

SilMan Industries provided implementation of equipment, controls, and custom-engineered vertical lift solution for a Checked Baggage System at the Oakland International Airport for the Port of Oakland.

[\(Click here to view a video of this project\)](#)

The Situation at Oakland International

The stakes surrounding airport security continue to rise, and Checked Bag Inspection Systems (“CBIS”) remain a central element of aviation security directives.

New technologies are constantly being developed that require increased technological skills for airport authorities, system designers and installation teams. And more often than not, infrastructure renovations are required to capture the advantages of the updated applications.

The Oakland International Airport (“OAK”) is a leading regional public agency, and continually seeks to remain at the forefront of their industry, including baggage inspection. In turn, their pursuit creates a unique opportunity for firms such as SilMan Industries to add value to their community and the traveling public.

TSA Recapitalization and Opportunity in Oakland

The Transportation Security Administration (“TSA”) has also been relentless in their pursuit to enhance tools and infrastructure in fulfillment of their mission to “ensure freedom of movement for

people and commerce.” As part of this undertaking, the TSA has created a national recapitalization program to update aging checked-bag Explosive Detection Systems (“EDS”) equipment. This mandate seeks to provide new equipment and controls for improved security, facilitated by reimbursement to the target airport authority.

Meanwhile, on the local level, airport authorities like OAK face public pressure to provide increased efficiency and convenience as passenger levels swell. The needed technology and infrastructure solutions are often costly and come with a high economic and political price tag.

This national/local climate creates a confluence of safety, accountability and compliance, as well as a need for high-tech resources. In turn, public entities are now required to understand and deploy these evolving solutions as a matter of course.

In 2012, the TSA recognized Terminal 2 at Oakland International Airport as a qualifying facility for TSA recapitalization funds. In June 2017, SilMan was awarded the contract for the Terminal 2 project.

And now, in the summer of 2019, the project is complete. A mere three miles from our headquarters in San Leandro, California.

Happily, SilMan Industries is part of a select group of contractors with a resume of success working in the aviation sector, completing projects in a variety of regional airports, big and small, coast to coast.

This time, however, it’s personal.

Did you know? The Port of Oakland

I  OAK

Park Close. Fly on time.

The Port of Oakland

The Port of Oakland (“Port”) was established in the mid-19th century, and in 1893 the City of Oakland assumed ownership from Southern Pacific railroad. In the 1960s the Port was the first facility on the west coast to build a terminal exclusively for container ships. Today the Port is the

5th largest destination for container ships in North America and accounts for approximately 40% of jobs in the region.

[Click here for “Fast Facts” about the Port of Oakland.](#)

The Airport

At the center of this enterprise lies the Port's most public agency: the Oakland International Airport, or simply "OAK."

The Oakland Municipal Airport was constructed in 1927, and in WWII served as the staging ground for U.S. Forces in the Pacific. Today's 600-acre commercial and cargo facility was unveiled in 1962. Over 13 million travelers pass through OAK each year, and FedEx and UPS have both established Oakland-based hubs.

OAK is a base for international travelers, including Norwegian Air, who recently celebrated 5 years of service at OAK, offering nonstop flights to Paris, Barcelona, Rome, Copenhagen, Stockholm, and Oslo.

The Port maintains a proactive posture to expand their services to Bay Area residents and businesses. The CBIS project is only one piece of many modernizing initiatives in process at the airport.

Challenges



It should be no surprise that the leading obstacles facing the SilMan team would be the complexities associated with working in the depths of a busy airport.

Security

Security is the most obvious hurdle. Since baggage inspection occurs behind the TSA "sterile" perimeter, all team members are required to undergo extensive background checks and drug

testing. Once approved, visible credentials must be carried at all times, and are regularly checked for validity. Moreover, all tools and materials are inventoried daily.

Access to System

Productive hours are framed by regular flight schedules, which means construction operations are limited to the hours between 10pm and 5am. Concessions are also required for peak traffic on

Mondays and Fridays. Holidays, such as Thanksgiving or Christmas, require a complete shut-down of installation activity.

