

Fairfield Woods Middle School

1115 Fairfield Woods Road Fairfield, CT 06825



Fairfield Public Schools Recommissioning (RCx) and Testing, Adjusting, & Balancing (TAB) Study van Zelm Project # 2020102.00 (05-FWMS) August 01, 2022

VAN ZELM HEYWOOD & SHADFORD, INC.

1200 CONVERSE STREET LONGMEADOW, MA 01106 P: 617.218.9976 10 TALCOTT NOTCH FARMINGTON, CT 06032 P: 860.284.5064 www.vanzelm.com 862 BRAWLEY SCHOOL ROAD, SUITE 207 MOORESVILLE, NC 28117 P: 704-799-7275



TABLE OF CONTENTS

EXECUTIVE SUMMARY	.1
EVALUATION	.2
2015 International Mechanical Code (IMC) Compliance	.2
Outside Air Flow and Air Change Rate Findings	.3
Outside Air Flow Improvement Recommendations	.4
Control Sequence Update Recommendations	.5
Equipment Upgrade or Replacement Recommendations	.6
CONCLUSIONS	.8

APPENDICES

- APPENDIX 2 Ventilation Data Calculations
- APPENDIX 3 Roof Map
- APPENDIX 4 TAB Airflow Survey Data
- APPENDIX 5 RCx Unit and Room Take-Off Data



Fairfield Woods Middle School

FAIRFIELD PUBLIC SCHOOLS RECOMMISSIONING (RCX) AND TESTING, ADJUSTING, & BALANCING (TAB) STUDY

EXECUTIVE SUMMARY

Fairfield Woods Middle School was deemed to be school priority number five by Fairfield Public Schools. The following report will indicate the compliance or non-compliance of this school with current International Mechanical Code (2015 IMC) regarding Ventilation for Acceptable Indoor Air Quality.

Fairfield Woods Middle School is located at 1115 Fairfield Woods Road Fairfield, CT and serves as an educational facility for approximately 800 students as of the May 2022 census and up to 218 faculty and staff. The school is one of the newer buildings, having been constructed in 1954 but still seeing some major renovations since including one in 2011 where the kitchen, cafeteria, auditorium, and new classroom wing were added on and another rooftop unit upgrade around 2019.

The school ventilation systems comprise mainly of twenty-two (22) Rooftop Air Handling Units (RTU-1 -22), some unit ventilators or fan coil units depending on the classroom wing, and exhaust fans for various purposes including, but not limited to, toilet exhaust, kitchen exhaust, mechanical/electrical space ventilation, etc. Some spaces have operable windows, which might vary in use depending on the particular occupant or environmental conditions, but these are not directly tied into any monitoring system nor are expected to be used for the purposes of providing fresh outside air as a component of the building ventilation. The air handling equipment ranges widely in size and features, including some units with built-in energy recovery (RTU-8, RTU-10) or, in the case of RTU-16, an external dedicated energy recovery unit. The majority of these units are 2019 Trane with gas-fired burners for heating and directexchange refrigerant systems for cooling, which include self-contained controls. While these systems appear to be in relative decent condition as far as mechanical operation is concerned, the control sequences and functionality are in question as we only were able to take a snapshot in time of the systems operation. The Building Automation (BAS) control system otherwise consists of an Alerton control system through ABS, though monitoring and control of HVAC systems is somewhat limited. As noted in the TAB data report component, the control contractor was not able to make any changes to most of the tested units, so only the unit status could be seen. Discovering the cause of this issues would require further investigation through retro-commissioning.

We performed our on-site RCx inspection starting on April 4, 2022, and TAB review starting on April 29, 2022. The goal of this study is primarily focused towards addressing the outside air and outside air change rates of the occupied spaces. Although there are code exhaust air requirements for spaces like storage rooms, electrical rooms, mechanical rooms, etc., these spaces are often not directly ventilated with outside air, nor are they required to be since they typically have occupancy totals of zero (actual or expected). These spaces typically do not affect building occupants since they are typically provided with some form of exhaust which drives these spaces negative to the surrounding area. At worst, improper levels of exhaust would drive a negative building further negative, but it does not introduce air from these locations to classroom or office spaces. Should the district pursue additional work for the building including recommissioning, balancing, and controls upgrades, these spaces would be addressed as a component of that process.



Overall, the performance of the building with regard to ventilation was found to be poor and, in some cases, entire sections of the building were not satisfied with enough outside air. Findings from the Retro-Commissioning (RCx) and air-side Testing Adjusting and Balancing (TAB) process found significant issues that should be addressed immediately to improve building environmental control, reduce energy usage, and improve building ventilation compliance with the 2015 version of the International Mechanical Code (2015 IMC). Although there are additional guidelines and recommendations put forward by organizations dedicated to the research and implementation of healthy buildings that have plenty of overlap with IMC 2015, these were not the driving factors for this assessment. Please be aware that many of these changes on their own will not reduce energy consumption, but rather will increase it; in some cases, this increase could be significant. Measures should be considered that offset this additional energy use with control upgrades that adjust ventilation systems based on use and measured values. The remainder of this report will address these concerns directly and provide a path forward for Fairfield Public Schools.

EVALUATION

For the purposes of this study, the Fairfield Public Schools district had five primary questions about the capability and performance of each of the school buildings. Based on our findings, we have some insight into each of these below.

2015 International Mechanical Code (IMC) Compliance

As the accompanying spreadsheet indicates, many of the individual occupied spaces at this school do not fully comply with the applicable building codes or guidelines regarding indoor air quality and outdoor ventilation. The measured ventilation air being delivered into each occupied space would be considered a worst-case scenario only, and even at such, there are some areas within the building that do meet and exceed these ventilation requirements by a significant amount.

The supply of outside air to interior occupied spaces is governed by the 2018 Connecticut Building Code, which is based on the 2015 International Mechanical Code. This code prescribes the flow rate of outside air that must be supplied mechanically to occupied areas based on occupancy classifications. Depending on the type of use of a space, outdoor air flow rates in cubic feet per minute (CFM) per person are defined when the number of occupants within a space is known. When total occupants per space are unknown, the code defines occupant density for each classification type in number of occupants per space floor area. The final flow rate in CFM for every occupied space can thus be calculated. Please note that, although this is a school, some spaces like an office will not be indicated as being part of an "education" occupancy classification because the IMC does not distinguish between an office in an office building, a school, or anywhere else. This applies to nearly every space that is not considered a space for traditional classroom activities including, but not limited to, nurse and healthcare offices, gymnasium, assembly halls, etc.

As an alternative to providing outside air mechanically to occupied spaces, the building code also allows for outside air to enter occupied areas naturally through operable windows. If the area of operable windows for an occupied space is at least 4% of the space's floor area, mechanical ventilation for that space is not required by code. However, although spaces with sufficient operable window area may satisfy code requirements, this is not a realistic way of providing adequate ventilation during periods of cold or hot weather, and this often adversely affects the temperature and humidity levels within the building. In any case, some sort of equipment is provided in every occupied space here including in spaces with operable windows, but whether it was supplying ventilation is a different question.



The amount of outside air supplied to occupied spaces is important for occupant comfort and health because contaminants generated by people and materials in the space must be removed or they will build up to unhealthy levels. Diluting interior air with outside air reduces the concentration of various airborne contaminants, including viral particles that carry the COVID-19 virus and other viral and bacterial contaminants.

Outside Air Flow and Air Change Rate Findings

The "Ventilation Data Calculations" Appendix contains the data from all RCx findings and TAB measurements regarding ventilation within occupied spaces. This data conforms to the requirements within IMC 2015 and the results are calculated based on individual space classification and category. Additionally, these readings rely on the "worst case" scenario, whereby each space is considered fully occupied and the associated air handling units are operating with minimum outside air to satisfy the controlled parameters. The reason for using this method is to ensure that if a building is capable of maintaining required outside air flow in this minimum ventilation mode, it will definitely maintain them when more outside air is introduced. It does not necessarily mean that the units will handle thermal or humidity regulation in maximum ventilation modes. As a caveat, it is important to understand that forcing the worst case is not necessarily typical building operation but is necessary to discover root issues behind the ventilation control of the building. It is possible that correcting certain issues regarding outside airflow will cause different issues to be revealed, which in turn would need to be addressed.

For the occupied zones within this building, the total minimum required ventilation airflow came out to 46,347 CFM. The TAB process revealed that only 31,639 CFM of outside air is delivered to the spaces, resulting in a 14,363 CFM deficit or 68.3% of the required minimum flow. Additionally, the ventilation calculations reveal that only 31.2% of the occupied zones actually met the requirements. This means there is some disparity in zones either receiving far too little ventilation or far too much. A significant quantity of spaces received little ventilation, either because the associate unit damper is nonfunctional, because the outside air dampers could not open manually or through the controls, or because the space is served only by unit ventilators that do not alone provide adequate ventilation air for the space requirements. An analysis of the rooms based on the associated air handling unit reveals additional reasons why clusters of rooms might have failed to meet code, which is expanded on within the Issues List appendix. One notable unit is the combination RTU-16 & ERU-1 system that serves the newer classroom wing at the rear of the school. The energy recovery unit is interlocked to operate together and ducted to RTU-16, but are also independent from one another. If for some reason the ERU is disabled while the RTU is running, the RTU struggles to maintain code ventilation in almost all of the spaces. Based on our TAB results, there is a shortage of ventilation air in this space even with the ERU on but it is much less pronounced.

A common calculation used for measuring the amount of air flushed through the space every hour is the Air Change Rate (ACH), and for this analysis specifically we are concerned with the Outside Air Change Rate (OACH). At its core, this is a ratio of the volume of air that can theoretically completely fill the volume of each space and how many times it can do that every hour. For example, a 1000 ft² room with 10 ft ceilings will have a volume of 10,000 ft³. If 250 CFM is delivered to this space, that results in 15,000 ft³ of air. Every hour, the space will be flushed with that much air, resulting in an ACH of 1.5. This number on its own will not determine if a space satisfies code requirements and it does not mean that every molecule of the air in that space has been replaced after the hour, but it helps to give an idea into the type of performance that could be expected and there are guidelines for many space regarding the OACH. While general spaces like classrooms and offices are among the space categories that do not have outside air ACH requirements, these rates help to give some insight into overall performance. Current recommendations prescribe a total ACH of at least 3 throughout the building, without falling below the minimum outside air CFM. Taking the entire building volume and air delivered cycled through the



building, which includes outside air and filtered, return air, this building was capable of achieving 4.583 ACH. This is well beyond the recommended 3 ACH, and it could indicate that there is potential for the building to increase outside air where there is too little in order to meet the code requirements, but then reduce total unit airflow to save on energy lost on the added outside air. This can be further broken out by spaces that meet or fail to meet code. Among the spaces that failed to meet code, the outside air ACH was 0.536; for spaces that at least met or exceeded code, the outside air ACH was 2.627; the combined outside air ACH for the entire building was 1.077. Special rooms such as a nurse's suite do require an outside air ACH of at least 2 and total ACH of 6, which was not met in this building. This is in addition to other recommendations or requirements such as negative pressure relative to adjacent spaces, extra filtration requirements for recirculated air, space pressure profiles for nurse suite spaces, etc.. These numbers are affected by the above referenced ERU operation, though the unit was operational after some manipulation so it is included here as running.

Total ACH	Total OACH	OACH for zones that	OACH for zones that
(RA + OA)	(OA/EA)	do <u>not</u> meet code	meet code
4.583	1.077	0.536	2.627

Outside Air Flow Improvement Recommendations

Immediate action should be taken for spaces receiving 0 CFM outside air, particularly the A-wing rooms of the old building. The unit ventilators serving these spaces should be repaired with the assistance of a control technician and TAB Contractor to confirm proper control operation and positioning of the unit dampers, or altered such that the proper amount of air can be provided. This alone will bring some quantity of outside air to spaces that currently have none and will necessarily improve building performance as a result. The HVAC systems should holistically be rebalanced to current design requirements after the BAS control system has been upgraded with new end devices where needed. This includes a general BAS repair to get the system working properly to begin with while any upgrades are implemented so that full control over OA dampers can be regained.

Aside from the above, since the emergence of the COVID-19 virus in December 2019, the specific requirements and precautions taken regarding outside air have become more stringent. For example, ASHRAE has been continuously investigating the transmission of COVID-19 through HVAC systems and has made recommendations on how to adapt existing HVAC systems to minimize transmission of COVID-19. Changes to building systems to address the virus also positively improve the performance of the ventilation systems with handling the filtration of other particulate that directly impacts building air quality. On April 14, 2020, ASHRAE released a document "ASHRAE Position Document on Infectious Aerosols". This report was provided in an Appendix to the FPS high school ventilation summary reports. ASHRAE also gave a presentation on June 16, 2020, regarding Recommendations and Activities for reopening schools for the fall 2020 academic semester. These recommendations remain relevant as COVID and other contaminants that impact indoor air quality continue to remain a concern. Although this report is primarily concerned with meeting 2015 IMC for compliance, ASHRAE's insight into addressing the code is invaluable. Their recommendations for reducing the transmission of infectious aerosols through HVAC systems as they apply to schools are as follows:

• Increase outdoor ventilation rates (Dilution) for all zones with deficit minimum outside air by adjusting the outside air damper minimum position of the associated air handling equipment.



Generally, more is better, but any changes should follow ASHRAE Standard 62.1 as a minimum and should not overpower the capability of the heating or cooling equipment so as to maintain temperature and humidity requirements in the occupied spaces.

- Filter changes should become more frequent. Current policy indicates a twice-annual filter change at all schools. The filters had been scheduled to be changed at the time of inspection as the last change recorded was October 2021, and almost all of them were very dirty, which decreases the filter's efficiency and forces the unit fans to run at higher speeds (more energy consumption) or to deliver less outdoor ventilation air to the space.
- Increase total air change rates to between 3 and 6 ACH where possible while still satisfying minimum OA ventilation.
- Flush or purge building before and after occupancy for at least two (2) hours, if possible.
- While all units appear to have MERV 13 filters now installed, units that have both final and prefilters have MERV 13 filters in both positions. Having two of the same efficiency filters in series does not significantly improve the filtration efficiency and mostly just reduces total airflow. MERV 8 pre-filters can be used in double bank racks to act as an inexpensive shield for the more expensive MERV 13 or 14 filters.
- Consider installation of UV-C or bi-polar ionization to recirculating air systems where installation of these systems do not interfere with the unit construction or operation.
- Provide humidification to maintain 40% RH during the heating seasons, if possible.
- Provide dehumidification in the summer to maintain room RH below 60%.
- Supplement poorly or un-ventilated areas with portable HEPA filtration units in classrooms until such time as proper ventilation can be delivered to the space.
- Add low return / high supply airflow paths or utilize displacement ventilation where possible.
- Increase restroom exhaust where possible while maintaining a positive building pressurization to the exterior.
- Perform duct cleaning for existing systems.

Control Sequence Update Recommendations

Without a specific retro-commissioning of the BAS control system itself, it is not possible to tell exactly what systems and components of the BAS needs repair or upgrade, but a cursory review of what was available indicates great need to :

- Immediately address the issues that prevent the controls groups from manipulating the controls. This made testing the building difficult but it also means that the building is not well controlled, nor is it flexible in case adjustments do need to be made. Although this school is far from the worst in terms of controls, it was not benefitted by recent controls upgrades like at other buildings.
- Repair or replace all faulty equipment controllers and end Input/Output devices.



- Look to program units to provide a pre and post occupancy purge for all occupied spaces.
- Generally, increase airflow to each space or decrease if the supplied air is significantly beyond necessary levels. Decreasing air to some locations might seem counterintuitive but some zones are being supplied with significantly more than 100% of what is required, so backing these down will help move air to where it needs to go. This item should not be addressed without a certified TAB contractor to verify flow adjustments are correct.
- Increase the minimum OA damper position for each unit, where possible.
- Confirm that trending and alarms have been set up for all units and establish alarm points for units operating below required minimum ventilation levels during occupied modes
- Implement CO₂ and Demand Control Ventilation (DCV) sequences for units to adjust ventilation air being delivered automatically and efficiently based on actual individual space occupancy. Not only will these sequences save a substantial amount of money in energy costs, but they remove the guesswork for facilities and control personnel for how much air each space needs, and code/guidelines incorporate these capabilities into exceptions for blanket minimum outside air flow rates. The implementation of this control strategy is especially vital since increased ventilation to the building will increase all energy costs as it has a direct impact on the heating and cooling systems as well.

Equipment Upgrade or Replacement Recommendations

Where any building areas are not meeting ventilation requirements due to a lack of mechanical ventilation, undersized units or those that are otherwise are in a state of disrepair, or for any units that need to be replaced, we recommend considering Energy Recovery Ventilators (ERV) much like ERU-1. These do not need to be directly associated with a nearby unit, however, and can often come standalone with additional coils for heating and cooling. Energy Recovery Ventilators are packaged heat recovery units that mostly utilize an air to air heat exchanger to recover waste heat from the exhaust air and transfer it to the outside air, powered by supply and exhaust air fans. ERVs require ducted outside and exhaust air to the outside of the building; the inlet and exhaust air openings should be at least 10 feet apart to comply with the Building Code. Depending on the location, general exhaust fan ductwork could be repurposed for these units. There are two main types of air-to-air energy recovery units: energy wheel and cross-flow heat exchangers. Energy wheel units tend to be more expensive and have some additional operating costs due to the wheel motor, but they have higher heat transfer efficiency than cross-flow units. Both styles of units require filters to protect the heat exchanger media and operate best during peak load conditions. Sometimes an existing unit can be retro-fit with some form of heat recovery system, but it is highly dependent on the unit configuration and requires engineering calculations to determine sizing, including if the current unit fans can accommodate the increased static pressure losses that would be incurred.

Generally, the more outside air that can be supplied to occupied areas, the better. Each existing air handler should have outside air flow rates increased above current setpoints if they can be obtained. Even units that currently meet code requirements for ventilation flow rates could be increased, but should not be increased beyond the capacity of the unit to heat or cool the air. Total space air change rates should also be increased to the extent possible along with increases in outside air flow to better remove contaminants from the air. If a unit at maximum fan speeds is still incapable of providing at least the minimum ventilation or ACH required, then the system should be evaluated further to determine the best solution such a total system modification, or the installation of a self-contained HEPA filtration unit in areas where increasing fresh air is limited.



Supplemental air cleaning technology, such as ultraviolet-C (UV-C) light or bi-polar ionization, is available could be considered if additional disinfection measures are desired. UV-C is short wavelength ultraviolet light that has been found to effectively kill COVID-19 particles. UV-C systems are already used in other HVAC systems where they are installed in air streams to kill bacteria and other harmful living organisms. These systems can be installed relatively easily in already constructed system ductwork or air handlers without major modifications. Bi-polar ionization systems are also installed in ductwork or air handlers and use an electric charge to create a concentration of positively and negatively charged particles in an airstream. These particles cause pathogens to stick to each other and become larger, thus increasing the probability of them being captured by air filters. The charged particles come in contact with pathogens in the occupied space, the charge removes hydrogen from the pathogen so that it is no longer able to sustain itself. For this reason, bi-polar ionization is preferred to UV-C air cleaning because bi-polar ionization has the ability to decontaminate pathogens outside of the ductwork whereas UV-C only decontaminates pathogens that enter the ducts.

ASHRAE recommends relative humidity values between 40 and 65% as these values have been shown to hamper the ability of COVID-19 and other pathogens to travel and thrive. When cooling systems are in operation, ensure dehumidification is adequate to keep relative humidity below 65%. During heating system operation, relative humidity values are typically less than 40%. Adding humidification to the existing HVAC systems is often exceedingly difficult and costly; additionally, humidification for HVAC systems can be problematic if not well maintained and adds to operating costs. For this reason, recommendations discussed above should be enacted before humidification is considered.

In order to best confirm that the implementation of the above recommendations is met as well as other improvements, we recommend performing Recommissioning of each school. This is an extensive procedure that will help with fully documenting the building systems, their capabilities, and optimizes the control system to maintain the best performance while conserving the most energy. In general, Recommissioning should be performed approximately once every five years to keep the buildings operating smoothly.

For any unit that operates *only* with 100% outside air (e.g., makeup air units, dedicated outside air units, etc.) MERV 8 filters can be used instead of MERV 13s. This will allow for fan energy savings and increased ventilation without sacrificing indoor air quality. Where any of these units need to be replaced, we recommend considering a unit with some form of energy recovery (either a wheel or cross-flow heat exchanger). This will conserve additional energy and will still allow for systems to operate with more outside air.

Most units allow for some amount of recirculation, so the following are recommendations for upgrading the air handling units:

- Where any unit has a two filter racks where the first has room for 2" filters and the second has room for 4" or greater filters, the 2" filters can be MERV 8 for pre-filtering, but the larger filters should remain MERV 13.
- Based upon our observations HVAC unit filter changes should be performed more frequently. The party responsible for changing the filters should note which unit filters become dirty quicker and should further increase the frequency of changes to those units.
- Consider adding Bi-polar ionization or another means of air disinfection wherever possible.



- Consider investigating the potential of increasing the ventilation air flow rate wherever possible.
- For any defunct units or disabled units needing serious repair or replacement, consider replacing with a unit that has energy recovery (either a wheel or cross-flow heat exchanger). This might require changes to the ductwork or balance of the air system since replacing a mixed air unit with a 100% OA unit might result in less total airflow required.
- All of the items noted within the RCx and TAB field finding appendices should be addressed by the facilities personnel. These items are separated by category: IAQ/Ventilation items, Maintenance items, Control items, and Information Only. While these lists are not a substitute for a full-building commissioning service, these corrections contain many of the significant issues that will quickly improve indoor air quality and energy consumption rates. Some typical issues include, but are not limited to:
 - Cleaning all unit coils: Some are in worse shape than others. Cleaning the coils will improve airflow patterns through the coil, increasing coil effectiveness and preventing deterioration due to rust or corrosion.
 - Damper cleaning and lubrication: All unit dampers should be cleaned and lubricated and tested throughout their movement range from the BAS. As dampers age, lubrication fails and dirt builds up causing the actuator to need to push harder to move the damper. Too much build-up can result in control actuators failures or broken damper hardware, which would need to be replaced.
 - Exterior Insulation: ductwork and piping insulation should have UV-resistant coating or shields. Typically, foil-faced aluminum insulation or banded aluminum jacketing works for this. For exposed refrigerant piping, these should be reinsulated with elastomeric insulation and coated with a UV-resistant paint. This will prevent deterioration from the sun and avoid costly repairs since almost all air handling and refrigerant equipment is located on the roof.
 - General Unit Cleanliness: All units should be cleaned to remove any dirt or debris that has accumulated. Some units were observed with loose paper, cardboard, and other materials within the units that can become a breeding ground for bacteria and molds should those materials absorb moisture. Sections of units that have developed rust or corrosion should be kept dry and cleaned with appropriate chemicals for removing the build-up before repainting or repairs tasks.
 - Fan Belt Tension and Wheel Alignment: All fan motor pulley's, sheaves and belts should be reviewed for proper alignment and tension. Some motors might need to be repositioned in the unit to fix the tension or adjust for alignment. Some fan wheels also wobble or pulleys could be misaligned. Consider adjust motor positions if out of alignment and installing belt tensioners where possible to extend intervals between belt changes without compromising unit efficiency as the belt wears.

CONCLUSIONS

Fairfield Public Schools has likely taken measures in the past to address identified deficiencies regarding the recommended proper filtration upgrades for indoor air quality (IAQ) improvements, this study found



that the Fairfield Woods Middle School is challenged to fully meet the current minimum ventilation requirements per 2015 IMC mainly due to the lack of automated control of dampers and HVAC systems. The van Zelm, Wings, and Fairfield Public Schools team will collectively discuss options and estimate costs for correcting issues and code deficiencies discovered as part of this study. The cost analysis portion will be a continual process.

While some recommendations will help improve performance, there are a number of key recommendations that should be implemented immediately since the school is currently occupied. These include bringing into proper operation the outside air dampers for all units and generally increasing outside airflow throughout the building. Given the results of this survey, we highly recommend further evaluation to be performed including whole-building Recommissioning, BAS controls upgrade and rebalancing, possibly including engineered ventilation calculations/modifications aid in code compliance and generally better working order.

T:\2020\2020102.00\z_CX_Department\Schools Working Folder\05 Fairfield Woods MS\07 Report\Report Pieces\05 - FWMS RCx & TAB Report Narrative.docx



APPENDICES

APPENDIX 1 – Issues List



ISSUES LIST

Issue List General Discussion

The following sections within this appendix include observations we made as a part of the study. Some of these items directly impact Indoor Air Quality (IAQ) or Ventilation and, since this is the primary concern of the study, are recommended to be addressed immediately. Other items are overdue/improper maintenance, control system issues, or general observations. Just because an issue is not included in the IAQ/Ventilation sections does not necessarily mean that it will have no effect on improving the building environment, but it is more likely that the effects are minimal or would only indirectly address a concern. In some cases, these could potentially *reduce* overall building outside airflow, even if in such instances it would keep the associated spaces within code compliance. While this might seem counterintuitive, given the concerns, it is a way to manage a healthy, code-compliant building environment while also saving energy.

The nature of this process being one that affects almost the entire building means that a response to this issue list should be through a holistic approach. Any one issue correction on its own might locally improve the condition of the served areas, but if an adjacent, non-functioning unit is also not corrected then the positive effects will be diminished. The interconnectivity of the issues cannot be easily indicated due to the complexity of the built environment, but a thorough review of all issues and an implementation plan will provide better results overall for the building and its stakeholders.

