

April 15, 2022

Ms. Donna Jerry  
Health Policy Analyst, State of Vermont  
Green Mountain Care Board  
144 State Street  
Montpelier, VT 05602

**Re: Docket No. GMCB-012-17con, Construction of Medical Office Building, Renovations to Loading Dock, Dietary and Vermont Orthopedic Clinic and Upgrades to Site Drainage and Detention Pond System**

Dear Ms. Jerry:

This letter is a follow-up to your communication on January 26, 2022, regarding the Replacement of the HVAC system in the former Vermont Orthopedic Clinic (VOC) which has been deemed a related project to the approved CoN, GMB-012-17con, Construction of Medical Office building (CoN). As agreed upon, the Replacement HVAC system has been deemed related to the approved Medical Office Building CoN as it meets the criteria in Section 4.207 (2, A-D) of The Green Mountain Care Board "Rule 4.000 Certificate of Need" in that the HVAC system will be installed within the same space that CoN proceeds were used to renovate and that the HVAC upgrade will occur within two fiscal years from the completion of the VOC renovations.

We have partnered with Efficiency Vermont and our design and construction business partners to develop a solution that resolves the system deficiencies, ensures code compliance, and promotes energy efficiency and reduction in the use of fossil fuels. We have also confirmed that the solution meets the statutory Criteria 2 A-D. The current project estimate is summarized in the enclosures and is a total of \$586,500. The increased cost reflects the implementation of a systems approach toward energy efficiency and carbon reduction recommended by Efficiency Vermont, as well as the cost escalation impacts relative to materials and labor that are being experienced nationwide. This total is anticipated to go against the remaining project funds of \$2,995,637.

Here is a list of supporting enclosures.

- 1) Cost Estimate Summary
- 2) Letter from Efficiency Vermont dated April 12, 2022
- 3) Letter from LN Consulting dated April 13, 2022 (Summary of system solution)
- 4) Letter from HP Cummings regarding project cost estimate dated April 14, 2022
- 5) Letter from New England Air Systems dated April 15, 2022 regarding the breakdown of mechanical system costs
- 6) Letter from LN Consulting dated April 5, 2022 (Detailed background of analysis and system solution options)

Thank you for your support in amending and extending the existing CON. We will be submitting the full update of the narrative implementation report and financial spreadsheet in July 2022, as noted in your referenced letter.

If you have any questions please contact Roger Wakeman, Vice President, Support Services at [rfwakeman@rrmc.org](mailto:rfwakeman@rrmc.org).

Sincerely,

A handwritten signature in black ink, appearing to read "Claudio Fort". The signature is written in a cursive style with a large initial "C".

**Claudio Fort**  
President and CEO

## Enclosure 1 – VOC HVAC Cost Estimate Summary

Cost Element	Cost Breakdown
System analysis and solution recommendation by LN Engineering	\$6,500
System Analysis cost share from Efficiency Vermont	-\$3,000
HVAC System Replacement by New England Air Systems (see attached detailed breakdown)	\$450,000
Electrical System Work to support new equipment	\$30,000
Concrete Pads for new outdoor equipment	\$15,000
Cut and Patch for new HVAC system	\$10,000
General Conditions	\$20,000
Contingency	\$25,000
Construction Management Fee	\$33,000
Efficiency Vermont Additional Incentives (credit)*	TBD
<b>TOTAL PROJECT COST ESTIMATE</b>	<b>\$586,500</b>

\*Note: Efficiency Vermont has indicated that there will likely be additional incentives that can be applied to the project based on the energy efficiency and carbon reduction elements of the solution. Their staff will be reviewing in more detail and providing incentive calculations during the week of April 25.



www.efficiencyvermont.com  
888-921-5990 | 802-860-4095

Memo

To: Roger Wakeman, Vice President Support Services

From: David Adams

Date: April 12, 2022

Re: Rutland Regional Medical Center – 3 Albert Cree Building HVAC Assessment

This memo confirms that Efficiency Vermont is working closely with Rutland Regional Medical Center on the development and implementation of HVAC upgrades to the existing VOC building located at 3 Albert Cree Drive in Rutland, VT.

As part of the project team, Efficiency Vermont has assigned a designated energy consultant, who will provide support services as part of the design, system selection, and equipment selection process, including:

- Technical assistance & recommendations on energy efficiency opportunities
- Engineering plans or design narrative review
- Cost/benefit analysis of options
- Collaborate with Architects/Contractors
- Provide "Objective Expertise"
- Financial incentives & assistance

EVT has reviewed the HVAC Assessment report presented by LN Consulting, dated 4/5/2022. It is noted that the recommendations comprehensively account for improvements to occupant comfort, energy efficiency, and indoor air quality. The goal is to help RRMC meet and exceed the minimum efficiency required by the Vermont Commercial Building Energy Standard, where appropriate and cost effective for a project of this nature. This will reduce energy costs over the life of the equipment, strengthen the economy, and protect our environment.

If you have any questions, don't hesitate to contact me directly.

Thanks,

A handwritten signature in black ink, appearing to read "David Adams", with a long horizontal flourish extending to the right.

David C. Adams, BEP

Senior Account Manager

128 Lakeside Avenue, Suite 401 Burlington, VT 05401-5907

Efficiency Vermont

P: (802) 540-7628

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Efficiency  
Vermont

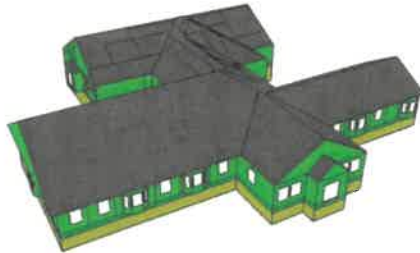
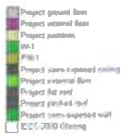


April 12, 2022

Roger F. Wakeman  
Vice President Support Services  
Rutland Regional Medical Center  
160 Allen Street  
Rutland, VT 05701

Re: Rutland Regional Medical Center - 3 Albert Cree Building HVAC Comparison

LN Consulting, Inc. has been retained to provide a HVAC assessment and comparison for the existing VOC facility located at 3 Albert Cree Drive in Rutland, Vermont.



