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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

Customer Information

Customer Name	Layton Construction
Contact Person	William Winslow
Contact Email	wwinslow@laytonconstruction.com
Contact Phone	N/A
DateInvited	5/7/2025
DateDue	5/27/2025
RflsDue	5/13/2025
RequestType	Proposal

Project Information

Project Name	Riverside HVAC System Upgrade
Location	5900 Brockton Avenue, Riverside, CA 92506
Start Date	3/30/2026
Completion Date	N/A
Budget	N/A
Scope	HVAC System Equipment Installation
Project ID	0d812dd8-cf65-48c4-87a6-c7d6be1f64dd
Project URL	BuildVision Project Link
Created	5/7/2025
ContractType	N/A
JobWalk	N/A
ProjectSize	N/A

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Date: 5/14/2025

Project Equipment

Split System Air Conditioners

Equipment Tag	Manufacturer	Model
AC-1-2	Samsung HVAC	AC024NADCC0AA
AC-1-3	Samsung HVAC	AC024NADCC0AA
AC-3-1	Samsung HVAC	AC036DNTDCG/AA
CU-1-2	Samsung HVAC	AC024MXADCF2AA
CU-1-3	Samsung HVAC	AC024MXADCF2AA
CU-3-1	Samsung HVAC	AC036DXSCCF/AA

Notes

Samsung HVAC split systems for distributed cooling

Packaged Rooftop Air-Conditioning Units

Equipment Tag	Manufacturer	Model
RTU-1	York	PACKAGED DX
RTU-2	York	PACKAGED DX
RTU-3	York	PACKAGED DX
RTU-3-1	York	GZCAA-0B5AK-4P20A
RTU-3-2	York	GZCAA-0B5AK-4P20A

Notes

York packaged DX units for central air distribution

Dedicated Outdoor-Air Units

Equipment Tag	Manufacturer	Model
DOAS-1	iAire	PHC-KJ150HHT

Notes

iAire dedicated outdoor air system for ventilation

HVAC Fans

Equipment Tag	Manufacturer	Model
DEF-1	Greenheck	CUE-100-VG

EF-1	Greenheck	CUE-130-VG
EF-2	Greenheck	CUE-130-VG
EF-3	Greenheck	FJI-07-BI-X
EF-4	Greenheck	FJI-07-BI-X
KEF-1	Greenheck	CUE-140-VG
KEF-2	Greenheck	CUE-160-VG

Notes

Greenheck fans for ventilation and exhaust requirements

Condensing Boilers

Equipment Tag	Manufacturer	Model
B-1	Raypak	H7-500B
B-2	Raypak	H7-500B

Notes

Raypak high-efficiency condensing boilers for heating system

Hydronic Piping Specialties

Equipment Tag	Manufacturer	Model
AS-1		
BT-1		
ET-1		

Notes

Components for hydronic distribution system

Suppliers

Split System Air Conditioners

Manufacturer	Model	Representativ	Compatibility Notes	BoD
Samsung	HVAC	N/A	Basis of Design	Yes
Samsung	HVAC	N/A	Basis of Design	No

Daikin	FTXS Series	Norman S. Wright Climatec Mechanical Equipment	Compatible with existing ductwork, may require adapters for refrigerant lines	No
Mitsubishi Electric	MSZ-FS Series	CFM Equipment Distributors	Premium option with improved energy efficiency ratings	No

Packaged Rooftop Air-Conditioning Units

Manufacturer	Model	Representative	Compatibility Notes	BoD
York		N/A	Basis of Design	Yes
York		N/A	Basis of Design	No
Carrier	WeatherMaker Series	Russell Sigler Inc.	Similar footprint, would require minimal roof curb modifications	No
Trane	Precedent Series	US Air Conditioning Distributors	Higher efficiency option with robust control package	No

Condensing Boilers

Manufacturer	Model	Representative	Compatibility Notes	BoD
Raypak		N/A	Basis of Design	Yes
Raypak		N/A	Basis of Design	No
Lochinvar	KNIGHT Series	DB Sales & Service	Higher efficiency with built-in redundancy features	No
Aerco	Benchmark Series	DMG North Inc.	Premium option with advanced modulation capabilities	No

