



Aviation / Terminal

Engineering Qualifications

CONTACT:

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Rethinking Infrastructure®





Arora Engineers, Inc.
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Dear Prospective Client,

Over our 32-year history, Arora Engineers, Inc. has worked at over 35 airports across the country from California, to Maine, to Florida and has grown into an Aviation centric firm. Arora's aviation expertise includes a range of services for the complete project life cycle. Our Geospatial team participates in aviation planning projects ranging from master plans and eALP's to creating data standards and complete enterprise GIS programs.

Terminal design is at the core of Arora's technical expertise. Ranging from greenfield terminals, to expansions and renovations, we can lead or support any of the design and engineering for a terminal's building systems. We have dedicated disciplines in Mechanical, Electrical, Plumbing, Fire/Life Safety, and Special Systems (Security, Telecom, IT). We design terminals with the future in mind and live our tagline of Rethinking Infrastructure as we approach each unique project.

Our Construction and Program Management group (PM/CM) experience ranges from serving as airport extension of staff and owners rep running capital projects and programs, to field inspections, to working with general contractors as master systems integrators, performing constructability reviews, and managing and overseeing the design and construction process.

Outside of the terminal, Arora's Aeronautical Electrical group has designed over a billion dollars of airfield projects. Our capabilities in this area range from airfield lighting, signage, and NAVAIDS, to field lighting vaults and Runway Incursion Mitigation (RIM).

No project is too big or too small, and we look forward to working with you and exceeding your expectations for quality and service.

Sincerely,

A handwritten signature in blue ink, appearing to read "Manik Arora".

Manik Arora
President and CEO

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Arora Engineers, Inc.

At Arora Engineers, we believe infrastructure needs to do far more than provide a seamless, safe, sustainable and comfortable environment. Our goal is to maximize its role, impact and value through highly intelligent solutions that not only meet operational needs, but forward business objectives.

We meet the evolving needs of the world's most critical industries – aviation, transportation and education – through more intelligent, sustainable and connected infrastructure solutions that maximize value for our clients and partners.

Expertise

Throughout our history of more than 30 years, we have held ourselves to rethinking the role of the traditional MEP firm. As a result, we've evolved our practice to emphasize the technology and processes that connect systems infrastructure, improve operations and longevity and make life safer and easier for those who use it.

Arora specializes in providing engineering services tailored for clients in aviation, transportation, education, government and commercial sectors and has developed a unique understanding of the challenges and opportunities facing these critical industries.

Services

SPECIAL SYSTEMS / TECHNOLOGY

- + Mass Notification & Public Address
- + WiFi systems
- + Voice/data systems
- + Network architecture
- + Data centers
- + MDF/IDF room layouts
- + Network design via fiber or copper backbone
- + Plant cabling systems
- + Fiber optic and copper structured cabling systems
- + Communications system design
- + CCTV/MATV/CATV systems
- + Access control
- + Duress systems
- + Perimeter intrusion detection
- + Risk and needs assessments
- + Video walls
- + Security operations and procedures evaluation
- + Passenger/customer information display systems
- + Signage/Electronic video information display systems (EVIDS)
- + Software and equipment evaluation and recommendations
- + FIDS/BIDS/GIDS/CUPPS/SUPPS
- + Multi-lingual/International traveler



ELECTRICAL

- + Low and medium voltage power distribution
- + Emergency and standby power systems
- + Lighting design and photometrics
- + Substation/switchgear
- + Grounding and lightning protection
- + Single-line diagrams
- + Short circuit & coordination studies
- + Power and lighting equipment selection and specifications
- + Motor control centers
- + Electrical equipment sizing
- + Energy efficient systems
- + Electrical code analysis
- + Electrical plan review and master plan development

AERONAUTICAL ELECTRICAL

- + Airfield Lighting and Signage
- + Approach Lighting Systems
- + Instrument Landing Systems
- + Navigational Aids
- + Airfield Lighting and Control Systems
- + Runway Incursion Mitigation
- + Pavement Surface Sensor Systems

HVAC / PLUMBING

- + Sustainable/Green Building design
- + HVAC
- + Central plant design
- + Underfloor Air Systems design
- + Constant and variable air volume systems
- + Radiant heating systems
- + Geothermal system design
- + Building automation and digital controls
- + Domestic water systems
- + Storm and sanitary system design
- + Fuel system design
- + Lifecycle Costing, Energy Analyses

