

# Railex Conveyor System Application

## Railex and the Horner X2



# Coat Check Project

Javits Convention Center, New York City, NY

## HISTORY

Railex stocks, manufactures, and designs systems to move and store garments on hangers (GOH). If your business involves the handling of clothing - Railex offers solutions to improve your work flow and storage. As a manufacturer they can customize their products to fit your particular needs. Railex has been in the clothing handling business since 1954 and has designed, manufactured and installed 1000's of GOH products.

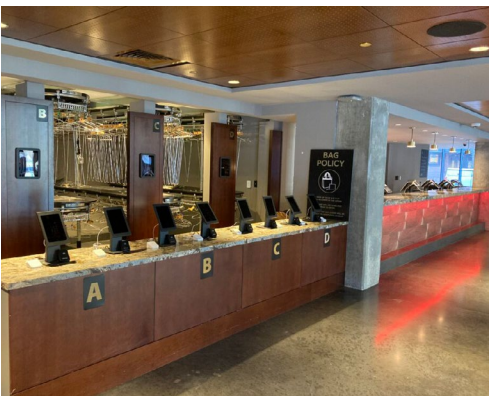
## CHALLENGE / SOLUTION

Railex was introducing a new way to manage a coat check system. The Railex System 2100 is a wireless and ticketless coat check. The benefits are less waiting times, shorter lines and happier patrons. There is also a HUGE "cool" factor with the Railex System 2100, with its tablet-based interface and automated retrieval app. This is an ideal solution for clubs, restaurants, museums, amusement parks, casinos, hotels, convention centers, event spaces, etc. The available app can also help you market your business by communicating information with your patrons about upcoming events, daily specials and promotions.

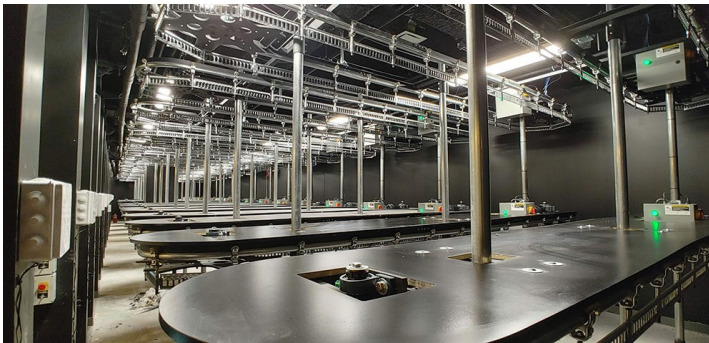
Railex Conveyor had an opportunity for a large coat check project for the Javits Convention Center in New York City. The goal of this job was to accommodate large crowds and quickly get the customers their coats. This system of 36 conveyors stacked in stations of 2 each can process over 6,000 customers per hour... and best of all, this system is contactless. There are no tickets for the customer. Everything is WiFi-based and tablet controlled. Your cell phone is your ticket.

The Railex 2100 conveyor system is an overhead continuous chain system that incorporates interconnected links to form the chain. Each link has a series of continuously numbered slots where hangers are used to carry the product. There are multiple slots per link, typically 12, and multiple links per system. Resulting in the possibility of a few hundred slot locations within the system. Slots per link and links per chain are field programmable. The programmed math functions within the controller will correctly calculate motion positioning.

The 2100 uses a Horner HE-X2R controller to control the location of the slots. The system is initially homed so the X2 knows the current slot at the offload location. The operator enters a requested slot number. The X2 determines the shortest distance to that slot, either forward or reverse. The X2 then will signal a variable frequency drive (VFD) to rotate the chain forward or reverse. While the chain is rotating, a sensor is pulsing which is connected to an input of the X2. Each pulse increments or decrements an internal counter,



Railex System 2100 in the Javits Convention Center, NYC



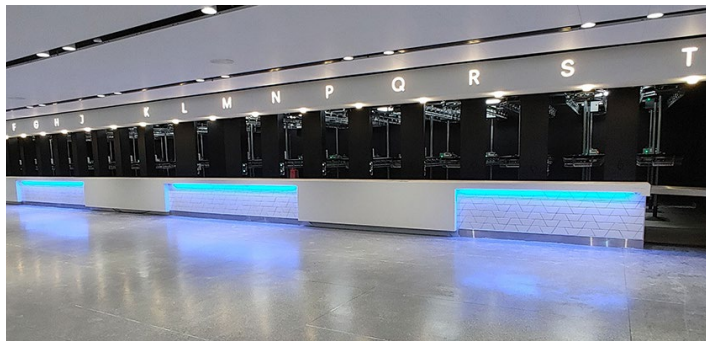
## SOLUTION CONTINUED...

depending on forward or reverse motion, until the requested slot number section is reached. The VFD then stops rotation and the proper slot is in the offload position. The X2 also has a built-in jog function. By using the left or right arrow buttons on the control, the operator can jog the conveyor, forward or reverse one link position at a time. The X2 also has inputs for emergency stop and VFD fault.

The multi-line display on the X2, provides a text indicator to the operator on the motion and system status. The X2 is also programmed to allow the use of a remote foot switch and hand toggle switch while still maintaining proper slot counting for position. The X2 can be used as a Modbus slave unit. This allows an external component to send Modbus signals to the X2 through the serial port as if the operator were inputting a slot number directly on the controller. As an example, the external device can be a master controller driving multiple conveyors in a warehouse situation.

Railex has successfully integrated an RFID security card system into the X2 to allow only authorized personnel to operate the conveyor. Another application uses an external RFID card reader to send an authorized slot number to the X2 to initiate motion to that position. Railex has also integrated a WiFi motion control via a third party device connected to the X2. This device communicates via phone, tablet or computer by WiFi and sends a slot request to the X2 to begin rotation. This is all possible due to the versatile capabilities of the X2 for input, output, and communications.

Speed is what the coat check world is all about. This installation featuring 14 Railex System 722 Conveyors is as fast as it gets (so far!). Everything about this system is designed to reduce time waiting in line. Some important technical points: These 14 conveyors are arranged in 7 stacks of 2 each. They are all wireless and ticketless. They operate off a cell phone and tablet system. They maximize the use of cubic space while minimizing the use of floor space. Plus the architects made something mundane like a clothing conveyor look incredible!



## TESTIMONIAL

"I have been an industrial control systems programmer for over 40 years. I was fortunate to be able to work with most of the major plc and hmi manufacturers over the years, writing code for all types of applications. The range of plc and hmi experience has allowed me to determine the best plc/hmi solution to solve a customer's application. I was introduced to the Horner product line about 15 years ago. The idea of a plc/hmi combo with multiple I/O options and free programming software was a natural choice moving forward. The software is easy to use and the ladder instruction could handle most any application. Screen graphics are good and like the ladder instruction, easy to use. The advantage of the plc/hmi combo eliminates the typical dual software setup. One for the plc, one for the hmi and then interfacing register mapping between the two. The Horner solution eliminates that problem with both ladder and graphics in one register map. I have used the multiple options for network interfacing and all have been easy to institute and reliable. I have been very satisfied with Horner and Horner products. I am confident in recommending and supplying programming for the Horner product line to my clients and their demanding needs."

~ Bob Tice, System Integrator/Owner, RJ TICECO, LLC

