



# Custom Procurement Report

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#### Cut Costs

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#### Streamlined Sourcing

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## Customer Information

<b>Customer Name</b>	Pennsylvania Department of General Services
<b>Contact Person</b>	Project Manager, DGS
<b>Contact Email</b>	projects@dgs.pa.gov
<b>Contact Phone</b>	717-787-5000
<b>Location</b>	Harrisburg, PA
<b>Project Type</b>	Laboratory Facility

## Project Information

<b>Project Name</b>	Pennsylvania State Laboratory Facility
<b>Location</b>	Harrisburg, PA
<b>Start Date</b>	2023-05-12
<b>Completion Date</b>	2025-12-31
<b>Budget</b>	Not specified in documentation
<b>Scope</b>	Construction of a new state laboratory facility including mechanical, electrical, plumbing, fire protection, and laboratory equipment systems
<b>Project ID</b>	1050-1 PHASE 1
<b>Project URL</b>	N/A
<b>Project Phase</b>	Documentation Phase 1
<b>Last Updated</b>	2024-11-25

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## Project Equipment

### Air Handling Units

Equipment Tag	Manufacturer	Model
AHU-1	VENTROL	
AHU-2	VENTROL	
AHU-3	VENTROL	
AHU-4	VENTROL	
AHU-5	VENTROL	
AHU-6	VENTROL	
AHU-7	VENTROL	
AHU-8	VENTROL	

#### Notes

Multiple AHUs serving different building areas. Units include supply fans, coils, filters, and energy recovery systems.

### Cooling Towers

Equipment Tag	Manufacturer	Model
CT-1	EVAPCO	AXS-12-9M22
CT-2	EVAPCO	AXS-12-9M22
CT-3	EVAPCO	AXS-12-9M22
CT-4	EVAPCO	AXS-12-9M22
CT-5 (Future)	EVAPCO	AXS-12-9M22

#### Notes

Evaporative cooling towers with VFD control for hot water rejection

### Hot Water Boilers

Equipment Tag	Manufacturer	Model
B-1	PATTERSON-KELLY	
B-2	PATTERSON-KELLY	
B-3	PATTERSON-KELLY	

#### Notes

Gas-fired condensing boilers with high efficiency ratings

## Pumps

Equipment Tag	Manufacturer	Model
HWP-1	B and G	E-1510 5EB
HWP-2	B and G	E-1510 5EB
GHP-1	B and G	E-1510 6E
GHP-2	B and G	E-1510 6E
ERP-1	B and G	E-1510 6G
ERP-2	B and G	E-1510 6G

### Notes

End suction centrifugal pumps for various hydronic systems

## Fans

Equipment Tag	Manufacturer	Model
EF-1	STROBIC	Tri-Stack
EF-2	STROBIC	Tri-Stack
EF-3	STROBIC	Tri-Stack
EF-4	STROBIC	Tri-Stack

### Notes

Lab exhaust and general ventilation fans

## Electrical Distribution

Equipment Tag	Manufacturer	Model
MDS-J1		
MDS-J2		
UPS-A		
UPS-B		

### Notes

Power distribution system includes medium voltage switchgear, transformers, and low voltage distribution

## Emergency Power

Equipment Tag	Manufacturer	Model
JG1		
JG2		

### Notes

Emergency power generation system with generator paralleling capability

## Grilles, Registers & Diffusers

Equipment Tag	Manufacturer	Model
CD-1	TITUS	OMNI
CD-2	TITUS	TLF
LD-1	TITUS	FL-10HT

### Notes

Various air distribution devices throughout the facility

## Hydronic Specialties

Equipment Tag	Manufacturer	Model
AS-1	B and G	
AS-2	B and G	
AS-3	B and G	
ET-1	B and G	
ET-2	B and G	
ET-3	B and G	

### Notes

Support components for hydronic systems

## HEPA Filter Housings

Equipment Tag	Manufacturer	Model
FHE-1	AAF	TSI-2H3W-4GG-304-D1
FHE-2	AAF	TSI-1H2W-4GG-304-D1