FIRE PROTECTION AND LIFE SAFETY

- + Fire alarm and detection system design
- + Standpipes and water-based sprinkler system design
- + Foam systems and special hazard suppression design
- + Fire pumps and fire protection water supply system design
- + Smoke management
- + Code analysis and consulting
- + Plan review
- + Due diligence reports
- + Performance based analysis
- + Risk/hazard assessment
- + Site conditions survey

GEOGRAPHIC INFORMATION SYSTEMS (GIS)

- + Database setup and implementation plans
- + CAD to GIS conversion plans
- + FAA Airport GIS program compliance
- + Legacy data access integration
- + Web-based GIS portal development
- + Asset and utility data management
- + Field inspection and inventory
- + GPS data capture and attribution

PROGRAM MANAGEMENT

- + Project management
- + Procurement coordination
- + Information management
- + All-inclusive project control
- + Runway Incursion Mitigation
- + Pavement Surface Sensor Systems
- + Airfield Lighting Vaults and Power Distribution
- + Sustainable Solutions
- + Construction Safety and Phasing

CONSTRUCTION MANAGEMENT & INSPECTION

- + Project administration
- + Master systems integrator
- + Daily inspection
- + Project documentation
- + Submittal review/tenant permit reviews
- + Design support
- + Constructability reviews
- + Value engineering
- + Critical path review
- + Materials testing
- + Cost estimating
- + Claims analysis
- + Runway Incursion Mitigation
- + Airfield Lighting Vaults and Power Distribution
- + Pavement Surface Sensor Systems
- + Construction Safety and Phasing

ATLANTA

BALTIMORE

BOSTON

CHARLOTTE

CHICAGO

DALLAS

FT. LAUDERDALE

NASHVILLE

NEW YORK

PHILADELPHIA

SAN JOSE



CITY OF ATLANTA

Domestic Terminal Parking Decks Reconstruction & Replacement, West Parking Deck

Hartsfield-Jackson Atlanta International Airport, Atlanta, GA

PROJECT DETAILS

CLIENT

HKS | Fitzgerald | Walker Parking |
Thornton Tomasetti Joint Venture
Tony Brocato, AIA, NCARB, LEED GA
Vice President, Aviation Group
191 Peachtree Street NE, Suite 5000
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404-442-7878

CONSTRUCTION

\$175,000,000

PROJECT START

2016

PROJECT COMPLETION

2018

HIGHLIGHTS

- + Full service MEP design for 6,000 vehicle parking expansion
- + Interface coordination with site utilities, telecommunications and civil contractor
- + Stakeholder (Atlanta Fire, City of Atlanta, City of College Park, Georgia Fire Commission, etc.) Management
- + Permitting Support
- + Procurement Support
- + Construction Support

Hartsfield-Jackson Atlanta International Airport, the world's busiest airport by passenger volume, provides more than 29,000 public parking spaces, 13,030 of which are in parking decks. The airport is looking to increase parking capacity to accommodate future growth.

As part of the Joint Venture Team, Arora Engineers, Inc. (Arora) has been retained to provide electrical (power, lighting, and lightning), plumbing, fire protection, and fire alarm design services for the West Parking Deck to provide additional parking for approximately 6,000 vehicles in order to compensate for the loss of parking during the demolition and reconstruction of the North and South Domestic Terminal parking garages; the loss of parking spaces due to the Concourse T North Expansion; the loss of parking spaces due to the loss of Park-Ride Lots A and B for the construction of the Runway 9L End-Around Taxiway; and the loss of the West Economy Parking Lot owing to the hotel development project.

SCOPE OF WORK INCLUDED:

Arora's scope of services includes: concept validation, Schematic through Construction Documentation, permitting and procurement support, and Construction Administration Services for the West Parking Deck.



CITY OF CHARLOTTE, CHARLOTTE AVIATION DEPARTMENT

Main Terminal Expansion

Charlotte Douglas International Airport, Charlotte, NC

PROJECT DETAILS

CLIENT

Gresham, Smith & Partners
(Prime)
Altan Cekin, AIA, NCARB,
Principal
Two Harbour Place
302 Knights Run Avenue
Suite 900
Tampa, FL 33602
altan_cekin@gspnet.com
(813) 769-8917