It should be noted that the inspections we performed as part of this study were undertaken around April 4, 2022, and the TAB measurements were taken around April 29, 2022, so it is possible that some noted concerns, particularly maintenance items or issues already known about could have been addressed prior to the distribution of this report, such as air handling equipment filter changes. Ongoing discussions with Fairfield Public Schools will allow us to update these items as we continue through other schools and into the implementation phase later in the year.

To aid in the process of addressing and tracking these issues, we have included a column indicating when action has been taken by Fairfield Public Schools or a hired contractor to address any individual issues, and will allow the district to document and timestamp issues that have been corrected since the initial inspection.



Indoor Air Quality And Ventilation Issue Findings

Below is a compilation of findings from our commissioning indoor space evaluation, TAB verification effort, and the air handling equipment analysis that relate to indoor air quality or ventilation status of the building. These findings should be considered as a high priority for budgeting and action steps. Many of the listed issues might lend clarity as to why the ventilation findings of throughout were found to be deficient. Addressing these issues individually will not correct any systemic, unit, or building-wide issues related to the IAQ or ventilation of the building.

Action Taken	Status	Unit/Zone	Serving/Room Name	Indoor Air Quality And Ventilation Issue (93)
	Open	228 Men	Airflow	This spaces is exhaust only but the fan was not running
	Open	230 Women	Airflow	This spaces is exhaust only but the fan was not running
	Open	A110A Textiles Storage	Airflow	No ventilation is provided to this space
	Open	A112A Culinary Storage	Airflow	No ventilation is provided to this space
	Open	A114 Storage	Airflow	This is a repurposed Data Closet but there is no ventilation/cooling for equipment located here
	Open	A115 Speech Pathology, Formerly Conference	Air Quality	Previous noted mold issues in this space in particular
	Open	A115 Speech Pathology, Formerly Conference	Airflow	The lockdown security shades prevent the windows from being opened.
	Open	A133 Classroom	Airflow	No ventilation is provided to this space
	Open	A141 Cust	Airflow	No ventilation is provided to this space
	Open	A145 Toilet	Airflow	No exhaust air was provided to this space
	Open	A152 Ziarnik	Airflow	No ventilation is provided to this space
	Open	A153 Health	Airflow	No ventilation is provided to this space



Action Taken	Status	Unit/Zone	Serving/Room Name	Indoor Air Quality And Ventilation Issue (93)
	Open	A154 Classroom	Airflow	No ventilation is provided to this space
	Open	B110 Nurse Toilet	BAS	The OA damper for the associated unit was closed.
	Open	B130 Classroom	Airflow	The associated fan for this space was found off
	Open	B131 Classroom	Airflow	The associated fan for this space was found off and windows were left open
	Open	B132 Classroom	Airflow	The associated fan for this space was found off
	Open	B133 Classroom	Airflow	The associated fan for this space was found off and windows were left open
	Open	B135 Classroom	Airflow	The associated fan for this space was found off
	Open	B137 Classroom	Airflow	The associated fan for this space was found off
	Open	B148 Men	Airflow	This spaces is exhaust only but the fan was not running
	Open	B149 Cust	Airflow	This spaces is exhaust only but the fan was not running
	Open	B152 Data	Airflow	This space uses a split wall AC but has no O.A.
	Open	C104 Kitchen	Airflow	No ventilation is provided to this space
	Open	C106 Office	Airflow	No ventilation is provided to this space
	Open	C107 Toilet	Airflow	No exhaust has been provided for this exhaust-only space
	Open	C109A Cust	Airflow	No exhaust has been provided for this exhaust-only space
	Open	C116 Custodian	Airflow	This spaces is exhaust only but the fan was not running



Action Taken	Status	Unit/Zone	Serving/Room Name	Indoor Air Quality And Ventilation Issue (93)
	Open	C118 Women	Airflow	This spaces is exhaust only but the fan was not running
	Open	C120 Men	Airflow	This spaces is exhaust only but the fan was not running
	Open	C122 Gender Neutral Toilet	Airflow	This spaces is exhaust only but the fan was not running
	Open	C133 Tickets/Electrical	Air Quality	The electrical room is also being used as a ticket booth, and it is unclear which of these uses was the original purpose for this space.
	Open	C141 Boys Locker Room	Airflow	This spaces is exhaust only but the fan was not running
	Open	C142 Girls Locker Room	Airflow	This spaces is exhaust only but the fan was not running
	Open	C144 Toilet for GLR	Airflow	This spaces is exhaust only but the fan was not running
	Open	C148 Toilet for C146	Airflow	This spaces is exhaust only but the fan was not running
	Open	FCU General	Various Classrooms	There are approximately 46 spaces served by FCUs that did not have sufficient ventilation provided directly to the space. These include classrooms in the A, B, and C-wings, as well as some 200s classrooms and offices, With a handful of exceptions, these spaces did not come close to meeting code.
	Open	RTU-1	A155 Media Center	This unit did not provide adequate ventilation to the areas it serves. The Media Center was severely under ventilated, only provided with 89 CFM out of the required 630 CFM (-87.6%). The damper was barely open and was not able to be commanded through the BAS. This is an excellent space for implementing DCV
	Open	RTU-1	Airflow	Existing return air ductwork and inline fan not operational



Action Taken	Status	Unit/Zone	Serving/Room Name	Indoor Air Quality And Ventilation Issue (93)
Corrected	Closed	RTU-1	Filters	Filters were dirty and needed to be changed
	Open	RTU-2	A162 Computer Lab	This unit did not provide adequate ventilation to the areas it serves. This computer lab was short 83 CFM or -24% of the required 344 CFM.
	Open	RTU-3	A164 Computer Lab	This unit did not provide adequate ventilation to the areas it serves. This computer lab was short 221 CFM or -63.2% of the required 350 CFM.
Corrected	Closed	RTU-3	Filters	Filters were dirty and needed to be changed
Corrected	Closed	RTU-4	Filters	Filters were dirty and needed to be changed
Corrected	Closed	RTU-5	Filters	Filters were dirty and needed to be changed
	Open	RTU-6	A111 Attendance	No ventilation is provided to this space
Corrected	Closed	RTU-6	Filters	Filters were dirty and needed to be changed
	Open	RTU-7	B101 Cust Office	The OA damper for the associated unit was closed.
	Open	RTU-7	B102 Copy Room	The OA damper for the associated unit was closed.
	Open	RTU-7	B105 Nurse	The OA damper for the associated unit was closed.
	Open	RTU-7	Guidance, Nurse, Offices	This unit did not provide any ventilation to the areas it serves. The unit was running but the OA damper was completely closed and could not be opened. This unit serves the nurse suite, which has additional ACH rate requirements, which have not been met here. On top of bringing the unit to proper OA functionality, decoupling the Nurse suite from the rest of this section to further ventilate the space should be considered.
	Open	RTU-8	Cleaning	The heating and cooling coils both need to be cleaned



Action Taken	Status	Unit/Zone	Serving/Room Name	Indoor Air Quality And Ventilation Issue (93)
	Open	RTU-8	Cleaning	After coil cleaning, the drain pan should be fully cleaned
Corrected	Closed	RTU-8	Filters	Filters were dirty and needed to be changed
	Open	RTU-9	C101 Weight Room	The OA damper for the associated unit was closed and the exhaust fan was disconnected
	Open	RTU-9	C101 Weight Room, C103 Project Adventure	This unit did not provide any ventilation to the areas it serves. This is an excellent space for implementing DCV
	Open	RTU-9	C103 Project Adventure	The OA damper for the associated unit was closed and the exhaust fan was disconnected
	Open	RTU-9	Cleaning	The heating coil was dirty and needed to be cleaned
Corrected	Closed	RTU-9	Filters	Filters were dirty and needed to be changed
	Open	RTU-10	Cleaning	The cooling coil was dirty and needed to be cleaned
	Open	RTU-10	Filters	Wheel exhaust filters falling out of the frame and some have the filter box frame cut and taped to have the filter fit, rather than using properly sized filters/blank off plates
Corrected	Closed	RTU-10	Filters	Filters were dirty and needed to be changed
	Open	RTU-10	Music Wing	This unit did not provide adequate ventilation to the areas it serves. The unit provided only 521 of the required 2288 CFM and no space passed.
	Open	RTU-11	C140 Gymnasium	These units did not provide adequate ventilation to the gym. A gymnasium requires a certain amount of airflow based on floor area alone, rather than how most other spaces utilize a person count. Only 715 CFM was being provided here out of the total required 2310 CFM. The OA damper was only at about 4% open though,



Action Taken	Status	Unit/Zone	Serving/Room Name	Indoor Air Quality And Ventilation Issue (93)
				so if it could be controlled then it is likely the total flow could be provided (total airflow 16,614 CFM)
	Open	RTU-11	Cleaning	The cooling coil was dirty and needed to be cleaned
Corrected	Closed	RTU-11	Filters	Filters were dirty and needed to be changed
	Open	RTU-12	C140 Gymnasium	This unit operates in tandem with RTU-11 and any changes to RTU-11 regarding gymnasium airflow should be applied here as well
Corrected	Closed	RTU-12	Filters	Filters were dirty and needed to be changed
	Open	RTU-13	C112 Faculty Dining	There is a return OED above the ceiling in room C114, but no transfer duct to room C112
Corrected	Closed	RTU-13	Filters	Filters were dirty and needed to be changed
	Open	RTU-14	C134 Auditorium	This unit is a 100% DOAS but was short on flow by about 589 CFM or -15.5%. This is the "full capacity" flow considering 680 people in the auditorium area based on seat counts and stage use. This is an excellent space for implementing DCV
Corrected	Closed	RTU-14	Filters	OA 2" filters are dirty, the rest were in acceptable condition
	Open	RTU-15	Auditorium Supplement	This unit serves the auditorium supplemental spaces like the lobby, ticket booth, platform, etc with the OA 48% open, some of the spaces met code. Each zone is served by a VAV and could use some rebalancing, as well as possibly opening the OA damper further but it would depend on considering DCV
Corrected	Closed	RTU-15	Filters	Filters were dirty and needed to be changed
	Open	RTU-15	Filters	The outside air intake bird screen is destroyed and needs to be replaced.



Action Taken	Status	Unit/Zone	Serving/Room Name	Indoor Air Quality And Ventilation Issue (93)
	Open	RTU-16 & ERU- 1	2nd Floor Classrooms	This unit is unique in construction and operation. During the TAB process, two readings were taken for when the ERU was disabled and when it was operational. While the ERU was running, 17 of the 25 rooms passed and 8 did not meet code, though in most cases rebalancing could positively affect the outcome of these spaces. When the ERU is off, only 5 of the 25 met code, with significant loss of required ventilation. This could occur during should seasons when energy recovery is not ideal. For ventilation purposes, the ERU must be run all the time.
	Open	RTU-16 & ERU- 1	Cleaning	The heating and cooling coils both need to be cleaned
	Open	RTU-16 & ERU- 1	Cleaning	After coil cleaning, the drain pan should be fully cleaned
	Open	RTU-16 & ERU- 1	Cleaning	the cross flow heat exchanger should be fully cleaned
Corrected	Closed	RTU-16 & ERU- 1	Filters	RTU-16 Pre-Filters were dirty and needed to be changed
	Open	RTU-16 & ERU- 1	Filters	The ERU-1 filters were completely destroyed and need to be replaced
Corrected	Closed	RTU-17	Filters	Filters were dirty and needed to be changed
Corrected	Closed	RTU-18	Filters	2" filters are dirty but the 12" filters are clean
	Open	RTU-19	202 Classroom	This unit did not provide adequate ventilation to this space, falling short 229 CFM or -68% of the required 337 CFM. The damper was only open 14% though, so it is possible it could be opened further if needed
	Open	RTU-19	Cleaning	The cooling coil is very dirty and needs to be cleaned



Action Taken	Status	Unit/Zone	Serving/Room Name	Indoor Air Quality And Ventilation Issue (93)
	Open	RTU-19	Cleaning	The drain pan needs to be swept out and cleaned
Corrected	Closed	RTU-19	Filters	Filters were dirty and needed to be changed
	Open	RTU-20	Cleaning	The cooling coil is very dirty and needs to be cleaned
	Open	RTU-20	Cleaning	The drain pan needs to be swept out and cleaned
Corrected	Closed	RTU-20	Filters	Filters were dirty and needed to be changed
Corrected	Closed	RTU-20	Filters	Filters were dirty and needed to be changed
	Open	RTU-21	Cleaning	The cooling coil is very dirty and needs to be cleaned. Additionally, some fins appear to be missing
	Open	RTU-21	Cleaning	The drain pan needs to be swept out and cleaned



Maintenance Issue Findings

Below is a compilation of findings from our commissioning indoor space evaluation, TAB verification effort, and the air handling equipment analysis that relate to indoor air quality or ventilation status of the building. The priority level of these findings will vary, and correcting any of them could improve the associated unit's performance, which might have an incidental effect on the indoor air quality or ventilation findings of the associated spaces. These issues do not necessarily explain reasons why the ventilation findings of the associated spaces were found to be deficient but should be corrected, nonetheless.

Action Taken	Status	Unit/Zone	Serving/Room Name	Maintenance Issue (64)
	Open	203 Classroom	Equipment	No power is being provided to the FCU
	Open	205 Classroom	Equipment	No power is being provided to the FCU
	Open	205 Classroom	Unit Ventilators	Typical UV issues, often in heating, manual switches turned off or inconsistent, some windows open
	Open	206 Classroom	Unit Ventilators	Typical UV issues, often in heating, manual switches turned off or inconsistent, some windows open
	Open	210 Classroom	Unit Ventilators	Typical UV issues, often in heating, manual switches turned off or inconsistent, some windows open
	Open	211 Classroom	Unit Ventilators	Typical UV issues, often in heating, manual switches turned off or inconsistent, some windows open
	Open	212 Classroom	Unit Ventilators	Typical UV issues, often in heating, manual switches turned off or inconsistent, some windows open
	Open	213 Classroom	Unit Ventilators	Typical UV issues, often in heating, manual switches turned off or inconsistent, some windows open
	Open	214 Classroom	Unit Ventilators	Typical UV issues, often in heating, manual switches turned off or inconsistent, some windows open



Action Taken	Status	Unit/Zone	Serving/Room Name	Maintenance Issue (64)
	Open	215 Classroom	Unit Ventilators	Typical UV issues, often in heating, manual switches turned off or inconsistent, some windows open
	Open	216 Classroom	Unit Ventilators	Typical UV issues, often in heating, manual switches turned off or inconsistent, some windows open
	Open	217 Classroom	Unit Ventilators	Typical UV issues, often in heating, manual switches turned off or inconsistent, some windows open
	Open	A115 Speech Pathology, Formerly Conference	Acoustics	This unit is excessively loud when operating and does not allow for the occupant to work with the students when running.
	Open	A115 Speech Pathology, Formerly Conference	Temperature Control	This room was found overheating. There is only one return grille in the space, with all ventilation presumably being provided through the old unit ventilator. Recommend full UV refurbishment, possibly alternative installation of Split AC for cooling demand here
	Open	A117 Women	Acoustics	The fan serving this space was noticeably loud
	Open	A118 Toilet	Acoustics	The fan serving this space was noticeably loud
	Open	A119 Janitor	Acoustics	The fan serving this space was noticeably loud
	Open	A122 Men	Acoustics	The fan serving this space was noticeably loud
	Open	A145 Toilet	Plumbing	A sink drain was clogged
	Open	A149 Kiln Room	Access	Roof Hatch located here, but questionable safety measures are in place
	Open	B130 Classroom	Temperature Control	This location was found to be overheating
	Open	B131 Classroom	Temperature Control	This location was found to be overheating



Action Taken	Status	Unit/Zone	Serving/Room Name	Maintenance Issue (64)
	Open	B132 Classroom	Temperature Control	This location was found to be overheating
	Open	B133 Classroom	Temperature Control	This location was found to be overheating
	Open	B135 Classroom	Temperature Control	This location was found to be overheating
	Open	B137 Classroom	Temperature Control	This location was found to be overheating
	Open	C115 Dark Room/Storage	Airflow	The unit filter was plugged and needed to be changed
	Open	C115 Dark Room/Storage	Airflow	There is an air short cycling concern for this space
	Open	C140A Storage	Access	This unit requires a lift for accessibility
	Open	C142 Girls Locker Room	Temperature Control	This location was found to be overheating
	Open	C151 Outdoor Storage	Access	This unit requires a lift for accessibility
	Open	C170 Auxiliary Gymnasium	Equipment	The exhaust fan was found disconnected
	Open	C171 Technology	Access	No access to the control panel due to equipment blocking the FCU
	Open	FCU & RTU- 22	B124* Team Room	The associated FCU was not running.
	Open	RTU-1	Cleaning	Some dried scale and debris observed in the condensate drain pan
	Open	RTU-3	Dampers	Gravity Exhaust damper in particular but all dampers should be lubricated
	Open	RTU-6	Equipment	Part of the condensate trap was loose. We were able to put it back on but it should be reexamined and confirmed properly installed.



Action Taken	Status	Unit/Zone	Serving/Room Name	Maintenance Issue (64)
	Open	RTU-8	Belts	The exhaust fan belts are mismatched and one is loose
	Open	RTU-8	Dampers	The dampers are dirty and need to be cleaned, lubricated, and adjusted
	Open	RTU-9	Acoustics	This is an older H&V unit that has a deteriorating sound lining which is failing and entering the air stream. This unit should be scheduled to be replaced in any case due to its age and state of repair.
	Open	RTU-9	Belts	The exhaust fan belt is cracked and needs to be replaced
	Open	RTU-9	Cleaning	A box of materials was located within the unit
	Open	RTU-9	Equipment	This is an original unit from the 1994 project and it is generally in poor condition
	Open	RTU-9	Equipment	The condensate drain pan is deteriorating and needs to be repaired
	Open	RTU-11	Cleaning	The gas heat exchanger tubes are rusty
	Open	RTU-11	Dampers	The dampers are dirty and need to be cleaned
	Open	RTU-11	Piping	The associated refrigerant piping insulation is completely destroyed, requires new insulation with UV protection
	Open	RTU-12	Cleaning	The gas heat exchanger tubes are rusty
	Open	RTU-12	Dampers	The dampers are dirty and need to be cleaned, lubricated, and adjusted
	Open	RTU-12	Equipment	Condensate splash pad is severely deteriorated between the unit and the wall
	Open	RTU-12	Piping	The associated refrigerant piping insulation is completely destroyed, requires new insulation with UV protection
	Open	RTU-14	Cleaning	There was some rust in the condensate pan, though it is not clear if it is from the pan itself.



Action Taken	Status	Unit/Zone	Serving/Room Name	Maintenance Issue (64)
	Open	RTU-14	Dampers	OA damper does not seal fully
	Open	RTU-16 & ERU-1	Dampers	The dampers are dirty and need to be cleaned, lubricated, and adjusted
	Open	RTU-17	Cleaning	The lower portion of the hot gas reheat coil shows signs of rust/chipping of the fins
	Open	RTU-17	Dampers	The outside air damper does not close fully
	Open	RTU-18	Equipment	The unit interior lights do not function
	Open	RTU-18	Equipment	This unit was found turned off though it is capable of running
	Open	RTU-18	Equipment	The fan runs, however the VFD LCD screen in the remote control cabinet is broken and does not display anything. The remote unit does still seem to control the fan (auto/hand, etc.).
	Open	RTU-19	Dampers	The dampers are dirty and need to be cleaned, lubricated, and adjusted
	Open	RTU-20	Dampers	The dampers are dirty and need to be cleaned, lubricated, and adjusted
	Open	RTU-20	Equipment	The supply fan was exhibiting excessive vibration
	Open	RTU-20	Equipment	The supply fan belt pulley is misaligned, likely contributing to the vibration
	Open	RTU-22	Dampers	A wall-mountable t-stat was found wired and suspended in the RA duct section, presumably to control the unit based on "space" conditions rather than from a sensor down below. In theory this could work, but in practice it prevents the dampers from closing fully. The wire is quite damaged as it runs through the RA dampers, preventing them from fully closing



Control Issue Findings

Below is a compilation of findings from our commissioning indoor space evaluation, TAB verification effort, and the air handling equipment analysis that relate to the status of the control system within the building. The priority level of these findings will vary, and correcting any of them could improve the associated unit's performance, which might have an incidental effect on the indoor air quality or ventilation in the spaces. Some control issues do affect whether or not facilities or maintenance personnel are informed of issues at systems or equipment, which can result in delays to maintenance or repairs that would otherwise have been quick to correct. These issues do not necessarily explain reasons why the ventilation findings of the associated spaces were found to be deficient but should be corrected, nonetheless.

Action Taken	Status	Unit/Zone	Serving/Room Name	Control Issue (84)
	Open	001 Team Room	BAS	Neither this space nor the associated unit were visible on BAS
	Open	002 Classroom	BAS	Neither this space nor the associated unit were visible on BAS
	Open	A103 Mail	BAS	The BAs displays 0 CFM for this unit
	Open	A158 Office	BAS	Neither this space nor the associated unit were visible on BAS
	Open	A159 Work Room	BAS	Neither this space nor the associated unit were visible on BAS
	Open	A161 Storage	BAS	Neither this space nor the associated unit were visible on BAS
	Open	ACU-3, FCU-1	003 Classroom	Neither this space nor the associated unit were visible on BAS
	Open	B110 Nurse Toilet	BAS	Neither this space nor the associated unit were visible on BAS
	Open	C172 Office	BAS	We were unable to enable the FCU from the BAS
	Open	FCU Existing	B112 Classroom	There was no unit status on the BAS
	Open	FCU-1	006 Book Storage	Neither this space nor the associated unit were visible on BAS



Action Taken	Status	Unit/Zone	Serving/Room Name	Control Issue (84)
	Open	RTU-1	A155 Media Center	Neither this space nor the associated unit were visible on BAS
	Open	RTU-2	A162 Computer Lab	Neither this space nor the associated unit were visible on BAS
	Open	RTU-2	A163 Work Room	Neither this space nor the associated unit were visible on BAS
	Open	RTU-3	A164 Computer Lab	Neither this space nor the associated unit were visible on BAS
	Open	RTU-3	A165 Office	Neither this space nor the associated unit were visible on BAS
	Open	RTU-4	A110 Textiles	Neither this space nor the associated unit were visible on BAS
	Open	RTU-5	A112 Culinary Lab	Neither this space nor the associated unit were visible on BAS
	Open	RTU-5	Equipment	An old control wiring board was found in the unit disconnected from anything. It is not clear if this was intended to be completely removed
	Open	RTU-6	A101 Main Office	Neither this space nor the associated unit were visible on BAS
	Open	RTU-6	A102 Principal	Neither this space nor the associated unit were visible on BAS
	Open	RTU-6	A104 Conference	Neither this space nor the associated unit were visible on BAS
	Open	RTU-6	A106 Assistant Principal DeAngelo	Neither this space nor the associated unit were visible on BAS
	Open	RTU-6	A108 Formerly Dean, Asst. Principal Seltzer	Neither this space nor the associated unit were visible on BAS
	Open	RTU-6	A109 I.S.S.	Neither this space nor the associated unit were visible on BAS
	Open	RTU-7	B101 Cust Office	Neither this space nor the associated unit were visible on BAS



Action Taken	Status	Unit/Zone	Serving/Room Name	Control Issue (84)
	Open	RTU-7	B102 Copy Room	Neither this space nor the associated unit were visible on BAS
	Open	RTU-7	B103 Storage	Neither this space nor the associated unit were visible on BAS
	Open	RTU-7	B105 Nurse	Neither this space nor the associated unit were visible on BAS
	Open	RTU-9	C101 Weight Room	Neither this space nor the associated unit were visible on BAS
	Open	RTU-9	C103 Project Adventure	Neither this space nor the associated unit were visible on BAS
	Open	RTU-9	Dampers	The dampers did not close upon unit shutdown
	Open	RTU-9	Equipment	There were no available external disconnects for the unit
	Open	RTU-10	C156 Band Room Hall	Neither this space nor the associated unit were visible on BAS
	Open	RTU-10	Dampers	Most dampers do not fully close and need adjustments
	Open	RTU-10	Sequence	This unit comes equipped with a manual enthalpy control dial for economizer. It is not clear if it functions correctly or if it reads right at the BAS
	Open	RTU-11	Sequence	This unit comes equipped with a manual enthalpy control dial for economizer. It is not clear if it functions correctly or if it reads right at the BAS
	Open	RTU-11, 12	C140 Gymnasium	Neither this space nor the associated unit were visible on BAS
	Open	RTU-12	Sequence	This unit comes equipped with a manual enthalpy control dial for economizer. It is not clear if it functions correctly or if it reads right at the BAS
	Open	RTU-15, FT 13-1	C139 Lobby	Neither this space nor the associated unit were visible on BAS
	Open	RTU-15, VAV 32	C132 BAS Booth	Neither this space nor the associated unit were visible on BAS



Action Taken	Status	Unit/Zone	Serving/Room Name	Control Issue (84)
	Open	RTU-15, VAV 32	C133 Tickets/Electrical	Neither this space nor the associated unit were visible on BAS
	Open	RTU-15, VAV 33	C134 Foyer	Neither this space nor the associated unit were visible on BAS
	Open	RTU-15, VAV 34	C134 Auditorium Front, Main, Rear Walk, Rear, Side	Neither this space nor the associated unit were visible on BAS
	Open	RTU-16	218 Science Classroom	This space and the associated unit were non the BAS. 7310 cfm when ERU running. Total OA 55%
	Open	RTU-16	218A Prep	This space and the associated unit were non the BAS. 7310 cfm when ERU running. Total OA 55%
	Open	RTU-16	220 Science Classroom	This space and the associated unit were non the BAS. 7310 cfm when ERU running. Total OA 55%
	Open	RTU-16	222 Prep	This space and the associated unit were non the BAS. 7310 cfm when ERU running. Total OA 55%
	Open	RTU-16	223 Classroom	This space and the associated unit were non the BAS. 7310 cfm when ERU running. Total OA 55%
	Open	RTU-16	224 Science Classroom	This space and the associated unit were non the BAS. 7310 cfm when ERU running. Total OA 55%
	Open	RTU-16	225 Classroom	This space and the associated unit were non the BAS. 7310 cfm when ERU running. Total OA 55%
	Open	RTU-16	226 Classroom	This space and the associated unit were non the BAS. 7310 cfm when ERU running. Total OA 55%
	Open	RTU-16	227 Classroom	This space and the associated unit were non the BAS. 7310 cfm when ERU running. Total OA 55%



