrong was able to optimize the mechanical room layout and save almost \$70,000 in piping costs. The new compact arrangement of HVAC components created open space in the mechanical room, which Nissan subsequently used for shelving and storage. The system was delivered to the site as one completed package on a frame, which was positioned and connected with only minor adjustments to the piping.

Chris Reeves is in regular contact with executives from Nissan and reports that the Armstrong package system is performing as designed.

### Tech-facts

#### Equipment list

- Three condenser water pumps
- Three chilled water pumps
- PFX heat exchanger
- IPC 11550 automated control system
- VA-12 air separator
- Lakos separator with pump
- Fully assembled and delivered on a skid