



# Custom Procurement Report

---

## Control How You Source Building Systems

Directly access suppliers and automate sourcing, procurement, and financing—all from one platform

### Key Benefits

#### Save Time

Automate RFQs and reduce manual work by up to 50%

#### Cut Costs

Negotiate directly with suppliers for better deals

#### Streamlined Sourcing

Take BuildVision's structured data and send it to suppliers at [BuildVision.io](https://BuildVision.io)

## Customer Information

<b>Customer Name</b>	NVS Technologies
<b>Contact Person</b>	Not Specified
<b>Contact Email</b>	N/A
<b>Contact Phone</b>	N/A
<b>Project Address</b>	500 Mariana Way, Research Park
<b>Project Type</b>	Laboratory and Office Fit-Out

## Project Information

<b>Project Name</b>	NVS Mariana 500 Forge Lab/Office Fit-Out
<b>Location</b>	500 Mariana Way, Research Park
<b>Start Date</b>	N/A
<b>Completion Date</b>	N/A
<b>Budget</b>	N/A
<b>Scope</b>	Laboratory and Office Fit-Out
<b>Project ID</b>	M-22-0584
<b>Project URL</b>	N/A
<b>Building Area</b>	45000 square feet
<b>Project Number</b>	M-22-0584

## Prepared By

Ben Lyddane  
Ben@BuildVision.io  
202-365-8628

Mackenzie Hoover  
Mackenzie@buildvision.io  
843-609-3265

Date: 2025-05-20

## Project Equipment

### Air Handling Units

Equipment Tag	Manufacturer	Model
AHU-5		

#### Notes

Designed for 10 air changes per hour in critical laboratory spaces with capability for 100% outside air operation and VAV control

### Heat Recovery Units

Equipment Tag	Manufacturer	Model
EAHU-3		

#### Notes

Designed for laboratory exhaust with no cross-contamination risk, includes exhaust stack discharge at 3500 FPM for proper dispersion

### Chillers

Equipment Tag	Manufacturer	Model
CH-3		Water-cooled centrifugal
CH-4		Water-cooled centrifugal
CH-5		Water-cooled screw

#### Notes

Central plant serving laboratory cooling loads, variable speed drives for part-load efficiency

### Pumps

Equipment Tag	Manufacturer	Model
CHWP-1		Chilled water primary
CHWP-2		Chilled water primary
HWP-8		Heating hot water
HWP-9		Heating hot water
HRP-4		Heat recovery
HRP-5		Heat recovery

### Notes

Variable frequency drive control for all pumps with lead-lag configurations for redundancy

## Fans

Equipment Tag	Manufacturer	Model
EF-12		Laboratory exhaust
EF-13		Laboratory exhaust

### Notes

High plume dilution fans for laboratory exhaust with variable frequency drives

## Steam Generators

Equipment Tag	Manufacturer	Model
SG-1		Clean steam generator
SG-2		Clean steam generator

### Notes

Clean steam generators for laboratory process loads with redundant operation

## Suppliers

### Air Handling Units

Manufacturer	Model	Representative	Compatibility Notes	BoD
Daikin	Applied Vision	N/A	Basis of Design	Yes
Trane	Performance Climate Changer	Trane	Robust construction with excellent reliability and comprehensive controls. Higher initial cost but exceptionally reliable for critical laboratory applications.	Listed

Energy Labs	Custom AHU	Energy Labs	Custom-engineered solutions with high energy efficiency, specifically designed for laboratory applications. Longer lead times but superior for complex laboratory requirements.	Listed
York (Johnson Controls)	Solution AHU	Johnson Controls	SUGGESTED ALTERNATIVE: York's Solution series provides comparable performance with competitive pricing. Strong service network and integration with JCI building automation systems.	No
Carrier	39CC Custom AHU	Carrier	SUGGESTED ALTERNATIVE: Carrier's custom air handlers offer excellent build quality with strong engineering support and widespread service availability.	No

