

# The Silicon Valley Wire

The latest news from the electrical industry in Silicon Valley

3rd Quarter 2010

## Rosendin Electric, Dynalectric And ICS Build Electrical Infrastructure For The New San Jose Airport

From Digital Platforms for Public Art to Baggage Handling and Security Systems, NECA-IBEW Contractors Create Connection at Silicon Valley's International Airport



© Ken Paul

### Inside This Issue

#### Special Report: Norman Y. Mineta San Jose International Airport

- Airport electrical contractors
- Overview of airport
- New terminal
- Renovation of Terminal A
- Terminal B Concourse
- Rental car facility
- Wiring airport roads
- Interactive public art/digital platforms

#### Also In This Issue

- Pull out directory of Silicon Valley electrical contractors

#### Highlights

- 1.2 (DC) solar array installed on 1.8 million square foot rental car facility rooftop
- Five million feet of cable and fiber in new terminal
- Hundreds of electricians work over 1 million man hours

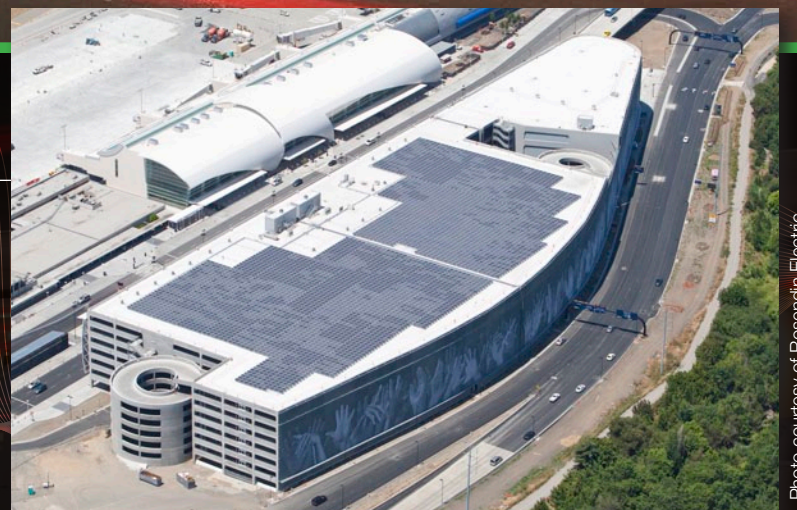


Photo courtesy of Rosendin Electric



Photo courtesy of Rosendin Electric



# NECA-IBEW Contractors Wire \$1.3 Billion San Jose Airport

## Over \$100 Million In Electrical Work

### ROSENDIN ELECTRIC

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Photo by Allen's Portrait Arts

### Rosendin Electric's Contribution To Mineta San Jose International Airport

**Terminal A**—Raceway and infrastructure; new electrical power system; new fire alarm system; baggage handling system; security camera system; security card access; telecom.

**Terminal B**—Raceway and infrastructure; electrical power system; fire alarm; public address system; telecom; security camera system.

**Terminal B Concourse**—Infrastructure and electrical power system; back-up generation system; lighting controls; lighting; telecom; security; paging and fire alarm system.

**Rental Car Center**—Base building electrical; lighting and lighting controls; fire alarm system; security system; 1.12 (DC) megawatt solar array on the roof.

**Infrastructure**— Installation of network infrastructure; installation of art LAN; installation of network drops for art; installation of main distribution frames in Terminal A, B, and Rental Car Center; backbone cable (fiber and copper) throughout all structures.

**Road Work**—Electrical for roadway lighting; traffic signal modification and installation; traffic monitoring systems and cameras, including underground power installation on airport roads and on portions of Highway 87 leading to the airport.

