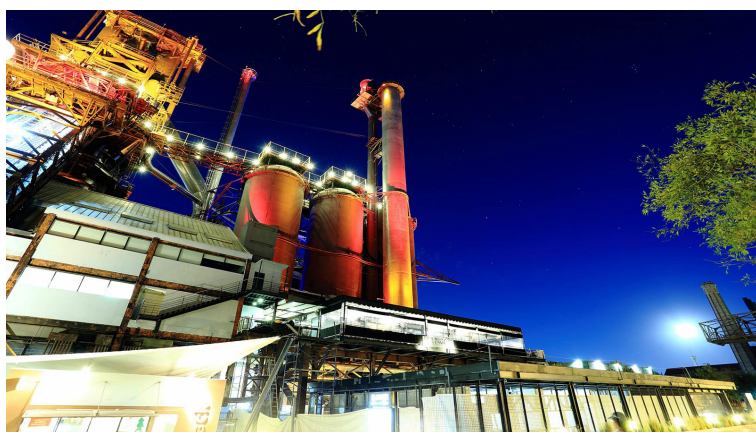


# HORNO<sup>3</sup>: MUSEO DEL ACERO

MONTERREY, NUEVO LEÓN, MEXICO

## INTRODUCTION

Situated in Fundidora Park, a National Industrial Archaeological Site in the heart of Monterrey, the Horno<sup>3</sup> museum showcases the industrial heritage of the state of Nuevo León. Originally the site of the Compañía Fundidora de Fierro Acero de Monterrey, a steel foundry dating to 1900, the park contains several structures from the old foundry, including the 1968 blast furnace known as Horno Alto No. 3, the first automated blast furnace in Mexico. The foundry closed in 1986, and in 1988 the state began transforming the area into a public park. In 2007 the 70-meter-high structure that housed Horno Alto No. 3 was restored and a new wing added to create [Horno<sup>3</sup>: Museo del Acero](#), with 9,000 square meters of interior and exterior exhibition spaces. Museum visitors can view historical and contemporary steel galleries, a furnace-show exhibit, teaching rooms, a restaurant, an archive, and a museum store.



**MARKET SEGMENT**  
Museum

**PROJECT TYPE**  
Retrofit

**INSTALLATION TYPE**  
HVAC

**TOTAL AREA**  
8,000 m<sup>2</sup> (86,111 ft<sup>2</sup>)

**PROTOCOL**  
BACnet, Modbus

**INSTALLED EQUIPMENT**  
5 MACH-ProPoint™ expansion modules  
3 MACH-ProSys™ controllers  
1 MACH-ProWebCom™ controller  
22 MACH-ProZone™ controllers  
RC-Archive® software  
RC-RemoteAccess® software  
RC-Reporter® software  
RC-Studio® software

**INTEGRATED EQUIPMENT**  
Leviton lighting control panels, Siemens energy meters, YORK chillers and air-handling units

**TOTAL SYSTEM OBJECTS**  
1,000

**RELIABLE CONTROLS**  
AUTHORIZED DEALER



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## PROJECT DETAILS

Reliable Controls Authorized Dealer VIMAU Control Systems installed a new building automation system during a building retrofit in 2021. To begin the project, VIMAU removed the existing LON system and rewired the museum to accommodate BACnet communication—a challenge while the museum remained open to visitors. The new BACnet system consists of a MACH-ProWebCom controller, three MACH-ProSys controllers, and 22 MACH-ProZone controllers connected using a mix of Ethernet and MS/TP.

The MACH-ProWebCom provides facility managers with easy access and control of the building automation system over the internet. With its built-in workstation and powerful web server, the MACH-ProWebCom allowed VIMAU to reduce the museum's capital expenditures by eliminating the need for workstation client software, license renewal fees, and cloud services.

VIMAU extended the capabilities of the three MACH-ProSys controllers with five MACH-ProPoint expansion modules to control large rooftop and mechanical-room equipment. The MACH-ProSys is a fully programmable internet-connected BACnet-Building Controller with extensive network-routing capabilities and flexible hardware options. VIMAU also installed 22 MACH-ProZone devices to control small to midsize rooftop and heat-pump units. An additional challenge of this project was maintaining the temperature and humidity in the museum during the building automation system retrofit. VIMAU technicians were careful to work cleanly and discreetly to minimize disruption to daily operations.

The flexibility of RC-Studio software and the Reliable Controls system allowed VIMAU to seamlessly integrate BACnet/IP lighting control panels and third-party energy-metering equipment via Modbus RTU. RC-RemoteAccess software, a flexible BACnet Secure Network solution, simplified IT management and improved data communications security for museum managers. And thanks to RC-Archive and RC-Reporter, museum stakeholders own and control the data and analytics that help them effectively balance comfort and energy efficiency in the facility.

"The Horno<sup>3</sup> is a nonprofit association that receives no grants from the government or companies and operates on its own business model. That's why it's very important to keep our operation costs as low as possible without affecting the visitor experience," said Hector Turrubiates, facilities manager at the museum. "This goal is possible thanks to the new Reliable Controls building automation system, which helps us operate with minimum staff and have better control of facility maintenance."

Reliable Controls and VIMAU were pleased to help improve efficiency and comfort in this historic destination in Monterrey. "It was our honor to be able to implement the Reliable Controls system in one of the most important landmarks of Nuevo León. To see how the clients responded after all the hard work and how impressed and happy they were with the system reminded us why Reliable Controls is always our best option for our projects," said Javier Alvarez de la Cadena Gonzalez, president of VIMAU. "It's made us very excited for what's to come."



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