Action Taken	Status	Unit/Zone	Serving/Room Name	Control Issue (84)
	Open	RTU-16	B138 Science Classroom	This space and the associated unit were non the BAS. 7310 cfm when ERU running. Total OA 55%
	Open	RTU-16	B138A Prep	This space and the associated unit were non the BAS. 7310 cfm when ERU running. Total OA 55%
	Open	RTU-16	B140A Science Classroom	This space and the associated unit were non the BAS. 7310 cfm when ERU running. Total OA 55%
	Open	RTU-16	B142A Prep	This space and the associated unit were non the BAS. 7310 cfm when ERU running. Total OA 55%
	Open	RTU-16	B143 Classroom	This space and the associated unit were non the BAS. 7310 cfm when ERU running. Total OA 55%
	Open	RTU-16	B144 Science Classroom	This space and the associated unit were non the BAS. 7310 cfm when ERU running. Total OA 55%
	Open	RTU-16	B145 Classroom	This space and the associated unit were non the BAS. 7310 cfm when ERU running. Total OA 55%
	Open	RTU-16	B146 Classroom	This space and the associated unit were non the BAS. 7310 cfm when ERU running. Total OA 55%
	Open	RTU-16	B146A Storage	This space and the associated unit were non the BAS. 7310 cfm when ERU running. Total OA 55%
	Open	RTU-16	B153 Special Ed, formerly Storage	This space and the associated unit were non the BAS. 7310 cfm when ERU running. Total OA 55%
	Open	RTU-16	B155A Classroom	This space and the associated unit were non the BAS. 7310 cfm when ERU running. Total OA 55%



Action Taken	Status	Unit/Zone	Serving/Room Name	Control Issue (84)
	Open	RTU-16	B155B Classroom	This space and the associated unit were non the BAS. 7310 cfm when ERU running. Total OA 55%
	Open	RTU-16	B156 Art Storage	This space and the associated unit were non the BAS. 7310 cfm when ERU running. Total OA 55%
	Open	RTU-16	B157 Art Classroom	This space and the associated unit were non the BAS. 7310 cfm when ERU running. Total OA 55%
	Open	RTU-16	B158 Art Office	This space and the associated unit were non the BAS. 7310 cfm when ERU running. Total OA 55%
	Open	RTU-16	B159 Art Classroom	This space and the associated unit were non the BAS. 7310 cfm when ERU running. Total OA 55%
	Open	RTU-17	C174 Storage	Neither this space nor the associated unit were visible on BAS
	Open	RTU-17	C179 Storage	Neither this space nor the associated unit were visible on BAS
	Open	RTU-17	C180 Storage	Neither this space nor the associated unit were visible on BAS
	Open	RTU-17	C181 OT/PT	Neither this space nor the associated unit were visible on BAS
	Open	RTU-18	Dampers	The dampers do not close fully
	Open	RTU-18	Equipment	Remote VFD unit screen located in electrical cabinet
	Open	RTU-19	200 Conference	Neither this space nor the associated unit were visible on BAS
	Open	RTU-19	202 Classroom	Neither this space nor the associated unit were visible on BAS
	Open	RTU-20	206 Classroom	Neither this space nor the associated unit were visible on BAS


Action Taken	Status	Unit/Zone	Serving/Room Name	Control Issue (84)
	Open	RTU-21	C152 Keyboard	Neither this space nor the associated unit were visible on BAS
	Open	RTU-21	C153 Storage	Neither this space nor the associated unit were visible on BAS
	Open	RTU-21	C154 Wardrobe	Neither this space nor the associated unit were visible on BAS
	Open	RTU-22	Sequence	Unit was found off and in alarm
	Open	RTU-22	Sequence	Unit hasn't run or has run very little since the previous filter change
	Open	RTU-22 & FCU	B124* Team Room	Neither this space nor the associated unit were visible on BAS



Information Only Findings

Below is a list of the general "information only" findings from the room take-off measurements, TAB verification effort, and the air handling equipment analysis. If a correction can be made to these items, it will not affect improving the indoor air quality or ventilation for occupied spaces. Some of these items might actually speak to *reducing* outside airflow, particularly if a space is significantly overventilated or has inconsistent/large swings in occupancy, in which case their status has been indicated as "Energy Savings."

Action Taken	Status	Unit/Zone	Serving/Room Name	Information Only Findings (35)
	Open	004 Storage	Airflow	No ventilation is provided to this space
	Open	005 Elec	Acoustics	Ceiling tiles were missing in this location
	Open	005 Elec	Airflow	No ventilation is provided to this space
	Open	020 Storage	Airflow	No ventilation is provided to this space
	Open	021 Storage	Airflow	No ventilation is provided to this space
	Open	022 Gen. Xfer Switch, old Vault	Airflow	No ventilation is provided to this space
	Open	023 Storage	Airflow	No ventilation is provided to this space
	Open	204 Storage	Airflow	No ventilation is provided to this space
	Open	204 Storage	Airflow	No ventilation is provided to this space
	Open	204A Data/Elec	Airflow	No ventilation is provided to this space
	Open	229 Elec	Airflow	This spaces is exhaust only but the fan was not running
	Open	A114 Storage	Airflow	No ventilation is provided to this space
	Open	A142 Conference	Utilization	This space is actually being used as a Copier Room
	Open	A151 Elec	Airflow	No ventilation is provided to this space



Action Taken	Status	Unit/Zone	Serving/Room Name	Information Only Findings (35)
	Open	B124* Team Room	Utilization	This room shares the same room number as nearby toilet
	Open	C109 Storage	Airflow	No ventilation is provided to this space
	Open	C109B Storage	Airflow	No exhaust has been provided for this exhaust-only space
	Open	C110 Storage	Airflow	No ventilation is provided to this space
	Open	C111 Storage	Airflow	No ventilation is provided to this space
	Open	C114 Storage	Airflow	No ventilation is provided to this space
	Open	C115 Dark Room/Storage	Airflow	The OA damper for the associated unit was closed.
	Open	C117 Main Elec	Airflow	No ventilation is provided to this space
	Open	C130D Storage	Airflow	No ventilation is provided to this space
	Open	C140A Storage	Airflow	No ventilation is provided to this space. E-12 with OA intake in room.
	Open	C150 Storage	Airflow	No ventilation is provided to this space
	Open	C151 Outdoor Storage	Airflow	No ventilation is provided to this space. EF-11 with OA intake in rm.
	Open	C156B Storage	Airflow	No ventilation is provided to this space
	Open	C156C Storage	Airflow	No ventilation is provided to this space
	Open	C165 Storage	Airflow	No ventilation is provided to this space
	Open	C173 Storage	Airflow	No ventilation is provided to this space
	Open	CUH-7	C105C Storage	No ventilation is provided to this space



Action Taken	Status	Unit/Zone	Serving/Room Name	Information Only Findings (35)
	Open	RTU-7	B103 Storage	The OA damper for the associated unit was closed.
	Open	RTU-8	Airflow	the 1994 drawings indicated that this unit was sized for 8000 cfm max, however it appears that the system cfm is 5600.
	Open	RTU-13	C110A Data	Neither this space nor the associated unit were visible on BAS
	Open	RTU-21	C155 Storage	Neither this space nor the associated unit were visible on BAS

APPENDIX 2 – Ventilation Data Calculations

Project Na	ame: Fairfield Public Schools RCx & TAB Study	Fairfield Woods Middle School
Project Nu	umber: 2020102.00.05	
Scope	Ventilation Calculation by Building	
Date	June 21, 2022	

					IMC 2015 Ventilation Calculations																
Floor	Room#	Room Name	Occupancy Classification	Category	Total Airflow	Unit Actual OA %	BAS OA Damper Cond	Served By	Zone Area, Az, per space	Ceiling Height	Volume, per space	Zone Population , Pz, per space	People OA Rate in Breathing Zone, Rp	Area OA Rate in Breathing Zone, Ra	Default Occupant Density	Min. Required Ventilation Airflow	ACTUAL MEASURED VENTILATION AIR FLOW	Excess Ventilation Air (negative indicates deficit)	Excess Ventilation Air Percentage	PASS/FAIL	Ventilation ACH
					(cfm)	(%)	(%)		(sq.ft)	(ft)	(cu.ft)	Adult	(cfm/ person)	(cfm/sf)	(#/1000sf)	(cfm)	(cfm)	(cfm)	(%)		(AC/hr)
В	001	Team Room	Offices	Conference rooms	1245	0%			1605	8.2	13161	27	5.0	0.06	50	231	0	-231	-100.0%	Fails	0.000
В	001A	Storage	Storage	Warehouses					81	8.2	664	0	0.0	0.06	0	5		N/A		N/A	
В	001B	Elev Mech	None	None					70	11.3	791	0	0.0	0.00	0	0		N/A	0.0%	N/A	
В	002	Classroom	Education	Classroom (ages 9+)	419	0%			495	7.3	3614	16	10.0	0.12	35	219	0	-219	-100.0%	Fails	0.000
В	003	Classroom	Education	Classroom (ages 9+)	1783	25%	100%	ACU-3, FCU-1	822	8.2	6740	22	10.0	0.12	35	319	436	117	36.8%	Meets	3.881
В	004	Storage	Storage	Warehouses					760	8.2	6232	0	0.0	0.06	0	46		N/A		N/A	
В	005	Elec	None	None					134	8.5	1139	0	0.0	0.00	0	0		N/A	0.0%	N/A	
В	006	Book Storage	Storage	Warehouses	400	18%	N/A	FCU-1	867	8	6936	0	0.0	0.06	0	52	70	18	34.6%	Meets	0.606
В	020	Storage	Storage	Warehouses					764	8.7	6647	0	0.0	0.06	0	46		N/A		N/A	
В	021	Storage	Storage	Warehouses					247	8.7	2149	0	0.0	0.06	0	15		N/A		N/A	
В	022	Gen. Xfer Switch, old Vault	Workrooms	Bank vaults/safe deposit					213	8.7	1853	0	5.0	0.06	5	18		N/A		N/A	
В	023	Storage	Storage	Warehouses					502	8.7	4367	0	0.0	0.06	0	30		N/A		N/A	
В	025	Mechanical Lower Upper	None	None	3254	100%	100%	CAF-1	1950	13.5 8.7	22605	0	0.0	0.00	0	0	3254	3254	0.0%	N/A	8.637
В	024	Electrical	None	None	363		100%	EF-10	173	8	1384	0	0.0	0.00	0	0	0	0	0.0%	N/A	0.000
1	A101	Main Office	Offices	Office spaces	348	45%	N/A	RTU-6	588	9	5292	8	5.0	0.06	5	75	153	78	103.2%	Meets	1.735
1	A102	Principal	Offices	Office spaces	144	45%	N/A	RTU-6	205	9	1845	4	5.0	0.06	5	32	63	31	95.0%	Meets	2.049
1	A104	Conference	Offices	Conference rooms	134	45%	N/A	RTU-6	166	9	1494	6	5.0	0.06	50	40	59	19	47.6%	Meets	2.369
1	A108	Formerly Dean, Asst. Principal Seltzer	Offices	Office spaces	300	45%	N/A	RTU-6	165	9	1485	3	5.0	0.06	5	25	132	107	430.1%	Meets	5.333
1	A106	Assistant Principal DeAngelo	Offices	Office spaces	252	45%	N/A	RTU-6	265	9	2385	6	5.0	0.06	5	46	111	65	141.8%	Meets	2.792
1	A109	I.S.S.	Offices	Office spaces	92	45%	N/A	RTU-6	100	9	900	1	5.0	0.06	5	11	41	30	272.7%	Meets	2.733
1	A111	Attendance	Offices	Office spaces	0		N/A	RTU-6	400	9	3600	3	5.0	0.06	5	39	0	-39	-100.0%	Fails	0.000



Project Name:	Fairfield Public Schools RCx & TAB Study	Fairfield Woods Middle School
Project Number:	2020102.00.05	
Scope	Ventilation Calculation by Building	
Date	June 21, 2022	

		Zone Identification													IMC 2015 Ventilation Calculations										
Floor	Room#	Room Name	Occupancy Classification	Category	Total Airflow	Unit Actual OA %	BAS OA Damper Cond	Served By	Zone Area, Az, per space	Ceiling Height	Volume, per space	Zone Population , Pz, per space	People OA Rate in Breathing Zone, Rp	Area OA Rate in Breathing Zone, Ra	Default Occupant Density	Min. Required Ventilation Airflow	ACTUAL MEASURED VENTILATION AIR FLOW	Excess Ventilation Air (negative indicates deficit)	Excess Ventilation Air Percentage	PASS/FAIL	Ventilation ACH				
					(cfm)	(%)	(%)		(sq.ft)	(ft)	(cu.ft)	Adult	(cfm/ person)	(cfm/sf)	(#/1000sf)	(cfm)	(cfm)	(cfm)	(%)		(AC/hr)				
1	A107	Toilet	Public Spaces	Toilet rooms - public	0				44	9	396	1	0.0	0.00	0	0	0	0	0.0%	N/A	0.000				
1	A105	Storage	Storage	Warehouses					50	9	450	0	0.0	0.06	0	3		N/A		N/A					
1	A103	Mail	Offices	Office spaces	0				56	9	504	1	5.0	0.06	5	8	0	-8	-100.0%	Fails	0.000				
1	A110	Textiles	Education	Classroom (ages 9+)	1800	36%		RTU-4	1450	13.8	20010	26	10.0	0.12	35	434	646	212	48.8%	Meets	1.937				
1	A110A	Textiles Storage	Storage	Warehouses					36	9.5	342	0	0.0	0.06	0	2		N/A		N/A					
1	A112A	Culinary Storage	Storage	Warehouses					36	9.5	342	0	0.0	0.06	0	2		N/A		N/A					
1	A112	Culinary Lab	Education	Classroom (ages 9+)	4117	19%		RTU-5	1450	13.8	20010	26	10.0	0.12	35	434	760	326	75.1%	Meets	2.279				
1	A114	Storage	Storage	Warehouses					96	8	768	0	0.0	0.06	0	6		N/A		N/A					
1	A120	Toilet	Public Spaces	Toilet rooms - public	84			EX	60	9	540	1	0.0	0.00	0	0	0	0	0.0%	N/A	0.000				
1	A122	Men	Public Spaces	Toilet rooms - public	345			EX	145	9	1305	3	0.0	0.00	0	0	0	0	0.0%	N/A	0.000				
1	A118	Toilet	Public Spaces	Toilet rooms - public	191			EX	73	9	657	2	0.0	0.00	0	0	0	0	0.0%	N/A	0.000				
1	A117	Women	Public Spaces	Toilet rooms - public	316			EX	145	9	1305	3	0.0	0.00	0	0	0	0	0.0%	N/A	0.000				
1	A115	Speech Pathology, Formerly Conference	Offices	Conference rooms	354	0%	10%	FCU	254	9	2286	6	5.0	0.06	50	45	0	-45	-100.0%	Fails	0.000				
1	A116	Toilet	Public Spaces	Toilet rooms - public	0			EX	80	9	720	1	0.0	0.00	0	0	0	0	0.0%	N/A	0.000				
1	A119	Janitor	Storage	Warehouses	115			EX	40	9	360	0	0.0	0.06	0	2	0	-2	-100.0%	Fails	0.000				
1	A147	Women	Public Spaces	Toilet rooms - public	180			EX	125	7	875	3	0.0	0.00	0	0	0	0	0.0%	N/A	0.000				
1	A145	Toilet	Public Spaces	Toilet rooms - public	67			EX	27	6.8	184	1	0.0	0.00	0	0	0	0	0.0%	N/A	0.000				
1	A141	Cust	Storage	Warehouses	0				33	6.9	228	0	0.0	0.06	0	2	0	-2	-100.0%	Fails	0.000				
1	A143	Men	Public Spaces	Toilet rooms - public	152			EX	80	7	560	3	0.0	0.00	0	0	0	0	0.0%	N/A	0.000				
1	A121	Classroom	Education	Classroom (ages 9+)	750	0%	10%	FCU	765	9	6885	26	10.0	0.12	35	352	0	-352	-100.0%	Fails	0.000				
1	A123	Classroom	Education	Classroom (ages 9+)	766	12%	10%	FCU	744	9	6696	28	10.0	0.12	35	369	92	-277	-75.1%	Fails	0.824				



Project Name:	Fairfield Public Schools RCx & TAB Study	Fairfield Woods Middle School
Project Number:	2020102.00.05	
Scope	Ventilation Calculation by Building	
Date	June 21, 2022	

	I	Zone Identification													IMC 2015 Ventilation Calculations										
Floor	Room#	Room Name	Occupancy Classification	Category	Total Airflow	Unit Actual OA %	BAS OA Damper Cond	Served By	Zone Area, Az, per space	Ceiling Height	Volume, per space	Zone Population , Pz, per space	People OA Rate in Breathing Zone, Rp	Area OA Rate in Breathing Zone, Ra	Default Occupant Density	Min. Required Ventilation Airflow	ACTUAL MEASURED VENTILATION AIR FLOW	Excess Ventilation Air (negative indicates deficit)	Excess Ventilation Air Percentage	PASS/FAIL	Ventilation ACH				
					(cfm)	(%)	(%)		(sq.ft)	(ft)	(cu.ft)	Adult	(cfm/ person)	(cfm/sf)	(#/1000sf)	(cfm)	(cfm)	(cfm)	(%)		(AC/hr)				
1	A124	Classroom	Education	Classroom (ages 9+)	606	19%	10%	FCU	746	9	6714	25	10.0	0.12	35	340	117	-223	-65.5%	Fails	1.046				
1	A125	Classroom	Education	Classroom (ages 9+)	606	0%	10%	FCU	777	9	6993	25	10.0	0.12	35	343	0	-343	-100.0%	Fails	0.000				
1	A126	Classroom	Education	Classroom (ages 9+)	554	0%	10%	FCU	766	9	6894	25	10.0	0.12	35	342	0	-342	-100.0%	Fails	0.000				
1	A127	Classroom	Education	Classroom (ages 9+)	606	0%	10%	FCU	780	9	7020	25	10.0	0.12	35	344	0	-344	-100.0%	Fails	0.000				
1	A128	Classroom	Education	Classroom (ages 9+)	852	18%	10%	FCU	766	9	6894	25	10.0	0.12	35	342	151	-191	-55.8%	Fails	1.314				
1	A129	Classroom	Education	Classroom (ages 9+)	631	0%	10%	FCU	791	9	7119	25	10.0	0.12	35	345	0	-345	-100.0%	Fails	0.000				
1	A130	Classroom	Education	Classroom (ages 9+)	611	77%	10%	FCU	768	9	6912	25	10.0	0.12	35	342	469	127	37.1%	Meets	4.071				
1	A131	Classroom	Education	Classroom (ages 9+)	651	0%	10%	FCU	947	9	8523	21	10.0	0.12	35	324	0	-324	-100.0%	Fails	0.000				
1	A132	Classroom	Education	Classroom (ages 9+)	333	0%	10%	FCU	508	9	4572	13	10.0	0.12	35	191	0	-191	-100.0%	Fails	0.000				
1	A133	Classroom	Education	Classroom (ages 9+)	0				460	9	4140	10	10.0	0.12	35	155	0	-155	-100.0%	Fails	0.000				
1	A134	Classroom	Education	Classroom (ages 9+)	681	0%	10%	FCU	1053	9	9477	25	10.0	0.12	35	376	0	-376	-100.0%	Fails	0.000				
1	A140	Classroom	Education	Classroom (ages 9+)	680	0%	10%	FCU	1001	10.5	10511	25	10.0	0.12	35	370	0	-370	-100.0%	Fails	0.000				
1	A142	Conference	Offices	Conference rooms	185	51%	10%	FCU	113	8.9	1006	1	5.0	0.06	50	12	94	82	698.0%	Meets	5.608				
1	A144	Storage	Storage	Warehouses	419	0%	10%	FCU	195	9.4	1833	1	0.0	0.06	0	12		N/A		N/A					
1	A148	Classroom	Education	Classroom (ages 9+)	520	0%	10%	FCU	1046	10.5	10983	25	10.0	0.12	35	376	0	-376	-100.0%	Fails	0.000				
1	A149	Kiln Room	Storage	Warehouses	276			EX-7	130	8	1040	2	0.0	0.06	0	8		N/A		N/A					
1	A150	Classroom	Education	Classroom (ages 9+)	472	0%	10%	FCU	760	10.5	7980	25	10.0	0.12	35	341	0	-341	-100.0%	Fails	0.000				
1	A151	Elec	None	None					172	8.7	1496	0	0.0	0.00	0	0	0	0	0.0%	N/A	0.000				
1	A152	Ziarnik	Offices	Office spaces	0				215	8.7	1871	5	5.0	0.06	5	38	0	-38	-100.0%	Fails	0.000				
1	A153	Health	Hospitals, nursing and convalescent homes	Patient rooms	0				771	8.7	6708	16	25.0	0.00	10	400	0	-400	-100.0%	Fails	0.000				
1	A152A	Storage	Storage	Warehouses					48	8.7	418	0	0.0	0.06	0	3		N/A		N/A					



Project Name:	Fairfield Public Schools RCx & TAB Study	Fairfield Woods Middle School
Project Number:	2020102.00.05	
Scope	Ventilation Calculation by Building	
Date	June 21, 2022	

	I	Zone Identification													IMC 2015 Ventilation Calculations											
Floor	Room#	Room Name	Occupancy Classification	Category	Total Airflow	Unit Actual OA %	BAS OA Damper Cond	Served By	Zone Area, Az, per space	Ceiling Height	Volume, per space	Zone Population , Pz, per space	People OA Rate in Breathing Zone, Rp	Area OA Rate in Breathing Zone, Ra	Default Occupant Density	Min. Required Ventilation Airflow	ACTUAL MEASURED VENTILATION AIR FLOW	Excess Ventilation Air (negative indicates deficit)	Excess Ventilation Air Percentage	PASS/FAIL	Ventilation ACH					
					(cfm)	(%)	(%)		(sq.ft)	(ft)	(cu.ft)	Adult	(cfm/ person)	(cfm/sf)	(#/1000sf)	(cfm)	(cfm)	(cfm)	(%)		(AC/hr)					
1	A154	Classroom	Education	Classroom (ages 9+)	0				795	8.7	6917	22	10.0	0.12	35	315	0	-315	-100.0%	Fails	0.000					
1	A155	Media Center	Education	Media Center	5542	2%		RTU-1	3905	10.856	42393	25	10.0	0.12	25	719	89	-630	-87.6%	Fails	0.126					
1	A158	Office	Offices	Office spaces	177	2%			192	8.3	1594	4	5.0	0.06	5	32	3	-29	-91.1%	Fails	0.105					
1	A159	Work Room	Workrooms	Copy, printing rooms	299	2%			251	8	2008	4	5.0	0.06	4	35	5	-30	-86.3%	Fails	0.143					
1	A161	Storage	Storage	Warehouses	328	2%			419	7.6	3184	0	0.0	0.06	0	25	5	-20	-78.9%	Fails	0.100					
1	A162	Computer Lab	Education	Computer lab	4845	5%		RTU-2	1030	9	9270	22	10.0	0.12	25	344	261	-83	-24.0%	Fails	1.689					
1	A165	Office	Offices	Office spaces	745	36%		RTU-3	137	7	959	2	5.0	0.06	5	18	22	4	20.7%	Meets	1.376					
1	A163	Work Room	Workrooms	Copy, printing rooms	237	5%		RTU-2	263	8.5	2236	2	5.0	0.06	4	26	12	-14	-53.8%	Fails	0.319					
1	A164	Computer Lab	Education	Computer lab	4301	4%		RTU-3	752	8.6	6467	26	10.0	0.12	25	350	129	-221	-63.2%	Fails	1.197					
1	B101	Cust Office	Offices	Office spaces	263	0%	N/A	RTU-7	180	8	1440	4	5.0	0.06	5	31	0	-31	-100.0%	Fails	0.000					
1	B102	Copy Room	Workrooms	Copy, printing rooms	139	0%	N/A	RTU-7	165	8	1320	1	5.0	0.06	4	15	0	-15	-100.0%	Fails	0.000					
1	B103	Storage	Storage	Warehouses	212	0%	N/A	RTU-7	162	8	1296	1	0.0	0.06	0	10	0	-10	-100.0%	Fails	0.000					
1	B105	Nurse	Hospitals, nursing and convalescent homes	Patient rooms	205	0%	N/A	RTU-7	380	8	3040	8	25.0	0.00	10	200	0	-200	-100.0%	Fails	0.000					
1	B110	Nurse Toilet	Public Spaces	Toilet rooms - public	148	0%	N/A	EX	59	8	472	1	0.0	0.00	0	0	0	0	0.0%	N/A	0.000					
1	B106	Nurse Office	Offices	Office spaces	31	0%	N/A	RTU-7	82	8	656	2	5.0	0.06	5	15	0	-15	-100.0%	Fails	0.000					
1	B107	Exam	Hospitals, nursing and convalescent homes	Patient rooms	32	0%	N/A	RTU-7	105	8	840	2	25.0	0.00	10	50	0	-50	-100.0%	Fails	0.000					
1	B109	Storage	Storage	Warehouses	130	0%	N/A	RTU-7	28	8	224	1	0.0	0.06	0	2	0	-2	-100.0%	Fails	0.000					
1	B112	Classroom	Education	Classroom (ages 9+)	0			FCU Existing	617	8.9	5491	19	10.0	0.12	35	264	0	-264	-100.0%	Fails	0.000					
1	B113	Conference	Offices	Conference rooms	353	0%	N/A	RTU-7	240	8.9	2136	8	5.0	0.06	50	54	0	-54	-100.0%	Fails	0.000					
1	B111	Guidance	Offices	Office spaces	292	0%	N/A	RTU-7	366	8.9	3257	2	5.0	0.06	5	32	0	-32	-100.0%	Fails	0.000					
1	B114	Guidance	Offices	Office spaces	371	37%	20%	RTU-22	181	8	1448	4	5.0	0.06	5	31	127	96	311.5%	Meets	5.262					