The existing facility is supported via multiple air handling units with gas fired heating and direct expansion cooling. Some of these units are provided with energy recovery ventilation or direct outdoor air ventilation, however, most of the spaces do not appear to have any dedicated ventilation. These spaces utilize operable windows to provide passive ventilation. The (2) conference rooms at the entry, corridor, and bathroom were recently updated with an air-to-air heat pump system and new energy recovery unit. In general, there are multiple heating and cooling deficiencies with the existing HVAC systems due to zoning. In addition, there is inadequate ventilation in most of the spaces due to the lack of a forced ventilation system. The original CON mechanical upgrades were related to the heating and cooling system deficiencies only. These included the re-use of the existing fossil fuel heating systems.

The newly proposed mechanical renovations included new code compliant ventilation air provided through energy recovery units for the entire VOC space. In addition, we are proposing to replace all the existing fossil fuel equipment with a new VRF air to air heat pump system with heat recovery. This not only provides the facility with an all-electric heating system but allows for energy sharing throughout the facility when portions of the building require simultaneous heating and cooling. As a result, the proposed systems will increase indoor air quality, provide better comfort due to additional zoning, and eliminate fossil fuels for all of the proposed renovated spaces.

If you any questions or require additional information, please contact our office.

Sincerely,  
**LN Consulting, Inc.**

George D. Martin, P.E.

**Vermont** | 208 Flynn Avenue #2J | Burlington, VT 05401 | (802) 655-1753 | Fax (802) 655-7628

**Massachusetts** | 32 Masonic St., Unit E | Northampton, MA 01060 | (413) 776-9580

[lnconsulting.com](http://lnconsulting.com)



**HP CUMMINGS**  
CONSTRUCTION COMPANY  
— ESTABLISHED 1879 —

PO BOX 269 - 5 HIGH STREET  
WOODSVILLE, NH 03785  
T: 603-747-3303  
www.hpcummings.com

April 14, 2022

Roger F. Wakeman, Vice President  
Rutland Regional Medical Center  
160 Allen Street  
Rutland, VT 05701

Subject: RRMC Mechanical Upgrades Quote

Dear Roger,

Below is the breakdown of the mechanical work in LN's outline for VOC as described dated.... We assume that there will be some electrical items that can be used. Please be advised that the prices are at today's rates, and we did not include any unforeseen price increases.

New England Air Systems		\$450,000	
Electrical Allowance	5 @ \$5k	\$30,000	
Concrete Pads	6 @ \$2.5k	\$15,000	
Cut and Patch for MEP		\$10,000	
General Conditions		\$20,000	assume other work happening could be less
Contingency		\$25,000	
CM Fee		<u>\$33,000</u>	
<b>Total</b>		<b>\$583,000</b>	

Thank you,

Daniel P. Smith, Principal/Senior Project Manager  
H.P. Cummings Construction Co.  
PO Box 269, 5 High Street  
Woodsville, NH 03785



**Complete Mechanical Systems & Service**



April 15, 2022

Dan Smith  
**H.P. Cummings Construction Co.**  
P.O. Box 269  
Woodsville, NH 03785

*Re: RRMC VOC - HVAC Upgrades  
NEAS Proposal #O-2874-22*

Dear Mr. Smith:

New England Air Systems is pleased to provide you with the following budgetary proposal to upgrade the HVAC systems at the VOC building on Albert Cree Drive. This proposal is based on the LN Consulting HVAC Assessment document dated April 5, 2022.

**HVAC Scope of Work**

1. Demo existing gas furnaces and split DX condensing units serving the RRMC portion of the building. Existing ductwork to be reused where possible. Vermont Sports Medicine HVAC units to remain in place.
2. Furnish and install a Mitsubishi VRF system as outlined in the HVAC assessment and as follows:
  - a. (9) Multi-position AHU zones
  - b. (8) Wall-hung ductless split zones
  - c. (1) Central outdoor VRF unit with simultaneous heating and cooling capabilities (cooling disables below 23°F outdoor temperature)
  - d. Branch selector boxes to distribute the refrigerant to the indoor units
  - e. Central touch-screen control panel
3. Furnish and install (8) energy recovery units (ERUs) to provide ventilation to the zones.
4. Rework existing ductwork as required for the proposed HVAC zones and provide new ductwork for the ERUs. Existing louver intake locations require further discussion as they are currently susceptible to snow and dirt intake.
5. Provide refrigerant and condensate drain piping for the VRF system.
6. Furnish electric baseboard for Stair 1 and Corridor J. Baseboard to be installed and wired by the electrical contractor.
7. Provide testing and balancing by a subcontractor (TBC Services).
8. Provide standalone HVAC controls.
9. Attend design review meetings and provide mechanical drawing package and equipment submittals.
10. Provide O&M manuals and as-built drawings at project completion.



**Noted Exclusions (refer to final page of proposal for complete list)**

1. Electrical power wiring
2. DDC controls
3. Over time labor
4. Soffits to hide refrigerant piping
5. Duct cleaning
6. Cut, patch and paint

**Cost Summary**

Our budgetary cost for the work as described above is **\$450,000 (four hundred fifty thousand dollars)**, broken out as follows:

Mechanical Equipment:	\$170,000
Sheet Metal (material and labor):	\$105,000
Piping (material and labor):	\$115,000
Controls and Startup:	\$45,000
Test and Balance:	\$15,000

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Total: **\$450,000**

We look forward to working with you to make this a successful project. Please do not hesitate to contact us with any questions.