CONSTRUCTION

\$400,000,000

PROJECT START

2016

PROJECT COMPLETION

Ongoing

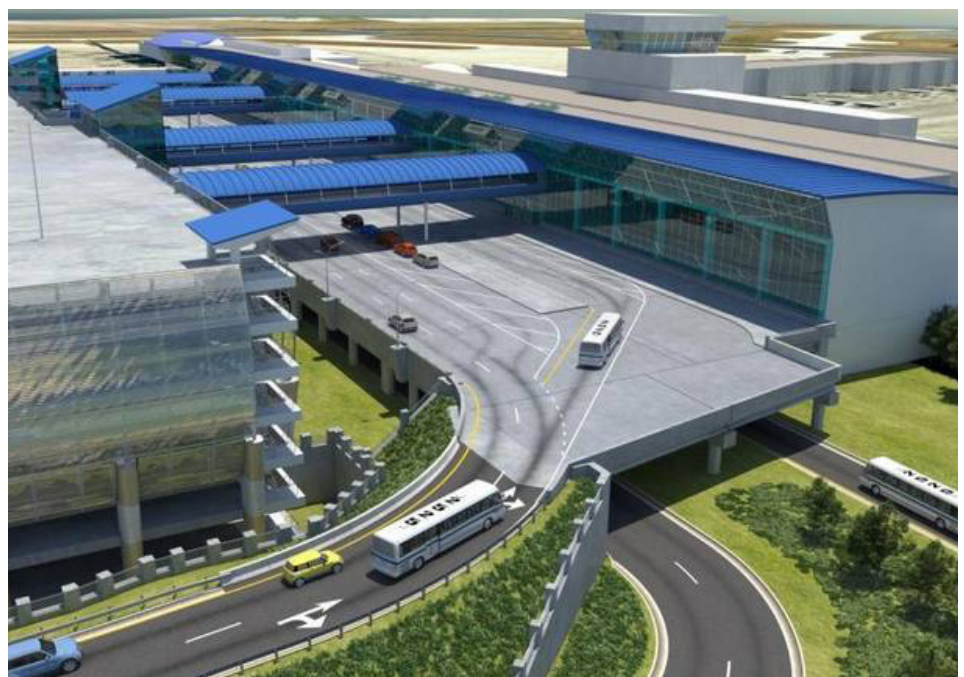
HIGHLIGHTS

- + Terminal enhancements and expansion project
- + Arora is responsible for providing all Special Systems design and engineering

Charlotte Douglas International Airport is undergoing several critical improvements to its infrastructure, including a new terminal roadway, expanded terminal, a fourth parallel runway, a new concourse, and a new control tower.

Arora is part of the design team tasked with expanding the existing terminal and lobby, which has been in use since 1982. The expansion will significantly enhance the existing terminal interiors and extend the terminal area by adding an additional 90 feet of depth to the building. The additional space will provide more room for passengers checking in and redesigned security checkpoints in larger, more efficient, configurations. The project also includes bridges and tunnels for pedestrians connecting the hourly deck and car rental agencies to the terminal so passengers can access them without crossing the road.

Arora is responsible for all special systems design and engineering services including access control, CCTV, passenger processing systems, security checkpoint design, duress, public address, voice/data, network design, Wi-Fi/DAS and passenger information systems including passenger analytics. CCTV and security systems design includes head end upgrades and expansions to support new technology as well as modifications to the head end monitoring hardware.



MASSACHUSETTS PORT AUTHORITY

Terminal E Enhancements

Logan International Airport, Boston, MA

PROJECT DETAILS

CLIENT

AECOM (Prime Consultant)
Terry Rookard, RA
Vice President/Principal Architect
66 Long Wharf, 5th Floor
Boston, MA 02110
terry.rookard@aecom.com
617-371-4493

CONSTRUCTION

\$90,000,000 (Est.)