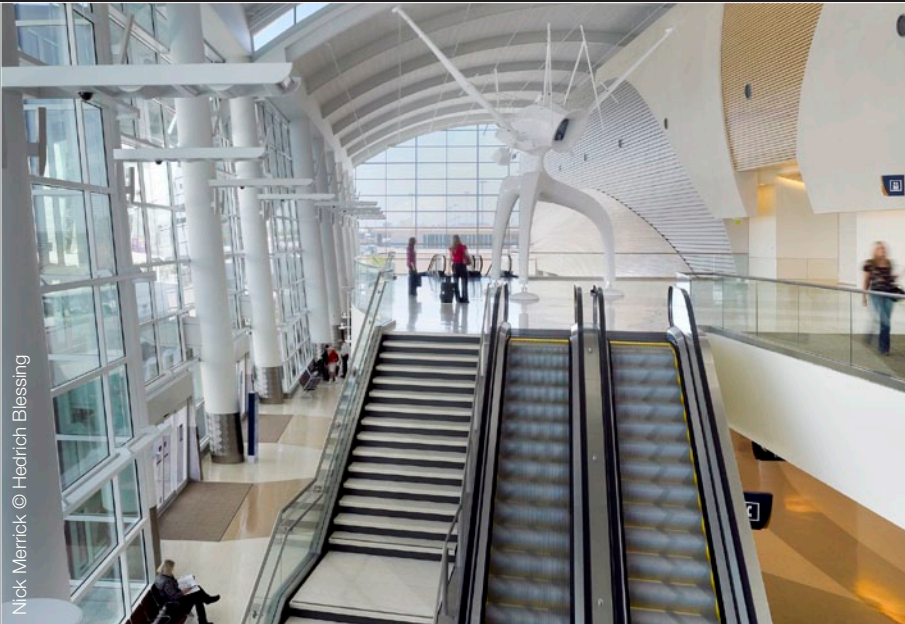
### DYNALECTRIC

138 Charcot Avenue  
San Jose, CA 95131  
408.456.0950  
www.dynalectric-sf.com

4462 Corporate Center Dr.  
Los Alamitos, CA 90720  
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**TONY CAMPBELL**  
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**DAVID STOLECKI**  
Vice President  
david.stolecki@emcorgroup.com  
In cooperation with  
KDC Systems,  
a division of EMCOR,  
Dynalectric Los Angeles



Nick Merrick © Hedrich Blessing

### Dynalectric's Contribution To Mineta San Jose International Airport

Baggage handling system for Terminal B; power distribution, fire alarm, security and teledata for parts of Terminal B Concourse, including operations area and communications center, plus wiring for all the tenants in Terminal B Concourse, including Southwest, Delta and Alaska Airlines.

### INTEGRATED COMMUNICATION SYSTEMS

550 Parrott Street, #40  
San Jose, CA 95112  
408.491.6000  
www.ics-integration.com

**AARON COLTON**  
President  
aaron.colton@ics-integration.com

**MARK BERLO**  
Project Manager  
mark.berlo@ics-integration.com



Photo courtesy of Camille Utterback

### Integrated Communication Systems' (ICS) Contribution To Mineta San Jose International Airport

Installation of interactive public art projects in Terminal B, including the reactive wall, "Shifting Time - San Jose," in the Arrivals Hall; installation of "Convey" interactive art on Baggage Carousel 2; and the audio installation "Sonic Gateway" on the Terminal B jetways, Gates 18-26.

### San Jose International Airport Team

**Owner:** City of San Jose

**Design-build contractor:** Hensel Phelps Construction Co., Greeley, Colo

**Master plan:** Gensler, San Francisco; Steinberg Architects, San Jose; Fentress Architects

**Design architect and architect of record (Terminals A, B and C) and design architect (ConRAC):** Fentress Architects

**Design architects and architects of record (Terminal B Concourse):** Gensler and Steinberg Architects

**Architect of record (ConRAC):** TranSystems, Kansas City, Mo.

**Architectural lighting:** Horton Lees Brogden Lighting Design

**Electrical Contractors:** Dynalectric, San Jose: Dave Stolecki, Vice President  
ICS: Aaron Colton, President  
Rosendin Electric: Ahmed Khattab, Senior Project Manager  
Sam Khalil, Senior Project Manager  
Ron Clarkson, Network Services Division Manager

**Public Art Consultant:** Gorbet+Banerjee: Matt Gorbet



# San Jose's \$1.3 Billion Airport Modernization Project Propels Facility Into Leadership Role In Technology

The new Norman Y. Mineta San Jose Airport, (SJC) which opened in June 2010 after a massive modernization, is one of the world's most technologically advanced facilities. "We are more than \$68.2 million under budget and celebrating the opening of the modernization one year earlier than scheduled," says Bill Sherry, Director of Aviation at SJC.

IN 2005, Airport and City officials scaled back the project's price tag from \$4.5 billion to \$1.3 billion, and opted to build it in four years instead of ten, switching to a design-build construction delivery model. Hensel-Phelps Construction Co. was hired as the design-build contractor, and worked with Fentress Architects to revise the master plan and lead the project.

In close collaboration with the airport, Hensel-Phelps Construction Co. and Fentress Architects designed and built more than 2.6 million square feet of building space in less than four years in an environment with 24/7 operations.

The architect and general contractor received a major assist from three NECA-IBEW electrical contractors in Silicon Valley who performed over \$100 million in electrical contracting work for the new facility on time and on budget.

Hensel-Phelps partnered with Rosendin Electric, a NECA-IBEW electrical contractor headquartered in San Jose, to build out much of the electrical infrastructure. Other Silicon Valley NECA-IBEW contractors involved in the project included Dynalectric, San Jose and Integrated Communication Systems (ICS) of San Jose.