Sincerely,  
**New England Air Systems**

*Max Anderson*

Max Anderson PE, Project Engineer  
Cc: Randy Chicoine, Project Manager



**EXCLUSIONS FROM SCOPE OF WORK (unless specifically noted above)**

1. Any and all costs, expenses, fees, or damages arising from delays beyond the control of NEAS, LLC.
2. Asbestos identification and removal and/or other means of abatement, including without limitation lead, mercury, oil and other hazardous wastes, hazardous materials surveys, and abatement action programs.
3. Architectural access panels and/or doors.
4. AutoCAD coordination and/or record drawings, B.I.M. or other means of 3-D modeling and/or background and per drawing fees assigned by the A/E team.
5. Breakout costs if provided, are for accounting purposes only and will not be considered final pricing for separate contracts or considered as stand-alone bid values.
6. Bonds.
7. Building Sanitary and Rain Leader/Storm Drain piping beyond 5-feet outside of building foundation including connections to site piping, manholes, troughs, drywells, or other devices.
8. Ceiling removal and/or replacement including without limitations replacement tiles or grid systems, ceiling patching or painting.
9. Commissioning services and 3<sup>rd</sup> party commissioning assistance.
10. Concrete pads (interior or exterior), inertia base fill and/or thrust blocks, pour stops, and concrete or masonry infill of floors, walls or roof openings; concrete or masonry saw cutting, breakout, disposal and/or patching.
11. Core drilling larger than 8" in diameter.
12. Cutting & Patching & Painting in conjunction with structural components, MEP systems, walls, floors, and finished surfaces.
13. Duct cleaning and/or IAQ management services including temporary services.
14. Duct leak testing and/or independent agency witness fees and verification reports.
15. Duct-mounted smoke detectors.
16. Dumpsters.
17. Electrical including without limitation furnishing starters and/or disconnects and whips, VFD's, speed controllers and replacement motors not integral to HVAC or plumbing equipment and/or lighting controls (unless specifically assigned to the temperature controls scope of work and included in our costs).
18. Excavation backfill and compaction; rock, boulder or ledge blasting or removal, shoring, trenching, or hand digging for buried piping and/or dewatering of the same.
19. Domestic water, storm, and sanitary piping connections to site systems. Fire line piping stub outs up to 5-feet outside of building footprint.
20. Fire Alarm including duct-mounted smoke detectors.
21. Filter replacements, temporary filter media, IAQ management and/or mold remediation programs, final duct cleaning in conjunction with Construction Management project delivery and provisions for the same as they relate to pre-purchased equipment, terminal HVAC units, fixtures and/or devices furnished by others.
22. Handling or setting of equipment furnished or pre-purchased by others.
23. Heat tracing (furnish, install, and power/controls).
24. Independent Commissioning and/or 3<sup>rd</sup> party commissioning assistance.
25. Insurance coverage beyond our standard coverage.
26. Kitchen hoods and/or suppression systems including without limitation any skirting, hanger/support systems for hoods furnished by others, remote bottles and/or solenoid valves.
27. Life safety systems including without limitation fire sprinkler systems, fire suppression systems, smoke detectors, carbon monoxide detectors, radon and/or refrigerant detection systems.
28. Maintenance services and/or preventative maintenance agreements for equipment, fixtures, and devices pre-purchased or furnished by others.
29. Manpower for this project was based on the preliminary construction schedule provided at bid time. We reserve the right to review and price any major changes to this schedule or any project phasing that occurs once under contract. NEAS will not be held liable for any additional expenses derived from project phasing not previously agreed upon, hastened schedules due to other trades, or project delays outside of our control.
30. Overtime, off-shift, weekends and/or holiday work hours.
31. Painting including prime and touch up.
32. Permitting or fees related to land use, zoning, subdivision or other codes, laws, statutes, ordinances, or other regulations, except to the extent compliance is a condition of licensure in the trades performed by NEAS, LLC.
33. Pre-cast catch basins and grates and piping terminations.
34. Natural gas high pressure piping, regulators, and meters. LP (Propane) tank, high pressure piping (above or underground), regulators and meters.
35. Roof curb flashing, blocking, leveling, & insulating.
36. Roof flashing for penetrations.
37. Roof perimeter or fall barriers, safety railings, and/ or flagging.
38. Rainwater boots, exterior storm lateral connections and/or roof drain sump pans.
39. Site or civil work.
40. Sound and/or vibration tests, surveys, and reports.
41. Startup of equipment, terminal units, fixtures and/or devices pre-purchased or furnished by others.
42. Steel for mechanical openings (including structural steel lintels), structural steel equipment supports and roof framing including without limitation any and all engineering surveys, stamping requirements or engineering fees associated with structural components (interior or exterior locations).
43. Submittal review of pre-purchased or furnished by others equipment, terminal units, fixtures and/or devices.
44. Storage and staging of equipment, terminal units, fixtures and/or devices pre-purchased or furnished by others.
45. Temporary HVAC and plumbing systems or services.
46. Toilet accessories and wood blocking including furnish and/or installation.
47. Undercutting of doors or door penetrations for door ventilation grilles.
48. Utility metering (gas, water, steam, etc.)
49. Warranties on equipment, fixtures, and devices pre-purchased, pre-existing, or furnished by others.
50. SDS Sheets - hard copies are excluded, we provide in thumb drive only.

**New Customers:** New customers are required to complete our New Customer Application for credit approval prior to commencing the work.

**Credit Card Payments:** Credit Card payments are assessed a 3% service charge for existing customers. Subject to prior approval for payments, COD and others are assessed a 7% service charge. Maximum permitted value for credit card payment: \$5,000.00 including taxes and fees.



