

# IKEA CENTENNIAL

CENTENNIAL, COLORADO, USA

RETAIL

## GEOTHERMAL RETROFIT

Centennial IKEA, a two-year old building, had most equipment close to catastrophic failure due to initial improper control and design.

## PROJECT DETAILS

Major Geothermal of Wheat Ridge, Colorado successfully completed this project to retrofit Centennial IKEA and its large, geothermal/ice storage central plant. The building was unable to maintain comfort during high cooling load conditions because ice making did not function, and geothermal heat pumps and related equipment had been cycled to the point of component failure.

The solution for this project included a MACH-ProWebCom and six MACH-ProSys controllers on the local LAN. The MACH-ProSys controllers were fully loaded with MPP-I/O modules and applied to the central geothermal/ice plant. Additional mechanical equipment included 26 air handling units, 20 stages of geothermal HP (600 tons), and 60 sequenced valves.

Major Geothermal performed this complete retrofit using the existing infrastructure, resulting in all issues solved and comfort restored to the original design conditions. Factory OEM controllers on the geothermal heat pumps had an unacceptable failure rate, so were retrofitted with MACH-ProZone controllers. This included all safety lock-out circuitry. This resulted in reliable operation for the heat pumps and eliminated false safety trips while improving the equipment protection. The significant reduction in runtime saved on both energy and equipment degradation.

This project received international attention from IKEA corporate, as the decision to replace the existing BAS with a new system was not an easy one. The modular nature of the MACH-Pro controllers allowed for the re-use of existing control enclosures and wiring, which helped the job to be completed with no downtime.

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### PROJECT TYPE:

**Retrofit**

### INSTALLATION TYPE:

**Boiler, CO2 Monitoring, Fan Coil Unit, Geothermal, Heatpump, Lighting, VAV, Thermal Ice Storage**

### TOTAL AREA:

**37,161 m<sup>2</sup> (400,000 ft<sup>2</sup>)**

### EQUIPMENT INSTALLED:

**1 MACH-ProWebCom™  
6 MACH-ProSys™  
11 MACH-ProAir™  
13 MACH-ProZone™  
25 MACH2™  
1 MACH-Pro2™  
10 MACH-Stat™**

### NETWORK:

**EIA-485, Ethernet**

### INTEGRATION:

**BACnet®, MODBUS**

### TOTAL SYSTEM POINTS:

**2,027+**

**RELIABLE CONTROLS® AUTHORIZED DEALER:**

**Major Geothermal**

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