The project included construction of the new Terminal B and Terminal B Concourse; renovation of Terminal A; reconfiguration and demolition of the airport's oldest facility, Terminal C; and construction of a seven-deck consolidated rental car facility, as well as roadway reconstruction.

The project included shared-use equipment for gates, ticket counters and self-service kiosks; passenger seating with built-in electrical outlets and HVAC; a one-megawatt solar array on the roof of the 1.8 million square foot rental car facility; built-in technology infrastructure for public art; and a drive for LEED silver certification.



Photo by Allen's Portrait Arts

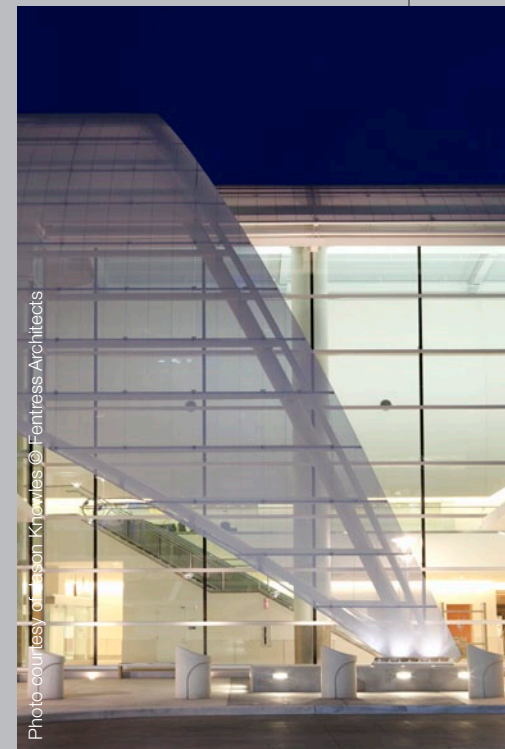


Photo courtesy of Jason Knowles @ Fentress Architects



Photo by Allen's Portrait Arts

## FENTRESS ARCHITECTS: FIRSTS IN AIRPORT TECHNOLOGY

- Designed with the latest in seismic standards, Terminal B has state-of-the-art protection from earthquakes, including a curved metal roof that can move up to 28 inches at its connection to the ground.
- Terminals A and B feature the most advanced automated in-line baggage screening system in the world, equipped with cutting-edge x-ray machines.
- The airport also debuted the first 'air chair' in America, which provides fresh air to individual travelers from the base of each seat, along with personal power outlets for laptops and mobile electronics.



Photo by Allen's Portrait Arts

## AIRPORT SNAPSHOT:

### PASSENGER TRAFFIC:

- 8.3 million annual passengers (2009)
- 27,000 average daily passengers
- 28 domestic and international gates

### TERMINALS:

- Terminals are open 24 hours a day, 365 days a year
- Terminal A: 16 Gates (including international facilities)
- Terminal B: 12 gates
- Terminal C: (closed)

### TRADE AREA:

- SJC generates 50,000 jobs in the Silicon Valley area
- 56 Silicon Valley companies with a market capitalization greater than \$1 billion are clustered within a 12-mile radius of the airport. Global technology leaders including Intel, Hewlett Packard, Google, Apple and Cisco are near SJC.

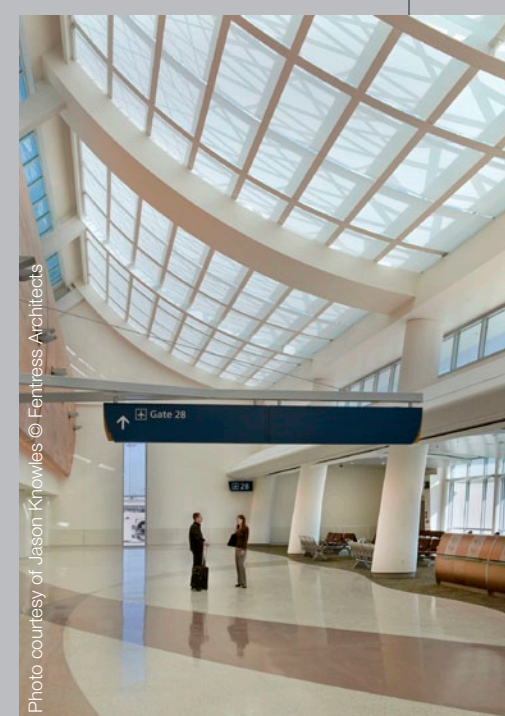


Photo courtesy of Jason Knowles @ Fentress Architects



# New Terminal B Wins Praise For Air Chairs, Power-Enabled Seating, Free Wi-Fi And Advanced Security

Two Silicon Valley NECA-IBEW Contractors, Rosendin Electric and Dynalectric, completed the wiring of Terminal B, a 380,000 square foot facility that stretches one third of a mile between the Terminal B Concourse and Terminal C, (now under demolition) in June 2010.