PROJECT START

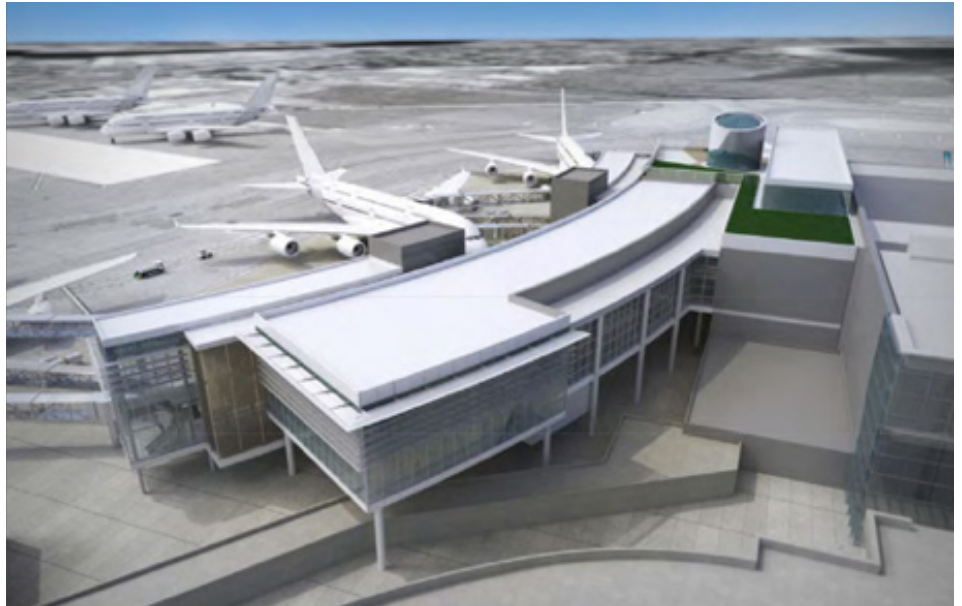
2014

PROJECT COMPLETION

2017

HIGHLIGHTS

- + Modernization to accommodate A380 aircraft
- + Sustainable design to help achieve LEED Gold
- + Project using LEAN Planning



Arora provided full MEP, fire/life safety, and special systems engineering services for the addition of approximately 95,000 SF within Terminal E as well as the modernization of existing areas of the terminal. The completed renovation provides three new A380 Gates with dual passenger boarding bridges for expedited two-level boarding, automated aircraft docking guidance systems (ADGS) with an integrated ramp information display system (RIDS), full capacity 400Hz and pre-conditioned air ground support systems, addition of departure level holding rooms and arrivals level de-boarding areas, new concession spaces, and other support spaces. The existing terminal modifications include modernization upgrades to the GSE equipment at the 10 existing gates to accommodate an expanded aircraft fleet mix and optimized operations with the addition of ADGS and RIDS, a security checkpoint expansion as well as modernization of the arrivals area. The project has been charged with including design for technology expected to echo the spirit of innovation in the City of Boston and surrounding areas.

SCOPE OF WORK INCLUDED:

Mechanical systems included new HVAC systems and modifications to the existing HVAC systems to accommodate the new loads. Plumbing systems consisted of new rain leaders, multiple new men's and women's restroom groups, and extensions of sanitary, sanitary vent, and domestic water services for future connection by Club level tenants. Electrical design consisted of a new substation as well as new electrical rooms. >>

CLIENT Terminal E Enhancements

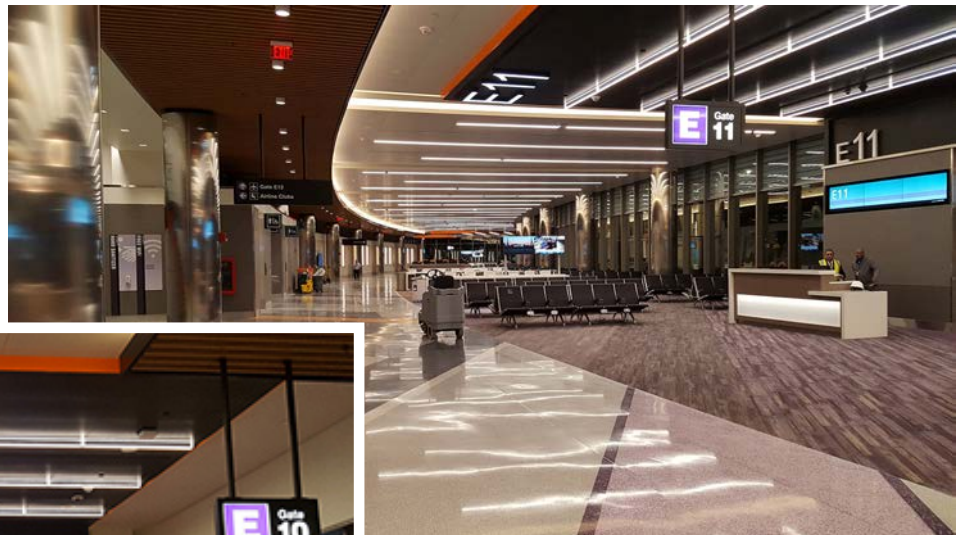
Logan International Airport,
Boston, MA

<< Special systems engineering services included: public address system, universal cabling distribution system, voice/data network, passenger information systems. RIDS / gate docking systems, master clock, infrastructure for boarding, and infrastructure for tenant spaces.