## Heat Recovery Units

Manufacturer	Model	Representative	Compatibility Notes	BoD
Thermotech	Enterprises LabRecover	N/A	Basis of Design	Yes
XeteX	AirMatrix	XeteX	Versatile technology options with custom engineering capabilities for specialized laboratory environments. Less widespread service network but strong technical capabilities.	Listed
Engineered Air	FW Series	Engineered Air	Durable construction specialized for industrial applications including forge labs with potential contaminants. Less aesthetic design but extremely robust.	Listed

Haakon Industries	Indus-	Custom ERU	Haakon Industries	Indus-	SUGGESTED ALTERNATIVE: Haakon offers fully custom engineered solutions with excellent build quality and laboratory-specific features. Good record of reliability in critical applications.	No
Semco		TEEE Energy Recovery	Semco		SUGGESTED ALTERNATIVE: Semco's energy recovery technology provides excellent efficiency with proprietary energy exchange media. Strong technical support with energy modeling capabilities.	No

## Chillers

Manufacturer		Model	Representative		Compatibility Notes	BoD
Carrier		AquaEdge 19DV	N/A		Basis of Design	Yes
Daikin Applied		Magnitude WMC	Daikin Applied		Advanced magnetic bearing technology with excellent efficiency and low-noise operation. Premium pricing but superior part-load efficiency for variable laboratory loads.	Listed
Smardt Group	Chiller	WA Series	Smardt Group	Chiller	Oil-free magnetic bearing technology with exceptional efficiency and reduced maintenance requirements. Higher initial cost but lower lifecycle cost.	Listed
Trane		CenTraVac	Trane		SUGGESTED ALTERNATIVE: Industry-leading reliability with low-pressure refrigerant options and excellent part-load performance. Strong service network and longevity in the field.	No

York (Johnson Controls)	YZ Magnetic Bearing	Johnson Controls	SUGGESTED ALTERNATIVE: Magnetic bearing technology with excellent efficiency and wide operating envelope. Reduced maintenance requirements with good technical support.	No
-------------------------	---------------------	------------------	---	----

## Pumps

Manufacturer	Model	Representative	Compatibility Notes	BoD
Armstrong	Design Envelope	N/A	Basis of Design	<b>Yes</b>
Grundfos	MAGNA3/TPE Series	Grundfos	High reliability with advanced monitoring and energy-efficient EC motors. Superior energy efficiency with advanced diagnostic capabilities.	Listed
Bell & Gossett (Xylem)	e-Series	Bell & Gossett (Xylem)	Widespread availability with extensive service network and proven reliability. Solid performance with excellent parts and service availability.	Listed
Taco	SCI/KV Series	Taco Comfort Solutions	SUGGESTED ALTERNATIVE: Reliable construction with good efficiency and competitive pricing. Widely available with good service support and straightforward maintenance.	No
Wilo	Stratos GIGA	Wilo USA	SUGGESTED ALTERNATIVE: Advanced EC motor technology with high efficiency and compact design. Excellent energy performance with good BMS integration capabilities.	No

## Fans

Manufacturer	Model	Representative	Compatibility Notes	BoD
Greenheck	Vektor-H	N/A	Basis of Design	<b>Yes</b>

Twin City Fan & Blower	Aerovent Laboratory Exhaust	Twin City Fan & Blower	Custom engineering capabilities with robust construction suitable for forge lab applications. Competitive pricing with strong performance.	Listed
Loren Cook Company	Centrex Vane	Loren Cook Company	Reliable construction with good support and competitive pricing. Solid performance focused on reliability and maintenance accessibility.	Listed
Strobic Air	Tri-Stack	Strobic Air Corporation	SUGGESTED ALTERNATIVE: Specialized laboratory exhaust systems with excellent plume characteristics and energy efficiency. Nozzle design provides superior dilution without external energy.	No
MK Plastics	Axijet	MK Plastics	SUGGESTED ALTERNATIVE: Corrosion-resistant construction ideal for chemical environments in forge laboratories. FRP construction provides excellent durability for harsh exhaust streams.	No