The new terminal reflects advanced technology inside and out. Terminal B's exterior is designed and built to simulate an unraveling fiber optics cable. Inside are vast open spaces with glass ceilings shrouded by a light gossamer fabric. Seismic enhancements on the terminal's arched roof ribs allow the roof to slide in the event of a major earthquake.

THE \$482 million terminal, which has 12 gates, can serve as many as 8.5 million passengers. Alaska/Horizon, Delta and Southwest have moved their operations to Terminal B; all other carriers are in Terminal A. Passengers check in at one of the 23 ticket counters near the main entrance and then go to the second floor security checkpoint.

Rosendin Electric installed TSA's new full-body security scanners, which allow security personnel to see through clothing to detect metal and non-metallic objects. A full scan is completed in seconds. Rosendin Electric also installed the terminal's new baggage processing bomb detecting scanners.

Dynalectric's KDC Systems, a division of EMCOR's Dynalectric Los Angeles subsidiary, worked in cooperation with Dynalectric's San Jose office to install the terminal's new automated baggage handling and screening system. The screening system is a CTX 9800, one of only nine in existence, with eight of the nine being at San Jose's airport.

The CTX 9800, considered to be the most advanced baggage security screening system in the world, allows baggage to move faster, resulting in more effective screening. The system can screen 1,800 pieces of baggage an hour in an underground facility at the terminal. Dynalectric installed the control panels, photo eyes, motors, and start-stop stations, along with all conduits and wiring related to the baggage handling system.

Rosendin Electric installed the specially equipped chairs at every gate that have power



Photo by Allen's Portrait Arts



Photo by Allen's Portrait Arts

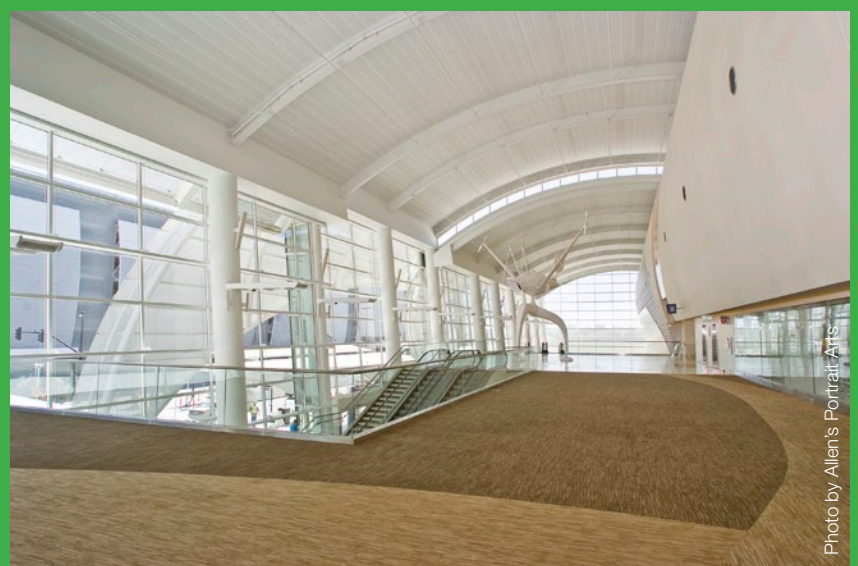


Photo by Allen's Portrait Arts

and USB outlets in the armrest, allowing you to plug in your electronic gear. No need to look for a wall outlet! The free wi-fi is also another customer convenience.

Rosendin Electric wired the electrical infrastructure for the terminal, bringing in 12 kV distribution via a single Level 1 substation to the basement, sourced from the neighboring Terminal B Concourse. From there, Rosendin Electric built out and wired three electric rooms on the mechanical penthouse

level above the mid-section of the terminal. They also wired an emergency 1500 kW standby generator.

Rosendin Electric built out communications closets throughout the building and wired the fire alarm system, teledata connections and security camera systems. The new security camera surveillance system allows more flexibility in aiming cameras and retrieving images at a later date. Rosendin Electric also installed a public address system.