Fire protection/life safety systems included: sprinkler systems, fire pumps, incoming fire service/available water supply, standpipes, critical asset protection, fire alarms, mass notification systems, smoke management, fire/smoke dampers, passive and active fire/smoke barriers, and egress paths, illumination, and signage.

In order to meet the sustainability goals of MASSPORT and the goal of LEED Gold certification, the HVAC, plumbing and electrical systems were designed with high efficiency equipment. The HVAC system was modeled to use district heating and cooling system that will serve high efficiency air handling equipment. The plumbing systems for the new building addition was designed to minimize the use of domestic water and reduce the energy used for generating domestic hot water.

Low flow plumbing fixtures were used in restrooms to reduce the domestic water usage. Electrical systems employed lighting fixtures such as light emitting diode (LED) and lighting control systems to reduce the energy usage. The lighting control system used day lighting strategies that reduce the output of lighting fixtures if the outdoor lighting is sufficient to maintain the desired lighting levels inside the building.



METROPOLITAN WASHINGTON AIRPORTS AUTHORITY

Terminal B/C Long-Term Redevelopment Plan

Ronald Reagan National Airport, Washington, DC

PROJECT DETAILS

CLIENT

AIR Alliance Joint Venture
Robert J. Kleinman
Vice President – Aviation
3101 Wilson Boulevard, Suite 700
Arlington, VA 22201
robert.kleinman@aecom.com
703-399-3914

CONSTRUCTION

Varies by project

PROJECT START

2015

PROJECT COMPLETION

2020

HIGHLIGHTS

- + Multi-year, multi-task program for upgrades at DCA
- + Relocation of Corporate Offices
- + New North Concourse
- + New Secure National Hall

The Metropolitan Washington Airports Authority (MWAA or the Authority) procured professional engineering services for on-call planning, design and construction projects at Ronald Reagan Washington National Airport (DCA). This program is a multi-year, multi-task A/E Task Order Service for Terminal B/C at Reagan National. The Program objective is to centralize TSA operations for passengers and secure and expand the existing Terminal B/C that provides equitable and efficient passenger level of services. The long-term redevelopment will complement the on-going near-term rehabilitation efforts and lead to a full facility program.

PROJECTS INCLUDE:

- + Relocation of the Airport Corporate Offices to Historic Terminal A: Consisted of the assessment, preliminary design, report, and cost estimate for the Terminal A alterations and fit-out for authority corporate offices. Provided full MEP services.
- + A New North Concourse (NNC): Project consists of an addition to Terminal B/C to facilitate expanded airline operations with 14 new gates, several concessions spaces and airport operations. The project adds approximately 200,000 SF to DCA. Provided Full Electrical, Plumbing and Fire Life Safety.
- + A new Secure National Hall (SNH): Project aims to relocate three (3) individual TSA screening operations into a centrally located space while securing the existing concourse, approximately 110,000 SF of new structures added to DCA. Provided Plumbing and Fire Life Safety services.
- + Construction Administration services for the NNC and SNH.

Arora is part of the joint venture team identified as AIR Alliance and comprised of AECOM and PGAL. Our overall scope of services for AIR Alliance include HVAC, plumbing, electrical, fire alarm and fire protection, and are defined on a task-by-task basis.

Photo courtesy of MWAA



PORT AUTHORITY OF NEW YORK AND NEW JERSEY

Central Terminal Building

LaGuardia Airport, New York, NY

PROJECT DETAILS

CLIENT

HOK
Jeannette Segal, LEED® AP
Senior Associate, Senior Project
Manager
5 Bryant Park
1065 Avenue of the Americas
6th Floor
New York, NY 10018 USA
jeannette.segal@hok.com
(212) 981-7301

CONSTRUCTION

\$4,000,000,000

PROJECT START

2015

PROJECT COMPLETION

2020 (Est.)

HIGHLIGHTS

- + P3 for 1.5 Million Square Foot Terminal
- + Fire alarm and suppression complete design scope
- + PS, Design Build Model

Arora is providing engineering services for the LGA CTB project to the P3 team of Vantage/HOK/PB/Skanska and others. This scope is related to the Terminal Building portion of the project, which consists of the Terminal Headhouse, Concourses A and B, West Garage Connector, Portal Building, and Central Heating and Refrigeration Plant (CHRP). Arora is providing fire and life safety engineering services as a subconsultant to the LaGuardia Gateway Partners JV Team with HOK as the lead designer. This project is intended to follow the Design-Build procurement method.

