Innovative Design and Energy Efficiency

Krishna P. Singh Technology Campus

Presented to:

aee
The Association of Energy Engineers
Greater Philadelphia Chapter
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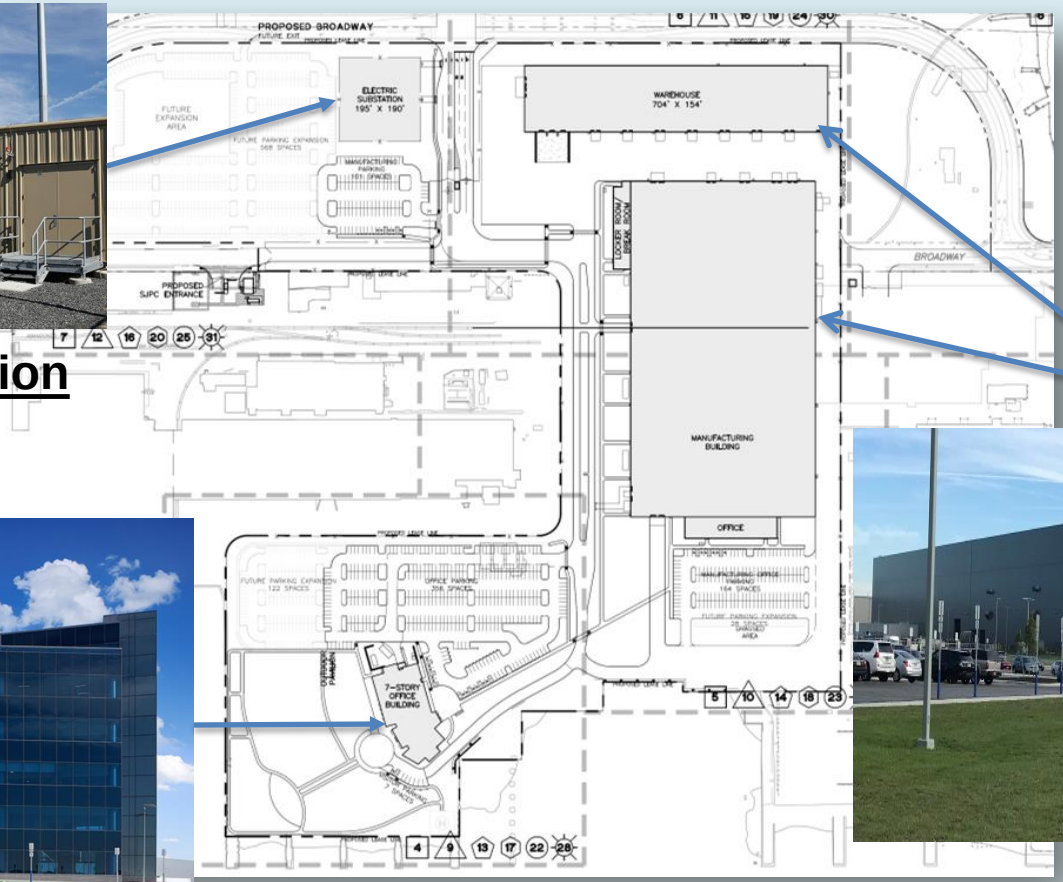
CONCORD ENGINEERING

Campus Overview

69 KV Substation



Office Building

Manufacturing Building & Warehouse

Campus Overview

- **69 KV Substation**
  - ✓ Ring Bus Arrangement with (4) 69 KV Breakers and Disconnects
  - ✓ Full Redundancy via (2) Utility Feeds
  - ✓ Capable of 7MW (8.3MVA) of Demand Load
  - ✓ Redundant 69 KV – 13.8 KV Transformers
  - ✓ Double-ended 13.8 KV Switchgear supplies All Buildings
  - ✓ 69 KV Relay and Control House
  - ✓ Energized on October 2016