## TERMINAL B ELECTRICAL SNAPSHOT:

### CONTRACTOR:

Rosendin Electric, San Jose;  
Dynalectric, Los Angeles;  
Dynalectric, San Jose

### AMOUNT OF CONTRACT:

Over \$15 million in electrical contracting

### WORK HOURS:

Over 56,000 work hours

### ELECTRICIANS:

Over 50 electricians and 25 technicians from IBEW Local 332 in San Jose built out the infrastructure

### GREEN:

Built for LEED Silver

### ROSENDIN ELECTRIC PROJECT TEAM:

Todd Mazza, Division Manager  
Paul Janzen, Project Manager  
Dave Kurze, Superintendent  
Troy Garcia, General Foreman  
Steve Brown, General Foreman

### DYNALECTRIC PROJECT TEAM:

Tony Campbell,  
Senior Vice President and  
General Manager of KDC  
Systems, a division of EMCOR's  
Dynalectric Los Angeles office;  
David Stoleki, Vice President,  
Dynalectric, San Jose;  
Chris Pesavento, President  
and CEO, Dynalectric and KDC  
Systems in LA



# Complete Renovation Of Terminal A

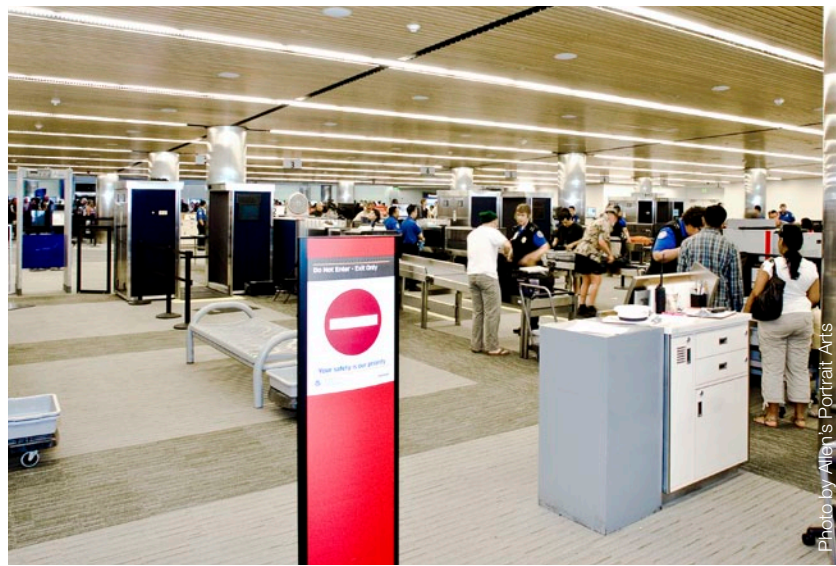
## New Security Camera Surveillance And Full-Body Scanners



**BEFORE** its renovation, San Jose Airport's Terminal A was known for long lines and even longer waits, with queues for ticketing and security backed up into the parking garage. Those days are now in the past, because Terminal A is completely renovated and customer friendly.

Ticket counters have almost doubled and are now relocated on the ground floor, which allows a better access to the curbside. The security checkpoint is relocated to the second floor, doubling their capacity.

The old manual baggage screening system has been replaced by a new automated



system that uses four state-of-the-art baggage screening machines. The new system screens up to 1,800 bags per hour, a twin of the system in Terminal B. There is also

new terrazzo flooring and carpeting, new ceilings, new bathrooms and new seating throughout. New shops and restaurants have been added as well.

Rosendin Electric installed the electrical infrastructure in Terminal A, wiring new security camera surveillance and several full-body scanners at the expanded security checkpoints. It is the second time that Rosendin Electric has worked on the terminal; the company performed the original electrical build out in 1989.

"It was challenging to work around the operating schedule of the airport," said senior project manager Ahmed Khattab. "You always had flights going in and out, so we did a lot of work at night. You have customers and passengers walking around, so you have to be very careful."

In addition to security surveillance, full-body scanners, and baggage handling and screening, Rosendin Electric also brought the 12 kV distribution system into the building and distributed it to three substations and 12 electric rooms. They also completed lighting controls, energy efficient lighting ballasts and energy efficient power transformers. Rosendin Electric also wired the teledata, security, paging and fire alarm infrastructure and systems, as well as the network drop points for public art.

## Terminal A Electrical Snapshot:



**Electrical Contractor:** Rosendin Electric

**Amount of Contract:** \$27.5 million

**Work Hours:** 200,000

**Electricians:** 120 electricians from IBEW Local 332, San Jose

**Project Team:** Ahmed Khattab, Senior Project Manager  
Karim Khalil, Assistant Project Manager  
Vishal Chand, Field Administrator  
Mark Peter, Site Superintendent  
Robert Paretto, General Foreman  
Dennis Yamamoto, Senior Engineer  
Ida Galperin, Design Engineer  
Maria Clifton, Engineering Cad  
Gary Koeplin, Design Coordinator  
Charlie Nguyen, Field Cad



# Rosendin Electric Wires 1.8 Million Sq. Ft. Rental Car Center (CONRAC)

**This gigantic new Consolidated Rental Car Center is built across the street from Terminal B, and totals over 1.8 million square feet on seven levels. It provides 3,000 spaces for all the rental car operations based at the airport, as well as 320 public parking spaces. Its proximity to Terminal B allows passengers to simply walk across the street for their rental car service, or to take a very short trip on the airport shuttle bus from Terminal A. The building is draped by a huge curtain mural called "Hands."**