The new terminal will be four stories in height and approximately 1,500,000 square feet in area, with approximately 35 gates. The majority of the space in the CTB will be classified as Assembly due to the larger occupancy loads and include hold rooms, screening areas, restaurants, airline clubs, baggage claim areas, and arrival check-in areas. The remaining uses will include: Business occupancies for offices, conference spaces with lower occupancy loads (i.e. not Assembly) and airport operations; Mercantile Occupancies for retail spaces; and Storage for miscellaneous storage and baggage handling areas.

SCOPE OF WORK INCLUDED:

Fire Protection Scope:

Arora will provide designs for the CTB to be a fully sprinklered building and will consist of a variety of protection systems due to the many hazards and conditions >>



PORT AUTHORITY OF
NEW YORK AND NEW JERSEY

Central Terminal Building

LaGuardia Airport
New York, NY

<< present. There will be two, dual connections for the fire protection systems. One dual system will be used for the sprinkler systems. Electrical and Mechanical rooms will be protected. All baggage and handling areas and other inaccessible areas such as above and below the conveying systems will also be protected, and will include gaseous type suppression systems (eg. FM 200) for the control and data rooms, as well as deluge systems for protecting areas such as openings in fire resistance rated walls and along exterior glazed walls to protect the bridges and connectors.

Fire Alarm Scope:

Arora is providing a comprehensive fire alarm and detection system throughout the CTB. The systems will include control panels, sub panels, annunciators and associated equipment, wire and conduit to provide a fully addressable fire alarm system. Arora will layout all smoke detectors, heat detectors, duct smoke detectors, pull stations, monitor modules, relay modules, horn, strobes and all other field devices pertaining to the fire alarm system. The system will be multi-faceted and will interconnect with the Fire/Life Safety, HVAC, Smoke Management, Smoke Purge Systems, Elevator Recall, Escalator, Baggage Conveying System, and Atrium Smoke Control.

The supervised fire alarm signal system will be a pre-signal system and incorporate an emergency voice/communications system in accordance with NFPA 72. This system will be designed for intelligibility throughout the concourses and hold rooms. Visual notification devices will also be provided throughout. The system design will be a Positive Alarm Sequence in accordance with NFPA 72 to minimize false alarms and the evacuation of occupants in and out of secure spaces. This sequence, with specific requirements, allows for an initial investigation prior to evacuation the building. The fire alarm system will tie into the existing PANYNJ fire optic ring and will provide notification to the PANYNJ Wide Area Network at each MDF demarcation.

Special Systems Scope:

Design peer reviews for the following systems:

- + Structured Cabling
- + Network (LAN&PAWANET)
- + Airport Operational Systems (AODB, AOS, EVIDS, Etc.)
- + Security
- + Public Address

*Aerial view of LaGuardia Airport
By Patrick Handrigan / Wikipedia*



CITY OF PHILADELPHIA, DIVISION OF AVIATION

Terminal F Hub Expansion

Philadelphia International Airport, Philadelphia, PA

PROJECT DETAILS

CLIENT

City of Philadelphia
Division of Aviation
Jim Jones, PE
Project Manager
International Plaza II, Suite 540
Philadelphia, PA 19113
james_t.jones@phl.org
215-937-6229

CONSTRUCTION

\$150,000,000

PROJECT START

2008

PROJECT COMPLETION

2013 (Hub)
2015 (Bag claim & ticketing)

HIGHLIGHTS

- + Project included 86,000 SF of new floor space and a baggage claim building
- + Provided MEP, fire protection, and security/special systems engineering
- + Responsible for construction administration support and inter-agency coordination



Arora Engineers, Inc. provided design for the mechanical, plumbing, fire protection, fire detection, electrical, special systems, and security engineering services for an expansion of Terminal F at the Philadelphia International Airport. Improvements involved approximately 88,400 SF of new floor space, a new baggage claim building, additions and modifications to the existing building, new architectural finishes, and systems upgrades. Terminal F has three concourses connected by a central hub, 38 gate positions, a ticketing building, a baggage claim, and a skybridge leading to the parking structure.