Campus Overview

- **Holtec Office Building**
  - ✓ 150,000 SF, 7-Story Structure
  - ✓ Rooftop Air-Handling Units with Zoned VAV Air Distribution System
  - ✓ High Efficiency Chilled Water System with Optimization Sequences and Variable-Primary Pumping
  - ✓ High Efficiency, Condensing Boiler System with Aggressive OA Reset
  - ✓ Low Water Consumption Plumbing Fixtures
  - ✓ 13.8 KV feeder to 480V/3PH Transformer
  - ✓ 450 KW Diesel Generator
  - ✓ LED Lighting with Daylighting and Vacancy Controls

Campus Overview

- **Holtec Manufacturing**
  - ✓ 355,000 SF inclusive of 20,000 SF of Support Spaces
  - ✓ Rooftop Air-Handling Units with Zoned VAV Air Distribution System for Office and Cafeteria Areas
  - ✓ Direct-fired, Make-up Air System and High Efficiency, Gas-fired Radiant Heaters for Manufacturing Area
  - ✓ Low Water Consumption Plumbing Fixtures
  - ✓ (2) 13.8 KV feeders to (2) 480V/3PH Transformers
  - ✓ 150 KW Diesel Generator
  - ✓ LED Lighting with Occupancy Controls
  - ✓ Campus Dedicated Fire Pump Loop serving all Buildings

Campus Overview

- **Holtec Warehouse**
  - ✓ 55,000 SF
  - ✓ Direct-fired, Make-up Air System
  - ✓ High Efficiency, Gas-fired Radiant Heaters
  - ✓ Low Water Consumption Plumbing Fixtures
  - ✓ 13.8 KV feeder to 480V/3PH Transformer
  - ✓ 50 KW Diesel Generator
  - ✓ LED Lighting with Occupancy Controls

Campus LEED Overview

- **LEED-NC Version 2009**
- **Campus Certification and Individual Buildings**
  - ✓ Office Building
  - ✓ Manufacturing Building
  - ✓ Warehouse
- **Follows Standard LEED Submission and Protocols**
  - ✓ Sustainable Sites
  - ✓ Water Efficiency
  - ✓ Energy & Atmosphere
  - ✓ Materials & Resources
  - ✓ Indoor Environmental Quality
  - ✓ Innovations and Design Process
  - ✓ Regional Priority Credits

Campus LEED Highlights

- **Holtec Office Building**
  - ✓ WEp1: Water Use Reduction; 20% Reduction
  - ✓ WEc1: Water Efficient Landscaping
  - ✓ EAc1: Optimize Energy Performance
  - ✓ EAc2: On Site Renewable Energy
  - ✓ EAc3: Enhanced Commissioning
  - ✓ EAc4: Enhanced Refrigerant Management
  - ✓ IEQc6.1: Controllability of Systems – Lighting
  - ✓ IEQc7.1: Thermal Comfort Design

Campus LEED Highlights

- **Manufacturing Building**
  - ✓ WEc1: Water Efficient Landscaping
  - ✓ WEc3: Water Use Reduction ; 34% Reduction
  - ✓ EAc1: Optimize Energy Performance
  - ✓ EAc2: On Site Renewable Energy
  - ✓ EAc3: Enhanced Commissioning
  - ✓ EAc4: Enhanced Refrigerant Management

Campus LEED Highlights

- **Warehouse**
  - ✓ WEc1: Water Efficient Landscaping
  - ✓ WEc3: Water Use Reduction ; 33% Reduction
  - ✓ EAc1: Optimize Energy Performance
  - ✓ EAc2: On Site Renewable Energy
  - ✓ EAc3: Enhanced Commissioning
  - ✓ IEQc2: Increased Ventilation
  - ✓ IEQc6.1: Controllability of Systems – Lighting

Campus LEED Results & Energy Impact

- **LEED-NC Version 2009 Results**

Office Building **63 Credits (Gold)**	
Manufacturing Building **60 Credits (Gold)**	
Warehouse **60 Credits (Gold)**	

THE CAMPUS IS LEED-NC GOLD!

Questions and Answers

- **Contact:**

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