Summit Construction Group
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State License #: ABC-123456 | Bonding Capacity: $25 Million
Project ID: NPOP-2025-001
Date: November 4, 2025
Proposal Valid Until: January 4, 2026

1. REGULATORY COMPLIANCE & PERMITTING

1.1 Building Code Compliance

Table 1: Building Code Compliance Summary

Code/Standard	Version	Applicable Sections	Compliance Method
International Building Code (IBC)	2021	Chapters 3-8, 16, 17	Structural calculations, fire ratings
International Mechanical Code (IMC)	2021	Chapters 4, 5, 6, 7	Equipment sizing, duct design
International Plumbing Code (IPC)	2021	Chapters 3, 4, 5, 6	Fixture counts, pipe sizing
International Energy Conservation Code (IECC)	2021	Commercial Provisions	Energy modeling, insulation values
ASHRAE 90.1	2022	Sections 5-10	Energy efficiency compliance
ASHRAE 62.1	2022	Ventilation Rate Procedure	Ventilation system design

1.2 Permitting Strategy

Permit Sequencing & Dependencies

1. **Site Development Permit** - Required before any earthwork
2. **Building Permit** - Foundation and structural work
3. **Mechanical Permit** - HVAC system installation
4. **Plumbing Permit** - All plumbing systems
5. **Electrical Permit** - Power and lighting systems
6. **Fire Protection Permit** - Sprinkler and alarm systems

1.3 Environmental Compliance

EPA & Environmental Regulations

- **NPDES Stormwater Permit:** SWPPP implementation and monitoring

- **Lead Paint Management:** EPA RRP Rule 40 CFR 745
- **Refrigerant Management:** EPA Section 608 Compliance
- **Asbestos Survey:** Completed September 15, 2025 - No ACM found

2. HVAC SYSTEM DETAILED SPECIFICATIONS

2.4 System Performance Requirements

Design Conditions & Performance Metrics

Outdoor Design Temperature (Winter)	15°F DB / 10°F WB
Outdoor Design Temperature (Summer)	95°F DB / 75°F WB
Indoor Design Conditions	72-76°F DB / 40-60% RH
System Efficiency Requirement	Minimum SEER 16 / EER 12.5
Sound Performance (NC Levels)	NC 35 (Open Office), NC 40 (Mechanical Rooms)
Ventilation Rates	ASHRAE 62.1-2022, Table 6.2.2.1

2.5 Equipment Specifications

2.5.1 VRF Outdoor Units

Qty	Model Number	Capacity (Tons)	Electrical Data	Sound Level dB(A)	Refrigerant	Dimensions (LxWxH)
6	Mitsubishi PUMY-P96NKMU4	16.0	208-230V/3Ph/60Hz, 68.5A MCA	65	R410A (GWP 2088)	55.1" x 35.4" x 49.2"

2.5.2 Refrigerant Piping Specifications

Pipe Sizing & Installation Requirements

Main Line Size (Gas)	3-1/8" OD ACR Copper, Type L
Main Line Size (Liquid)	1-5/8" OD ACR Copper, Type L
Branch Line Sizes	1-1/8" to 2-1/8" OD based on load
Pipe Insulation	Aeroflex EPDM, 1/2" wall, 25/50 rating
Joint Construction	Silver brazing, 15% silver content

Pressure Testing	550 PSIG nitrogen, 24-hour hold
Vacuum Dehydration	500 microns maximum, triple evacuation

2.6 Building Automation System (BAS)

Siemens Desigo CC Platform

1. **System Architecture:** IP-based, BACnet IP/MS-TP
2. **Controller:** PXC Modular with 64 points capacity
3. **Sensors:** RDF300 series, ±0.5°F accuracy
4. **Actuators:** GDB...E series, 35 lb-in torque
5. **Integration:** VRF controllers via BACnet gateway
6. **Alarm Management:** Email/SMS notification system

3. PLUMBING SYSTEM DETAILED SPECIFICATIONS

3.7 Water Supply System

System Design Parameters

Water Source & Pressure	Municipal supply, 65 PSI static
Peak Demand Flow Rate	125 GPM @ 45 PSI residual
Water Quality Standards	EPA National Primary Drinking Water Regulations
Water Efficiency Target	LEED v4.1, 40% reduction from baseline
Recirculation System	0.5 GPM minimum flow at furthest fixture

3.8 Pipe & Fitting Specifications

System	Pipe Material	Standard	Pressure Rating	Joint Method	Insulation
Domestic Water Main	Type K Copper	ASTM B88	300 PSI @ 100°F	Brazed (Sil-Fos 15)	Armacell Tubolit, 1/2"
Domestic Water Branch	PEX-A	ASTM F876/F877	160 PSI @ 73°F	Expansion (ProPEX)	Armacell Tubolit, 3/8"
Sanitary Drainage	Schedule 40 PVC	ASTM D1785	---	Solvent Cement	---
Vent System	Schedule 40 PVC	ASTM D1785	---	Solvent Cement	---