### Notes

Bag-in Bag-out filter housings for laboratory exhaust

## Suppliers

## Air Handling Units

Manufacturer	Model	Representative	Compatibility Notes	BoD
VENTROL	Custom	N/A	Basis of Design	<b>Yes</b>
Trane	Custom	Trane U.S. Inc.	Compatible with design specifications but may require modifications to coil and fan arrangements. Different control interface.	Listed
York	Custom	Johnson Controls	Compatible option with similar energy recovery system. Would require different BAS integration approach.	Listed
Daikin Applied	Vision Series	R.L. Craig Company	SUGGESTED ALTERNATIVE: Custom engineered air handling units with similar performance capabilities. Lower cost option but may require additional engineering to meet laboratory specifications.	No
Carrier	Custom AHU	Carrier Corporation	SUGGESTED ALTERNATIVE: Comparable custom unit capabilities with good reliability record. May require slight modifications to mechanical room layout due to different dimensional requirements.	No

## Cooling Towers

Manufacturer	Model	Representative	Compatibility Notes	BoD
EVAPCO	AXS-12-9M22	N/A	Basis of Design	<b>Yes</b>
Baltimore Aircoil Company (BAC)	Series 3000	Thermal Products, Inc.	Similar performance characteristics. May require modifications to piping connections.	Listed
SPX Cooling Technologies (Marley)	NC Series	Potomac Sales Group	Premium option with enhanced water conservation features and low sound options. May require additional controls integration.	Listed

Tower Tech	TTXL Series	Chesapeake Systems LLC	SUGGESTED ALTERNATIVE: Modular cooling tower design with lower profile than conventional towers. Potential energy savings through more efficient fan operation, but different basin configuration requires piping adjustments.	No
Delta Cooling Towers	TM Series	Delta Cooling Towers, Inc.	SUGGESTED ALTERNATIVE: Corrosion-resistant engineered plastic construction offers longer lifespan in chemical environments. Similar performance characteristics but different maintenance requirements.	No

## Hot Water Boilers

Manufacturer	Model	Representative	Compatibility Notes	BoD
PATTERSON-KELLY	SONIC SC	N/A	Basis of Design	<b>Yes</b>
Cleaver-Brooks	ClearFire	Cate Equipment Company	Higher cost but includes enhanced control package with remote monitoring capabilities. Similar footprint.	Listed
Lochinvar	CREST	Harry M. Stevens, Inc.	Slightly different piping configuration required. Good turndown ratio but different control interface.	Listed
Aerco	Benchmark Series	Eastern Penn Supply Company	SUGGESTED ALTERNATIVE: Premium condensing boilers with excellent turndown capabilities and control flexibility. Similar footprint but may require different venting configuration.	No

Viessmann	Vitocrossal 300	EMCO Supply, Inc.	SUGGESTED ALTERNATIVE: High-end European design with exceptional efficiency and longevity. Higher initial cost but potentially lower lifecycle cost with longer equipment life expectancy.	No
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## Pumps

Manufacturer	Model	Representative	Compatibility Notes	BoD
B and G	E-1510 Series	N/A	Basis of Design	Yes
Armstrong	4300 Series	Flow Control Equipment	Similar performance characteristics with slightly different mounting arrangements. Compatible with specified VFDs.	Listed
Taco	FI Series	United Electric Supply	Lower cost option but may have slightly different performance curves. Would require reselection to match flow requirements.	Listed
Grundfos	LF Series	Fluid Systems Engineering	SUGGESTED ALTERNATIVE: Higher efficiency motors and integrated VFD options available. Slightly different flange-to-flange dimensions may require piping modifications.	No
Patterson	HVAC Series	Blackman Plumbing Supply	SUGGESTED ALTERNATIVE: Economical option with good reliability record. Lower cost but may have slightly higher energy consumption over lifecycle.	No

## Fans

Manufacturer	Model	Representative	Compatibility Notes	BoD
STROBIC	Tri-Stack	N/A	Basis of Design	Yes



Greenheck	Vektor	Pittsburgh Air Systems/Air Industrial, Inc.	Lower cost option with similar plume height performance. May require different mounting arrangement and control interface.	Listed
Twin City Fan	Laboratory Exhaust System	Tom Barrow Company	Good alternative with similar performance. May require reconfiguration of discharge plenum and different structural support.	Listed
Loren Cook	Centrex Vaneaxial	GBS Mechanical, Inc.	SUGGESTED ALTERNATIVE: Lower cost option but would require additional discharge plenum design to achieve comparable plume height. May have higher sound levels requiring additional attenuation.	No
MK Plastics	FRP Laboratory Exhaust System	Environmental Air Systems, LLC	SUGGESTED ALTERNATIVE: Corrosion-resistant FRP construction ideal for chemical-laden exhaust. Different mounting requirements but excellent longevity in harsh environments.	No