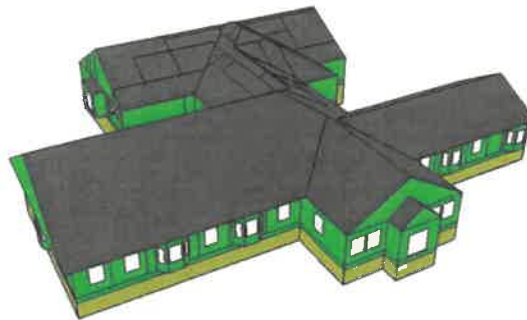
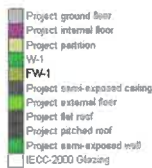


April 05, 2022

Roger F. Wakeman  
Vice President Support Services  
Rutland Regional Medical Center  
160 Allen Street  
Rutland, VT 05701

Re: Rutland Regional Medical Center - 3 Albert Cree Building HVAC Assessment

L.N. Consulting, Inc. has been retained to provide a HVAC Assessment for the existing VOC facility located at 3 Albert Cree Drive in Rutland, Vermont. A heating and cooling load analysis was completed for the building and the existing testing and balance reports were reviewed as well as the previous design drawings dated 3/22/21 that were issued by New England Air Systems. We recommend that the following HVAC modifications be implemented to improve comfort and indoor air quality while maintaining the energy goals of the hospital.



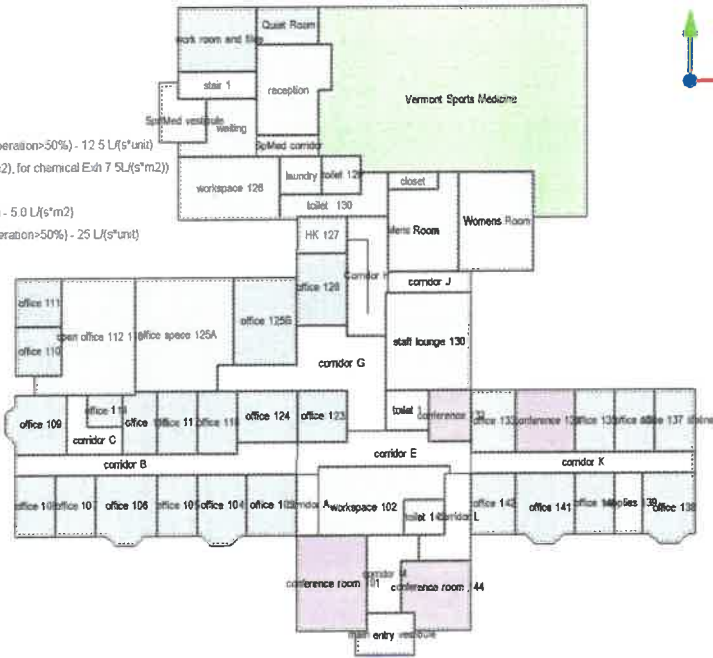
**Mechanical:**

The existing building is supported via multiple air handling units with heating and cooling capabilities. Some of these units are provided with energy recovery ventilation, direct outdoor air ventilation, and some units appear to not have any dedicated ventilation. LN Consulting completed an energy model to determine probable heating and cooling loads as well as ventilation requirements. All ventilation calculations for heating and cooling were based on utilizing energy recovery ventilation.



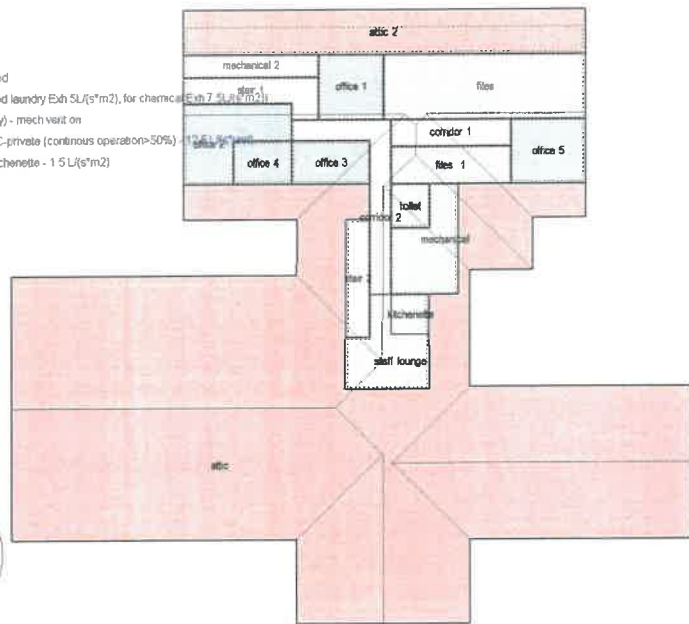
The following are a list of heating and cooling loads for each space in the building:

- General - Conference/Meeting
- General - Corridor (used regularly)
- General - Corridor (used regularly) - mech vent on
- Office Buildings - Office-Open Plan
- Office Buildings - Office-Enclosed
- Exh/W Assumed Occ/Rp/Ra - WC-private (continuous operation>50%) - 12.5 L/(s\*unit)
- General - Storage room (for soiled laundry Exh 5L/(s\*m2), for chemical Exh 7.5L/(s\*m2))
- General - Break room
- Exh/W Assumed Occ/Rp/Ra - Janitorial, trash, recycling - 5.0 L/(s\*m2)
- Exh/W Assumed Occ/Rp/Ra - W/C-public (continuous operation>50%) - 25 L/(s\*unit)
- Fitness suite/gym
- Laundry
- Office Buildings - Reception area
- Office Buildings - Lobby Main Entry - Office



3 Albert Cree Level One

- <None>
- Light plant room
- Office Buildings - Office-Enclosed
- General - Storage room (for soiled laundry Exh 5L/(s\*m2), for chemical Exh 7.5L/(s\*m2))
- General - Corridor (used regularly) - mech vent on
- Exh/W Assumed Occ/Rp/Ra - WC-private (continuous operation>50%) - 12.5 L/(s\*unit)
- Exh/W Assumed Occ/Rp/Ra - Kitchenette - 1.5 L/(s\*m2)
- General - Break room