Night Work

Nocturnal schedules always present safety and performance concerns. The normal hazards of night work are magnified with a work area that is open to the elements and marked by irregular, complicated layouts. This was precisely the situation for our team: on the tarmac level, below the terminal, working through the night.

Productive Hours

In these situations, daily operations must be strategically phased. Each shift must allow enough time for the team to reset the system to its current operating configuration, pairing new and existing equipment and controls. And of course, all tools and materials are to be removed from the work area, and stowed every day.

These pressures are multiplied when considering this new “normal” for daily activities:

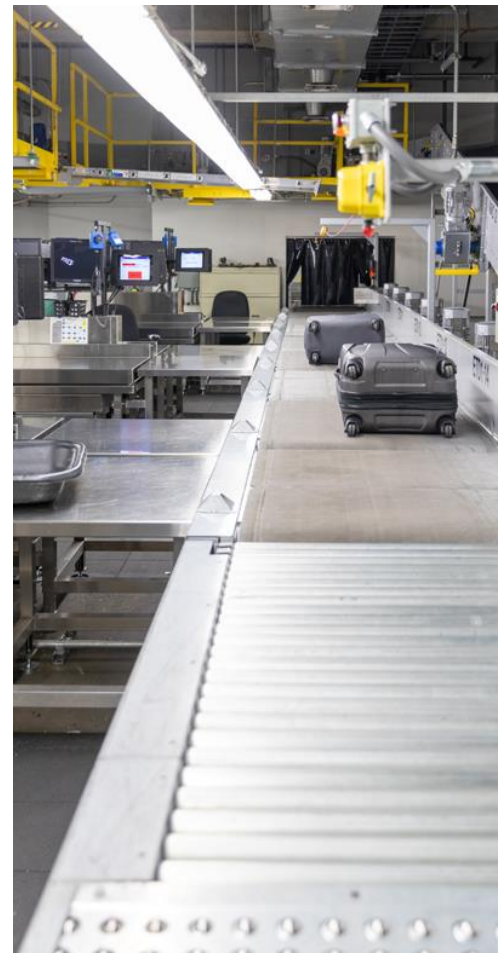
- Allocation of both daytime administrative and nighttime onsite work within an eight-hour work period.
- Typical mundane practices, such as procuring goods from a supply house or buying lunch are not possible.
- Regular sleep patterns and time with family is interrupted

All of this for five productive hours each day!

The Project

TSA mandates for updated EDS systems cover both equipment and infrastructure. Beyond the TSA demands, however, the ever-increasing volume of passengers and flights at OAK require that the new system also provide increased capacity and speed.

To achieve these results, the successful completion of this project demanded a variety of specialized skills and project management strategies from the SilMan team.



Environment

Executing a complex equipment installation in parallel with ongoing airport operations and security protocols presented ongoing challenges for the team. The leadership team's experience managing 1) public-works relationships, 2) night work and 3) safety procedures kept daily operations on an even keel.

Conveyance

SilMan installed 400+ linear feet of conveyor, including the installation of new CT Scanners. While this is a relatively small amount of conveyor, the conditions of the job-site (i.e.; reset for daily operations on every shift) required a tremendous amount of organizational savvy to maintain forward progress.

One of the key elements of the project is the installation of a Nerak Systems vertical lift. This custom-designed interface between the vertical lift and conveyance system has been created to more efficiently return reconciled bags to the baggage system.

SilMan's leadership for the conveyor project includes Robert Hernandez (millwright) and Brandon Carey (electric). These talented professionals displayed remarkable skill, organizational prowess and fortitude throughout the project. Their contribution cannot be overstated.

Controls

At the heart of a baggage inspection system, controls equipment and software synchronize the movement of baggage through varying levels of scanning and inspection, tracking each bag through the entire system. When existing data exchange networks are overlaid with updated controls, there are a myriad of complications.

Nearly 200 new variable frequency drives ("VFD") were installed for the project.