## Steam Generators

Manufacturer	Model	Representative	Compatibility Notes	BoD
Sussman	Electric Boilers MBA Series	N/A	Basis of Design	<b>Yes</b>
Electro-Steam	ESG Series	Electro-Steam	Long track record with reliable performance specifically designed for laboratory applications. Strong performance in medical and pharmaceutical settings.	Listed
BMT USA	Steam Master	BMT USA	Pure and clean steam options with GMP-compliant designs for critical applications. Premium pricing but superior for pharmaceutical and critical laboratory applications.	Listed



Reimers Steam	Electra	RES Series	Reimers Steam	Electra	SUGGESTED ALTERNATIVE: Industrial-grade electric steam generators with reliable performance and competitive pricing. Simple design with good reliability record.	No
Fulton		Electric Boiler	Fulton		SUGGESTED ALTERNATIVE: Well-established manufacturer with excellent support network and spare parts availability. Robust construction with comprehensive controls.	No

## BuildVision Recommendations

### 1. Consider Magnetic Bearing Chillers from Daikin or Smardt

**Rationale:** The project specifications list three water-cooled chillers with a traditional design. Magnetic bearing chillers from Daikin (Magnitude WMC) or Smardt (WA Series) offer oil-free operation with exceptional part-load efficiency, which is ideal for laboratory applications with variable loads. These chillers provide significantly lower maintenance requirements due to oil-free design and better performance in the variable load conditions typical in laboratory environments.

**Estimated Impact:** 15-20% reduction in chiller energy consumption compared to conventional chillers. Additionally, maintenance costs could be reduced by approximately 10-15% due to elimination of oil management systems and associated maintenance.

**Implementation:**

1. Request detailed quotations from Daikin Applied and Smardt Chiller Group for magnetic bearing chillers
2. Compare lifecycle cost analysis including energy savings and maintenance reductions
3. Verify compatibility with existing piping design and space constraints
4. Ensure proper training for maintenance staff on the new technology

**Priority:** High

### 2. Implement Armstrong Design Envelope Pumps with Integrated Controls

**Rationale:** Armstrong Design Envelope pumps are listed as the basis of design for the project. These pumps feature integrated intelligence and controls that optimize performance beyond standard VFD pumps. Implementing these pumps throughout the hydronic systems (CHWP-1, CHWP-2, HWP-8, HWP-9, HRP-4, HRP-5) would provide superior efficiency and load-matching capabilities compared to conventional VFD pumps without integrated intelligence.

**Estimated Impact:** 10-15% reduction in pumping energy consumption compared to standard VFD pumps. Additional 5-8% system efficiency gains through advanced parallel pumping algorithms and improved system control.

**Implementation:** 1. Confirm Armstrong Design Envelope pumps meet all flow and head

requirements

2. Specify preferred control and monitoring capabilities required for each pump application
3. Request detailed quotations with lifecycle cost analysis
4. Coordinate integration with building management system

**Priority:** High

### 3. Evaluate Greenheck Vektor-H Laboratory Exhaust Fans for Improved Performance

**Rationale:** Greenheck Vektor-H fans are specified as the basis of design for laboratory exhaust. These fans are specifically designed for laboratory applications with advanced plume discharge, preventing re-entrainment of exhaust into fresh air intakes and improving energy efficiency. For EF-12 and EF-13, the specialized design will ensure proper dilution and discharge of potentially hazardous exhaust from the forge lab areas.

**Estimated Impact:** Improved safety profile for laboratory exhaust systems. 10-15% reduction in fan energy consumption through more efficient design compared to conventional high-plume fans. Enhanced compliance with laboratory safety standards.

**Implementation:** 1. Confirm Greenheck Vektor-H fans meet the specified 3800 FPM exit velocity requirements

2. Request detailed performance data and BIM models for coordination
3. Verify compatibility with structural supports and maintenance accessibility
4. Ensure proper integration with the variable frequency drives and control systems

**Priority:** High

### 4. Explore Energy Labs Custom AHU Option for Better Laboratory-Specific Customization

**Rationale:** While Daikin Applied Vision AHUs are listed as the basis of design, Energy Labs offers custom-engineered AHUs specifically designed for laboratory applications. Their custom approach could provide better sizing, filter arrangement, and specialized materials suitable for forge laboratory environments that may contain metal particulates or other contaminants.