Project Name:	Fairfield Public Schools RCx & TAB Study	Fairfield Woods Middle School
Project Number:	2020102.00.05	
Scope	Ventilation Calculation by Building	
Date	June 21, 2022	
		I

				Zone Identificat	ion										IN	/IC 2015 V	entilation Ca	alculations			
Floor	Room#	Room Name	Occupancy Classification	Category	Total Airflow	Unit Actual OA %	BAS OA Damper Cond	Served By	Zone Area, Az, per space	Ceiling Height	Volume, per space	Zone Population , Pz, per space	People OA Rate in Breathing Zone, Rp	Area OA Rate in Breathing Zone, Ra	Default Occupant Density	Min. Required Ventilation Airflow	ACTUAL MEASURED VENTILATION AIR FLOW	Excess Ventilation Air (negative indicates deficit)	Excess Ventilation Air Percentage	PASS/FAIL	Ventilation ACH
					(cfm)	(%)	(%)		(sq.ft)	(ft)	(cu.ft)	Adult	(cfm/ person)	(cfm/sf)	(#/1000sf)	(cfm)	(cfm)	(cfm)	(%)		(AC/hr)
1	B120	Conference, formerly Dean	Offices	Office spaces	135	37%	20%	RTU-22	146	8	1168	5	5.0	0.06	5	34	50	16	48.1%	Meets	2.568
1	B115	Office	Offices	Office spaces	281	0%	N/A	RTU-7	181	8.9	1611	4	5.0	0.06	5	31	0	-31	-100.0%	Fails	0.000
1	B116	Office	Offices	Office spaces	318	37%	20%	RTU-22	92	8	736	2	5.0	0.06	5	16	118	102	660.3%	Meets	9.620
1	B117	Office	Offices	Office spaces	0.66	0%	20%	RTU-7	160	8.9	1424	4	5.0	0.06	5	30	0	-30	-100.0%	Fails	0.000
1	B118	Dean's Office	Offices	Office spaces	246	37%	20%	RTU-22	179	8	1432	3	5.0	0.06	5	26	91	65	253.5%	Meets	3.813
1	B124*	Team Room	Offices	Conference rooms	122	37%	20%	FCU & RTU-22	210	9	1890	5	5.0	0.06	50	38	45	7	19.7%	Meets	1.429
1	B124	Staff Toilet	Public Spaces	Toilet rooms - public	51			EX	46	9	414	1	0.0	0.00	0	0	0	0	0.0%	N/A	0.000
1	B122	Staff Toilet	Public Spaces	Toilet rooms - public	122			EX	62	9	558	1	0.0	0.00	0	0	0	0	0.0%	N/A	0.000
1	B119	Office	Offices	Office spaces	269	0%	N/A	RTU-7	160	8.9	1424	4	5.0	0.06	5	30	0	-30	-100.0%	Fails	0.000
1	B121	Office	Offices	Office spaces	172	0%	N/A	RTU-7	188	8.9	1673	4	5.0	0.06	5	31	0	-31	-100.0%	Fails	0.000
1	B123	Office	Workrooms	Copy, printing rooms	211	0%	N/A	RTU-7	156	8.9	1388	4	5.0	0.06	4	29	0	-29	-100.0%	Fails	0.000
1	B126	Women	Public Spaces	Toilet rooms - public	206			EX	170	8.8	1496	5	0.0	0.00	0	0	0	0	0.0%	N/A	0.000
1	B127	Cust	Storage	Warehouses	634			EX	31	11	341	0	0.0	0.06	0	2	0	-2	-100.0%	Fails	0.000
1	B128	Men	Public Spaces	Toilet rooms - public	187			EX	170	8.8	1496	5	0.0	0.00	0	0	0	0	0.0%	N/A	0.000
1	B130	Classroom	Education	Classroom (ages 9+)	899	0%	10%	FCU	775	9	6975	24	10.0	0.12	35	333	0	-333	-100.0%	Fails	0.000
1	B131	Classroom	Education	Classroom (ages 9+)	705	0%	10%	FCU	775	9	6975	25	10.0	0.12	35	343	0	-343	-100.0%	Fails	0.000
1	B132	Classroom	Education	Classroom (ages 9+)	972	0%	10%	FCU	775	9	6975	25	10.0	0.12	35	343	0	-343	-100.0%	Fails	0.000
1	B133	Classroom	Education	Classroom (ages 9+)	824	0%	10%	FCU	775	9	6975	25	10.0	0.12	35	343	0	-343	-100.0%	Fails	0.000
1	B134	Classroom	Education	Classroom (ages 9+)	807	0%	10%	FCU	775	9	6975	25	10.0	0.12	35	343	0	-343	-100.0%	Fails	0.000
1	B135	Classroom	Education	Classroom (ages 9+)	907	9%	10%	FCU	775	9	6975	25	10.0	0.12	35	343	81	-262	-76.4%	Fails	0.697
1	B136	Classroom	Education	Classroom (ages 9+)	768	0%	10%	FCU	775	9	6975	25	10.0	0.12	35	343	0	-343	-100.0%	Fails	0.000



Project Name:	Fairfield Public Schools RCx & TAB Study	Fairfield Woods Middle School
Project Number:	2020102.00.05	
Scope	Ventilation Calculation by Building	
Date	June 21, 2022	

				Zone Identificat	ion										IN	/IC 2015 V	entilation Ca	alculations			
Floor	Room#	Room Name	Occupancy Classification	Category	Total Airflow	Unit Actual OA %	BAS OA Damper Cond	Served By	Zone Area, Az, per space	Ceiling Height	Volume, per space	Zone Population , Pz, per space	People OA Rate in Breathing Zone, Rp	Area OA Rate in Breathing Zone, Ra	Default Occupant Density	Min. Required Ventilation Airflow	ACTUAL MEASURED VENTILATION AIR FLOW	Excess Ventilation Air (negative indicates deficit)	Excess Ventilation Air Percentage	PASS/FAIL	Ventilation ACH
					(cfm)	(%)	(%)		(sq.ft)	(ft)	(cu.ft)	Adult	(cfm/ person)	(cfm/sf)	(#/1000sf)	(cfm)	(cfm)	(cfm)	(%)		(AC/hr)
1	B137	Classroom	Education	Classroom (ages 9+)	940	1750%	10%	FCU	775	9	6975	25	10.0	0.12	35	343	165	-178	-51.9%	Fails	1.419
1	B139	Staff Toilet	Public Spaces	Toilet rooms - public	0	0%	10%	EX	54	8	432	1	0.0	0.00	0	0	0	0	0.0%	N/A	0.000
1	B141	Staff Toilet	Public Spaces	Toilet rooms - public	0	0%	10%	EX	105	8	840	1	0.0	0.00	0	0	0	0	0.0%	N/A	0.000
1	B146A	Storage* (ERU Off)	Storage	Warehouses	65	20%, 2647	N/A	RTU-16	163	8.1	1320	0	0.0	0.06	0	10	13	3	32.9%	Meets	0.591
1	B138A	Prep* (ERU Off)	Education	Classroom (ages 9+)	94	20%, 2647	N/A	RTU-16	117	9	1053	1	10.0	0.12	35	24	19	-5	-21.0%	Fails	1.083
1	B138	Science Classroom* (ERU Off)	Education	Classroom (ages 9+)	667	20%, 2647	N/A	RTU-16	1220	9	10980	25	10.0	0.12	35	396	133	-263	-66.4%	Fails	0.727
1	B140A	Science Classroom* (ERU Off)	Education	Classroom (ages 9+)	678	20%, 2647	N/A	RTU-16	1220	9	10980	25	10.0	0.12	35	396	136	-260	-65.7%	Fails	0.743
1	B142A	Prep* (ERU Off)	Education	Classroom (ages 9+)	123	20%, 2647	N/A	RTU-16	278	8	2224	1	10.0	0.12	35	43	25	-18	-42.3%	Fails	0.674
1	B143	Classroom* (ERU Off)	Education	Classroom (ages 9+)	900	20%, 2647	N/A	RTU-16	660	8.9	5874	17	10.0	0.12	35	249	180	-69	-27.8%	Fails	1.839
1	B144	Science Classroom* (ERU Off)	Education	Classroom (ages 9+)	684	20%, 2647	N/A	RTU-16	1220	9	10980	25	10.0	0.12	35	396	137	-259	-65.4%	Fails	0.749
1	B145	Classroom* (ERU Off)	Education	Classroom (ages 9+)	571	20%, 2647	N/A	RTU-16	760	8.9	6764	25	10.0	0.12	35	341	114	-227	-66.6%	Fails	1.011
1	B146	Classroom* (ERU Off)	Education	Classroom (ages 9+)	636	20%, 2647	N/A	RTU-16	825	9	7425	25	10.0	0.12	35	349	127	-222	-63.6%	Fails	1.026
1	B146A	Storage* (ERU On)	Storage	Warehouses	65	55%, 7310	N/A	RTU-16	163	8.1	1320	0	0.0	0.06	0	10	36	26	268.1%	Meets	1.636
1	B138A	Prep* (ERU On)	Education	Classroom (ages 9+)	94	55%, 7310	N/A	RTU-16	117	9	1053	1	10.0	0.12	35	24	52	28	116.3%	Meets	2.963
1	B138	Science Classroom* (ERU On)	Education	Classroom (ages 9+)	667	55%, 7310	N/A	RTU-16	1220	9	10980	25	10.0	0.12	35	396	367	-29	-7.4%	Fails	2.005
1	B140A	Science Classroom* (ERU On)	Education	Classroom (ages 9+)	678	55%, 7310	N/A	RTU-16	1220	9	10980	25	10.0	0.12	35	396	373	-23	-5.9%	Fails	2.038
1	B142A	Prep* (ERU On)	Education	Classroom (ages 9+)	123	55%, 7310	N/A	RTU-16	278	8	2224	1	10.0	0.12	35	43	68	25	56.8%	Meets	1.835
1	B143	Classroom* (ERU On)	Education	Classroom (ages 9+)	900	55%, 7310	N/A	RTU-16	660	8.9	5874	17	10.0	0.12	35	249	495	246	98.6%	Meets	5.056
1	B144	Science Classroom* (ERU On)	Education	Classroom (ages 9+)	684	55%, 7310	N/A	RTU-16	1220	9	10980	25	10.0	0.12	35	396	376	-20	-5.1%	Fails	2.055
1	B145	Classroom* (ERU On)	Education	Classroom (ages 9+)	571	55%, 7310	N/A	RTU-16	760	8.9	6764	25	10.0	0.12	35	341	314	-27	-8.0%	Fails	2.785
1	B146	Classroom* (ERU On)	Education	Classroom (ages 9+)	636	55%, 7310	N/A	RTU-16	825	9	7425	25	10.0	0.12	35	349	350	1	0.3%	Meets	2.828



Project Name:	Fairfield Public Schools RCx & TAB Study	Fairfield Woods Middle School
Project Number:	2020102.00.05	
Scope	Ventilation Calculation by Building	
Date	June 21, 2022	

		1		Zone Identificat	ion										IN	/IC 2015 V	entilation Ca	alculations			
Floor	Room#	Room Name	Occupancy Classification	Category	Total Airflow	Unit Actual OA %	BAS OA Damper Cond	Served By	Zone Area, Az, per space	Ceiling Height	Volume, per space	Zone Population , Pz, per space	People OA Rate in Breathing Zone, Rp	Area OA Rate in Breathing Zone, Ra	Default Occupant Density	Min. Required Ventilation Airflow	ACTUAL MEASURED VENTILATION AIR FLOW	Excess Ventilation Air (negative indicates deficit)	Excess Ventilation Air Percentage	PASS/FAIL	Ventilation ACH
					(cfm)	(%)	(%)		(sq.ft)	(ft)	(cu.ft)	Adult	(cfm/ person)	(cfm/sf)	(#/1000sf)	(cfm)	(cfm)	(cfm)	(%)		(AC/hr)
1	B146A	Storage	Storage	Warehouses				EX	112	7.4	829	1	0.0	0.06	0	7		N/A		N/A	
1	B148	Men	Public Spaces	Toilet rooms - public	0			EX	240	8	1920	4	0.0	0.00	0	0	0	0	0.0%	N/A	0.000
1	B149	Cust	Storage	Warehouses	0			EX	56	10.5	588	1	0.0	0.06	0	3	0	-3	-100.0%	Fails	0.000
1	B150	Women	Public Spaces	Toilet rooms - public	0			EX	240	8	1920	4	0.0	0.00	0	0	0	0	0.0%	N/A	0.000
1	B151	Elec	None	None	622			EX	67	10.5	704	0	0.0	0.00	0	0	0	0	0.0%	N/A	0.000
1	B152	Data	None	None					71	10.5	746	0	0.0	0.00	0	0	0	0	0.0%	N/A	0.000
1	B153	Spec. Ed, old Storage* (ERU Off)	Storage	Warehouses	105	20%, 2647	N/A	RTU-16	285	8	2280	10	0.0	0.06	0	17	21	4	22.8%	Meets	0.553
1	B155A	Classroom* (ERU Off)	Education	Classroom (ages 9+)	775	20%, 2647	N/A	RTU-16	375	9	3375	10	10.0	0.12	35	145	155	10	6.9%	Meets	2.756
1	B155B	Classroom* (ERU Off)	Education	Classroom (ages 9+)	0	20%, 2647	N/A	RTU-16	375	9	3375	10	10.0	0.12	35	145	0	-145	-100.0%	Fails	0.000
1	B156	Art Storage* (ERU Off)	Storage	Warehouses	100	20%, 2647	N/A	RTU-16	270	9	2430	1	0.0	0.06	0	16	20	4	23.5%	Meets	0.494
1	B157	Art Classroom* (ERU Off)	Education	Classroom (ages 9+)	804	20%, 2647	N/A	RTU-16	1100	10	11000	25	10.0	0.12	35	382	32	-350	-91.6%	Fails	0.175
1	B158	Art Office* (ERU Off)	Offices	Office spaces	763	20%, 2647	N/A	RTU-16	200	9	1800	4	5.0	0.06	5	32	153	121	378.1%	Meets	5.100
1	B159	Art Classroom* (ERU Off)	Education	Classroom (ages 9+)	934	20%, 2647	N/A	RTU-16	1100	10	11000	25	10.0	0.12	35	382	187	-195	-51.0%	Fails	1.020
1	B153	Spec. Ed, old Storage* (ERU On)	Storage	Warehouses	105	55%, 7310	N/A	RTU-16	285	8	2280	10	0.0	0.06	0	17	58	41	239.2%	Meets	1.526
1	B155A	Classroom* (ERU On)	Education	Classroom (ages 9+)	775	55%, 7310	N/A	RTU-16	375	9	3375	10	10.0	0.12	35	145	426	281	193.8%	Meets	7.573
1	B155B	Classroom* (ERU On)	Education	Classroom (ages 9+)	0	55%, 7310	N/A	RTU-16	375	9	3375	10	10.0	0.12	35	145	0	-145	-100.0%	Fails	0.000
1	B156	Art Storage* (ERU On)	Storage	Warehouses	100	55%, 7310	N/A	RTU-16	270	9	2430	1	0.0	0.06	0	16	55	39	239.5%	Meets	1.358
1	B157	Art Classroom* (ERU On)	Education	Classroom (ages 9+)	804	55%, 7310	N/A	RTU-16	1100	10	11000	25	10.0	0.12	35	382	442	60	15.7%	Meets	2.411
1	B158	Art Office* (ERU On)	Offices	Office spaces	763	55%, 7310	N/A	RTU-16	200	9	1800	4	5.0	0.06	5	32	420	388	1212.5%	Meets	14.000
1	B159	Art Classroom* (ERU On)	Education	Classroom (ages 9+)	934	55%, 7310	N/A	RTU-16	1100	10	11000	25	10.0	0.12	35	382	514	132	34.6%	Meets	2.804
1	C101	Weight Room	Sports and amusement	Health club/weight room	3484	0%	N/A	RTU-9	2200	21.4	47080	30	20.0	0.06	10	732	0	-732	-100.0%	Fails	0.000



Project Number:	2020102.00.05	_
Scope	Ventilation Calculation by Building	
Date	June 21, 2022	

				Zone Identificat	ion										IN	/IC 2015 V	entilation Ca	alculations			
Floor	Room#	Room Name	Occupancy Classification	Category	Total Airflow	Unit Actual OA %	BAS OA Damper Cond	Served By	Zone Area, Az, per space	Ceiling Height	Volume, per space	Zone Population , Pz, per space	People OA Rate in Breathing Zone, Rp	Area OA Rate in Breathing Zone, Ra	Default Occupant Density	Min. Required Ventilation Airflow	ACTUAL MEASURED VENTILATION AIR FLOW	Excess Ventilation Air (negative indicates deficit)	Excess Ventilation Air Percentage	PASS/FAIL	Ventilation ACH
					(cfm)	(%)	(%)		(sq.ft)	(ft)	(cu.ft)	Adult	(cfm/ person)	(cfm/sf)	(#/1000sf)	(cfm)	(cfm)	(cfm)	(%)		(AC/hr)
1	C102	Cafeteria High Low 1 Low 2	Food and beverage service	Cafeteria, fast food	3173	100%	30%	RTU-8	5062	11.3 8.38 8.38	49428	300	7.5	0.18	100	3161	3173	12	0.4%	Meets	3.852
1	C103	Project Adventure	Sports and amusement	Gym, stadium, arena (play area)	3024	0%	n/a	RTU-9	2200	21.4	47080	30	0.0	0.30	0	660	0	-660	-100.0%	Fails	0.000
1	C104	Kitchen	Food and beverage service	Kitchens (cooking)	0				2000	8.3	16600	40	0.0	0.00	0	0	0	0	0.0%	N/A	0.000
1	C106	Office	Offices	Office spaces	0				62	8.5	527	2	5.0	0.06	5	14	0	-14	-100.0%	Fails	0.000
1	C107	Toilet	Public Spaces	Toilet rooms - public					70	8	560	1	0.0	0.00	0	0	0	0	0.0%	N/A	0.000
1	C109B	Storage	Storage	Warehouses					60	8.3	498	1	0.0	0.06	0	4		N/A		N/A	
1	C109A	Cust	Storage	Warehouses	0				30	8.3	249	0	0.0	0.06	0	2	0	-2	-100.0%	Fails	0.000
1	C109	Storage	Storage	Warehouses					10	9	90	0	0.0	0.06	0	1		N/A		N/A	
1	C110A	Data	None	None	193	72%	N/A	RTU-13	50	8	400	0	0.0	0.00	0	0	139	139	0.0%	N/A	20.850
1	C110	Storage	Storage	Warehouses					106	8	848	0	0.0	0.06	0	6		N/A		N/A	
1	C105C	Storage	Storage	Warehouses				CUH-7	550	8	4400	2	0.0	0.06	0	33		N/A		N/A	
1	C111	Storage	Storage	Warehouses					180	8.5	1530	0	0.0	0.06	0	11		N/A		N/A	
1	C112	Faculty Dining	Food and beverage service	Dining Rooms	1002	72%	N/A	RTU-13	643	8.1	5208	8	7.5	0.18	70	176	721	545	310.3%	Meets	8.306
1	C113	Technology	Education	Computer lab	1541	15%	10%	2 FCU'S	1255	8.75	10981	26	10.0	0.12	25	411	237	-174	-42.3%	Fails	1.295
1	C113A	Work Shop	Education	Wood/metal shops	591	0%	10%	FCU	500	8.9	4450	13	10.0	0.18	20	220	0	-220	-100.0%	Fails	0.000
1	C114	Storage	Storage	Warehouses					55	8	440	0	0.0	0.06	0	3		N/A		N/A	
1	C115	Dark Room/Storage	Storage	Warehouses	108	0%	N/A	FCU	183	8	1464	3	0.0	0.06	0	11	0	-11	-100.0%	Fails	0.000
1	C117	Main Elec	None	None	0				100	9	900	0	0.0	0.00	0	0	0	0	0.0%	N/A	0.000
1	C133	Tickets/Electrical	Theaters	Ticket Booths	72	48%	N/A	RTU 15, VAV 32	152	8.6	1307	2	5.0	0.06	60	19	35	16	83.1%	Meets	1.606
1	C118	Women	Public Spaces	Toilet rooms - public	0			EX	250	9	2250	4	0.0	0.00	0	0	0	0	0.0%	N/A	0.000
1	C120	Men	Public Spaces	Toilet rooms - public	0			EX	212	9	1908	4	0.0	0.00	0	0	0	0	0.0%	N/A	0.000



Project Name:	Fairfield Public Schools RCx & TAB Study	Fairfield Woods Middle School
Project Number:	2020102.00.05	
Scope	Ventilation Calculation by Building	
Date	June 21, 2022	

				Zone Identificat	ion										IN	AC 2015 V	entilation Ca	alculations			
Floor	Room#	Room Name	Occupancy Classification	Category	Total Airflow	Unit Actual OA %	BAS OA Damper Cond	Served By	Zone Area, Az, per space	Ceiling Height	Volume, per space	Zone Population , Pz, per space	People OA Rate in Breathing Zone, Rp	Area OA Rate in Breathing Zone, Ra	Default Occupant Density	Min. Required Ventilation Airflow	ACTUAL MEASURED VENTILATION AIR FLOW	Excess Ventilation Air (negative indicates deficit)	Excess Ventilation Air Percentage	PASS/FAIL	Ventilation ACH
					(cfm)	(%)	(%)		(sq.ft)	(ft)	(cu.ft)	Adult	(cfm/ person)	(cfm/sf)	(#/1000sf)	(cfm)	(cfm)	(cfm)	(%)		(AC/hr)
1	C122	Gender Neutral Toilet	Public Spaces	Toilet rooms - public	0			EX	55	9	495	1	0.0	0.00	0	0	0	0	0.0%	N/A	0.000
1	C130/C131	Platform/Auditorium	Theaters	Stages, studios	230	48%	N/A	RTU 15, VAV 34	1620	30	48600	30	10.0	0.06	70	397	110	-287	-72.3%	Fails	0.136
1	C130D	Storage	Storage	Warehouses					14	30	420	0	0.0	0.06	0	1		N/A		N/A	
1	C134	Auditorium Front Main Rear Walk Rear Side	Education	Auditoriums	3203	100%	25% min	RTU-14	6540	35 30.3 24.3 17.5 9.375	172929	680	5.0	0.06	150	3792	3203	-589	-15.5%	Fails	1.111
1	C139	Lobby	Education	Auditoriums	437	48%	N/A	RTU 15, FT 13-1	775	21	16275	20	5.0	0.06	150	147	118	-29	-19.5%	Fails	0.435
1	C134	Foyer	Theaters	Lobbies	1203	48%	N/A	RTU-15, VAV 33	1200	10	12000	30	5.0	0.06	150	222	325	103	46.4%	Meets	1.625
1	C137	Women	Public Spaces	Toilet rooms - public	424			EF-1	150	8.5	1275	2	0.0	0.00	0	0	0	0	0.0%	N/A	0.000
1	C138	Men	Public Spaces	Toilet rooms - public	359			EF-1	150	8.5	1275	2	0.0	0.00	0	0	0	0	0.0%	N/A	0.000
1	C140	Gynasium	Sports and amusement	Gym, stadium, arena (play area)	16614	4%	N/A	RTU-11, 12	7700	23.3	179410	32	0.0	0.30	0	2310	715	-1595	-69.0%	Fails	0.239
1	C140A	Storage	Storage	Warehouses					126	23.3	2936	0	0.0	0.06	0	8		N/A		N/A	
1	C141	Boys Locker Room	Education	Locker/dressing room	0			EX	534	8.9	4753	30	0.0	0.00	0	0	0	0	0.0%	N/A	0.000
1	C143	Toilet for Boys Locker Room	Public Spaces	Toilet rooms - public	49			EX	45	8.9	401	1	0.0	0.00	0	0	0	0	0.0%	N/A	0.000
1	C142	Girls Locker Room	Education	Locker/dressing room	0			EX	534	8.9	4753	30	0.0	0.00	0	0	0	0	0.0%	N/A	0.000
1	C144	Toilet for Girls Locker Room	Public Spaces	Toilet rooms - public	0			EX	45	8.9	401	1	0.0	0.00	0	0	0	0	0.0%	N/A	0.000
1	C145	Office	Offices	Office spaces	272	0%	10%	FCU	225	9	2025	2	5.0	0.06	5	24	0	-24	-100.0%	Fails	0.000
1	C147	Toilet for C145	Public Spaces	Toilet rooms - public	51			EX	56	9	504	1	0.0	0.00	0	0	0	0	0.0%	N/A	0.000
1	C148	Toilet for C146	Public Spaces	Toilet rooms - public	0			EX	56	9	504	1	0.0	0.00	0	0	0	0	0.0%	N/A	0.000
1	C146	Office	Offices	Office spaces	252	0%	10%	FCU	225	9	2025	2	5.0	0.06	5	24	0	-24	-100.0%	Fails	0.000
1	C150	Storage	Storage	Warehouses					708	8.7	6160	0	0.0	0.06	0	42		N/A		N/A	
1	C151	Outdoor Storage	None	None	0				250	23.3	5825	0	0.0	0.00	0	0		N/A	0.0%	N/A	