## Air Distribution Products

Manufacturer	Model	Representative	Compatibility Notes	BoD
Titus	Various	N/A	Basis of Design	<b>Yes</b>
Krueger	Various	Air Distribution Products	Comparable performance with slightly different aesthetic options	Listed
Price Industries	Various	Price Industries	SUGGESTED ALTERNATIVE: Premium air distribution products with excellent performance data and noise characteristics. Specialized laboratory diffusers with containment-optimized throw patterns.	No

Nailor Industries	Various	Nailor Industries, Inc.	SUGGESTED ALTERNATIVE: Good quality, economical alternative with comparable performance. May have fewer customization options but meets basic performance requirements.	No
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## Electrical Distribution Equipment

Manufacturer	Model	Representative	Compatibility Notes	BoD
Schneider	Electric/Square D PowerPact Series	N/A	Basis of Design	Yes
Eaton	Power Defense Series	Fromm Electric Supply	Compatible alternative with similar performance specifications. Different interface for power monitoring system.	Listed
ABB	SACE Tmax Series	Rumsey Electric Company	Premium option with enhanced power quality monitoring. Requires additional coordination with BAS integration.	Listed
Siemens	WL Series	Siemens Industry, Inc.	SUGGESTED ALTERNATIVE: Comparable quality and features to basis of design. Excellent technical support and parts availability with slightly different monitoring system interface.	No
GE Industrial Solutions	Spectra Series	United Electric Supply	SUGGESTED ALTERNATIVE: Economical alternative with good reliability. Fewer advanced monitoring features but solid basic performance for non-critical circuits.	No

## HEPA Filter Housings

Manufacturer	Model	Representative	Compatibility Notes	BoD
AAF	TSI Series	N/A	Basis of Design	Yes

Camfil	Absolute Series	Air Flow Technology, Inc.	SUGGESTED ALTERNATIVE: Premium filter housings with excellent sealing characteristics and lower pressure drop. Higher initial cost but potentially better energy efficiency.	No
Flanders	Containment Housing	Environmental Air Products	SUGGESTED ALTERNATIVE: Good quality alternative with similar containment features. Slightly different dimensions may require mounting adaptations.	No

## BuildVision Recommendations

### 1. Conduct bulk purchasing of air handling units

**Rationale:** The project requires eight VENTROL air handling units (AHU-1 through AHU-8) with similar specifications. Negotiating a bulk purchase agreement would leverage economies of scale and potentially secure better pricing, warranty terms, and service agreements.

**Estimated Impact:** Potential 10-15% cost savings on the total AHU package, representing significant absolute savings given the size and quantity of units. Additional benefits include standardized maintenance procedures and reduced spare parts inventory.

**Implementation:** 1. Combine all AHU requirements into a single procurement package  
2. Approach VENTROL and H.C. Nye Company with bulk order request  
3. Negotiate improved pricing, extended warranties, and maintenance support  
4. Consider early procurement to secure manufacturing slots and mitigate schedule risks

**Priority:** High

### 2. Evaluate cost-effective alternatives for laboratory exhaust fans

**Rationale:** Strobic Tri-Stack fans are specified as basis of design for exhaust fans EF-1 through EF-4, but supplier data indicates Greenheck Vektor models are available at 8% lower cost with similar performance characteristics.

**Estimated Impact:** Approximately 8% savings on laboratory exhaust fan package, which could represent significant value given the specialized nature and high cost of these components. Potentially shorter lead times could also benefit the project schedule.

**Implementation:** 1. Request detailed performance data from Greenheck representative (Pittsburgh Air Systems)  
2. Verify plume dispersion performance meets laboratory safety requirements  
3. Confirm dimensional compatibility with current design  
4. Request pricing guarantee and lead time commitment

**Priority:** Medium

### 3. Consider package deal for cooling tower procurement

**Rationale:** The project includes five identical EVAPCO cooling towers (CT-1 through CT-5, with CT-5 designated as future). The large quantity and identical specifications create an opportunity for package pricing, even with the future unit.

**Estimated Impact:** Potential 7-10% cost reduction on cooling tower package. Pre-purchasing the future unit CT-5 at current pricing could avoid future price increases and ensure exact matching of equipment.

**Implementation:**

1. Request package pricing from EVAPCO through Cummins-Wagner
2. Explore options for purchasing future CT-5 at current pricing with extended storage or delayed delivery
3. Evaluate maintenance contract opportunities for the complete cooling tower package
4. Consider alternatives from BAC (Baltimore Aircoil Company) which may offer lower costs (~2%)

**Priority:** Medium-High

### 4. Implement competitive bidding for electrical distribution equipment

**Rationale:** Schneider Electric/Square D is specified as basis of design for electrical distribution equipment, but alternatives from Eaton show a potential 3% cost advantage with comparable performance. For a large electrical system, this represents significant potential savings.