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Raypak		N/A	Basis of Design	No
Lochinvar	KNIGHT Series	DB Sales & Service	Higher efficiency with built-in redundancy features	No
Aerco	Benchmark Series	California Hot Water Supply	Premium option with advanced modulation capabilities	No

Design Notes

HVAC Cooling Systems

Technical Observations:

- Multiple split systems indicate a zoned approach to cooling
- Combination of split systems and packaged units suggests a hybrid approach
- Samsung equipment selected as basis of design for split systems

Concerns:

- Coordination between multiple system types will require careful control integration
- Refrigerant line routing for split systems needs to be validated

Opportunities:

- Potential for energy savings through optimization of multiple systems
- Zoning approach allows for more granular temperature control

Ventilation Systems

Technical Observations:

- Dedicated outdoor air system (DOAS) provides centralized fresh air delivery
- Multiple exhaust fans indicate distributed exhaust requirements
- Kitchen exhaust fans (KEF) suggest commercial kitchen ventilation needs

Concerns:

- Balancing of supply and exhaust air will be critical
- Kitchen exhaust compliance with NFPA 96 should be verified

Opportunities:

- Energy recovery potential between exhaust and outdoor air streams
- Demand-controlled ventilation could reduce energy consumption

Hydronic Heating System

Technical Observations:

- Dual boiler system provides redundancy
- High-efficiency condensing boilers selected as basis of design
- Hydronic piping specialties indicate a distributed hot water system

Concerns:

- Condensate management for high-efficiency boilers needs to be addressed

- System water quality maintenance is essential for longevity

Opportunities:

- Potential for further efficiency optimization through outdoor air reset controls
- Dual boiler staging can maximize condensing operation

BuildVision Recommendations

1. Implement integrated building automation system

Rationale: Multiple equipment types and manufacturers require coordinated control for optimal operation

Estimated Impact: 15-20% energy savings through optimized sequencing and setpoint management

Implementation: Specify BACnet compatibility for all equipment and central BAS controller

Priority: High

2. Consider demand-controlled ventilation for DOAS

Rationale: CO2-based control can reduce unnecessary ventilation during periods of low occupancy

Estimated Impact: 10-15% reduction in ventilation-related energy consumption

Implementation: Add CO2 sensors in major zones and modify DOAS controls

Priority: Medium

3. Evaluate hydronic system water treatment options

Rationale: Proper water treatment is essential for condensing boiler efficiency and longevity

Estimated Impact: Extended equipment life by 3-5 years, maintained efficiency

Implementation: Specify advanced filtration and chemical treatment package

Priority: Medium

4. Consider variable primary flow for boiler system

Rationale: Variable flow matches system capacity to load more precisely than primary/secondary

Estimated Impact: 5-8% reduction in pumping energy, improved delta-T

Implementation: Modify hydronic design to variable primary, specify VFDs for pumps

Priority: Low

Conclusion

Key Findings

- The hybrid cooling approach provides good zoning capabilities but requires careful control integration
- Dedicated outdoor air system provides centralized fresh air delivery with potential for energy recovery
- High-efficiency condensing boilers provide good redundancy and efficiency for the heating system
- Multiple exhaust systems indicate specialized ventilation requirements that must be carefully balanced

Highest Priority Actions

- Implement integrated building automation system for coordinated control
- Ensure proper refrigerant line routing and sizing for split systems
- Verify kitchen exhaust compliance with applicable codes
- Develop comprehensive water treatment strategy for hydronic system

Summary

The proposed HVAC system for this Riverside, CA project incorporates a diverse range of equipment to meet various heating, cooling, and ventilation needs. The design utilizes a hybrid approach with both split systems and packaged rooftop units for cooling, dedicated outdoor air for ventilation, and a dual condensing boiler system for heating. While the equipment selections are appropriate for the application, there are opportunities for optimization in controls integration, energy recovery, and system operation.



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