Project Name:	Fairfield Public Schools RCx & TAB Study	Fairfield Woods Middle School
Project Number:	2020102.00.05	
Scope	Ventilation Calculation by Building	
Date	June 21, 2022	

				Zone Identificat	ion										IN	/IC 2015 V	entilation Ca	alculations			
Floor	Room#	Room Name	Occupancy Classification	Category	Total Airflow	Unit Actual OA %	BAS OA Damper Cond	Served By	Zone Area, Az, per space	Ceiling Height	Volume, per space	Zone Population , Pz, per space	People OA Rate in Breathing Zone, Rp	Area OA Rate in Breathing Zone, Ra	Default Occupant Density	Min. Required Ventilation Airflow	ACTUAL MEASURED VENTILATION AIR FLOW	Excess Ventilation Air (negative indicates deficit)	Excess Ventilation Air Percentage	PASS/FAIL	Ventilation ACH
					(cfm)	(%)	(%)		(sq.ft)	(ft)	(cu.ft)	Adult	(cfm/ person)	(cfm/sf)	(#/1000sf)	(cfm)	(cfm)	(cfm)	(%)		(AC/hr)
1	C152	Keyboard	Education	Computer lab	304	100%	100%	RTU-21	733	9.5	6964	24	10.0	0.12	25	328	304	-24	-7.3%	Fails	2.619
1	C153	Storage	Storage	Warehouses	468	100%	100%	RTU-21	1250	23.5	29375	5	0.0	0.06	0	75	468	393	524.0%	Meets	0.956
1	C154	Wardrobe	Education	Locker/dressing room	78	100%	100%	RTU-21	153	9	1377	2	0.0	0.00	0	0	78	78	0.0%	N/A	3.399
1	C156	Band Room Hall Room	Education	Music/theater/dance	523	27%		RTU-10	2450	9 15	33930	75	10.0	0.06	35	897	128	-769	-85.7%	Fails	0.226
1	C156C	Storage	Storage	Warehouses					100	9	900	0	0.0	0.06	0	6		N/A		N/A	
1	C156B	Storage	Storage	Warehouses					100	9	900	0	0.0	0.06	0	6		N/A		N/A	
1	C116	Custodian	Storage	Warehouses	0			EX	49	9	441	0	0.0	0.06	0	3	0	-3	-100.0%	Fails	0.000
1	C155	Storage	Storage	Warehouses	87	100%	Open 100%	RTU 21	165	9	1485	4	0.0	0.06	0	10	87	77	778.8%	Meets	3.515
1	C132	Control Booth	Workrooms	Computer (w/o printing)	73	48%	N/A	RTU 15, VAV 32	91	8.9	810	2	5.0	0.06	4	15	35	20	126.4%	Meets	2.593
1	C156A	Instrument Storage	Storage	Warehouses	0	27%	40%	RTU-10	400	9	3600	10	0.0	0.06	0	24	0	-24	-100.0%	Fails	0.000
1	C158	Office	Offices	Office spaces	52	27%	40%	RTU-10	250	9	2250	5	5.0	0.06	5	40	14	-26	-65.0%	Fails	0.373
1	C159	Practice	Education	Music/theater/dance	56	27%	40%	RTU-10	164	9	1476	5	10.0	0.06	35	60	15	-45	-74.9%	Fails	0.610
1	C160	Orchestra Room	Education	Music/theater/dance	473	27%	40%	RTU-10	1150	16	18400	50	10.0	0.06	35	569	128	-441	-77.5%	Fails	0.417
1	C161	Practice	Education	Music/theater/dance	22	27%	40%	RTU-10	75	9	675	2	10.0	0.06	35	25	6	-19	-75.5%	Fails	0.533
1	C162	Choral Room	Education	Music/theater/dance	632	27%	40%	RTU-10	1360	14.8	20128	45	10.0	0.06	35	532	171	-361	-67.8%	Fails	0.510
1	C163	Practice	Education	Music/theater/dance	20	27%	40%	RTU-10	75	9	675	2	10.0	0.06	35	25	5	-19	-78.0%	Fails	0.480
1	C164	Practice	Education	Music/theater/dance	199	27%	40%	RTU-10	285	9	2565	10	10.0	0.06	35	117	54	-63	-53.9%	Fails	1.263
1	C170	Auxiliary Gynasium	Sports and amusement	Gym, stadium, arena (play area)	1891	90%	Based on CO2	RTU-18	3000	25	75000	30	0.0	0.30	0	900	1695	795	88.3%	Meets	1.356
1	C171	Technology	Education	Wood/metal shops	0			FCU	1500	8.4	12600	25	10.0	0.18	20	520	0	-520	-100.0%	Fails	0.000
1	C172	Office	Offices	Office spaces	0				116	8	928	4	5.0	0.06	5	27	0	-27	-100.0%	Fails	0.000
1	C173	Storage	Storage	Warehouses					100	7.8	780	0	0.0	0.06	0	6		N/A		N/A	



Project Name:	Fairfield Public Schools RCx & TAB Study	Fairfield Woods Middle School
Project Number:	2020102.00.05	
Scope	Ventilation Calculation by Building	
Date	June 21, 2022	

	Zone Identification												IMC 2015 Ventilation Calculations								
Floor	Room#	Room Name	Occupancy Classification	Category	Total Airflow	Unit Actual OA %	BAS OA Damper Cond	Served By	Zone Area, Az, per space	Ceiling Height	Volume, per space	Zone Population , Pz, per space	People OA Rate in Breathing Zone, Rp	Area OA Rate in Breathing Zone, Ra	Default Occupant Density	Min. Required Ventilation Airflow	ACTUAL MEASURED VENTILATION AIR FLOW	Excess Ventilation Air (negative indicates deficit)	Excess Ventilation Air Percentage	PASS/FAIL	Ventilation ACH
					(cfm)	(%)	(%)		(sq.ft)	(ft)	(cu.ft)	Adult	(cfm/ person)	(cfm/sf)	(#/1000sf)	(cfm)	(cfm)	(cfm)	(%)		(AC/hr)
1	C174	Storage	Storage	Warehouses	84	26%	N/A	RTU-17	50	8	400	0	0.0	0.06	0	3	22	19	633.3%	Meets	3.300
1	C175	Storage	Storage	Warehouses				EF-2	75	11.7	878	0	0.0	0.06	0	5		N/A		N/A	
1	C176	Men	Public Spaces	Toilet rooms - public	0			EF-2	185	8	1480	4	0.0	0.00	0	0	0	0	0.0%	N/A	0.000
1	C177	Cust	Storage	Warehouses	0			EF-2	62	11.5	713	0	0.0	0.06	0	4	0	-4	-100.0%	Fails	0.000
1	C178	Women	Public Spaces	Toilet rooms - public	0			EF-2	245	8	1960	4	0.0	0.00	0	0	0	0	0.0%	N/A	0.000
1	C179	Storage	Storage	Warehouses	108	26%	N/A	RTU-17	56	8	448	0	0.0	0.06	0	3	28	25	733.3%	Meets	3.750
1	C180	Storage	Storage	Warehouses	119	26%	N/A	RTU-17	50	8	400	0	0.0	0.06	0	3	31	28	933.3%	Meets	4.650
1	C181	OT/PT	Hospitals, nursing and convalescent homes	Physical Therapy	987	26%	N/A	RTU-17	954	9.3	8872	10	15.0	0.00	20	150	257	107	71.3%	Meets	1.738
2	200	Conference	Offices	Conference rooms	257	14%	N/A	RTU-19	180	8.9	1602	5	5.0	0.06	50	36	35	-1	-2.2%	Fails	1.311
2	201	Classroom	Education	Classroom (ages 9+)	609	17%	10%	FCU	500	8.8	4400	12	10.0	0.12	35	180	103	-77	-42.8%	Fails	1.405
2	202	Classroom	Education	Classroom (ages 9+)	799	14%	N/A	RTU-19	725	9	6525	25	10.0	0.12	35	337	108	-229	-68.0%	Fails	0.993
2	203	Classroom	Education	Classroom (ages 9+)	0			FCU	775	8.9	6898	25	10.0	0.12	35	343	0	-343	-100.0%	Fails	0.000
2	204	Storage	Storage	Warehouses				FCU	155	8	1240	1	0.0	0.06	0	9		N/A		N/A	
2	204A	Data/Elec	None	None				FCU	85	12.7	1080	0	0.0	0.00	0	0	0	0	0.0%	N/A	0.000
2	205	Classroom	Education	Classroom (ages 9+)	0			FCU	775	8.9	6898	25	10.0	0.12	35	343	0	-343	-100.0%	Fails	0.000
2	206	Classroom	Education	Classroom (ages 9+)	1452	51%	N/A	RTU-20	775	8.9	6898	25	10.0	0.12	35	343	740	397	115.7%	Meets	6.437
2	207	Girls	Public Spaces	Toilet rooms - public	148			EX	190	8.9	1691	4	0.0	0.00	0	0	0	0	0.0%	N/A	0.000
2	208	Cust	Storage	Warehouses	40			EX	30	8.9	267	0	0.0	0.06	0	2	0	-2	-100.0%	Fails	0.000
2	209	Boys	Public Spaces	Toilet rooms - public	143			EX	181	8.9	1611	4	0.0	0.00	0	0	0	0	0.0%	N/A	0.000
2	210	Classroom	Education	Classroom (ages 9+)	899	18%	10%	FCU	775	8.9	6898	25	10.0	0.12	35	343	162	-181	-52.8%	Fails	1.409
2	211	Classroom	Education	Classroom (ages 9+)	927	15%	10%	FCU	775	8.9	6898	25	10.0	0.12	35	343	142	-201	-58.6%	Fails	1.235



Project Name:	Fairfield Public Schools RCx & TAB Study	Fairfield Woods Middle School
Project Number:	2020102.00.05	
Scope	Ventilation Calculation by Building	
Date	June 21, 2022	

	Zone Identification											IMC 2015 Ventilation Calculations									
Floor	Room#	Room Name	Occupancy Classification	Category	Total Airflow	Unit Actual OA %	BAS OA Damper Cond	Served By	Zone Area, Az, per space	Ceiling Height	Volume, per space	Zone Population , Pz, per space	People OA Rate in Breathing Zone, Rp	Area OA Rate in Breathing Zone, Ra	Default Occupant Density	Min. Required Ventilation Airflow	ACTUAL MEASURED VENTILATION AIR FLOW	Excess Ventilation Air (negative indicates deficit)	Excess Ventilation Air Percentage	PASS/FAIL	Ventilation ACH
					(cfm)	(%)	(%)		(sq.ft)	(ft)	(cu.ft)	Adult	(cfm/ person)	(cfm/sf)	(#/1000sf)	(cfm)	(cfm)	(cfm)	(%)		(AC/hr)
2	212	Classroom	Education	Classroom (ages 9+)	711	10%	10%	FCU	775	8.9	6898	25	10.0	0.12	35	343	68	-275	-80.2%	Fails	0.592
2	213	Classroom	Education	Classroom (ages 9+)	626	12%	10%	FCU	775	8.9	6898	25	10.0	0.12	35	343	75	-268	-78.1%	Fails	0.652
2	C165	Storage	Storage	Warehouses					45	9	405	0	0.0	0.06	0	3		N/A		N/A	
2	214	Classroom	Education	Classroom (ages 9+)	743	7%	10%	FCU	775	8.9	6898	25	10.0	0.12	35	343	51	-292	-85.1%	Fails	0.444
2	215	Classroom	Education	Classroom (ages 9+)	687	12%	10%	FCU	775	8.9	6898	25	10.0	0.12	35	343	84	-259	-75.5%	Fails	0.731
2	216	Classroom	Education	Classroom (ages 9+)	853	17%	10%	FCU	775	8.9	6898	25	10.0	0.12	35	343	142	-201	-58.6%	Fails	1.235
2	217	Classroom	Education	Classroom (ages 9+)	877	17%	10%	FCU	775	8.9	6898	25	10.0	0.12	35	343	149	-194	-56.6%	Fails	1.296
2	219	Staff Toilet	Public Spaces	Toilet rooms - public	72			EX	57	8	456	1	0.0	0.00	0	0	0	0	0.0%	N/A	0.000
2	221	Staff Toilet	Public Spaces	Toilet rooms - public	60			EX	93	8	744	1	0.0	0.00	0	0	0	0	0.0%	N/A	0.000
2	218	Science Classroon* (ERU Off)	Education	Classroom (ages 9+)	992	20%, 2647	N/A	RTU-16	1220	9	10980	25	10.0	0.12	35	396	198	-198	-50.1%	Fails	1.082
2	218A	Prep* (ERU Off)	Education	Classroom (ages 9+)	125	20%, 2647	N/A	RTU-16	130	8	1040	1	10.0	0.12	35	26	25	-1	-2.3%	Fails	1.442
2	220	Science Classroon* (ERU Off)	Education	Classroom (ages 9+)	1018	20%, 2647	N/A	RTU-16	1220	9	10980	25	10.0	0.12	35	396	204	-192	-48.5%	Fails	1.115
2	222	Prep* (ERU Off)	Education	Classroom (ages 9+)	98	20%, 2647	N/A	RTU-16	275	9	2475	2	10.0	0.12	35	53	20	-33	-62.3%	Fails	0.485
2	223	Classroom* (ERU Off)	Education	Classroom (ages 9+)	885	20%, 2647	N/A	RTU-16	675	9	6075	16	10.0	0.12	35	241	177	-64	-26.6%	Fails	1.748
2	224	Science Classroon* (ERU Off)	Education	Classroom (ages 9+)	708	20%, 2647	N/A	RTU-16	1220	9	10980	25	10.0	0.12	35	396	142	-254	-64.2%	Fails	0.776
2	225	Classroom* (ERU Off)	Education	Classroom (ages 9+)	385	20%, 2647	N/A	RTU-16	750	9	6750	25	10.0	0.12	35	340	77	-263	-77.4%	Fails	0.684
2	226	Classroom* (ERU Off)	Education	Classroom (ages 9+)	506	20%, 2647	N/A	RTU-16	820	9	7380	25	10.0	0.12	35	348	101	-247	-71.0%	Fails	0.821
2	227	Classroom* (ERU Off)	Education	Classroom (ages 9+)	686	20%, 2647	N/A	RTU-16	812	9	7308	25	10.0	0.12	35	347	137	-210	-60.6%	Fails	1.125
2	218	Science Classroon* (ERU On)	Education	Classroom (ages 9+)	992	55%, 7310	N/A	RTU-16	1220	9	10980	25	10.0	0.12	35	396	546	150	37.7%	Meets	2.984
2	218A	Prep* (ERU On)	Education	Classroom (ages 9+)	125	55%, 7310	N/A	RTU-16	130	8	1040	1	10.0	0.12	35	26	69	43	169.5%	Meets	3.981
2	220	Science Classroon* (ERU On)	Education	Classroom (ages 9+)	1018	55%, 7310	N/A	RTU-16	1220	9	10980	25	10.0	0.12	35	396	560	164	41.3%	Meets	3.060



Date	June 21, 2022		
Scope	Ventilation Calculation by Building		
Project Number:	2020102.00.05		
Project Name:	Fairfield Public Schools RCx & TAB Study	Fairfield Woods Middle School	

	Zone Identification													IMC 2015 Ventilation Calculations								
Floor	Room#	Room Name	Occupancy Classification	Category	Total Airflow	Unit Actual OA %	BAS OA Damper Cond	Served By	Zone Area, Az, per space	Ceiling Height	Volume, per space	Zone Population , Pz, per space	People OA Rate in Breathing Zone, Rp	Area OA Rate in Breathing Zone, Ra	Default Occupant Density	Min. Required Ventilation Airflow	ACTUAL MEASURED VENTILATION AIR FLOW	Excess Ventilation Air (negative indicates deficit)	Excess Ventilation Air Percentage	PASS/FAIL	Ventilation ACH	
					(cfm)	(%)	(%)		(sq.ft)	(ft)	(cu.ft)	Adult	(cfm/ person)	(cfm/sf)	(#/1000sf)	(cfm)	(cfm)	(cfm)	(%)		(AC/hr)	
2	222	Prep* (ERU On)	Education	Classroom (ages 9+)	98	55%, 7310	N/A	RTU-16	275	9	2475	2	10.0	0.12	35	53	54	1	1.9%	Meets	1.309	
2	223	Classroom* (ERU On)	Education	Classroom (ages 9+)	885	55%, 7310	N/A	RTU-16	675	9	6075	16	10.0	0.12	35	241	263	22	9.1%	Meets	2.598	
2	224	Science Classroon* (ERU On)	Education	Classroom (ages 9+)	708	55%, 7310	N/A	RTU-16	1220	9	10980	25	10.0	0.12	35	396	389	-7	-1.9%	Fails	2.126	
2	225	Classroom* (ERU On)	Education	Classroom (ages 9+)	385	55%, 7310	N/A	RTU-16	750	9	6750	25	10.0	0.12	35	340	212	-128	-37.6%	Fails	1.884	
2	226	Classroom* (ERU On)	Education	Classroom (ages 9+)	506	55%, 7310	N/A	RTU-16	820	9	7380	25	10.0	0.12	35	348	278	-70	-20.2%	Fails	2.260	
2	227	Classroom* (ERU On)	Education	Classroom (ages 9+)	686	55%, 7310	N/A	RTU-16	812	9	7308	25	10.0	0.12	35	347	377	30	8.5%	Meets	3.095	
2	228	Men	Public Spaces	Toilet rooms - public	0			EX	235	8	1880	4	0.0	0.00	0	0	0	0	0.0%	N/A	0.000	
2	229	Elec	None	None	0			EX	56	12.7	711	0	0.0	0.00	0	0	0	0	0.0%	N/A	0.000	
2	230	Women	Public Spaces	Toilet rooms - public	0			EX	235	8	1880	4	0.0	0.00	0	0	0	0	0.0%	N/A	0.000	



APPENDIX 3 – Roof Map



APPENDIX 4 – TAB Airflow Survey Data

Fairfield Public Schools Fairfield Woods Middle School Ventilation Survey

* * * *

VanZelm Engineers Attn: Bill Donald 10 Talcott Notch Road Farmington, CT 06032

May 4, 2022

May 4, 2022

VanZelm Engineers Attn: Bill Donald 10 Talcott Notch Road Farmington, CT 06032

Re: Fairfield Public Schools – Fairfield Woods Middle School

Dear Bill,

The ventilation survey has been completed as noted on our attached data sheets. Airflow readings for the rooms listed on the given list, as well as rooftop units, and outside air totals for the associated systems have been measured where possible or calculated based on distribution readings in rooms. We also measured exhaust in the rooms listed on the list.

During our testing the following observations were made:

- All RTU's had new filters installed, coils were generally clean, and belts were in good condition (Some units had direct drive motors)
- The control contractor was not able to make any changes to most tested units, so we could only see unit status. We marked units which cannot be modulated on the attached sheets.
- RTU's 9, 12, and 18 had disconnected exhaust fans.
- Associated ERU-1 with RTU-16 had dirty filters on outside air intake.
 - Fresh air measurements were taken with the ERU both on and off
- RTU-15 had a damaged bird screen on the OA intake.
- On drawings M1.13 and M1.15 we marked distribution locations and which RTU's serve each area.

The following pages are your record of current operating conditions. If you have any questions, or if we can be of further service, please do not hesitate to call.

Very truly yours,

Wing's Testing & Balancing Co., Inc.

ICB Certified Contractor for: TABB—Commissioning—Fire/Life Safety L1&L2—Sound & Vibration

Marek Sadowski Certified TABB Technician #BB1083468T CT SM-2 License #7078 MA SM-2 4508 HVAC Fire Life Safety Level 1 Tech FLS11083468T EPA Universal Technician AA2804U0003

94 North Branford Road • Suite One • Branford, CT 06405 (203) 481-4988 • Fax (203) 488-5634 • wings@wingstesting.com

ROJECT:	Fairfield Woods	Middle School				DATE:	4/21/22	
REA SERVED:	Rooftop Units					TECH:	MS	
TRAVERSE		State States	DES	IGN	CENT. STAT.	TE	ST	Storage and
LOCATIONS	DUCT SIZE "	AREA SQ.FT.	FPM	CFM	PRESS."	FPM	CFM	NOTES
RTU-1								
Total	52" x 20"	7.22		ND	+0.06"	879	6346	
Min. O.A.	12" X 17"	1.72		ND	w/Velgrid	71	101	
RTU-2								
Total				ND			4845	(4)
Min O.A.	36" x 15"	3.75		ND	w/Velgrid	69	259	No BAS
RTU-3								
Total				ND			4301	(4)
Min O.A.	28 1/2" X 23"	4.55		ND	w/Velgrid	34	155	no BAS
RTU-4								
Total				ND			1800	(4)
Min O.A.	28" x 11"	2.14		ND	w/Velgrid	302	646	
RTU-5								
Total				ND			4117	(4)
Min. O.A.	48" X 15"	5		ND	w/Velgrid	152	760	
RTU-6								
Total				ND			1270	(4)
Min O.A.	60" X 17"	7.1		ND	w/Velgrid	422	2996	(1)
Min O.A.	60" x 17"	7.1		ND	w/Velgrid	80	568	(1a)
RTU-7			-11					
Total				ND			2656	(4)
Min O.A.				ND			0	(5)
RTU-8								
Total	71 1/2" x 30"	14.9	376	5600	w/Velgrid	240	3576	(2)
Min O.A.	71 1/2" x 30"	14.9		ND	w/Velgrid	213	3173	(3)
RTU-9								
Fitness C101	21" x 22"	3.36		ND	+0.18"	1037	3474	(5)
Gym C103	22" x 22"	3.36		ND	+0.15"	900	3024	
Min O.A.				ND		0	0	
			REMA	RKS				

(1a) VAV boxes at Min

(2) 100% OA (Fan speed limited by CO2 sensor and spece pressure

(3) Min setting 30% (Based on CO2)

(4) Summation of distribution

(5) Calculated based on return measurement

AREA SERVED: TRAVERSE LOCATIONS RTU-10 Total Min O.A. RTU-11 Total Min O.A.	Rooftop Units DUCT SIZE " 49" X 26"	AREA SQ.FT.	DES FPM	GIGN	CENT. STAT.	TECH:	MS	
TRAVERSE LOCATIONS RTU-10 Total Min O.A. RTU-11 Total Min O.A.	DUCT SIZE " 49" X 26"	AREA SQ.FT.	DES FPM	CFM	CENT. STAT.	TE	T	
LOCATIONS RTU-10 Total Min O.A. RTU-11 Total Min O.A.	 49" X 26"	AREA SQ.FT.	FPM	CFM		a construction of the second se	.51	
RTU-10 Total Min O.A. RTU-11 Total Min O.A.	 49" X 26"				PRESS."	FPM	CFM	NOTES
Total Min O.A. RTU-11 Total Min O.A.	 49" X 26"							
Min O.A. RTU-11 Total Min O.A.	49" X 26"		-	ND			2117	(1)
RTU-11 Total Min O.A.		8.85		ND	w/Velgrid	65	575	
RTU-11 Total Min O.A.								
Total Min O.A.								
Min O.A.	32" x 32"	7.1		ND	+0.17"	1254	8903	
	39" x 30" (2)	16.25		ND	w/Velgrid	29	1171	
RTU-12								
Total	32" X 32"	7.1		ND	+0.16"	1086	7711	(5)
Min O.A.	39" X 30" (2)	16.25		ND	w/Velgrid	15	244	
RTU-13								
Total				ND			1195	(1)
Min O.A.	27" x 11"	2.06		ND	w/Velgrid	417	859	(2)
RTU-14								
Total	80" x 44"	24.44		11500	w/Velgrid	131	3203	(4)
Min O.A.	80" x 44"	24.44		9900	w/Velgrid	131	3203	(4)
RTU-15								
Total				2700			1954	(1)(3)
Min O.A.				800			943	(2)
DTH 40								
RIU-16								
lotal				21000			13367	(1)
Min O.A	59" x 30"	12.29	948	11655	w/Velgrid	217	2647	
ERV-1	60" x 30"	12.5	400	5000	w/Velgrid	373	4663	
DTU 17								
lotal				1420			1680	(1)
Min O.A.				550			436	(2)
DTU 10		2.0						
RTU-18	26" x 16"	2.9		ND	+0.02"	652	1891	(5)
lotal	24" X 1/"	2.83		ND	w/Velgrid	599	1695	
			DEAAA	DVC				
(1) Summation of a	distribution		KEIVIA	IKK5				
(1) Summation of (
(2) Based on return	n measurement							
(3) Bird screen dan	naged							
(4) 100% Outdoor	air							