Photo courtesy of Rosendin Electric

## CONRAC ELECTRICAL SNAPSHOT:

**ELECTRICAL CONTRACTOR:**  
Rosendin Electric

**AMOUNT OF CONTRACT:**  
\$24.2 million (includes \$5 million solar contract)

**SQUARE FEET:**  
1.8 million

**ELECTRICIANS:**  
37 electricians from IBEW Local 332, San Jose

**PROJECT MANAGEMENT:**  
Don Dixon,  
Senior Project Manager

**THE** rental car center includes customer service counters and houses all ten airport rental car companies and their associated operations, including fueling and maintenance facilities. The building's infrastructure, as well as its security systems and special fire systems, were installed and wired by Rosendin Electric. Rosendin Electric also installed a one megawatt solar array on the roof that provides an on-site source of renewable energy, enough to supply at least 20% of the building's needs.

SJC is the first airport in the nation to open a rental car center with an internal "stacked quick turnaround" (QTA) facility that allows rental car companies to fuel and wash all their cars on the site, reducing traffic, congestion and emissions. There are a total of 63 fuel dispensing units, and 12 car washes in the facility.

The three-level indoor elevated fueling station represents a significant technological and engineering achievement, and is the largest gas station in San Jose. Rosendin Electric installed a special fire alarm system with a voice evacuation feature near the fueling stations.

"The facility is very sophisticated and uses a lot of electricity," said Don Dixon, Senior Project Manager for Rosendin Electric. "We needed to make sure we met all the power criteria. It also has the largest municipal solar array in San Jose."

Rosendin Electric brought all the base building electrical power into the facility, and distributed it into two substations, and then nine electrical rooms. In addition, Rosendin Electric built out eleven communication (IDF)



Photo by Allen's Portrait Arts

closets, as well as security systems for the IDF rooms. Rosendin Electric installed tiger teeth and security gates for every level of the rental car racks, as well as two fire systems—one on the rack side and the other on the QTA side with voice feedback. Rosendin Electric also installed all lighting, as well as digital network drops for public art.