3 Albert Cree Level Two



### VOC HVAC Requirements

Room	Design Heating (btu/hr)	Design Cooling (btu/hr)	Design Vent. Air (CFM)
<b>Zone Orange</b>			
133	2309.2	3473	15
134	3553.5	5807.5	62
135	2300	3392.5	15
136	2369	3346.5	15
137	3300.5	3461.5	15
<b>Zone Dark Blue</b>			
108	3128	3151	15
107	2196.5	2783	15
106	4013.5	5784.5	20
105	2300	3415.5	15
104	3220	3783.5	17
103	2346	2668	15
142	2254	2587.5	15
141	3519	3875.5	20
140	2242.5	3231.5	15
138	4404.5	5290	17
<b>Zone Pink</b>			
114	440	1150	10
115	440	1150	10
116	770.5	1311	15
117	989	2403.5	15
118	839.5	1702	15
124	943	1771	18
102	2070	3599.5	35
<b>Zone Yellow</b>			
125B	2323	2806	30
126	810.75	1311	10
126	810.75	1311	10
130	2944	6675.75	45
130	2944	6675.75	40
123	828	1518	15
132	1253.5	3841	85
<b>Zone Light Blue</b>			
125A	6509	7509.5	55



<b>Zone Green</b>			
109	3726	3358	17
110	2599	2001	15
111	2978.5	2139	15
112	2932.5	3179.75	20
113	2932.5	3179.75	20
Entry	2564.5	1161.5	

**Additional First Floor Space Loads**

127 HK	759	0	70 CFM E.A.
128 Work Space	4393	3243	35
32 Mens Rom	1230.5	4554	150 CFM E.A.
30 Womens Room	2541.5	4163	150 CFM E.A.
VT Sports Medicine	21585.5	64066.5	205
Corridor B	2047	828	20
Corridor K	1598.5	770.5	15
Work Room and Files	4163	4726.5	25
Quiet Room	3093.5	5163.5	15
Waiting/Reception	3240	9675	105
Entrance	2300	N/A	N/A
Relocated Laundry	103.5	1946.2	60
Supplies 139	862.5	379.5	10

**Additional Second Floor Space Loads**

Office 1	2012.5	4956.5	20
Office 2	3680	6796.5	35
Office 3	1380	3059	17
Office 4	1081	2449.5	15
Office 5	3576.5	6049	22
Staff Lounge	3139.5	9625.5	55
Kitchenette	816.5	4197.5	30 CFM E.A.
Corridor 1 and 2	3910	5405	30
Files	7958	5117.5	85
Files 1	2185	1690.5	30
Mechanical 1	115	N/A	35
Mechanical 2	264.5	N/A	30
Stair 1	2461	3806.5	N/A
Stair 2	1368.5	1403	N/A



### **Recently Renovated Zones**

Conference 101	6865.5	11590	105
Conference 144	5658	9390	70
Corridor M	1104	680	10
Toilet 143	276	350	70 CFM E.A.

### **Results**

In general, the review of the balance report versus the energy model results indicated multiple spaces with HVAC deficiencies and balancing concerns.

#### **Zone Orange:**

There were heating deficiencies in rooms 135 and 137 and cooling deficiencies in each space.

#### **Zone Dark Blue:**

There were heating deficiencies in rooms 108, 104, 103, 141, 140, and 138 and cooling deficiencies in every zone besides room 142.

#### **Zone Pink:**

There were heating deficiencies in rooms 115, 116 and cooling deficiencies in rooms 115, 116, 117, 118 and 124.

#### **Zone yellow:**

There were heating deficiencies in rooms 130 and 132 and cooling deficiencies in rooms 130 and 132.

#### **Zone Light Blue:**

No deficiencies and but unit appears to be oversized for space.

#### **Zone Green:**

There were heating deficiencies in rooms 112 and 113 and cooling deficiencies in rooms 112 and 113.

#### **Additional Level One Zones:**

There were no balance reports provide for these spaces.

#### **Additional Level Two Zones:**

There were no balance reports provide for these spaces.

#### **Conference Room 191, Corridor M, Conference room 144 and toilet 143:**

These spaces were recently updated with full HVAC and meet heat loads and ventilation requirements.

### **Recommendations**

We would recommend the following HVAC modifications to the existing spaces and equipment. All existing furnaces and cooling equipment supporting renovated space shall be demolished.

**Zone Orange:** Provide new ERV to support ventilation requirements for zone. Provide new 1.5 ton ducted fan coil unit to support rooms, 133, 135, 136, 137 and corridor K. Provide return ducting to each space. Provide new 0.75 ton ductless unit to support conference 134 and ventilation air fed from new zone orange ERV. Provide testing and balancing based on required heating, cooling and ventilations loads.

**Zone Dark Blue:** Provide (2) new zones. Rooms corridor B, 108, 107, 106, 105, 104, and 103 shall be provided with a new 2.0 Ton ducted fan coil and ERV to support ventilation loads. Rooms 142, 141, 140, and 138 shall be provided with a new 1.5 Ton ducted fan coil and ERV to support ventilation loads.



Provide return ducting to each space. Existing ductwork to be reworked to accommodate new zones. Provide testing and balancing based on required heating, cooling, and ventilation loads.

**Zone Pink:** Provide (2) new zones. Rooms 115, 116, 117, 118, and 124 shall be provided with a new 1.5 ton ducted fan coil and ERV to support ventilation loads. Provide return ducting to each space. Provide new 0.75 ton ductless unit to support Work Space 102 and ventilation air fed from new zone Pink ERV. Provide testing and balancing based on required heating, cooling, and ventilation loads.

**Zone Yellow:** Remove Room 125B from zone. Office 126, 123, corridor F, corridor G, corridor I and toilet 129 shall be provided with a new 1.0 ton ducted fan coil unit. Provide return ducting to each space. Provide new 0.5 ton ductless unit to support conference 132. Provide new 0.5 ton ductless unit to support work space 128. Provide new 1.5 ton ductless unit to support Staff Lounge 132. Provide new ERV to support all zones. Provide testing and balancing based on required heating, cooling, and ventilation loads.

**Zone Light Blue:** Add room 125B to zone and provide new 1.0 ton ducted fan coil unit. Provide return ducting to each space and rework ducting to accommodate room 125. Reuse existing ERV. Provide testing and balancing based on required heating, cooling, and ventilation loads.