NA Not Available | ND No Design | DD Direct Drive | N/R No Requirement

1

		VELOCITY	PRESS	URE RE	ADINGS			
PROJECT:	Fairfield Wood	s Middle School				DATE:	4/26/22	
AREA SERVED:	Rooftop Units			7		TECH:	MS	
TRAVERSE			DES	SIGN	CENT. STAT.			
LOCATIONS	DUCT SIZE "	AREA SQ.FT.	FPM	CFM	PRESS."	FPM	CFM	NOTES
RTU-19								
Total				1120			1056	(1)
Min O.A.				390			143	(2)
RTU-20								
Total				1420			1454	(1)
Min O.A.				320			740	(2)
DTU 24								
RIU-21			200					
Iotal			390	1120			850	(1)
IVIIN U.A	32" X 13"	2.9	104	300			850	(3)
RTU-22	-							
Total				1120		-	1142	(1)
Min O A				200			1143	
Will 0.A.				390			417	(2)
RTU-15								
VAV-33	12" Ø	0.785	1720	1350	+0.46"	1532	1203	
						1002	1205	
					-			
			DEAGA	DVC				
(1) Summation of	distribution		REIVIA	RKS				
(1) Summation of (2) Calculated bar	aistribution	curement						
(3) Outdoor air de	amper open 1000	surement						
	mper open 100%	,						
NA Not Available	ND No Design	DD Direct Drive		o Requirer	ment			
and the second sec								

PROJECT:	Fairfield Wood	s Middle School				DATE:	4/26/22	
AREA SERVED:	Fan Coil Units					TECH:	MS	
TRAVERSE			DES	IGN	CENT. STAT.			and states
LOCATIONS	DUCT SIZE "	AREA SQ.FT.	FPM	CFM	PRESS."	FPM	CFM	NOTE
Basement								
FCU-1 Rm 001	///" v 13"	2.07		ND	w/\/olarid	0	0	+
FCU-2 Rm 001	44 X 13	2.97		ND	w/veigrid	0	0	
FCU-1 Rm 002	32" ¥ 12"	2.97		ND	w/veigrid	0	0	<u> </u>
FCU-1 Rm002	<i>AA</i> " V 12"	2.9		ND	w/velgrid	0	0	
ACIL-3 Rm 003	12" v 10"	5.97	000	ND	w/velgrid	0	0	0
AC0-3 KIII 003	12 X 10	0.85	000	ND	w/velgrid	0.22"	525	436
1st Floor								
FCU-1 Rm A134	88" x 13"	7.94		ND	w/Velgrid	0	0	
FCU-1 Rm A132	88" x 13"	7.94		ND	w/Velgrid	0	0	(1)
FCU-1 Rm A131	88" x 13"	7.94		ND	w/Velgrid	0	0	(-/
FCU-1 Rm A130	88" x 13"	7.94		ND	w/Velgrid	59	489	
FCU-1 Rm A129	88" x 13"	7.94		ND	w/Velgrid	0	0	+
FCU-1 Rm A128	68" x 13"	6.14		ND	w/Velgrid	19	151	
FCU-1 Rm A127	68" x 13"	6.14		ND	w/Velgrid	0	0	1
FCU-1 Rm A126	68" x 13"	6.14		ND	w/Velgrid	0	0	
FCU-1 Rm A125	68" x 13"	6.14		ND	w/Velgrid	0	0	
FCU-1 Rm A124	68" x 13"	6.14		ND	w/Velgrid	17	117	+
FCU-1 Rm A123	68" x 13"	6.14		ND	w/Velgrid	15	92	<u> </u>
FCU-1 Rm A122	68" x 13"	6.14		ND	w/Velgrid	0	0	<u> </u>
FCU-1 Rm A121	68" x 13"	6.14		ND	w/Velgrid	0	0	<u> </u>
Conference A115	40" x 13"	3.61		ND	w/Velgrid	0	0	
FCU-1 Rm A140	56" x 13"	5.06		ND	w/Velgrid	0	0	
FCU-1 Rm A149	40" X 13"	3.61		ND	w/Velgrid	0	0	
FCU-1 Rm A148	56" X 13"	5.06		ND	w/Velgrid	0	0	<u> </u>
FCU-1 Rm A150	44" X 13"	3.97		ND	w/Velgrid	0	0	
FCU-1 Rm A154	56" X 13"	5.06		ND	w/Velgrid	0	0	
C-153 Storage	20" x 12"	1.67	520	900	10.1	462	770	
	20 × 12	1.07	559	900	+0.1	462	112	
			REMA	RKS				
1) Intake blanked o	off		ILIVIA					
2 D D D D D D D D D D D D D D D D D D D								

VELOCITY DECCUE

NA Not Available | ND No Design | DD Direct Drive | N/R No Requirement

Project Name:	Fairfield Public Schools RCx:	Fairfield Woods Middle School
Project Number:	2020102.00.05	
Scope	TAB Data	
Date	4.29.22	

Date		4.29.22						
					Zana Ida	atification		
Floor	Room#	Room Name	TAB Measured	Calc. OA CFM @ Min.	Meas. unit OA %	BAS Damper Command	Associated VAV &	Notes
В	001	Team Room	1245	0	0%			Not on BAS
В	001A	Storage						
В	001B	Elev Mech						
В	002	Classroom	419	0	0%			Not on BAS
В	003	Classroom	1783	436	25%	100%	ACU-3, FCU-1	Not on BAS
В	004	Storage						No ventilation
В	005	Elec						No ventilation
В	006	Book Storage	400	70	18%	N/A	FCU-1	Not on BAS
В	020	Storage						No ventilation
В	021	Storage						No ventilation
В	022	Gen. Xfer Switch, old Vault						No ventilation
В	023	Storage						No ventilation
В	025	Mechanical Lower	3254	3254	100%	100%	CAF-1	
В	024	Electrical	363			100%	EF-10	
1	A101	Main Office	348	153	45%	N/A	RTU-6	Not on BAS
1	A102	Principal	144	63	45%	N/A	RTU-6	Not on BAS
1	A104	Conference	134	59	45%	N/A	RTU-6	Not on BAS
1	A108	Formerly Dean, Asst. Principal Seltzer	300	132	45%	N/A	RTU-6	Not on BAS
1	A106	Assistant Principal DeAngelo	252	111	45%	N/A	RTU-6	Not on BAS
1	A109	I.S.S.	92	41	45%	N/A	RTU-6	Not on BAS
1	A111	Attendance				N/A	RTU-6	No ventilation
1	A107	Toilet	0					
1	A105	Storage	0					
1	A103	Mail	0					shows 0 on computer. No door to ADM
1	A110	Textiles	1800	646	36%		RTU-4	Not on BAS
1	A110A	Textiles Storage						No Ventilation
1	A112A	Culinary Storage						No Ventilation
1	A112	Culinary Lab	4117	760	19%		RTU-5	Not on BAS
1	A114	Storage						No Ventilation
1	A120	Toilet	84					EX

Project Name:	Fairfield Public Schools RCx:	Fairfield Woods Middle School
Project Number:	2020102.00.05	-
Scope	TAB Data	=
Date	4.29.22	

			Zone Identification					
Floor	Room#	Room Name	TAB Measured (cfm)	Calc. OA CFM @ Min. (OA cfm)	Meas. unit OA %	BAS Damper Command (pos. %)	Associated VAV & RTU/AHU Unit	
1	A122	Men	345				EX	
1	A118	Toilet	191				EX	
1	A117	Women	316				EX	
1	A115	Speech Pathology, Formerly Conference	354	0	0	10%	FCU	
1	A116	Toilet	0	0			EX	
1	A119	Janitor	115				EX	
1	A147	Women	180				EX	
1	A145	Toilet	67				EX	
1	A141	Cust						
1	A143	Men	152				EX	
1	A121	Classroom	750	0	0	10%	FCU	
1	A123	Classroom	766	92	12%	10%	FCU	
1	A124	Classroom	606	117	19%	10%	FCU	
1	A125	Classroom	606	0	0	10%	FCU	
1	A126	Classroom	554	0	0	10%	FCU	
1	A127	Classroom	606	0	0	10%	FCU	
1	A128	Classroom	852	151	18%	10%	FCU	
1	A129	Classroom	631	0	0	10%	FCU	
1	A130	Classroom	611	469	77%	10%	FCU	
1	A131	Classroom	651	0	0	10%	FCU	
1	A132	Classroom	333	0	0	10%	FCU	
1	A133	Classroom						
1	A134	Classroom	681	0	0	10%	FCU	
1	A140	Classroom	680	0	0	10%	FCU	
1	A142	Conference	185	94	51%	10%	FCU	
1	A144	Storage	419	0	0	10%	FCU	
1	A148	Classroom	520	0	0	10%	FCU	
1	A149	Kiln Room	276				EX-7	
1	A150	Classroom	472	0	0	10%	FCU	
1	A151	Elec						

Notes
Noventilation
No Ventilation
-
EX-7
No Ventilation

Project Name:	Fairfield Public Schools RCx:	Fairfield Woods Middle School
Project Number:	2020102.00.05	-
Scope	TAB Data	-
Date	4.29.22	-

		Zone Identification						
Floor	Boom#	Room# Room Name		Calc. OA CFM @ Min.	Meas. unit OA %	BAS Damper Command	Associated VAV &	Notes
11001	Room	Noom Nume	(cfm)	(OA cfm)		(pos. %)	RTU/AHU Unit	
1	A152	Ziarnik						No Ventilation
1	A153	Health						No Ventilation
1	A152A	Storage						No room
1	A154	Classroom						No ventilation
1	A155	Media Center	5542	89	1.60%		RTU-1	Not on BAS
1	A158	Office	177	2.8	1.60%			Not on BAS
1	A159	Work Room	299	4.8	1.60%			Not on BAS
1	A161	Storage	328	5.3	1.60%			Not on BAS
1	A162	Computer Lab	4845	261	5.40%		RTU-2	Not on BAS
1	A165	Office	745	22	36%		RTU-3	Not on BAS
1	A163	Work Room	237	11.9	5.40%		RTU-2	Not on BAS
1	A164	Computer Lab	4301	129	3.60%		RTU-3	Not on BAS
1	B101	Cust Office	263	0	0	N/A	RTU-7	OA % Damper closed. Unit not on BAS
1	B102	Copy Room	139	0	0	N/A	RTU-7	OA % Damper closed. Unit not on BAS
1	B103	Storage	212	0	0	N/A	RTU-7	OA % Damper closed. Unit not on BAS
1	B105	Nurse	205	0	0	N/A	RTU-7	OA % Damper closed. Unit not on BAS
1	B110	Nurse Toilet	148	0	0	N/A	EX	OA % Damper closed. Unit not on BAS
1	B106	Nurse Office	31	0	0	N/A	RTU-7	
1	B107	Exam	32	0	0	N/A	RTU-7	
1	B109	Storage	130	0	0	N/A	RTU-7	
1	B112	Classroom					FCU Existing	No status on BAS
1	B113	Conference	353	0	0	N/A	RTU-7	
1	B111	Guidance	292	0	0	N/A	RTU-7	
1	B114	Guidance	371	127	37%	20%	RTU-22	
1	B120	Conference, formerly Dean	135	50	37%	20%	RTU-22	
1	B115	Office	281	0	0	N/A	RTU-7	
1	B116	Office	318	118	37%	20%	RTU-22	
1	B117	Office	66%	0	0	20%	RTU-7	
1	B118	Dean's Office	246	91	37%	20%	RTU-22	
1	B124*	Team Room	122	45	37%	20%	FCU & RTU-22	FCU not running. Not on BAS

Project Name:	Fairfield Public Schools RCx:	Fairfield Woods Middle School
Project Number:	2020102.00.05	
Scope	TAB Data	-
Date	4.29.22	-

		Zone Identification						
Floor	Room#	Room Name	TAB Measured (cfm)	Calc. OA CFM @ Min. (OA cfm)	Meas. unit OA %	BAS Damper Command (pos. %)	Associated VAV & RTU/AHU Unit	Notes
1	B124	Staff Toilet	51				EX	
1	B122	Staff Toilet	122				EX	
1	B119	Office	269	0	0	N/A	RTU-7	
1	B121	Office	172	0	0	N/A	RTU-7	
1	B123	Office	211				RTU-7	
1	B126	Women	206				EX	
1	B127	Cust	634				EX	
1	B128	Men	187				EX	
1	B130	Classroom	899	0	0	10%	FCU	
1	B131	Classroom	705	0	0	10%	FCU	
1	B132	Classroom	972	0	0	10%	FCU	
1	B133	Classroom	824	0	0	10%	FCU	
1	B134	Classroom	807	0	0	10%	FCU	
1	B135	Classroom	907	81	8.90%	10%	FCU	
1	B136	Classroom	768	0	0	10%	FCU	
1	B137	Classroom	940	165	17.5	10%	FCU	
1	B139	Staff Toilet	0	0	0	10%	EX	
1	B141	Staff Toilet	0	0	0	10%	EX	
					OA (OA w/ERU)			
1	B146A	Storage	65	13 (36)	20% - 2647 (*)	N/A	RTU-16	Not on BAS. (*) 7310 cfm when ERU running. Total OA 55%
1	B138A	Prep	94	19 (52)	20% - 2647 (*)	N/A	RTU-16	Not on BAS. (*) 7310 cfm when ERU running. Total OA 55%
1	B138	Science Classroom	667	133 (367)	20% - 2647 (*)	N/A	RTU-16	Not on BAS. (*) 7310 cfm when ERU running. Total OA 55%
1	B140A	Science Classroom	678	136 (373)	20% - 2647 (*)	N/A	RTU-16	Not on BAS. (*) 7310 cfm when ERU running. Total OA 55%
1	B142A	Prep	123	25 (68)	20% - 2647 (*)	N/A	RTU-16	Not on BAS. (*) 7310 cfm when ERU running. Total OA 55%
1	B143	Classroom	900	180 (495)	20% - 2647 (*)	N/A	RTU-16	Not on BAS. (*) 7310 cfm when ERU running. Total OA 55%
1	B144	Science Classroom	684	137 (376)	20% - 2647 (*)	N/A	RTU-16	Not on BAS. (*) 7310 cfm when ERU running. Total OA 55%
1	B145	Classroom	571	114 (314)	20% - 2647 (*)	N/A	RTU-16	Not on BAS. (*) 7310 cfm when ERU running. Total OA 55%
1	B146	Classroom	636	127 (350)	20% - 2647 (*)	N/A	RTU-16	Not on BAS. (*) 7310 cfm when ERU running. Total OA 55%
1	B148	Men	0				EX	Fan not running
1	B149	Cust	0				EX	Fan not running
Project Name:	Fairfield Public Schools RCx:	Fairfield Woods Middle School						
-----------------	-------------------------------	-------------------------------						
Project Number:	2020102.00.05							
Scope	TAB Data							
Date	4.29.22							

					Zone Ide	entification		
Floor	Room#	Room Name	TAB Measured (cfm)	Calc. OA CFM @ Min. (OA cfm)	Meas. unit OA %	BAS Damper Command (pos. %)	Associated VAV & RTU/AHU Unit	Notes
1	B150	Women	0				EX	
1	B151	Elec	622				EX	
1	B152	Data						Split wall AC. No O.A.
					OA (OA w/ERU)			
1	B153	Special Ed, formerly Storage	105	21 (58)	20% - 2647 (*)	N/A	RTU-16	Not on BAS. (*) 7310 cfm when ERU running. Tota
1	B155A	Classroom	775	155 (426)	20%	N/A	RTU-16	Not on BAS. (*) 7310 cfm when ERU running. Total
1	B155B	Classroom			20%	N/A	RTU-16	Not on BAS. (*) 7310 cfm when ERU running. Total
1	B156	Art Storage	100	20 (55)	20%	N/A	RTU-16	Not on BAS. (*) 7310 cfm when ERU running. Total
1	B157	Art Classroom	804	32 (442)	20%	N/A	RTU-16	Not on BAS. (*) 7310 cfm when ERU running. Tota
1	B158	Art Office	763	153 (420)	20%	N/A	RTU-16	Not on BAS. (*) 7310 cfm when ERU running. Total
1	B159	Art Classroom	934	187 (514)	20%	N/A	RTU-16	Not on BAS. (*) 7310 cfm when ERU running. Total
1	C101	Weight Room	3484	0	0	N/A	RTU-9	Not on BAS. OA closed. Exhaust fan disconne
1	C102	Cafeteria High	3173	3173	100%	30%	RTU-8	
1	C103	Project Adventure	3024	0	0	n/a	RTU-9	Not on BAS. OA closed. Exhaust fan disconne
1	C104	Kitchen						No ventilation
1	C106	Office						No ventilation
1	C107	Toilet						No exhaust
1	C109B	Storage						No exhaust
1	C109A	Cust						No exhaust
1	C109	Storage						No ventilation
1	C110A	Data	193	139	72%	N/A	RTU-13	Not on BAS
1	C110	Storage						No ventilation
1	C105C	Storage					CUH-7	No ventilation
1	C111	Storage						No ventilation
1	C112	Faculty Dining	1002	721	72%	N/A	RTU-13	Return OED above ceiling in C114, no transfer to F
1	C113	Technology	1541	237	15.40%	10%	2 FCU'S	
1	C113A	Work Shop	591	0	0	10%	FCU	
1	C114	Storage					60 M 10	No ventilation
1	C115	Dark Room/Storage	108	0	0	N/A	FCU	OA damper closed. Filter plugged
1	C117	Main Elec					N 44 M	No ventilation

Project Name:	Fairfield Public Schools RCx:	Fairfield Woods Middle School
Project Number:	2020102.00.05	
Scope	TAB Data	=
Date	4.29.22	

Scope		TAB Data									
Date		4.29.22									
			TAR Measured	Calc OA CEM @ Min	Zone Ide	PAS Dompor Command	Associated VAV 9	Netza			
Floor	Room#	Room Name	(cfm)	(OA cfm)	Meds. unit OA %	(pos. %)	RTU/AHU Unit	Notes			
1	C133	Tickets/Electrical	72	35	48%	N/A	RTU 15, VAV 32	Not on BAS			
1	C118	Women	0				EX	Not running			
1	C120	Men	0				EX	Not running			
1	C122	Gender Neutral Toilet	0				EX	Not running			
1	C130/C131	Platform/Auditorium	3203	3203	100%	25% min	RTU-14	Unit on Auto. Fan speed based on CO2			
1	C130D	Storage						No ventilation			
1	C134	Auditorium Front Main	230	110	48%	N/A	RTU 15, VAV 34	Not on BAS			
1	C139	Lobby	437	118	48%	N/A	RTU 15, FT 13-1	Not on BAS			
1	C134	Foyer	1203	325	48%	N/A	RTU-15, VAV 33	Not on BAS			
1	C137	Women	424				EF-1				
1	C138	Men	359				EF-1				
1	C140	Gynasium	RTU-11 8903 RTU 12 7711	715	4%	N/A	RTU-11, 12	Not on BAS			
1	C140A	Storage						No ventilation. E-12 with OA intake in room. Needs lift			
1	C141	Boys Locker Room	0				EX	Exhaust only. Not running			
1	C143	Toilet for BLR	49				EX				
1	C142	Girls Locker Room	0				EX	Not running			
1	C144	Toilet for GLR	0				EX	Not running			
1	C145	Office	272	0	0	10%	FCU				
1	C147	Toilet for C145	51				EX				
1	C148	Toilet for C146	0				EX	Not running			
1	C146	Office	252	0	0	10%	FCU				
1	C150	Storage						No ventilation			
1	C151	Outdoor Storage						No ventilation. EF-11 with OA intake in rm. Needs lift			
1	C152	Keyboard	304	304	100%	100%	RTU-21	Not on BAS			
1	C153	Storage	468	468	100%	100%	RTU-21	Not on BAS			
1	C154	Wardrobe	78	78	100%	100%	RTU-21	Not on BAS			
1	C156	Band Room Hall Room	523	128	27%		RTU-10	Not on BAS. OA based on CO2			
1	C156C	Storage						No ventilation			
1	C156B	Storage						No ventilation			
1	C116	Custodian	0				EX	Not running			
		Course and the Annual Course and the									

Project Name:	Fairfield Public Schools RCx:	Fairfield Woods Middle School
Project Number:	2020102.00.05	
Scope	TAB Data	
Date	4.29.22	

Date		4.29.22			The second s			
					Zone Ide	entification		
Floor	Room#	Room Name	(cfm)	Calc. OA CFM @ Min. (OA cfm)	Meas. unit OA %	BAS Damper Command (pos. %)	Associated VAV & RTU/AHU Unit	Notes
1	C155	Storage	87	87	100%	Open 100%	RTU 21	Not on BAS
1	C132	Control Booth	73	35	48%	N/A	RTU 15, VAV 32	Not on BAS
1	C156A	Instrument Storage	0	0	27%	40%	RTU-10	
1	C158	Office	52	14	27%	40%	RTU-10	
1	C159	Practice	56	15	27%	40%	RTU-10	
1	C160	Orchestra Room	473	128	27%	40%	RTU-10	
1	C161	Practice	22	6	27%	40%	RTU-10	
1	C162	Choral Room	632	171	27%	40%	RTU-10	
1	C163	Practice	20	5.4	27%	40%	RTU-10	
1	C164	Practice	199	54	27%	40%	RTU-10	
1	C170	Auxiliary Gynasium	1891	1695	90%	Based on CO2	RTU-18	Exhaust fan disconnected
1	C171	Technology	N/A				FCU	No access to control panel due to equipt blocking FCU
1	C172	Office	0					Can't turn on FCU from BAS
1	C173	Storage						No ventilation
1	C174	Storage	84	22	26%	N/A	RTU-17	Not on BAS
1	C175	Storage	0					EX
1	C176	Men	0				EF-2	
1	C177	Cust	0				EF-2	
1	C178	Women	0				EF-2	
1	C179	Storage	108	28	26%	N/A	RTU-17	Not on BAS
1	C180	Storage	119	31	26%	N/A	RTU-17	Not on BAS
1	C181	OT/PT	987	257	26%	N/A	RTU-17	Not on BAS
2	200	Conference	257	35	13.50%	N/A	RTU-19	Not on BAS
2	201	Classroom	609	103	17%	10%	FCU	
2	202	Classroom	799	108	13.50%	N/A	RTU-19	Not on BAS
2	203	Classroom					FCU	No power to FCU
2	204	Storage					FCU	No ventilation
2	204A	Data/Elec		-			FCU	No ventilation
2	205	Classroom					FCU	No power to FCU
2	206	Classroom	1452	740	51%	N/A	RTU-20	Not on BAS

Project Name:	Fairfield Public Schools RCx:	Fairfield Woods Middle School
Project Number:	2020102.00.05	
Scope	TAB Data	
Date	4.29.22	-

				-	Zone Ide	entification		
Floor	Room#	Room Name	TAB Measured	Calc. OA CFM @ Min.	Meas. unit OA %	BAS Damper Command	Associated VAV &	
			(cfm)	(OA cfm)		(pos. %)	RTU/AHU Unit	
2	207	Girls	148				EX	
2	208	Cust	40				EX	
2	209	Boys	143				EX	
2	210	Classroom	899	162	18%	10%	FCU	
2	211	Classroom	927	142	15.30%	10%	FCU	
2	212	Classroom	711	68	9.50%	10%	FCU	
2	213	Classroom	626	75	12%	10%	FCU	
2	C165	Storage						
2	214	Classroom	743	51	6.80%	10%	FCU	
2	215	Classroom	687	84	12.20%	10%	FCU	
2	216	Classroom	853	142	16.60%	10%	FCU	
2	217	Classroom	877	149	17%	10%	FCU	
2	219	Staff Toilet	72				EX	
2	221	Staff Toilet	60				EX	
					OA (OA w/ERU)			
2	218	Science Classroon	992	198 (546)	20% - 2647 (*)	N/A	RTU-16	Not on BAS. (
2	218A	Prep	125	25 (69)	20% - 2647 (*)	N/A	RTU-16	Not on BAS.(
2	220	Science Classroon	1018	204 (560)	20% - 2647 (*)	N/A	RTU-16	Not on BAS. (
2	222	Prep	98	20 (54)	20% - 2647 (*)	N/A	RTU-16	Not on BAS.(
2	223	Classroom	885	177 (263)	20% - 2647 (*)	N/A	RTU-16	Not on BAS. (
2	224	Science Classroon	708	142 (389)	20% - 2647 (*)	N/A	RTU-16	Not on BAS.(
2	225	Classroom	385	77 (212)	20% - 2647 (*)	N/A	RTU-16	Not on BAS.(
2	226	Classroom	506	101 (278)	20% - 2647 (*)	N/A	RTU-16	Not on BAS.(
2	227	Classroom	686	137 (377)	20% - 2647 (*)	N/A	RTU-16	Not on BAS.(
2	228	Men	0				EX	
2	229	Elec	0				EX	
2	230	Women	0				EX	

Notes
No ventilation
*) 7310 cfm when ERU running. Total OA 55%
*) 7310 cfm when ERU running. Total OA 55%
*) 7310 cfm when ERU running. Total OA 55%
*) 7310 cfm when ERU running. Total OA 55%
*) 7310 cfm when ERU running. Total OA 55%
*) 7310 cfm when ERU running. Total OA 55%
*) 7310 cfm when ERU running. Total OA 55%
*) 7310 cfm when ERU running. Total OA 55%
*) 7310 cfm when ERU running. Total OA 55%
Not running
Not running
Not running

APPENDIX 5 – RCx Unit and Room Take-Off Data

Project Number: Scope Date 2020102.00.05 Room Take-Off Data

RCM, REA, JRK

	Zone Identification											
Floor	Room#	Room Name	Area (SF)	Ceiling Height (FT)	Volume	People	Notes	Identified Defficiencies	Pictures Y /N			
В	001	Team Room	1605	8.2	13161	27	2 Unit Ventilators					
В	001A	Storage	81	8.2	664	0						
В	001B	Elev Mech	70	11.3	791	0	1 EA					
В	002	Classroom	495	7.3	3614	16	1-Return					
В	003	Classroom	822	8.2	6740	22	4-Sup. 1-Ret, 1 FCU, FTR					
В	004	Storage	760	8.2	6232	0	FTR only					
В	005	Elec	134	8.5	1139	0		Ceiling tiles missing				
В	006	Book Storage	867	8	6936	0	4-Sup, 1-Ret, floor stand fan, residential dehumidifier					
В	020	Storage	764	8.7	6647	0						
В	021	Storage	247	8.7	2149	0						
В	022	Gen. Xfer Switch, old Vault	213	8.7	1853	0						
В	023	Storage	502	8.7	4367	0	EF-10 Located Here					
В	025	Mechanical Lower Upper	1175 775	13.5 8.7	22605	0						
В	024	Electrical	173	8	1384	0	Served by EF-10					
1	A101	Main Office	588	9	5292	8	2 SA					
1	A102	Principal	205	9	1845	4	1 SA 1 RA					
1	A104	Conference	166	9	1494	6	1 SA 1 RA					
1	A108	Formerly Dean, Asst. Principal Seltzer	165	9	1485	3	1 SA 1 RA					
1	A106	Assistant Principal DeAngelo	265	9	2385	6	1 SA 2 RA					
1	A109	I.S.S.	100	9	900	1	1 SA School Resource Officer					
1	A111	Attendance	400	9	3600	3	1 RA					
1	A107	Toilet	44	9	396	1	1 EA					
1	A105	Storage	50	9	450	0	1 SA 1 RA					
1	A103	Mail	56	9	504	1	1 SA					
1	A110	Textiles	1450	13.8	20010	26	4 SA 2 RA					

Project Name:	Fairfield Public Schools RCx

Project Number: Scope Date 2020102.00.05 Room Take-Off Data

G

RCM, REA, JRK

	Zone Identification											
Floor	Room#	Room Name	Area (SF)	Ceiling Height (FT)	Volume	People	Notes	Identified Defficiencies	Pictures			
1	A110A	Textiles Storage	36	9.5	3/12	0			T/N			
-	A112A	Culinary Storage	36	9.5	342	0						
1	A112	Culinary Lab	1450	13.8	20010	26	4 SA 2 RA					
1	A114	Storage	96	8	768	0	Repurposed Data Closet	No vent/cooling for equipment here	Y			
1	A120	Toilet	60	9	540	1	1 EA					
1	A122	Men	145	9	1305	3	1 EA	Loud				
1	A118	Toilet	73	9	657	2	1 EA	Loud				
1	A117	Women	145	9	1305	3	1 EA	Loud				
1	A115	Speech Pathology, Formerly Conference	254	9	2286	6	1 RA	Previous noted mold issues, the room is rather warm and the lockdown security shades prevent the windows from being opened. There is only one return grille in the space, with all ventilation presumably being provided through the old unit ventilator. This unit is excessivly loud when operating and does not allow for the occupant to work with the students when running. Recommend full UV refurbishment as well as installation of Split AC for cooling demand.				
1	A116	Toilet	80	9	720	1	1 EA					
1	A119	Janitor	40	9	360	0	1 EA	Loud				
1	A147	Women	125	7	875	3	1 EA					
1	A145	Toilet	27	6.8	184	1		Sink drain clogged, no EA here				
1	A141	Cust	33	6.9	228	0						
1	A143	Men	80	7	560	3	1 EA					
1	A121	Classroom	765	9	6885	26	1 Unit Ventilator with FTR					
1	A123	Classroom	744	9	6696	28	1 Unit Ventilator with FTR					
1	A124	Classroom	746	9	6714	25	FCU, 1 Ret/Exh.	FCU fan on				
1	A125	Classroom	777	9	6993	25	1 Unit Ventilator with FTR					
1	A126	Classroom	766	9	6894	25	FCU, 1 Ret/Exh.					
1	A127	Classroom	780	9	7020	25	1 Unit Ventilator with FTR					
1	A128	Classroom	766	9	6894	25	FCU, 1 Ret/Exh.					
1	A129	Classroom	791	9	7119	25	1 Unit Ventilator with FTR					
1	A130	Classroom	768	9	6912	25	FCU, 1 Ret/Exh.					