SCOPE OF WORK INCLUDED:

- + **Electrical:** Power distribution; lighting design and controls; power ductbank design; motor control panel; substation modification and analysis; concession space low voltage power.
- + **Mechanical:** Study of future cooling and heating capacity; satellite thermal plant expansion systems, including pumps and pipelines; domestic water piping; sanitary and stormwater design; gas piping modifications required.
- + **Fire/Life Safety:** code review; fire alarm and detection system; clean agent suppression (Fm 200 or other); fire sprinkler systems (wet, dry, pre-action); hydrant and hose reel systems; fire egress interfaces.
- + **Special Systems/Security:** Multi-use flight information displays; visual paging advertising/wayfinding; network architecture (Mac minis, >>

CITY OF PHILADELPHIA,
DIVISION OF AVIATION

Terminal F Hub Expansion

Philadelphia International
Airport, Philadelphia, PA

<< cat 6 Cabling, upgrade G4 Platform); horizontal structured cabling design; access control and intrusion detection; access control doors; CCTV; digital video recording; TACS; ambient noise sensing and automatic compensation; amplification of Live Speech announcements originating at microphone stations; UCDS; and MDF/IDF analysis and design.

Arora also provided construction administration support and inter-agency coordination. With this expansion, the airport hopes to create a better passenger experience and generate additional concession sales by expanding available space and improving retail options.



SOUTH JERSEY TRANSPORTATION AUTHORITY

Terminal Expansion and Mini - FIS

Atlantic City International Airport, Egg Harbor Township, NJ

PROJECT DETAILS

CLIENT

South Jersey Transportation
Authority
Jeff Sabla, Project Manager
Route 54 and Trooper Lane
Hammonton, NJ 08037
jsabla@sjta.com
609-561-6643

CONSTRUCTION

\$30,000,000

PROJECT START

2009

PROJECT COMPLETION

2012

HIGHLIGHTS

- + Terminal expansion will allow ACY to handle international flights and added capacity for domestic travel
- + Fire suppression included clean agent systems to protect critical systems
- + Coordinated with local emergency responders concerning fire department connections

Arora prepared preliminary and final designs for the ACY Terminal Expansion and Mini FIS project which, through the addition of customs and border protection facilities, provide SJTA the opportunity to accept international arrival and departure flights. The addition of four new passenger gates and expanded holdroom and baggage claim areas greatly enhance the airport's domestic passenger operations as well.

SCOPE OF WORK INCLUDED:

Fire suppression design included an extension and re-configurations of the existing fire main/water supply, new electric fire pump, and water based sprinkler protection throughout the building. Clean agent suppression was also design for highly sensitive areas.

The system was designed in accordance with secure/non-secure areas and special attention was made to coordinate with the fire alarm design and its specific sequence of operations. Extensive coordination also occurred with the emergency responders for fire department connection/siamese locations.



CITY OF PORTLAND

Terminal Improvements

Portland International Jetport, Portland, ME

PROJECT DETAILS

CLIENT

City of Portland
Portland International Jetport
Paul Bradbury, PE,
Airport Director
1001 Westbrook Street
Portland, ME 04102
phb@portlandmaine.gov
207-756-8029

CONSTRUCTION

\$60,000,000

PROJECT START

2007

PROJECT COMPLETION

2012

HIGHLIGHTS

- + Multi-User Flight Information Display (MUFID) and digital signage systems
- + Security aspects included CCTV and access control systems
- + 285 new CCTV Cameras and head end equipment
- + Interfaced new designs with existing control and command systems

Portland International Jetport (PWM) is the primary air transportation gateway for southeastern Maine. PWM has a bi-level terminal, two runways and 11 gates. It is classified as a primary commercial service small-hub airport. As passengers increasingly flock to smaller airports, efforts to accommodate increased ridership have become a top priority for the City of Portland. A new addition, a parking garage, and other improvements were necessary. Arora provided special systems and fire protection design services for the new addition, parking garage, and other facility improvements.

SCOPE OF WORK INCLUDED:

The terminal expansion and associated improvements included approximately 165,000 SF of new floor space linking to the existing facility with a connection to the newly constructed parking garage. Arora's scope of work entailed MUFIDS and digital signage, CCTV, access control, structured cabling, and main/intermediate distribution frame (M/IDF) rooms.

The design also included systems to be deployed in the public terminal areas such as flight information display systems, structured cabling/infrastructure, access control, fire alarm, and CCTV. Arora's design included the required storage calculations, equipment design and specifications for all new CCTV head end infrastructure as well as the required head end programming requirements. Arora's design also included all head end expansion requirements and equipment design for access control, MUFIDS and common use check in devices. Arora is also designing back-of-house systems (TSA spaces, baggage areas, offices). New and updated systems will interface with control and command systems in a new Operations Control Center (OCC).