Photo courtesy of Rosendin Electric

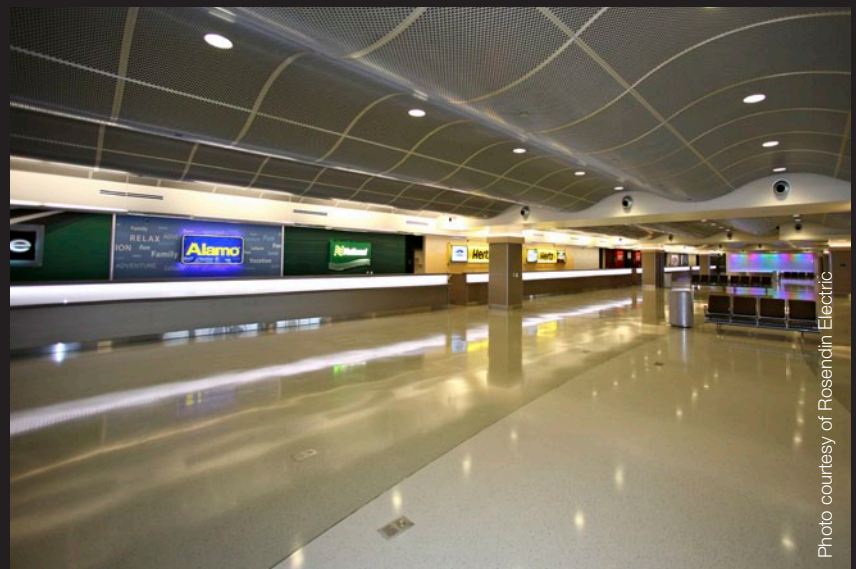


Photo courtesy of Rosendin Electric

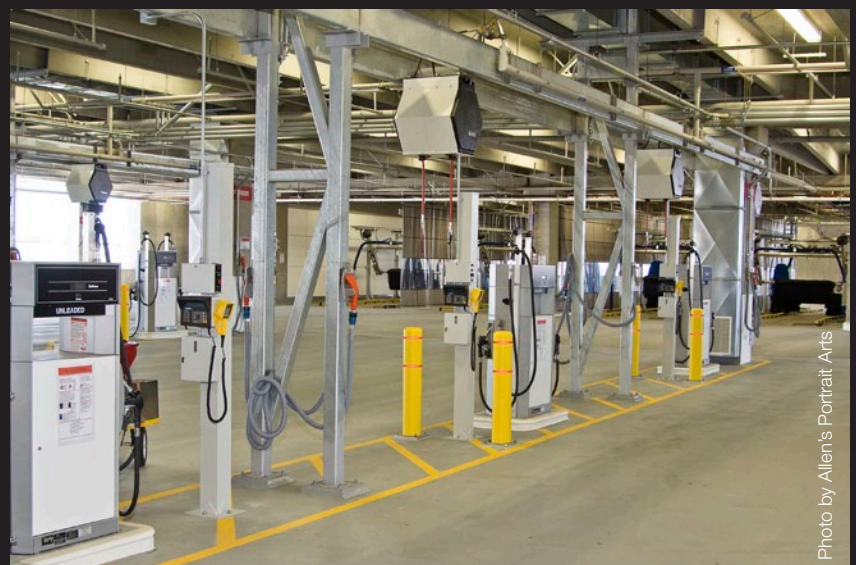


Photo by Allen's Portrait Arts



# ICS Connects Interactive Public Art In New Airport Terminal

## Time Travel, Tweets and Audio Clips Accompany Passengers

If you take a stroll in the Arrivals Hall in the new Terminal B, you can go backward or forward in time!

And no, it's not a magical trip back to the future. The time travel is part of an interactive public art display of San Jose's history called "Shifting Time - San Jose" that is triggered by your personal interaction with the art. As you walk by, your body movement triggers the wall to fluidly shift videos from past to present and present to past, pulling you through time as it moves.



**Camille Utterback,**  
*Reactive Wall Artist*

**ENGINEERED** and installed by Integrated Communication Systems (ICS), a NECA-IBEW electrical contractor in San Jose, the reactive wall is one of the most popular spots in the airport. It was designed by digital art consultants Gorbet+Banerjee as one of the flexible art platforms that make up the unique \$6 million digital public art program. The first artist commissioned for the reactive wall was Camille Utterback of San Francisco. Her piece is titled "Shifting Time - San Jose".

Utterback designed "Shifting Time - San Jose" by pairing 20 pieces of historical video with clips of contemporary content of San Jose. "As you move in front of the piece in any one of the clips, the past will come more into view, so your actual movement creates the flow of time in the video," says Utterback, a digital and video artist who also created the software. "You may see one of San Jose's old canning factories, where women are sorting fruit, paired with women typing at their laptops at Cisco Systems."

To install the reactive wall, ICS formed a blended image on



Photo courtesy of Camille Utterback



Photo courtesy of Camille Utterback



Photo courtesy of Camille Utterback

a wall that is seven feet high and 15 feet wide. ICS project manager Mark Berlo used two projectors mounted in the ceiling to make a single image that is run at 1080p. An infrared camera picks up people that walk by the screen or stand in front of it, changing the video content. ICS was responsible for the projector configuration; the video processing required to blend a single image into two; the edge blending; hardware installation and installation of the racks in the ceiling to house the hardware. ICS programmer Jason Meyer from IBEW Local

332 did the programming of the video processors that blend the image on screen. The computer that drives the art is remoted to a different location, with ICS running cable for that.

ICS also connected several other interactive public art displays at the airport, including "Convey," a piece which projects location-specific Tweets in realtime onto passengers' baggage as it travels on Carousel 2 in Terminal B, and "Sonic Gateway," an environmental audio piece by sound artist Bill Fontana at the Terminal B Jetways, Gates 18 - 26.

### INTERACTIVE ART PROJECT TEAM SNAPSHOT:

**ELECTRICAL CONTRACTOR:**  
ICS, San Jose

**ELECTRICIANS:**  
15 technicians from IBEW Local 332, San Jose

**ICS PROJECT TEAM:**  
Mark Berlo, Project Manager

**PUBLIC ART PROGRAM BUDGET:**  
\$6 million

**ART MASTER PLAN:**  
City of San Jose

**ART ACTIVATION INFRASTRUCTURE:**  
Gorbet+Banerjee Public Art Consultants, Toronto/Belmont

**REACTIVE WALL ARTIST:**  
Camille Utterback,  
"Shifting Time - San Jose",  
Terminal B Arrivals Hall

**"SONIC GATEWAY" ARTIST:**  
Bill Fontana, Terminal B  
Jetways, Gate 18 - 26

**"CONVEY" ARTISTS:**  
Banny Banerjee, Matt Gorbet and Susan LK Gorbet,  
Terminal B, Baggage Carousel



# Rosendin Electric Builds Public Art Platforms Throughout Airport

## Innovative Public Art Program Combines Art And Technology

**VIEWING** the new public art collection at San Jose Airport isn't like going to an exhibit at a typical art museum. Instead, as befits Silicon Valley, all of the public art works —14 pieces currently— incorporate technology in their design.

"This is artwork that uses technology, artwork that is inspired by technology and artwork that is fabricated or manufactured using technology," said Matt Gorbet, of Gorbet + Banerjee, the public art consulting company that designed the art activation infrastructure. "It is designed to be part of the passenger experience."