3.9 Fixture Schedule

Fixture Type	Manufacturer/Model	Flow Rate	Finish	ADA Compliance	WaterSense	Qty
Water Closet	TOTO UltraMax II MS604114CEFG	1.28 GPF	Cotton White	Yes	Yes	24
Lavatory Faucet	Delta Lahara 3590-LH-DST	1.2 GPM	Chrome	Yes	Yes	28
Urinal	Sloan Waterfree U-111-T-24	0.0 GPF	White	Yes	N/A	12

4. QUALITY ASSURANCE & COMMISSIONING

4.10 Testing & Balancing Requirements

HVAC System Commissioning

I. **Air Balancing** - NEBB Certified, ±10% of design airflow
II. **Hydronic Balancing** - Caleffi setters, ±5% flow tolerance
III. **System Performance Verification** - Full load testing
IV. **Control System Calibration** - Point-to-point verification

4.11 Quality Control Checklists

Plumbing System Inspection Points

Inspection Phase	Test Method	Acceptance Criteria	Documentation
Underground Rough-in	10' head test, 15 min	No visible leakage	Form PL-1
Above-ground DWV	5' head test, 15 min	No pressure drop	Form PL-2
Water Supply	150 PSI, 2 hours	< 5 PSI drop	Form PL-3
Final Fixture Test	Flow rate verification	Meets design specs	Form PL-4

4.12 Warranties & Guarantees

System Warranties

HVAC Equipment	10 years parts, 5 years labor
Building Automation System	3 years comprehensive
Plumbing Fixtures	Manufacturer's lifetime warranty
Piping Systems	5 years against defects

Workmanship	2 years from substantial completion

5. RISK MANAGEMENT & MITIGATION

5.13 Project Risk Assessment

Identified Risks & Mitigation Strategies

Risk Category	Specific Risk	Probability	Impact	Mitigation Strategy
Schedule	Equipment lead times	Medium	High	Early procurement, confirmed dates
Technical	System integration conflicts	Medium	Medium	BIM coordination, clash detection
Regulatory	Permit delays	Low	High	Pre-submission meetings, expediter
Supply Chain	Material shortages	Medium	Medium	Multiple suppliers, buffer stock

5.14 Safety Management Plan

OSHA Compliance & Safety Protocols

1. **Site Safety Orientation:** Required for all personnel
2. **Daily Toolbox Talks:** Task-specific safety briefings
3. **Fall Protection:** 100% tie-off above 6 feet
4. **Confined Space Entry:** Permit-required procedures
5. **Hot Work Permits:** Required for all brazing/welding
6. **Emergency Response:** Site-specific plan, monthly drills

6. PROJECT EXECUTION & LOGISTICS

6.15 Construction Phasing Plan

Critical Path Method Schedule

Phase	Duration (Days)	Key Dependencies	Critical Milestones
Site Mobilization	15	Permit issuance	Site fencing, utilities

Phase	Duration (Days)	Key Dependencies	Critical Milestones
Foundation & Structure	45	Site work complete	Concrete pours, steel erection
Building Enclosure	60	Structure complete	Weather-tight envelope
MEP Rough-in	75	Enclosure complete	HVAC/Plumbing infrastructure
Interior Finishes	90	MEP rough-in complete	Drywall, ceilings, flooring
MEP Finishes & Commissioning	45	Interiors substantially complete	System start-up, testing, balancing

6.16 Submittal & Approval Process

Required Submittals - Mechanical Systems

Submittal Package	Due Date	Review Period	Approval Required
HVAC Equipment Schedules	Week 4	14 days	Architect/Engineer
Ductwork & Piping Layouts	Week 8	21 days	Engineer of Record
Control System Sequences	Week 12	14 days	Mechanical Engineer
Commissioning Plan	Week 16	21 days	Owner/Commissioning Agent

7. SUSTAINABILITY & ENERGY COMPLIANCE

7.17 LEED Certification Strategy

Targeted LEED v4.1 Credits - Mechanical Systems

Credit Category	Specific Credit	Target Points	Documentation Method
Energy & Atmosphere	Optimize Energy Performance	10	Energy modeling, ASHRAE 90.1
Indoor Environmental Quality	Enhanced Indoor Air Quality	2	ASHRAE 62.1 compliance
Water Efficiency	Water Use Reduction	5	Water calc, fixture specifications
Innovation	Building Life-Cycle Impact Reduction	1	VRF system documentation

7.18 Energy Modeling Results

ASHRAE 90.1-2022 Compliance Analysis

Proposed Building Performance	45.2 kBtu/sf/yr
ASHRAE 90.1 Baseline	62.8 kBtu/sf/yr
Energy Cost Savings	28% improvement
Carbon Emissions Reduction	125 metric tons CO2e/year
Simple Payback Period	6.2 years