TERMINAL D – E EXPANSION AND MODERNIZATION, PHASE I, II, III

Construction / Program Management Services

Philadelphia International Airport

PROJECT DETAILS

CLIENT

Gilbane Building Company
William A. Carter
Sr. Project Executive
100 Penn Square East Suite 1040
Philadelphia, PA 19107
Office: 267 256 4500
Cellular: 201 390 0834

CONSTRUCTION

\$300,000,000

PROJECT START

2007 - 2008

PROJECT COMPLETION

2015

HIGHLIGHTS

- + Program management
- + Construction management and inspection
- + Project cost estimating and coordination

Arora provided construction management for Phase I, II, & III of the Terminal D-E Expansion and Modernization at the Philadelphia International Airport. The project consisted of a new multi-level connector building between Terminals D and E, a 50,000 SF addition to the Terminal E concourse, and various renovations within the two terminals and the adjacent Thermal Plant. The project included a new 14-lane checkpoint, ticket lobby, in-line baggage system with eight EDS, deployment of 290 new VOIP phones, and the relocation of two main server rooms.

Arora provided onsite inspection, design, and design review services. Tasks entailed construction management (CM) and contractor quality control (C.Q.C.) services to ensure that electrical, plumbing and mechanical construction is being completed in accordance with the requirements of construction documents and applicable codes/standards on various projects.

SCOPE OF WORK INCLUDED:

- + Program management
- + Construction management and inspection
- + Project logistics
- + Cost estimating
- + Project coordination
- + Representation at stakeholder meetings
- + Project close out
- + Assistance in the management of tenant projects



CITY OF PHILADELPHIA, DIVISION OF AVIATION

Terminal A West Project/Construction Management

Philadelphia International Airport, Philadelphia, PA

PROJECT DETAILS

CLIENT

City of Philadelphia
Division of Aviation
Jim Jones, PE
Project Manager
International Plaza II, Suite 540
Philadelphia, PA 19113
james_t.jones@phl.org
215-937-6229

CONSTRUCTION

\$750,000,000

PROJECT START

1998

PROJECT COMPLETION

2004

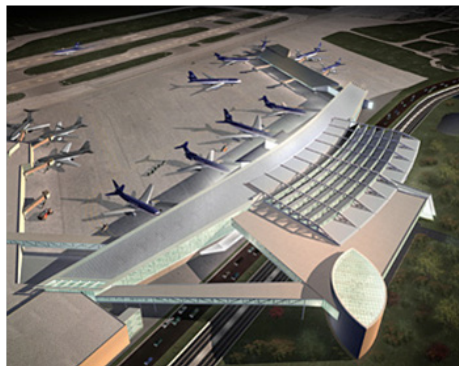
HIGHLIGHTS

- + 850,000 SF facility with 13 new international gates
- + Arora tasked with project management oversight of special systems construction
- + Systems included access control, surveillance, fire protection, terminal announcement, flight information displays, and baggage screening

The impressive \$500 million terminal is a four-level, 850,000 SF facility with 13 new international gates, 26,000 SF of concession space, expanded federal inspection facilities, and exciting original artwork. Arora's project responsibilities included oversight and project management for new special systems construction involving security access and surveillance, universal cabling distribution system, fire alarm, specialty hazard systems, terminal announcement control systems (TACS), multi-user flight information display systems (MUFIDS), specialty power distribution systems, baggage information display systems, and home land security.

SCOPE OF WORK INCLUDED:

- + CM of supply and return modifications affected by new baggage belt mainline locations
- + CM of HVAC needed to provide optimum temperature for EDS machines as required
- + PLC logic coordination and shutdown of baggage doors based on addressable smoke
- + Coordination with Tinicum, TSA, and DOA SST
- + Access control and intrusion will be designed for all AOA boundary doors in accordance with TSA 49CFR and the DOA SST department
- + Integration of access control and baggage PLC'S start circuit
- + Modifications to existing access control doors affected by location of baggage belt
- + Integration with EDS lockout panel in Sector 23 Control Room
- + Access control back of house and public carousel coordination with baggage PLC >>





CITY OF PHILADELPHIA
DIVISION OF AVIATION

Terminal A
West Project/
Construction
Management

Philadelphia International
Airport, Philadelphia, PA

<<

- + Assess multiplexer assignments and door hardware requirements
- + Designed of new and relocated CCTV equipment with DOA SST standard
- + Provided digital recording details for TSA reconciliation
- + Designed BIDS inputs Burr Brown Tugnamn Keypads and BIDS/MUFIDS network architecture
- + Updated BPS 8600; core and 2000 distribution switches in accordance with the MUFIDS Phase II design
- + Designed structured cabling and horizontal station cabling for both voice and data

Rethinking Infrastructure®



CONTACT:

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