Project Number:2020102.00.05ScopeRoom Take-Off DataDateApril 4, 2022

RCM, REA, JRK

	Zone Identification									
Floor	Room#	Room Name	Area (SF)	Ceiling Height (FT)	Volume	People	Notes	Identified Defficiencies	Pictures Y /N	
1	A131	Classroom	947	9	8523	21	1 Unit Ventilator with FTR			
1	A132	Classroom	508	9	4572	13	FCU 3-Ton Mitsubishi			
1	A133	Classroom	460	9	4140	10	FTR			
1	A134	Classroom	1053	9	9477	25	FTR			
1	A140	Classroom	1001	10.5	10511	25	FCU, (3-4) Ton Mitsubishi	Ceiling slop, average		
1	A142	Conference	113	8.9	1006	1	1-Sup, 1-Ret/Exh	Copier Room		
1	A144	Storage	195	9.4	1833	1				
1	A148	Classroom	1046	10.5	10983	25	FCU, Mitsubishi	Ceiling slop, average		
1	A149	Kiln Room	130	8	1040	2	Looks like 2 Exhaust Registers	Roof Hatch, questionable safety measures in place		
1	A150	Classroom	760	10.5	7980	25	FCU 3-Ton Mitsubishi	Ceiling slop, average		
1	A151	Elec	172	8.7	1496	0				
1	A152	Ziarnik	215	8.7	1871	5	NA	Exit Door in Room		
1	A153	Health	771	8.7	6708	16	Unit Ventilator with 3-T Mitsubishi Ductless Split			
1	A152A	Storage	48	8.7	418	0				
1	A154	Classroom	795	8.7	6917	22	Unit Ventilator with 3-T Mitsubishi Ductless Split, FTR			
1	A155	Media Center	3905	10.856	42393	25	4-square supplies, 6-linears, 8 sidewalls	Library Volume 42,378 Cu/Ft.		
1	A158	Office	192	8.3	1594	4	1-Sup, 1-Ret/Exh.			
1	A159	Work Room	251	8	2008	4	1-Sup, 2-Ret/Exh.	Isolation Nurse		
1	A161	Storage	419	7.6	3184	0	2-Ret/Exh.			
1	A162	Computer Lab	1030	9	9270	22	4 supplies			
1	A165	Office	137	7	959	2	NA	Added to List		
1	A163	Work Room	263	8.5	2236	2				
1	A164	Computer Lab	752	8.6	6467	26	3 Supplies and 2 Returns			
1	B101	Cust Office	180	8	1440	4	1 SA			
1	B102	Copy Room	165	8	1320	1	1 SA 1 RA, copier			
1	B103	Storage	162	8	1296	1	1 SA			
1	B105	Nurse	380	8	3040	8	3 SA			
1	B110	Nurse Toilet	59	8	472	1	1 EA			

Project Number:2020102.00.05ScopeRoom Take-Off DataDateApril 4, 2022

RCM, REA, JRK

	Zone Identification									
Floor	Room#	Room Name	Area (SF)	Ceiling	Volume	People	Notes	Identified Defficiencies	Pictures	
	B 400								¥ / N	
1	B106	Nurse Office	82	8	656	2	1 SA			
1	B107	Exam	105	8	840	2	1 SA			
1	B109	Storage	28	8	224	1	1 SA			
1	B112	Classroom	617	8.9	5491	19	2 SA, 1x Ceiling FCU, 1x Split AC		Y	
1	B113	Conference	240	8.9	2136	8	1 SA ("Zen Den")			
1	B111	Guidance	366	8.9	3257	2	1 SA			
1	B114	Guidance	181	8	1448	4	1 SA			
1	B120	Conference, formerly Dean	146	8	1168	5	1 SA			
1	B115	Office	181	8.9	1611	4	1 SA			
1	B116	Office	92	8	736	2	1 SA			
1	B117	Office	160	8.9	1424	4	1 SA			
1	B118	Dean's Office	179	8	1432	3	1 SA			
1	B124*	Team Room	210	9	1890	5	1 SA	Shares the same room number as nearby toilet		
1	B124	Staff Toilet	46	9	414	1	1 EA			
1	B122	Staff Toilet	62	9	558	1	1 EA			
1	B119	Office	160	8.9	1424	4	1 SA			
1	B121	Office	188	8.9	1673	4	1 SA			
1	B123	Office	156	8.9	1388	4	1 SA			
1	B126	Women	170	8.8	1496	5	1 EA			
1	B127	Cust	31	11	341	0	1 EA			
1	B128	Men	170	8.8	1496	5	1 EA			
1	B130	Classroom	775	9	6975	24	1x Unit Ventilator	Overheating, Fan found off	Y	
1	B131	Classroom	775	9	6975	25	1x Unit Ventilator	Overheating, Fan found off, Windows open		
1	B132	Classroom	775	9	6975	25	1x Unit Ventilator	Overheating, Fan found off		
1	B133	Classroom	775	9	6975	25	1x Unit Ventilator	Overheating, Fan found off, Windows open		
1	B134	Classroom	775	9	6975	25	1x Unit Ventilator			
1	B135	Classroom	775	9	6975	25	1x Unit Ventilator	Overheating, Fan found off		
1	B136	Classroom	775	9	6975	25	1x Unit Ventilator			

Project Number:2020102.00.05ScopeRoom Take-Off DataDateApril 4, 2022

RCM, REA, JRK

	Zone Identification									
Floor	Room#	Room Name	Area (SF)	Ceiling Height (FT)	Volume	People	Notes	Identified Defficiencies	Pictures Y /N	
1	B137	Classroom	775	9	6975	25	1x Unit Ventilator	Overheating, Fan found off		
1	B139	Staff Toilet	54	8	432	1	1 EA			
1	B141	Staff Toilet	105	8	840	1	1 EA			
1	B146A	Storage	163	8.1	1320	0	1 SA			
1	B138A	Prep	117	9	1053	1	1 SA			
1	B138	Science Classroom	1220	9	10980	25	4 SA 1 RA			
1	B140A	Science Classroom	1220	9	10980	25	4 SA 1 RA			
1	B142A	Prep	278	8	2224	1	1 SA 3 RA/EA?			
1	B143	Classroom	660	8.9	5874	17	4 SA 1 RA			
1	B144	Science Classroom	1220	9	10980	25	4 SA 1 RA			
1	B145	Classroom	760	8.9	6764	25	4 SA 1 RA			
1	B146	Classroom	825	9	7425	25	4 SA 1 RA			
1	B146A	Storage	112	7.4	829	1	1 SA			
1	B148	Men	240	8	1920	4	3 EA			
1	B149	Cust	56	10.5	588	1	1 EA			
1	B150	Women	240	8	1920	4	3 EA			
1	B151	Elec	67	10.5	704	0	1 EA			
1	B152	Data	71	10.5	746	0	1x Split AC			
1	B153	Special Ed, formerly Storage	285	8	2280	10	1 SA			
1	B155A	Classroom	375	9	3375	10	2 SA, shares partition with B155B			
1	B155B	Classroom	375	9	3375	10	2 SA, shares partition with B155A			
1	B156	Art Storage	270	9	2430	1	1 SA			
1	B157	Art Classroom	1100	10	11000	25	4 SA 1 RA			
1	B158	Art Office	200	9	1800	4	2 SA			
1	B159	Art Classroom	1100	10	11000	25	4 SA 1 RA			
1	C101	Weight Room	2200	21.4	47080	30	4 SA			
1	C102	Cafeteria High Low 1 Low 2	2400 1062 1600	11.3 8.38 8.38	49428	300	14 SA			
1	C103	Project Adventure	2200	21.4	47080	30	4 SA			

Project Number: Scope Date 2020102.00.05 Room Take-Off Data

RCM, REA, JRK

	Zone Identification									
Floor	Room#	Room Name	Area (SF)	Ceiling Height (FT)	Volume	People	Notes	Identified Defficiencies	Pictures Y/N	
1	C104	Kitchen	2000	8.3	16600	40	Exhaust Hood, 2x CUH			
1	C106	Office	62	8.5	527	2				
1	C107	Toilet	70	8	560	1				
1	C109B	Storage	60	8.3	498	1	1 EA			
1	C109A	Cust	30	8.3	249	0				
1	C109	Storage	10	9	90	0	1 EA			
1	C110A	Data	50	8	400	0	1 SA, 1x CUH, IT closet in the back of C110			
1	C110	Storage	106	8	848	0	1x EF			
1	C105C	Storage	550	8	4400	2	1x CUH			
1	C111	Storage	180	8.5	1530	0	Wood Storage			
1	C112	Faculty Dining	643	8.1	5208	8	2 SA 1 RA			
1	C113	Technology	1255	8.75	10981	26	2x Unit Ventilator, 2x Ceiling-mounted HEPA filter units			
1	C113A	Work Shop	500	8.9	4450	13	1x Unit Ventilator			
1	C114	Storage	55	8	440	0				
1	C115	Dark Room/Storage	183	8	1464	3	1 SA 1 RA	Short cycling concern	Y	
1	C117	Main Elec	100	9	900	0	outside entrance only			
1	C133	Tickets/Electrical	152	8.6	1307	2	1x Split AC	Electrical room is also being used as a ticket booth	Y	
1	C118	Women	250	9	2250	4	1 EA			
1	C120	Men	212	9	1908	4	1 EA			
1	C122	Gender Neutral Toilet	55	9	495	1	1 EA			
1	C130/C131	Platform/Auditorium	1620	30	48600	30	5 SA 1 RA			
1	C130D	Storage	14	30	420	0				
1	C134	Auditorium Front Main Rear Walk Rear Side	1120 3115 535 1200 570	35 30.3 24.3 17.5 9.375	172929	680	19 SA 2 RA			
1	C139	Lobby	775	21	16275	20	8 Directed SA Diffusers, Open to C134 Foyer			
1	C134	Foyer	1200	10	12000	30	ADDED, no visible ventilation but open to C139 Lobby			
1	C137	Women	150	8.5	1275	2	1 SA 2 EA, 1x CUH			
1	C138	Men	150	8.5	1275	2	1 SA 2 EA, 1x CUH			
1	C140	Gynasium	7700	23.3	179410	32	20 SA, 2 RA, halves served by RTU-11 and 12			

Project Number: Scope Date 2020102.00.05 Room Take-Off Data

RCM, REA, JRK

	Zone Identification									
Floor	Room#	Room Name	Area (SF)	Ceiling Height (FT)	Volume	People	Notes	Identified Defficiencies	Pictures Y /N	
1	C140A	Storage	126	23.3	2936	0	1x UH			
1	C141	Boys Locker Room	534	8.9	4753	30	6 EA			
1	C143	Toilet for BLR	45	8.9	401	1	1 EA			
1	C142	Girls Locker Room	534	8.9	4753	30	6 EA	Rather warm in this space		
1	C144	Toilet for GLR	45	8.9	401	1	1 EA			
1	C145	Office	225	9	2025	2	1 SA			
1	C147	Toilet for C145	56	9	504	1	1 EA			
1	C148	Toilet for C146	56	9	504	1	1 EA			
1	C146	Office	225	9	2025	2	1 SA			
1	C150	Storage	708	8.7	6160	0	1x UH			
1	C151	Outdoor Storage	250	23.3	5825	0	1x UH			
1	C152	Keyboard	733	9.5	6964	24	2 SA 1 RA			
1	C153	Storage	1250	23.5	29375	5	4 SA 1 RA			
1	C154	Wardrobe	153	9	1377	2	1 SA			
1	C156	Band Room Hall Room	200 2250	9 15	33930	75	7 SA 2 RA			
1	C156C	Storage	100	9	900	0	1x Baseboard Radiator			
1	C156B	Storage	100	9	900	0	1x Baseboard Radiator			
1	C116	Custodian	49	9	441	0	1 EA			
1	C155	Storage	165	9	1485	4	1 SA			
1	C132	Control Booth	91	8.9	810	2	1 SA			
1	C156A	Instrument Storage	400	9	3600	10	1 SA			
1	C158	Office	250	9	2250	5	1 SA 1 RA			
1	C159	Practice	164	9	1476	5	1 SA 1 RA			
1	C160	Orchestra Room	1150	16	18400	50	4 SA 2 RA			
1	C161	Practice	75	9	675	2	1 SA 1 RA			
1	C162	Choral Room	1360	14.8	20128	45	4 SA 2 RA			
1	C163	Practice	75	9	675	2	1 SA 1 RA			
1	C164	Practice	285	9	2565	10	1 SA 1 RA			

Project Number:2020102.00.05ScopeRoom Take-Off DataDateApril 4, 2022

RCM, REA, JRK

	Zone Identification								
Floor	Room#	Room Name	Area (SF)	Ceiling Height (FT)	Volume	People	Notes	Identified Defficiencies	Pictures Y /N
1	C170	Auxiliary Gynasium	3000	25	75000	30	8 SA 1 RA		
1	C171	Technology	1500	8.4	12600	25	1x Unit Ventilator, 1x Exhaust Hood (wood)		
1	C172	Office	116	8	928	4	1 SA		
1	C173	Storage	100	7.8	780	0	1x Exhaust Hood (paint)		
1	C174	Storage	50	8	400	0	1 SA		
1	C175	Storage	75	11.7	878	0	1 EA		
1	C176	Men	185	8	1480	4	2 EA		
1	C177	Cust	62	11.5	713	0	1 EA		
1	C178	Women	245	8	1960	4	3 EA		
1	C179	Storage	56	8	448	0	1 SA		
1	C180	Storage	50	8	400	0	1 SA		
1	C181	OT/PT	954	9.3	8872	10	4 SA 1 RA		
2	200	Conference	180	8.9	1602	5	1 SA 1 RA, 1x Elec. BB Rad, 1x RP		
2	201	Classroom	500	8.8	4400	12	1x Unit Ventilator, 1x Exhaust Hood (wood)		
2	202	Classroom	725	9	6525	25	4 SA 1 RA		
2	203	Classroom	775	8.9	6898	25	1x Unit Ventilaror, 2x Mitsubishi Casettes		
2	204	Storage	155	8	1240	1		no ventilation	
2	204A	Data/Elec	85	12.7	1080	0	1x CUH, 1x Split AC		
2	205	Classroom	775	8.9	6898	25	1x Unit Ventilaror, 2x Mitsubishi Casettes	Typical UV issues, often in heating, manual switches turned off or inconsistent, some windows open	
2	206	Classroom	775	8.9	6898	25	1x Unit Ventilaror, 2x Mitsubishi Casettes	Typical UV issues, often in heating, manual switches turned off or inconsistent, some windows open	
2	207	Girls	190	8.9	1691	4	2 EA		
2	208	Cust	30	8.9	267	0	1 EA		
2	209	Boys	181	8.9	1611	4	2 EA		
2	210	Classroom	775	8.9	6898	25	1x Unit Ventilaror, 2x Mitsubishi Casettes	Typical UV issues, often in heating, manual switches turned off or inconsistent, some windows open	
2	211	Classroom	775	8.9	6898	25	1x Unit Ventilaror, 2x Mitsubishi Casettes	Typical UV issues, often in heating, manual switches turned off or inconsistent, some windows open	
2	212	Classroom	775	8.9	6898	25	1x Unit Ventilaror, 2x Mitsubishi Casettes	Typical UV issues, often in heating, manual switches turned off or inconsistent, some windows open	
2	213	Classroom	775	8.9	6898	25	1x Unit Ventilaror, 2x Mitsubishi Casettes	Typical UV issues, often in heating, manual switches turned off or inconsistent, some windows open	

Project Name:	Fairfield Public Schools RCx

Project Number: Scope Date 2020102.00.05 Room Take-Off Data

RCM, REA, JRK

	Zone Identification									
Floor	Room#	Room Name	Area (SF)	Ceiling	Volume	People	Notes	Identified Defficiencies	Pictures	
			/	Height (FT)					Y/N	
2	C165	Storage	45	9	405	0				
2	214	Classroom	775	8.9	6898	25	1x Unit Ventilaror, 2x Mitsubishi Casettes	Typical UV issues, often in heating, manual switches turned off or inconsistent, some windows open		
2	215	Classroom	775	8.9	6898	25	1x Unit Ventilaror, 2x Mitsubishi Casettes	Typical UV issues, often in heating, manual switches turned off or inconsistent, some windows open		
2	216	Classroom	775	8.9	6898	25	1x Unit Ventilaror, 2x Mitsubishi Casettes	Typical UV issues, often in heating, manual switches turned off or inconsistent, some windows open		
2	217	Classroom	775	8.9	6898	25	1x Unit Ventilaror, 2x Mitsubishi Casettes	Typical UV issues, often in heating, manual switches turned off or inconsistent, some windows open		
2	219	Staff Toilet	57	8	456	1	1 EA			
2	221	Staff Toilet	93	8	744	1	1 EA			
2	218	Science Classroon	1220	9	10980	25	4 SA 1 RA			
2	218A	Prep	130	8	1040	1	1 SA 1 RA			
2	220	Science Classroon	1220	9	10980	25	4 SA 1 RA			
2	222	Prep	275	9	2475	2	1 SA 1 RA 1 EA			
2	223	Classroom	675	9	6075	16	4 SA 1 RA			
2	224	Science Classroon	1220	9	10980	25	4 SA 1 RA			
2	225	Classroom	750	9	6750	25	4 SA 1 RA			
2	226	Classroom	820	9	7380	25	4 SA 1 RA			
2	227	Classroom	812	9	7308	25	4 SA 1 RA			
2	228	Men	235	8	1880	4	3 EA			
2	229	Elec	56	12.7	711	0	1 EA			
2	230	Women	235	8	1880	4	3 EA			

<u>Unit Tag</u>	<u>RTU-1</u>	Addition comments descriptions
Location	East Roof	
Serving	Library/Media Center	
Config/Style	CV Cooling only	Downdraft to existing Horizontal exposed ductwork on roof
Mfr.	Trane	
Model #	TSD300G4R0A0R	
Serial #	190910347D	
Age (years)	2019	
System CFM	10000	
Max OA CFM		
V/Hz/Ph	460. 3_Phase	
SF Qty/HP	7.5 ECM motor	
SF VFD Data		
RF Qty/HP		Existing Ductwork and inline fan not operational
RF VFD Data		
Filter Data (Size Quantity)	(6) 20 x 25 x 2	Changed last 10-5-21
Filter Status	Moderate	
Controls Type	DDC Electronic	
Controls Mfr.	Trane Factory/Alerton	
Economizer	Packaged	
CO ₂ DCV		
Damper Styles	Flapper Blade	
Damper Status		
Heating Type	NA	
Heating Coil Condition		
Cooling Type	DX 3-stage	
Cooling Coil Condition	ОК	
CU Serial		
Drain Pan Status	Some dried scale and debris	
Notes:		





Controls

Electrical / Misc.