**Estimated Impact:** Potentially 5-10% improvement in air handling efficiency through right-sized components. Reduced maintenance costs through improved accessibility and laboratory-specific design features. Longer equipment lifespan due to specialized materials selection for forge lab environments.

**Implementation:** 1. Request proposal from Energy Labs with detailed specifications meeting or exceeding the Daikin basis of design

2. Compare lifecycle costs including initial purchase, operating efficiency, and maintenance accessibility
3. Review construction timeline impacts given potentially longer lead times for custom units
4. Evaluate specialized options for forge lab environments such as specialized filter arrangements or materials

**Priority:** Medium

## 5. Consider BMT USA Steam Master for Critical Laboratory Steam Applications

**Rationale:** The project includes clean steam generators for laboratory process loads. BMT USA's Steam Master is specifically designed for pharmaceutical and critical laboratory applications with GMP-compliant designs. While it comes at a premium price compared to the Sussman Electric Boilers (basis of design), the improved quality of steam could be critical for certain laboratory processes in the forge lab.

**Estimated Impact:** Higher quality steam for laboratory processes, potentially improving research results and reducing experiment variability. More consistent steam production with potentially longer equipment lifespan due to pharmaceutical-grade design.

**Implementation:** 1. Consult with laboratory users to determine if GMP-compliant steam quality is necessary for their specific processes

2. If required, request detailed specifications and quotations from BMT USA

3. Compare lifecycle costs including maintenance requirements

4. Verify space requirements and utility connections

**Priority:** Medium

## 6. Implement a Competitive Bidding Strategy for Heat Recovery Units

**Rationale:** The heat recovery units represent a significant investment, with Thermotech Enterprises LabRecover listed as the basis of design. Both Xetex AirMatrix and Engineered Air FW Series offer comparable capabilities, with Engineered Air specifically noted for durability in forge lab applications with potential contaminants. A competitive bidding strategy with all three manufacturers could yield significant cost savings while maintaining performance.

**Estimated Impact:** Potential 10-15% cost savings on heat recovery equipment without sacrificing performance. Improved vendor responsiveness and potential for enhanced service agreements through competitive pressure.

**Implementation:** 1. Develop detailed technical specifications that can be met by all three manufacturers

2. Request bids with explicit lifecycle cost analysis requirements

3. Evaluate each proposal on both initial cost and long-term performance metrics

4. Negotiate enhanced warranty and service agreements as part of the procurement process

**Priority:** Medium

## Conclusion

### Key Findings

- Multiple qualified suppliers exist for each equipment type with varying performance characteristics and price points
- N+1 redundancy is designed into critical systems (chillers, pumps, steam generators) to ensure laboratory operational continuity
- Energy efficiency opportunities exist through advanced controls and optimized system configurations

- Demand-controlled ventilation represents the highest impact opportunity for operational cost reduction
- Custom-engineered solutions may be required for specialized laboratory exhaust and air handling equipment

## Highest Priority Actions

- Evaluate supplier options for laboratory-specific equipment, prioritizing manufacturers with proven experience in forge lab applications
- Consider lifecycle costs rather than just initial purchase price when selecting equipment suppliers
- Secure long lead-time equipment early in the procurement process, particularly specialized laboratory exhaust fans and air handlers
- Implement value engineering focused on energy efficiency features that maintain required laboratory performance standards

## Summary

The NVS Mariana 500 Forge Lab/Office Fit-Out project requires strategic equipment procurement for specialized laboratory HVAC systems. Key equipment includes air handling units, heat recovery units, chillers, pumps, fans, and steam generators. The procurement strategy should balance performance requirements with cost optimization, focusing on equipment designed for laboratory environments with consideration for redundancy, energy efficiency, and maintenance accessibility.



Ben Lyddane  
Ben@BuildVision.io  
202-365-8628

Mackenzie Hoover  
Mackenzie@buildvision.io  
843-609-3265

Date: 2025-05-20