**Zone Green:** Provide new ERV to support ventilation requirements for zone. Provide new 1.5 ton ducted fan coil unit to support rooms, 110, 111, 112, and 113. Provide return ducting to each space. Provide new 0.5 ton ductless unit to support office 109 and ventilation air fed from new zone green ERV. Provide testing and balancing based on required heating, cooling and ventilation loads.

**Vermont Sports Medicine and additional first floor spaces:** Existing to Remain.

**Additional second floor Spaces:** Provide new ERV to support ventilation requirements for spaces zones. Reuse existing air handler ductwork where applicable for new ventilation air and supply/return air distribution. Provide new ducted 1.0 ton fan coil unit to support files, files 1, and office 5 space. Locate thermostat in office 5. Provide new ducted 1.5 ton fan coil unit to support offices 1, 3, 4, and corridor. Locate thermostat in office 5. Provide new 0.75 ton ductless unit to support office 2. Provide new 0.5 ton ductless unit to support kitchenette. Provide new 1.0 ton ductless unit to support staff lounge.

**Stair 1 and Corridor J.** Provide Supplemental electric baseboard heat to accommodate heat loads of space.

Pricing shall be provided for two options:

**Option #1:** All Zones to be provided with a dedicated low ambient outdoor air to air heat pump unit.

**Option #2:** Provide a central building low ambient outdoor air to air heat pump with recovery. The advantage of this unit is that it allows simultaneous heating and cooling for all spaces and exchange energy within the entire building.

The recommendations provided above will increase indoor air quality with new energy recovery units throughout the building, provide better comfort due to additional zoning, and eliminate fossil fuels for all renovated spaces. We have attached our energy model assumptions for review and commenting.

If you have any questions or require additional information, please contact our office.

Sincerely,  
**LN Consulting, Inc.**

George D. Martin, P.E.

Attachments: Energy Model Assumptions  
Albert Cree HVAC Zone Locations 6.28.21 (Provided by New England Air)





Energy Model Assumptions

	Value
Program Version and Build	EnergyPlus, Version 9.2.0-921312fa1d, YMD=2022.04.05 14:36
RunPeriod	RRMC VOC (01-01:31-12)
Weather File	Rutland State VT USA TMY3 WMO#=725165
Latitude [deg]	43.52
Longitude [deg]	-73.0
Elevation [ft]	807.13
Time Zone	-5.0
North Axis Angle [deg]	0.00
Rotation for Appendix G [deg]	0.00
Hours Simulated [hrs]	8760.00

Window-Wall Ratio

	Total	North (315 to 45 deg)	East (45 to 135 deg)	South (135 to 225 deg)	West (225 to 315 deg)
Gross Wall Area [ft2]	13441.05	3611.99	3185.88	3361.77	3281.41
Above Ground Wall Area [ft2]	8457.89	2171.87	2065.28	1993.16	2227.58
Window Opening Area [ft2]	944.25	159.88	280.03	187.08	317.26
Gross Window-Wall Ratio [%]	7.03	4.43	8.79	5.56	9.67
Above Ground Window-Wall Ratio [%]	11.16	7.36	13.56	9.39	14.24

Skylight-Roof Ratio

	Total
Gross Roof Area [ft2]	13783.70
Skylight Area [ft2]	0.00
Skylight-Roof Ratio [%]	0.00

Infiltration: 0.6 cfm/ft<sup>2</sup> @ 75 Pa.

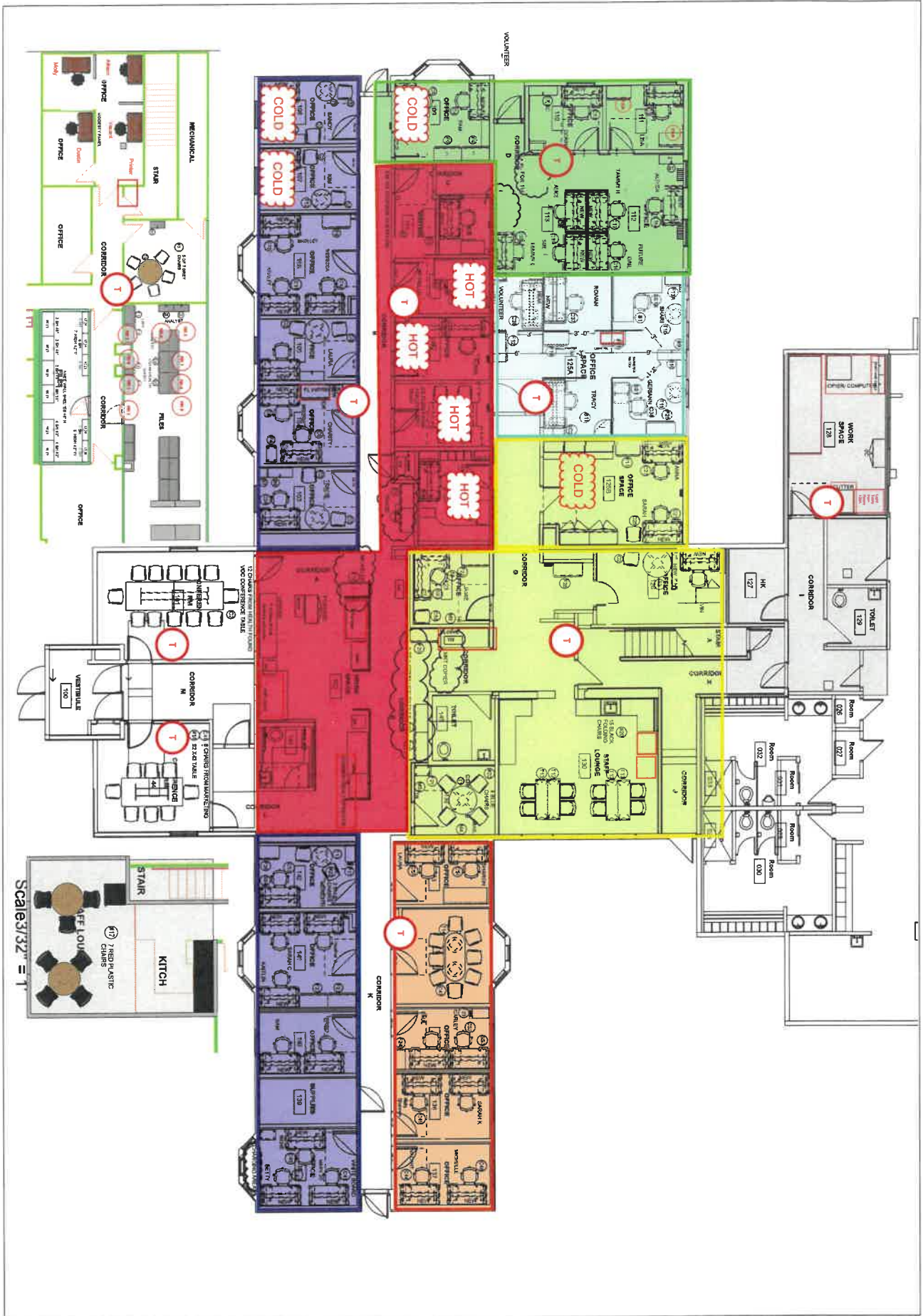
Exterior Walls Construction:

W-1 Construction: Reflectance 0.30/U-Value .048

FW-1 Construction: Reflectance 0.40/U-Value .526

Roof Construction: Reflectance 0.30/U-Value .047

Glazing: SHGC 0.861/Transmittance 0.898/U-Value 1.038



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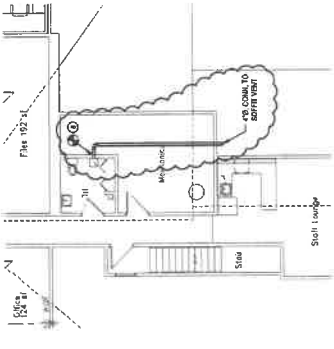
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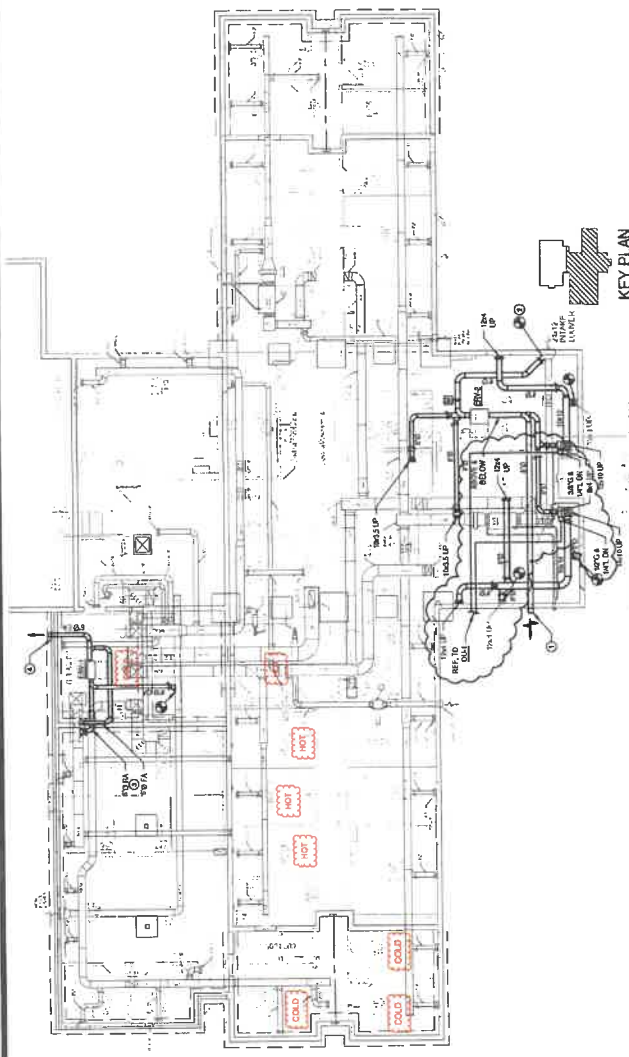
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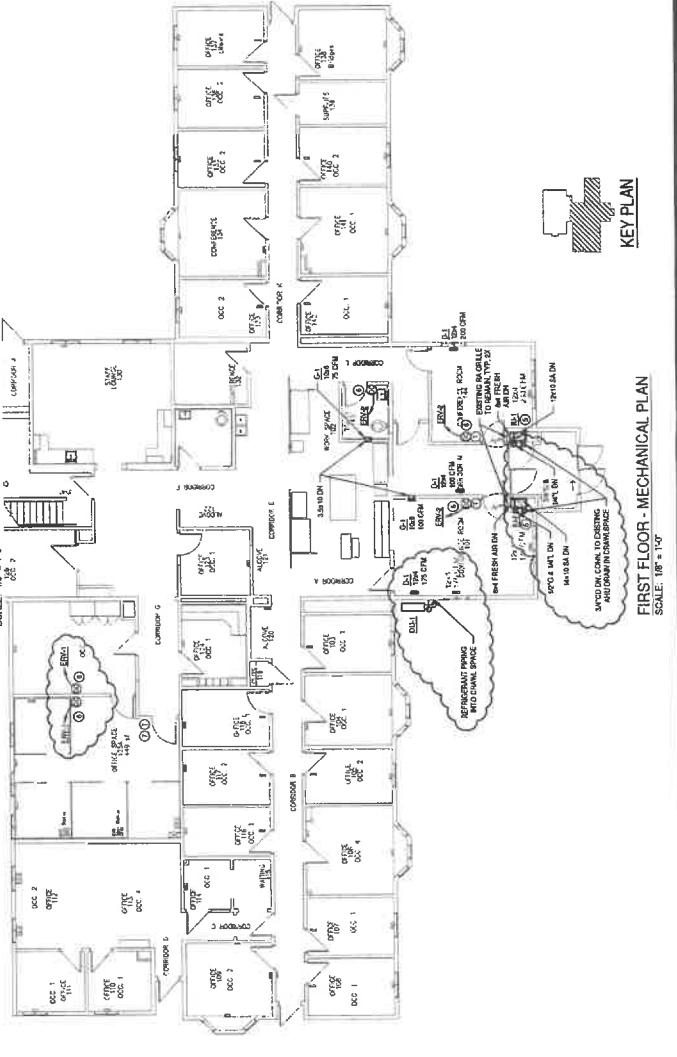
**SECOND FLOOR - MECHANICAL PART PLAN**  
 SCALE: 1/8" = 1'-0"