The SilMan Controls Group, headed by Kevin Jackson and Mike Proctor, led the team in a top-to-bottom effort to extract maximum performance from the existing Devicenet network. Devicenet, which is widely used in the automotive industry, predates the invention of Ethernet and its adoption for baggage systems. The existing system was in dire need of an overhaul. Jackson and Proctor led a team-wide effort to provide Devicenet training for SilMan team members in order to conduct a full audit of every wire and termination in the system, concurrent with implementing the new system.

Solutions and Results



The CBIS project at the Oakland Airport effectively doubles the screening capacity of Terminal 2. This success is the result of a variety of players effectively working together, and multiple layers of organizational and technical expertise.

Controls

Installation of the new system nearly doubles the throughput (flow) rates of baggage, doubling the efficiency of the system.

In addition, the efforts of the SilMan Controls Group resulted in improved performance by the existing Devicenet network. These efforts bring the system to factory-spec levels, delivering previously unrealized speed and stability. This reboot, along with newly installed control devices, allows the Oakland Airport to achieve increased value from their existing data exchange infrastructure, without further capital expenditure.

Labor

SilMan's commitment to self-performance is a dominant factor in the success of this project. This internal structure allows consistent communication and rapid response to changing conditions at the jobsite by avoiding additional layers of subcontractor management.

The result? The onsite team remains coordinated across multiple disciplines, and aligned with the united management team of the Port and SilMan.

Administration

SilMan's front office team provides an invaluable contribution to overall productivity. Their efforts keep our project teams focused on jobsite activity. Maria Salazar (project coordinator) played a key role in managing documentary and correspondence channels, keeping the relationship with the Port on track.

Project Management



The adjustments made to work plans to accommodate airport operations, continual progress monitoring and navigating a 24-hour work cycle were hallmark achievements for the combined project management team.

These daily complications were met with good humor and transparency by the collaborative leadership of Sam Grimm, P.E. (Port of Oakland) and Christopher Fredrickson (senior project manager, SilMan Industries).

TSA Officer Health and Safety

Lastly, the improvements to the system include two upgrades that provide a healthier, more productive operation for TSA baggage inspectors.

Previously, the baggage inspection area, known as “CBRA” (Checked Baggage Reconciliation Area), required TSA officers to constantly lift bags between varying heights of conveyor and countertops. The new system operates at a single elevation throughout the manual inspection process. Moreover, the updated inspection stations include sliding countertops, enabling officers to easily move bags from inbound to outbound conveyance lines.

Furthermore, the custom vertical lift is directly connected to the inspection station system. Thereby providing rapid exit of baggage to the overhead belts with minimal handling.

And finally, the enhanced facility includes padded flooring to reduce fatigue and noise.

This ergonomic upgrade to CBRA offers TSA officers improved focus to successfully achieve their mandate through reduced distraction from fatigue and risk of injury.



Conclusions

Worthwhile accomplishments are never achieved as a solo effort. In fact, SilMan's Vision Statement refers to this collaborative work as "Building a Community of Value."

The Port of Oakland's CBIS project is a great example of this principle at work. Local relationships, energized interaction and multiple skillsets, all working toward a shared goal to bring value to each participant – as organizations and individuals.

The "X" Factor

Given the professional achievements of both the Port and SilMan teams: the requisite skills to accomplish the job are understood as a given.

Therefore, it is the rapport between the Port and SilMan project teams that stands out as the key element of success.

The Port Authority is an ideal client-partner. As a team they are helpful, reasonable and genuinely engaged. And thankfully, the Port is also supportive of local contractors.

For our readers from the East Bay of San Francisco, you can be confident and proud of the care being taken on your behalf by the Port. And as a Bay Area business, we are thrilled to witness this fine example of public service first-hand.

And to say the least, SilMan is proud to be associated with this valuable contribution to our community, families and guests who rely on OAK.

NOTE: In the interest of impartiality, Port Authority policies do not allow their team members to comment in articles produced by contractors.

###

About SilMan

SilMan Industries (previously SilMan Construction) is based in San Leandro, California. Founded in 2008, the firm operates nationwide in three divisions – Construction, Material Handling and Site Services – and partners with "best in class" companies in the Industrial, Manufacturing, Distribution and Public Works sectors. For more information, please visit www.silmanindustries.com/about.