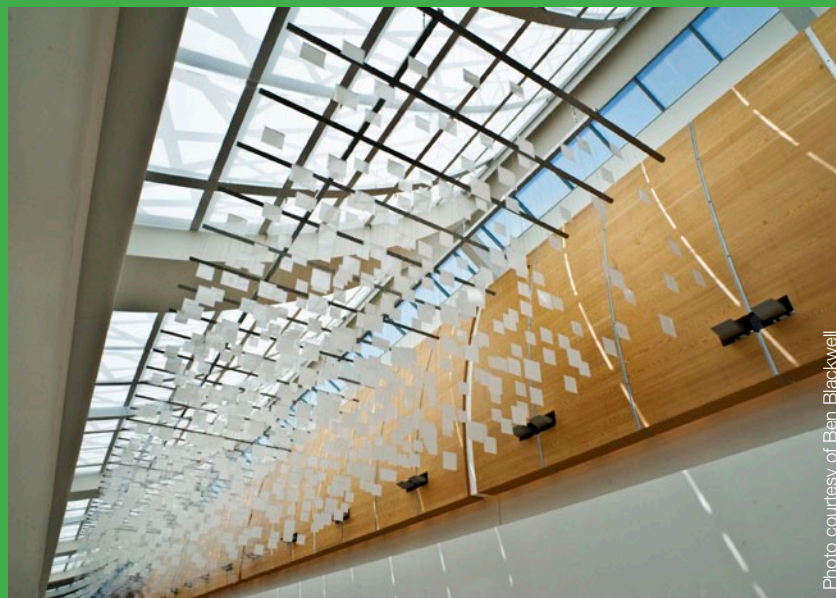


Photo courtesy of Ben Blackwell



Photo by Allen's Portrait Arts



Photo by Allen's Portrait Arts



Photo by Allen's Portrait Arts



Photo courtesy of Bjorn Schulke

### PUBLIC ART SNAPSHOT:

**ART MASTER PLAN:**  
City of San Jose

**PUBLIC ART CONSULTANT:**  
Gorbet + Banerjee

**ELECTRICAL CONTRACTOR:**  
Rosendin Electric

**ART CURRENTLY ACTIVE:**  
14 pieces

**PUBLIC ART PROGRAM BUDGET:**  
\$6 million

**ARTISTS:**  
"Hands" Christian Moeller;  
"Space Observer" Bjorn Schulke; "eCLOUD" Nik Hafermaas, Dan Goods and Aaron Koblin; "Convey" Banny Banerjee, Matt Gorbet and Susan LK Gorbet; "The Wunderkammer" SuttonBeresCuller; "Small Wonders" curated by ZERO1: The Art and Technology Network; "Shifting Time San Jose" Camille Utterback; "CONNECTED: Silicon Valley + Bangalore" Angela Buenning Fillo; "Wave Matter Tessellation" Gregory Kucera; "Dreaming F.I.D.S." Ben Hooker and Shona Kitchen; "Courtesy of Nature" Banny Banerjee, Matt Gorbet and Susan LK Gorbet; "Chronos and Kairos" Banny Banerjee, Matt Gorbet, Susan LK Gorbet and Margaret Orth; "Sonic Gateway" Bill Fontana; "Wall of Recognition" Carlos Perez/ ArtOrigin.

The airport's public art is built on a foundation of flexible platforms for artists to use in creating technology and data-driven art. The digital platforms were installed by Rosendin Electric throughout the airport as part of the electrical infrastructure. Most of the art is in Terminal B and Terminal B Concourse.

This art is just as likely to employ software instead of paint, and usually includes video, audio, programming and electrical engineering, as well as traditional design and fabrication. It's most often expressed in pixels. In fact, in the "Hands" artwork that stretches for 1,200 feet outside the rental car facility,

there are 107 prefabricated panels that include 370,000 white plastic disks or "pixels" that were snapped on to chainlink fencing by hand.

The \$6 million public art project is the brainchild of the San Jose Public Art Department, which designed a master plan for artwork at the airport. The city wanted to create a public art program that would showcase San Jose as a global center of creativity with technology. The San Jose Public Art Program at the airport is one of the most extensive displays of digital art in the U.S.

Gorbet + Banerjee designed a series of flexible platforms for artists to use in creating

technology and data-driven art. The infrastructure accommodates projection, sculptural, robotic and data-driven artworks and can be changed over time in keeping with the inevitable technological changes of the future.

The art program has its own dedicated LAN so that art pieces can be updated or reprogrammed as needed by the artists. Rosendin Electric installed some 200 network drops throughout the entire airport dedicated to art. Not all of the drops are active at once; drops have also been placed at sites throughout the airport where they might be fully activated in the future.