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Customer Information

Customer Name	First Energy
Contact Person	Des Neary
Contact Email	dneary@structuretone.com
Contact Phone	N/A
Organization	Structure Tone (NY)

Project Information

Project Name	First Energy-Dover Richboynton Service Center HVAC Upgrades
Location	13 Richboynton Road, Dover, NJ 07801
Start Date	2025-05-15
Completion Date	2025-06-04
Budget	N/A
Scope	HVAC Systems Upgrades
Project ID	f0eb16d2-bbf8-45ba-b9fb-1b57adcaf1b7
Project URL	BuildVision Project Link
ProjectSize	5000 sq. ft.
BidStatus	BuildingConnected Lead
ContractType	N/A
RequestType	Proposal
RfisDue	2025-05-22
DateInvited	2025-05-15

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Date: 2025-05-15

Project Equipment

Dedicated Outdoor-Air Units

Equipment Tag	Manufacturer	Model
DOAS-1-1	AAON	RQA-002

Notes

Provides dedicated outdoor air ventilation to the facility

Split System Air Conditioners

Equipment Tag	Manufacturer	Model
ACCU-1-1	Mitsubishi Electric (Including Trane Products)	SUZ-KA12NAHZ
FCU-1-1	Mitsubishi Electric (Including Trane Products)	SLZ-KF12NA1
FCU-2-3	Mitsubishi Electric (Including Trane Products)	SLZ-KF12NA1

Notes

Provides cooling for specific zones in the building

Water-Source Heat Pumps

Equipment Tag	Manufacturer	Model
ACCU-2-1	Mitsubishi Electric (Including Trane Products)	NTXMSM60A182BA
ACCU-3-1	Mitsubishi Electric (Including Trane Products)	TRUZH0301KA0ONA
ACCU-4-1	Mitsubishi Electric (Including Trane Products)	TRUZH0361KA0ONA

Notes

Provides efficient heating and cooling using water source technology

Fan Coil Units

Equipment Tag	Manufacturer	Model
FCU-2-1	Mitsubishi Electric (Including Trane Products)	SLZ-KF15NA1
FCU-3-1	Mitsubishi Electric (Including Trane Products)	TPEADA0301AAB0A
FCU-4-1	Mitsubishi Electric (Including Trane Products)	TPEADA0361AA70A

Notes

Provides conditioned air to various spaces in the facility

Variable Refrigerant Flow Systems

Equipment Tag	Manufacturer	Model
FCU-2-2	Mitsubishi Electric (Including Trane Products)	TPLA0A0241EA80A

Notes

Provides efficient, zoned comfort control

Packaged Rooftop Air-Conditioning Units

Equipment Tag	Manufacturer	Model
RTU-1-1	Trane	WHK060A3
RTU-2-1	Trane	WHK048A3

Notes

Provides primary HVAC to main building areas

HVAC Fans

Equipment Tag	Manufacturer	Model
EF-1-1	Greenheck	GB-140
EF-2-1	Greenheck	G-097-C
F-1	Loren Cook	30 XLW S
GEF-1-1	Greenheck	CUBE-180
GEF-2-1	Greenheck	CUBE-180

Notes

Provides ventilation and exhaust for various spaces

Suppliers

Dedicated Outdoor-Air Units

Manufacturer	Model	Representativ	Compatibility Notes	BoD
AAON	RQA-002	N/A	Basis of Design	**Yes**
AAON	RQA-002	Gil Bar Inc	Basis of Design	No
Daikin	Rebel	Daikin Representative	Compatible alternative with similar performance specifications	No

Split System Air Conditioners

Manufacturer	Model	Representativ	Compatibility Notes	BoD
Mitsubishi	Electric (Including Trane Products) SUZ-KA12NAHZ	N/A	Basis of Design	**Yes**
Mitsubishi Electric (Including Trane Products)	SUZ-KA12NAHZ	SRS Enterprises Inc.	Basis of Design	No
Daikin	RXS12LVJU	Daikin Representative	Compatible alternative with similar performance specifications	No

Water-Source Heat Pumps

Manufacturer	Model	Representativ	Compatibility Notes	BoD
Mitsubishi	Electric (Including Trane Products) NTXMSM60A1	N/A	Basis of Design	**Yes**

Mitsubishi Electric (Including Trane Products)	NTXMSM60A18SRA	SRS Enterprises Inc.	Basis of Design	No
ClimateMaster	TMW060	ClimateMaster Representative	Compatible alternative with similar performance specifications	No

Fan Coil Units

Manufacturer	Model	Representativ	Compatibility Notes	BoD
Mitsubishi	Electric (Including Trane Products) SLZ-KF15NA1	N/A	Basis of Design	**Yes**
Mitsubishi Electric (Including Trane Products)	SLZ-KF15NA1	SRS Enterprises Inc.	Basis of Design	No
Daikin	FXFQ15TVJU	Daikin Representative	Compatible alternative with similar performance specifications	No

Variable Refrigerant Flow Systems

Manufacturer	Model	Representativ	Compatibility Notes	BoD
Mitsubishi	Electric (Including Trane Products) TPLA0A0241E	N/A	Basis of Design	**Yes**
Mitsubishi Electric (Including Trane Products)	TPLA0A0241EASRA	SRS Enterprises Inc.	Basis of Design	No
LG	ARNU24GSCR4	LG Representative	Compatible alternative with similar performance specifications	No