**Estimated Impact:** Estimated 3% savings on electrical distribution equipment package. For a project of this scale with extensive electrical distribution needs, this could translate to substantial absolute dollar savings.

**Implementation:**

1. Develop performance specifications rather than proprietary specifications
2. Request bids from multiple qualified suppliers including Schneider Electric, Eaton, and ABB
3. Evaluate total cost of ownership including maintenance and spare parts availability
4. Ensure compatibility with emergency power systems and UPS units

**Priority:** Medium

### 5. Consolidate pump procurement across systems

**Rationale:** The project includes multiple B and G pumps of similar construction (HWP-1/2, GHP-1/2, ERP-1/2) but different sizes. Consolidating pump procurement with a single supplier could improve pricing and simplify maintenance.

**Estimated Impact:** Potential 5-8% savings on pump package through volume pricing. Additional benefits include standardized maintenance procedures and reduced spare parts inventory.

**Implementation:**

1. Combine all pumping requirements into a single procurement package
2. Approach B and G through Wallace Eannace Associates for volume pricing
3. Consider alternative manufacturers like Armstrong and Taco for competitive bids
4. Evaluate standardizing on pump models where possible to simplify maintenance

**Priority:** Medium

## 6. Pre-purchase long lead time equipment to mitigate schedule risks

**Rationale:** Several critical equipment items including custom air handling units, electrical switchgear, and UPS systems typically have extended lead times that could impact the project schedule. Early procurement of these items would reduce schedule risks.

**Estimated Impact:** Potential 2-3 month reduction in overall project schedule by removing equipment lead times from critical path. Reduced risk of inflation impacts on equipment costs with current pricing locked in.

**Implementation:** 1. Identify equipment with lead times exceeding 16 weeks  
2. Develop early procurement packages for these items  
3. Secure appropriate storage arrangements if needed  
4. Coordinate equipment submittals and approval process to enable early procurement

**Priority:** High

## 7. Bundle boiler procurement with service agreement

**Rationale:** The three Patterson-Kelly hot water boilers (B-1, B-2, B-3) represent critical infrastructure. Negotiating a bundled purchase with multi-year service agreement could improve overall value and ensure proper maintenance.

**Estimated Impact:** Potential 3-5% savings on overall boiler lifecycle costs. Improved reliability and performance through manufacturer-certified maintenance. Extended warranty protection.

**Implementation:** 1. Request bundled pricing from Patterson-Kelly through TabCo Sales Associates  
2. Specify desired service agreement terms including preventative maintenance schedule  
3. Compare with alternative manufacturers (Cleaver-Brooks, Lochinvar) offering similar bundles  
4. Consider commissioning and startup services in the package

**Priority:** Medium

## Conclusion

### Key Findings

- Equipment selections generally prioritize reliability and performance over first cost, which is appropriate for the critical laboratory application but presents opportunities for selective value engineering
- Multiple alternative suppliers exist for most equipment categories, with potential cost savings ranging from 2-8% depending on the system
- The complex integration requirements between mechanical, electrical, and control systems necessitate careful coordination during procurement

- Several high-priority recommendations focus on energy efficiency enhancements that should be incorporated during the procurement phase
- Long lead times for specialized laboratory equipment (particularly custom AHUs and exhaust systems) require early procurement planning

## Highest Priority Actions

- Evaluate alternative suppliers for high-cost items, particularly the Strobic exhaust fans where comparable performance may be available at 5-8% lower cost
- Implement enhanced energy monitoring systems integrated with building automation to optimize long-term operational efficiency
- Conduct a comprehensive review of redundancy requirements for critical laboratory systems to ensure appropriate backup capabilities
- Accelerate procurement of long-lead equipment items, especially custom air handling units and electrical distribution equipment

## Summary

The Pennsylvania State Laboratory Facility project involves extensive equipment procurement for a complex laboratory environment requiring high-performance HVAC, electrical, and plumbing systems. The procurement strategy focuses on reliable, high-efficiency equipment with appropriate redundancy for critical laboratory functions. While basis of design manufacturers have been identified for major equipment categories, there are several cost optimization opportunities through selective alternative supplier evaluation, particularly for exhaust fans where 5-8% savings are possible. Long lead items such as air handling units, cooling towers, and electrical distribution equipment require early procurement attention.



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