- KEYED NOTES:**
1. INSTALL NEW WALL JACK W/ BRD.
  2. CONNECT NEW W/ TO EXISTING LOWER LEVEL.
  3. CONNECT EXISTING RETURN AIR AND DRAINAGE TO EXISTING DRAINAGE SYSTEM DUCT. REPAIR AIR BRASS CONNECT DRAINAGE OF EXISTING DUCT.
  4. INSTALL NEW WALL JACK W/ BRD.
  5. CONNECT W/ TO DOWN LOW LINE DUCT OPTIONAL SET.
  6. INSTALL NEW OCCUPANCY SENSORS. W/ BRD W/ BRD. SO THAT ANY OCCUPANCY SENSORS STAYS THE EN.
  7. INSTALL RELOCATED THERMOSTAT.
  8. CONNECT W/ TO OUTLET OF EXISTING AIR ROOM FROM AIR FAN AND EXCHANGE THROUGH ROOF.

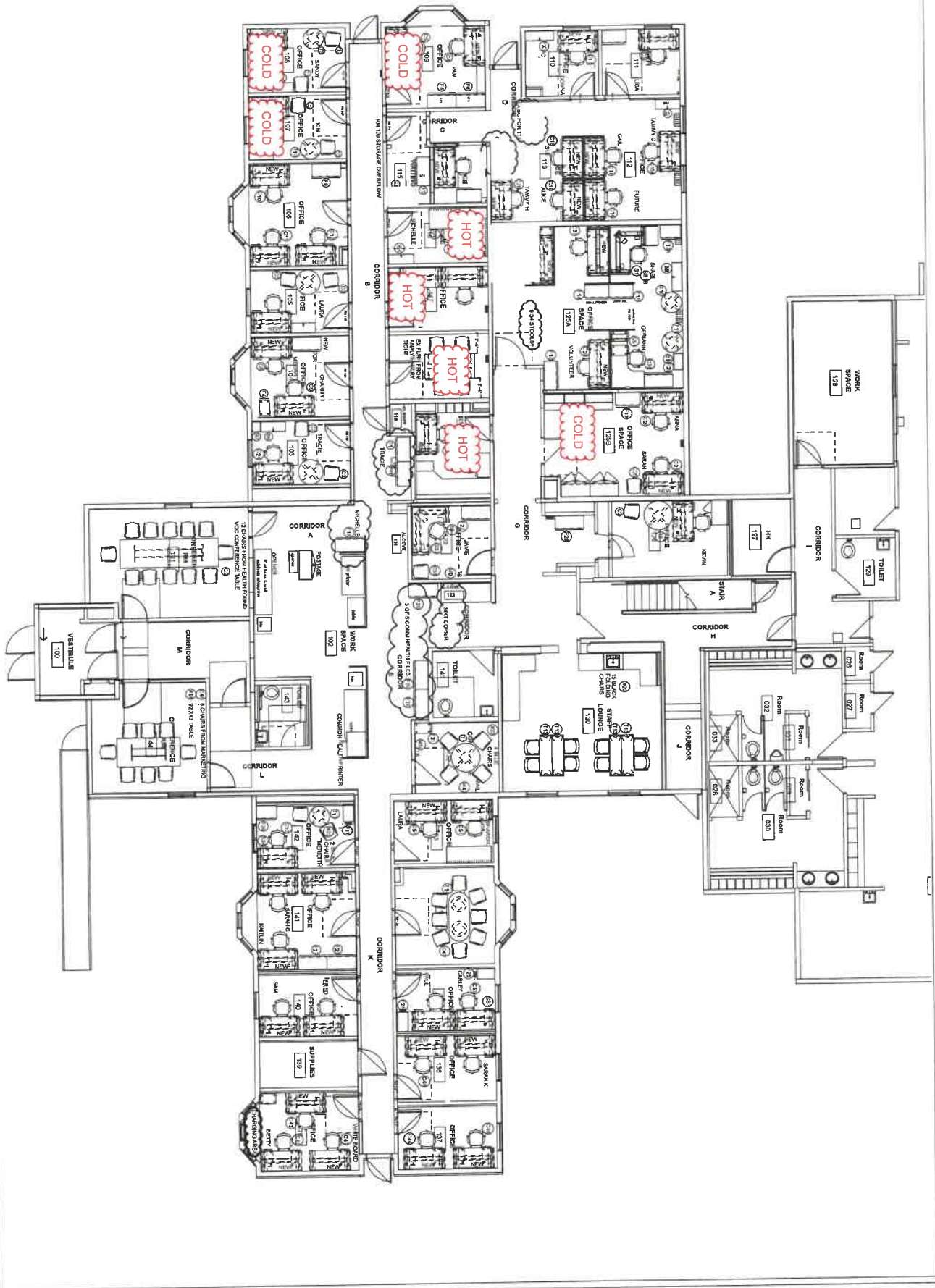


**BASEMENT - MECHANICAL PLAN**  
 SCALE: 1/8" = 1'-0"



**FIRST FLOOR - MECHANICAL PLAN**  
 SCALE: 1/8" = 1'-0"





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