Packaged Rooftop Air-Conditioning Units

Manufacturer	Model	Representativ	Compatibility Notes	BoD
Trane	WHK060A3	N/A	Basis of Design	**Yes**
Trane	WHK060A3	Trane Commercial Sales Office	Basis of Design	No
Carrier	48TC06	Carrier Representative	Compatible alternative with similar performance specifications	No

HVAC Fans

Manufacturer	Model	Representativ	Compatibility Notes	BoD
Greenheck	GB-140	N/A	Basis of Design	**Yes**
Greenheck	GB-140	ADE Systems Inc.	Basis of Design	No
Loren Cook	30 XLW S	Mechanical Technologies, LLC	Basis of Design for specific fan applications	No
Twin City Fan	BCRD	Twin City Fan Representative	Compatible alternative with similar performance specifications	No

Design Notes

Dedicated Outdoor Air System

Technical Observations:

- The DOAS unit provides dedicated ventilation air to the facility
- System is designed to handle required outdoor air volume for the building
- Includes energy recovery to improve efficiency

Concerns:

- Adequate access for maintenance must be ensured
- Integration with existing building systems needs careful coordination

Opportunities:

- Energy recovery can reduce operational costs
- Improved indoor air quality through dedicated outdoor air system

Split Systems and Heat Pumps

Technical Observations:

- Mitsubishi systems provide efficient heating and cooling
- Multiple zones allow for flexible temperature control
- Water-source heat pumps offer efficient operation

Concerns:

- Proper drainage for condensate must be ensured
- Coordination required for refrigerant piping and electrical connections

Opportunities:

- High-efficiency systems reduce energy consumption
- Zoned control improves occupant comfort

Rooftop Units

Technical Observations:

- Trane units provide primary HVAC for main building areas
- Packaged systems simplify installation
- Sized appropriately for building loads

Concerns:

- Roof structure must be verified for additional loading

- Ductwork transitions from existing systems need coordination

Opportunities:

- High-efficiency rooftop units improve energy performance
- Simplified maintenance compared to split systems

Exhaust and Ventilation Systems

Technical Observations:

- Mix of Greenheck and Loren Cook fans provide exhaust and ventilation
- Various models selected based on specific application requirements
- Systems designed to meet building code ventilation requirements

Concerns:

- Coordination with architectural elements for exhaust outlets
- Balance of supply and exhaust air for proper building pressurization

Opportunities:

- Improved indoor air quality through proper ventilation
- Energy-efficient fan selections reduce operational costs

BuildVision Recommendations

1. Implement BACnet integration for all HVAC equipment

Rationale: Unified control system will improve operational efficiency and enable advanced scheduling and monitoring
Estimated Impact: 10-15% reduction in energy usage through optimized control
Implementation: Ensure all equipment has BACnet compatibility and coordinate with building automation contractor
Priority: High

2. Add variable frequency drives (VFDs) to all applicable fan motors

Rationale: VFDs allow for modulation of fan speed based on demand, reducing energy consumption during partial load conditions
Estimated Impact: 15-20% reduction in fan energy usage
Implementation: Specify VFDs compatible with motor sizes and control system
Priority: Medium

3. Consider increasing MERV rating of filters

Rationale: Higher MERV rating filters improve indoor air quality by capturing smaller particulates
Estimated Impact: Improved indoor air quality and potential reduction in airborne contaminants
Implementation: Verify equipment compatibility with higher pressure drop of improved filters
Priority: Medium

4. Implement duct leakage testing

Rationale: Ensuring minimal duct leakage improves system efficiency and reduces energy waste
Estimated Impact: 5-10% improvement in system efficiency
Implementation: Specify duct leakage testing in accordance with SMACNA standards
Priority: Medium

5. Consider adding UV-C lamps in air handlers

Rationale: UV-C technology can reduce microbial growth on coils and improve indoor air quality
Estimated Impact: Reduced maintenance costs and improved indoor air quality
Implementation: Add UV-C lamps to air handling units, particularly the DOAS and rooftop units
Priority: Low

Conclusion

Key Findings

- Equipment selections are appropriate for the application and facility requirements
- Mixture of split systems, packaged units, and dedicated outdoor air systems provides flexibility and efficiency
- Energy-efficient equipment will reduce operational costs compared to existing systems
- Alternative manufacturers are available for all specified equipment if needed
- Integration of control systems will be critical for optimal performance

Highest Priority Actions

- Implement BACnet integration for all HVAC equipment
- Verify structural capacity for rooftop equipment
- Ensure proper coordination between new and existing systems
- Conduct commissioning to verify proper system operation

Summary

The First Energy-Dover Richboynton Service Center HVAC Upgrades project involves comprehensive replacement and upgrading of HVAC systems throughout the facility. The selected equipment represents a good balance of efficiency, functionality, and cost-effectiveness. The specified Mitsubishi, Trane, AAON, Greenheck, and Loren Cook equipment will provide reliable operation with modern, energy-efficient technology. Implementing the BuildVision recommendations will further enhance system performance and occupant comfort.

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