Unit Tag	RTU-2	Addition comments descriptions
Location	Northeast Roof	
Serving	Computer	
Config/Style	CV DX with Gas Heating	
Mfr.	Trane	
Model #	YHC120F4RHA0-R0	
Serial #	212910481L	
Age (years)	7-2021	
System CFM	3400	
Max OA CFM		
V/Hz/Ph	460, 3-Phase	
SF Qty/HP	ECM Motor EBM Pabst 2300 Watts or 3 HP	
SF VFD Data		
RF Qty/HP	NA	
RF VFD Data		
Filter Data (Size Quantity)	(4) 20 x 30 x 2	10-4-21
Filter Status	Clean	
Controls Type	DDC Electronic	
Controls Mfr.	Trane packaged / Alerton	
Economizer	Packaged	
CO ₂ DCV		
Damper Styles	Flapper	
Damper Status		
Heating Type	Gas at 202 BMH	
Heating Coil Condition		
Cooling Type	DX 2-stage	
Cooling Coil Condition	Clean	
CU Mfr.		
Drain Pan Status	Good	
Notes:		

Description	Photos
Unit Tag Info	
Unit from afar	

Unit SF Tag Info Heating Coil CO SCORES



Controls



Unit Tag	RTU-3	Addition comments descriptions
Location	Northeast Roof	
Serving	Computer	
Config/Style	CV Cooling with Gas Heat	
Mfr.	Lennox	
Model #	KGA120H4BH1G	
Serial #	5616E01266	
Age (years)	10-28	Original project 1994
System CFM	3400	
Max OA CFM		
V/Hz/Ph	460, 3-Phase	
SF Qty/HP	3HP InterLink	
SF VFD Data		
RF Qty/HP	Power Exhaust .33 HP	1 AX58 Belt in good condition
RF VFD Data		
Filter Data (Size Quantity)	OA Metal mesh (2) 16 x 25 x1 (4) 20 x 25 x 2	
Filter Status	Moderately dirty	
Controls Type		
Controls Mfr.		
Economizer	Packaged Honeywell Enthalpy controller	Gravity Exhaust damper should be lubricated
CO ₂ DCV		
Damper Styles	Opposed Gear sectional Packaged controlled	
Damper Status	Should be cleaned and lubricated	
Heating Type	Natural Gas 192 MBH	
Heating Coil Condition		
Cooling Type	DX 2-Stage	
Cooling Coil Condition		
CU Mfr.		
CU Model		
CU Serial		
Drain Pan Status		
Notes:		







Controls



<u>Unit Tag</u>	RTU-4	Addition comments descriptions
Location	Northeast Roof	
Serving	Textiles	
Config/Style	Packaged Gas/DX	
Mfr.	Trane	
Model #	YSC60G4RHB040	
Serial #	202412745L	
Age (years)	6/2020	
System CFM	2000	
Max OA CFM		
V/Hz/Ph	460/60/3	
SF Qty/HP	(1) 1.0	
SF VFD Data	ECM	
RF Qty/HP	N/A	
RF VFD Data	N/A	
Filter Data (Size Quantity)	(2) 16"x20"x2" (2) 20"x20"x2"	
Filter Status	Dirty	
Controls Type	DDC Electronic Packaged Controls /Allerton	
Controls Mfr.	Packaged Controls /Allerton	
Economizer	Yes	
CO ₂ DCV		
Damper Styles	Trane Packaged Configuration	
Damper Status	ОК	
Heating Type	Gas Burner	
Heating Coil Condition	Good	
Cooling Type	DX	
Cooling Coil Condition	Good	
CU Mfr.		
CU Model		
CU Serial		
Drain Pan Status	Clean	
Notes:		

Description	Photos
Unit Tag Info	
Unit from afar	
Unit SF Tag Info	

Heating Coil



Cooling Coil





Controls



<u>Unit Tag</u>	RTU-5	Addition comments descriptions
Location	Northeast Roof	
Serving	Culinary	
Config/Style	Packaged Gas/DX	
Mfr.	Trane	
Model #	YSD150GR4RHAOVD	
Serial #	192910924D	
Age (years)	7/2019	
System CFM	6000	
Max OA CFM		
V/Hz/Ph	460/60/3	
SF Qty/HP	(1) 3.0	
SF VFD Data	N/A	
RF Qty/HP	N/A	
RF VFD Data	N/A	
Filter Data (Size Quantity)	(4) 20"x25"x2" (2) 20"x20"x2"	
Filter Status	Dirty	10/4/21
Controls Type	DDC Electronic Packaged Controls	
Controls Mfr.	Packaged Controls Allerton	
Economizer	Yes	
CO ₂ DCV		
Damper Styles	Trane Packaged Configuration	
Damper Status	ОК	
Heating Type	Gas Burner	
Heating Coil Condition	ОК	
Cooling Type	DX (2) compressors	
Cooling Coil Condition	ОК	
CU Mfr.	Twin Condenser fans	
CU Model		
CU Serial		
Drain Pan Status	Clean	
Notes:		
Description	Photos	
--------------------	--------	
Unit Tag Info		
Unit from afar		







<u>Unit Tag</u>	RTU-6 Addition comments descriptions	
Location	Northeast Roof	
Serving	Administration	
Config/Style	Packaged Gas/Dx	
Mfr.	Trane	
Model #	YSD180G4RHAORD	
Serial #	191111094D	
Age (years)	3/2019	
System CFM	5000	
Max OA CFM		
V/Hz/Ph	460/60/3	
SF Qty/HP	(1) 7-1/2	
SF VFD Data	N/A	
RF Qty/HP	N/A	
RF VFD Data	N/A	
Filter Data (Size Quantity)	(4) 20"x20"x2" (4) 20"x25"x2"	
Filter Status	Dirty	8/10/21
Controls Type	DDC Electronic Packaged Controls	
Controls Mfr.	Package Controls Allerton	
Economizer	Yes	
CO ₂ DCV		
Damper Styles	Trane Packaged Configuration	
Damper Status	ОК	
Heating Type	Gas Burner	
Heating Coil Condition	ОК	
Cooling Type	DX R-410A	
Cooling Coil Condition	ОК	
CU Mfr.		
CU Model		
CU Serial		
Drain Pan Status	Clean	Part of trap of, replaced REA
Notes:		





<u>Unit Tag</u>	RTU-7	Addition comments descriptions	
Location	Center East Roof		
Serving	Counselor/Nurse/Guidance		
Config/Style	CV Cooling Only		
Mfr.	Trane		
Model #	THC120F4R0A26D0		
Serial #	203014289L		
Age (years)	7/2021		
System CFM	3400		
Max OA CFM			
V/Hz/Ph	460 3-Phase		
SF Qty/HP	ECM Motor 2300 Watt 3 HP		
SF VFD Data			
RF Qty/HP			
RF VFD Data			
Filter Data (Size Quantity)	(4) 20 x 30 x 2		
Filter Status	Clean		
Controls Type	DDC Electronic		
Controls Mfr.	Trane Packaged / Alerton		
Economizer			
CO ₂ DCV			
Damper Styles	Blade		
Damper Status	ОК		
Heating Type	NA		
Heating Coil Condition			
Cooling Type	DX 2-stage		
Cooling Coil Condition			
CU Mfr.			
CU Model			
CU Serial			
Drain Pan Status	Clean		
Notes:			

Description	Photos
Unit Tag Info	
Unit from afar	

Unit SF Tag Info



Condensate Pan

Cooling Coil





<u>Unit Tag</u>	RTU-8	Addition comments descriptions
Location	North Roof	
Serving	Cafeteria	
Config/Style	VAV AHU, SF/EF, HW, DX Cooling, ERW	
Mfr.	Venmar CES	
Model #	5WC-6-48x30x2-8AL	
Serial #	00547980-C04249	
Age (years)	80/2011	
System CFM	5600	1994 drawings indicate 8000 cfm max
Max OA CFM	5600	
V/Hz/Ph	460/60/3	
SF Qty/HP	(2) 3.0 Fan wall direct drive	
SF VFD Data	VFD ABB	
EF Qty/HP	(1) 5.0 Belt driven, mismatched (2) AX-56	
EF VFD Data	VFD ABB	
Filter Data (Size Quantity)	Outdoor intake: (6) 16"x20"x2" Pre (6) 16"x20"x11.5" Final	Return Air: (6) 24"x24"x2"
Filter Status	Dirty changed on (10-4-21)	Dirty changed on (10-4-21)
Controls Type	Packaged	
Controls Mfr.	Delta/Allerton	
Economizer	Yes 100% O.A. capable	
CO ₂ DCV		
Damper Styles	Tamco parallel	
Damper Status	Dirty, seals need to be cleaned, lubricated, and adjusted (All)	
Heating Type	Hot water	
Heating Coil Condition	Coil should be professionally cleaned (Coated)	
Cooling Type	Packaged DX	
Cooling Coil Condition	Coil should be professionally cleaned (Herisite Coated)	
CU Mfr.		
CU Model		
CU Serial		
Drain Pan Status	Clean, should be flushed after coil cleaning	
Notes:	1/3 HP Wheel is clean, Wheel operation unknown, Unit in economizer upon inspection.	

Description	Photos
Unit Tag Info	
Unit from afar	







Filters



Controls



<u>Unit Tag</u>	RTU-9	Addition comments descriptions
Location	Center West Roof	
Serving	Project Adventure/Weight Room	
Config/Style	Packaged Gas Fired	
Mfr.	McQuay	
Model #	RWS800BA	
Serial #	35G01783 17	
Age (years)	Unknown, 10-28	Original project 1994, Unit is in poor condition, no cooling
System CFM	8000	
Max OA CFM		
V/Hz/Ph	460/60/3	
SF Qty/HP	(1) 5.0 Belt (1) BP-62	
SF VFD Data	N/A	
RF Qty/HP	(1) 1-1/2 Single belt, cracked	
RF VFD Data	N/A	
Filter Data (Size Quantity)	(15) 16"x25"x2" (5) 16"x20"X2"	Angled Racks
Filter Status	Dirty	Changed 10/4/21
Controls Type	Panel was not opened, no external disconnects	
Controls Mfr.	Panel was not opened, no external disconnects	
Economizer	Yes	
CO ₂ DCV		
Damper Styles	Parallel Factory	
Damper Status	Fair, did not modulate upon shut down, operation unknown.	
Heating Type	Gas Burner	
Heating Coil Condition	Dirty	
Cooling Type	N/A	
Cooling Coil Condition	N/A	
CU Mfr.		
CU Model		
CU Serial		
Drain Pan Status	Floor of unit is in bad condition.	
Notes:	Sound attenuation/Insulation inside unit if failing	

Description	Photos
Unit Tag Info	
Unit from afar	
Unit SF Tag Info	





Controls

Electrical / Misc.



Unit Tag	RTU-10		Addition comments descriptions
Location	West Roof		
Serving	Music		
Config/Style	Roofto	p ERV w/ DX Cooling and Gas Heat	
Mfr.	Aaon		
Model #	RN-020	-3-0-EA09-389	
Serial #	20131 ⁻	I-BNGP33327	
Age (years)	10-28		Original named unit install in 1994, might have been replaced since then
System CFM	10000		
Max OA CFM			
V/Hz/Ph	460/60)/3	
SF Qty/HP	1, 10		
SF VFD Data	460V /	14A / 3ph / 60Hz	
RF Qty/HP	1, 7.5		
RF VFD Data	208-23	0/460V / 20.4-19.4/9.7A / 60Hz	
Filter Data (Size Quantity)	6x 20x 3x 20x 6x 14x	25x4 MERV 13 Final Filters 25x2 MERV 8? OA 25x2 MERV 8? EA	Wheel exhaust filters falling out of the frame and some have the filter box frame cut and taped to have the filter fit, rather than using properly sized filters/blank off plates
Filter Status	Dirty		Some major damage particularly to EA
Controls Type	VLC-1	188 DDC	
Controls Mfr.	Alertor	1	
Economizer			
CO ₂ DCV			
Damper Styles	Revers	e blade	
Damper Status	Most c	lo not close fully	
Heating Type	Gas		
Heating Coil Condition	Okay		
Cooling Type	DX		
Cooling Coil Condition	Dirty		
CU Mfr.	Copeland Scroll		
CU Model	#1 ZP103KCE-TFD-250, #2 ZPD103KCE-TFD-155		
CU Serial	#1 13JC0139D, #2 13IA8787D		
Drain Pan Status	Okay		
Notes:			
Description Photos			





Cooling Coil

Condensate Pan







Electrical / Misc.



<u>Unit Tag</u>	RTU-11	Addition comments descriptions
Location	West Roof	
Serving	Gym (South)	
Config/Style	Rooftop SF/RF, DX cooling, gas heat, OA w/ Relief damper	
Mfr.	McQuay	
Model #	RWS800 BA	Burner: FB400AAE
Serial #	35E01205 17	P/N: X9 599113040
Age (years)	10-28	Original project 1994
System CFM	10000	
Max OA CFM		
V/Hz/Ph	460V / 60Hz / 3ph	
SF Qty/HP	2 fans, 1 motor, 10Hp	
SF VFD Data	230/460V / 24.4/12.2A / 60Hz	
EF Qty/HP	2 fans, 1 motor, 3Hp	Uncontrolled associated relief damper
EF VFD Data	208-230/460V / 8.4-8.0/4A / 60Hz	
Filter Data (Size Quantity)	15x 16x25x2 MERV 13 5x 16x20x2 MERV 13	
Filter Status	Dirty	
Controls Type	DDC	
Controls Mfr.	Alerton/JCI	
Economizer	Partial, analog enthalpy control (dial in OA intake)	
CO ₂ DCV		
Damper Styles	Parallel blade	
Damper Status	Okay seal but dirty	
Heating Type	Gas	
Heating Coil Condition	Rusty HX	
Cooling Type	DX	Refrigerant insulation is completely destroyed, requires new insulation with UV protection
Cooling Coil Condition	Dirty	
CU Mfr.	McQuay	Near the unit on the roof
CU Model	ACZ033AC527-ER11	
CU Serial	STNU061100104	
Drain Pan Status	Okay	
Notes:		










Electrical / Misc.



<u>Unit Tag</u>	RTU-12	Addition comments descriptions
Location	West Roof	
Serving	Gym (North)	
Config/Style	Rooftop SF/RF, DX cooling, gas heat, OA w/ Relief damper	
Mfr.	McQuay	
Model #	RWS800 BA	Burner: C40SE 0
Serial #	35E01206 17	
Age (years)	10-28	Original project 1994
System CFM	10000	
Max OA CFM		
V/Hz/Ph	460V / 60Hz / 3ph	
SF Qty/HP	2 fans, 1 motor, 10Hp	
SF VFD Data	230/460V / 24.4/12.2A / 60Hz	
EF Qty/HP	2 fans, 1 motor, 3Hp	Uncontrolled associated relief damper
EF VFD Data	230/460V / 7.8/3.9A / 60Hz	
Filter Data (Size Quantity)	15x 16x25x2 MERV 13 5x 16x20x2 MERV 13	
Filter Status	Dirty	
Controls Type	DDC	
Controls Mfr.	Alerton/JCI	
Economizer	Partial, analog enthalpy control (dial in OA intake)	
CO ₂ DCV		
Damper Styles	Parallel blade	
Damper Status	Seals are not tight, dirty	
Heating Type	Gas	
Heating Coil Condition	Rusty HX	
Cooling Type	DX	Refrigerant insulation is completely destroyed, requires new insulation with UV protection
Cooling Coil Condition	Okay	
CU Mfr.	McQuay	Near the unit on the roof
CU Model	ACZ033AC527-ER11	
CU Serial	STNU061100104	
Drain Pan Status	Okay, some debris	Condensate splash pad is severely deteriorated between the unit and the wall
Notes:		







Cooling Coil

Control Dampers Filters x 20 x 2

Controls



Electrical / Misc.



<u>Unit Tag</u>	RTU-13	Addition comments descriptions
Location	Northwest Roof	
Serving	Faculty Dining	
Config/Style	4-ton Rooftop unit, DX cooling, gas heat	
Mfr.	Trane	
Model #	YSC048G4RHB001S	
Serial #	202310218L/2	
Age (years)	2 (05/2020)	
System CFM	1600	
Max OA CFM		
V/Hz/Ph	460V / 60Hz / 3ph	
SF Qty/HP	1, 1.0	
SF VFD Data	ECM 460V / 2.5A / 60Hz	
RF Qty/HP	N/A	
RF VFD Data	N/A	
Filter Data (Size Quantity)	2x 16x20x2 MERV 13, 2x 20x20x2 MERV 13	
Filter Status	Dirty	
Controls Type	Packaged DDC	
Controls Mfr.	Trane	
Economizer	Yes	
CO ₂ DCV		
Damper Styles	RA plastic, interlocked with single blade OA	
Damper Status	Okay	
Heating Type	Gas	
Heating Coil Condition	Okay	
Cooling Type	DX	
Cooling Coil Condition	Okay	
CU Mfr.		4 tons
CU Model		
CU Serial		
Drain Pan Status	Okay	
Notes:		

Description	Photos
Unit Tag Info	
	<complex-block></complex-block>
	Alterative SCO48G4RHBOOIS* F SCO48G4RHBOOIS* F UMUT a TON COMMENTALE UMUT A TON COMMENTALE







Electrical / Misc.



<u>Unit Tag</u>	RTU-14	Addition comments descriptions
Location	Northwest Roof	
Serving	Auditorium	
Config/Style	VAV AHU, SF/RF, HW, DX Cooling, ERW	
Mfr.	Venmar CES	
Model #	5WC-4-60x46x2-8AL	EnergyPack-W-2-12e-WB-HW-CT404-X- P
Serial #	00551108-C04273	
Age (years)	11 (02/2011	
System CFM	11500	
Max OA CFM	9900	
V/Hz/Ph	460V / 60Hz / 3ph	
SF Qty/HP	2, 7.5 (15hp total)	Direct drive
SF VFD Data	480V / 23A / 15Hp	
RF Qty/HP	1, 7.5	Belt drive
RF VFD Data	480V / 11.5A / 7.5Hp	
Filter Data (Size Quantity)	EA 6x 20x24x2 MERV 13 OA Pre- 6x 24x24x2 MERV 13 OA Final- 6x 24x24x12 MERV 14 Box Filters	
Filter Status	OA 2" filters are dirty, the rest are okay	
Controls Type	DDC	
Controls Mfr.	Alerton	
Economizer	No, ERW	
CO ₂ DCV		
Damper Styles	Reverse blade for OA/EA, parallel blade on bypass/internal/MA	
Damper Status	OA damper does not seal fully	
Heating Type	Hot Water	
Heating Coil Condition	Good	
Cooling Type	DX	
Cooling Coil Condition	Good	
CU Mfr.	Copeland Scroll	2x Duplex compressor skids
CU Model	ZP120KCE-TFD-455, ZPDT24MCE-TFD-275	R-410A
CU Serial	116A1563D, 11FD1299D, 11FD1267D	Duplex serial: 11630332U
Drain Pan Status	Okay, some rust chips in pan	
Notes:	ERW VFD: Yaskawa CIMR-VU4A0002FAA	480V / 1.8A

Description	Photos
Unit Tag Info	Image: Second
Unit SF Tag Info	
Unit RF/EF Tag Info	



Cooling Coil









PROJECT: 2020102.05 FAIRFIELD PUBLIC SCHOOLS – FAIRFIELD WOODS MIDDLE SCHOOL







<u>Unit Tag</u>	RTU-15	Addition comments descriptions
Location	Northwest Roof	
Serving	Auditorium Lobby	
Config/Style	VAV AHU, SF, DX Cooling	
Mfr.	Lennox	
Model #	LCH102H4BN1G	
Serial #	5611F00657	
Age (years)	13 (10/2009)	
System CFM	2700	
Max OA CFM	800	
V/Hz/Ph	460V / 22A / 3ph	
SF Qty/HP	1, 2	
SF VFD Data	460V / 2.8A / 60Hz	
RF Qty/HP	N/A	
RF VFD Data	N/A	
Filter Data (Size Quantity)	4x 20x25x2 MERV 13	
Filter Status	dirty	OA intake bird screen is destroyed
Controls Type	Lennox packaged	
Controls Mfr.	Lennox Commercial	
Economizer	No	
CO ₂ DCV		
Damper Styles	Parallel blade	
Damper Status	Okay	
Heating Type	None, electric heat compatible	
Heating Coil Condition	N/A	
Cooling Type	DX	
Cooling Coil Condition	Okay	
CU Mfr.	Copeland Scroll	
CU Model	2x ZP42KSE-TFD-130	R-410A
CU Serial	11E7698CN, 11E7703CN	
Drain Pan Status	Okay	
Notes:		











<u>Unit Tag</u>	RTU-16	Addition comments descriptions
Location	South Roof	
Serving	Classroom Addition	
Config/Style	VAV AHU, SF/RF, HW, DX Cooling, Cross-flow ERU-1	
Mfr.	McQuay	
Model #	RPS079DLW	
Serial #	FBOU110601707 00	
Age (years)		
System CFM	21000	
Max OA CFM	11655	
V/Hz/Ph	460/60/3	
SF Qty/HP	1x 30.0 3x Belts	Replaced 11-30-17
SF VFD Data	VFD	
RF Qty/HP	5(1) 5.0 Belt (2) BX-75	Horizontal, grease fitting missing
RF VFD Data	VFD	
Filter Data (Size Quantity)	(8) 24"x24"x2" (4) 12"X24"x2" Pre-Filters	(8) 24"x24"x11.5" (4) 12"X24"x11.5" Final Filters
Filter Status	Pre-Dirty	Last changed 10/5/21
Controls Type	DDC Electronic Packaged Controls	
Controls Mfr.	Packaged Controls / Allerton	Ebtron Flow Measuring
Economizer	Yes	
CO ₂ DCV		
Damper Styles	Parallel (O.A. insulated Tamco dampers)	
Damper Status	OK dampers should be cleaned lubricated and adjusted, operation unknown	
Heating Type	Hot Water	
Heating Coil Condition	Dirty	
Cooling Type	DX (Staggard Coils, 6 rows)	(6) Compressors
Cooling Coil Condition	Dirty	
Air Blender	Panel Mounted Air Blender Mod. 205139538	
CU Model		
CU Serial		
Drain Pan Status		
Notes:		

<u>Unit Tag</u>	ERU-1	Addition comments descriptions
Location	South Roof	
Serving	Classroom Addition	
Config/Style	Fixed-Plate Energy Recovery Unit	
Mfr.	Venmar CES	
Model #	HRV 5000e FPA 1XC22FHEB5SXXX	
Serial #	00545734-C64230	
Age (years)	08/2011	
System CFM		
Max OA CFM		
V/Hz/Ph	460/60/3	
SF Qty/HP	5.0	
SF VFD Data	VFD ABB	
RF Qty/HP	5.0 (2) Belts AX-56	
RF VFD Data	VFD ABB	
O.A. Filter Data R.A. Filter Data	1x 24"x24"x2", 24"x20"x2" 1x 24"x24"x2", 24"x20"x2"	Filters destroyed; immediate attention required
Filter Status	Dirty	
Controls Type	DDC Electronic Packaged Controls	
Controls Mfr.	Delta	
Heat Exchanger	Plate	
HX Status	Dirty	

Description	Photos
Unit Tag Info	
Unit from afar	

Unit SF Tag Info





Unit RF/EF Tag Info






Filters





<u>Unit Tag</u>	RTU-17	Addition comments descriptions
Location	Center South Roof	
Serving	ОТ/РТ	
Config/Style	CV AHU w/ Economizer, HW, DX Cooling	
Mfr.	Lennox	
Model #	LCH060H4EN1G	
Serial #	5611F01200	C/N: N3622
Age (years)	13?	
System CFM	1420	
Max OA CFM	550	
V/Hz/Ph	460V / 60Hz / 3ph	
SF Qty/HP	1, 1.0	
SF VFD Data	120/240V / 3.7A / 60Hz	Direct Drive fan
RF Qty/HP	N/A	
RF VFD Data	N/A	
Filter Data (Size Quantity)	4x 20x20x2 MERV13?	
Filter Status	Dirty	
Controls Type	Lennox Packaged	
Controls Mfr.	Lennox Commercial	
Economizer	No	
CO ₂ DCV		
Damper Styles	Parallel blade	
Damper Status	OA does not close fully	
Heating Type	None, electric coil compatible	Hot gas reheat
Heating Coil Condition	N/A	
Cooling Type	DX	
Cooling Coil Condition	Some rust/chipping of the fins, particularly on the lower part of the hot gas reheat	
CU Mfr.	Copeland Scroll	
CU Model	ZPS51K4E-TFD-130	R-410A
CU Serial	11EA6480N	
Drain Pan Status	Okay	
Notes:		



Unit SF Tag Info Cooling Coil il filte





Unit Tag	RTU-18	Addition comments descriptions
Location	Center South Roof	
Serving	Auxiliary Gym	
Config/Style	H&V, SF/EF, HW, no cooling	Unit lights do not function
Mfr.	Skyline	McQuay
Model #	OAH006GHAC	
Serial #	FBOU110601357	P/N: E878156080 FB0
Age (years)		
System CFM	2500	
Max OA CFM	1200	
V/Hz/Ph	480V / 60Hz / 3ph	
SF Qty/HP	1, 5	
SF VFD Data	480V / 8.8A / 5Hp	Remote VFD unit screen located in electrical cabinet
EF Qty/HP	1, 1.5	Found turned OFF
EF VFD Data	480V / 3.3A / 1.5Hp, ACH550	The fan runs, however the VFD LCD screen in the remote control cabinet is broken and does not display anything. The remote unit does still seem to control the fan (auto/hand, etc.).
Filter Data (Size Quantity)	2x 24x24x2 MERV 13 2x 24x24x12 MERV 14 box filters	
Filter Status	2" are dirty, 12" are clean	
Controls Type	DDC packaged	
Controls Mfr.	McQuay packaged/Schneider	
Economizer		AFMS in this unit
CO ₂ DCV		
Damper Styles	Parallel blade	
Damper Status	The dampers do not close fully	
Heating Type	Hot water	
Heating Coil Condition	okay	
Cooling Type	N/A	
Cooling Coil Condition	N/A	
Drain Pan Status	N/A	
Notes:		

Description	Photos
Unit Tag Info	
Unit from afar	
Unit SF Tag Info	<image/>



Control Dampers



Filters





<u>Unit Tag</u>	RTU-19	Addition comments descriptions
Location	Center East Roof	
Serving	Classrooms	
Config/Style	CV AHU, SF, w/ Economizer, HW, DX Cooling	
Mfr.	Lennox	
Model #	LCH048S4TN1G	
Serial #	5611F01205	
Age (years)		
System CFM	1120	
Max OA CFM	390	
V/Hz/Ph	460/480 3-Phase	
SF Qty/HP	2 HP Baldor Reliance 2-speed	AP41 Belt
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	(4) 16 x 20 x 2	10-5-21
Filter Status	Dirty	
Controls Type	DDC Electronic	
Controls Mfr.	Packaged /	No Alerton controller in cabinet
Economizer		
CO ₂ DCV		
Damper Styles	Opposed	
Damper Status	In need of cleaning, adjusting and lubrication	
Heating Type	NA	
Heating Coil Condition		
Cooling Type	DX 2-stage	
Cooling Coil Condition	Very dirty	
CU Mfr.		
CU Model		
CU Serial		
Drain Pan Status	Needs cleaning	
Notes:		







Unit Tag	RTU-20	Addition comments descriptions
Location	Center East Roof	
Serving	Classrooms	
Config/Style	CV AHU, SF, w/ Economizer, HW, DX Cooling	
Mfr.	Lennox	
Model #	LCH060H4ENiG	
Serial #	5611F01201	
Age (years)	2009?	
System CFM	1420	
Max OA CFM	320	
V/Hz/Ph		
SF Qty/HP		
SF VFD Data		
RF Qty/HP	1HP Looks to be an ECM motor	
RF VFD Data		
Filter Data (Size Quantity)	(4) 20 x 20 x 2	
Filter Status	Dirty	
Controls Type	DDC Electronic	
Controls Mfr.	Packaged /	No Alerton controller in cabinet
Economizer		
CO ₂ DCV		
Damper Styles	Opposed	
Damper Status	Dampers in need of cleaning, adjusting and lubrication	
Heating Type	NA	
Heating Coil Condition		
Cooling Type	DX 2-stage	
Cooling Coil Condition	Very dirty	
Drain Pan Status	Could use cleaning	
Notes:		

Description	Photos
Unit Tag Info	
Unit from afar	
Unit SF Tag Info	



Unit Tag	RTU-21	Addition comments descriptions
Location	West Roof	
Serving	Keyboard Lab	
Config/Style	CV AHU, SF, w/ Economizer, HW, DX Cooling	
Mfr.	Lennox	
Model #	LCH048S4TN1G	
Serial #	5611F01202	C/N: N3623
Age (years)	13?	
System CFM	1120	
Max OA CFM	390	
V/Hz/Ph	460V / 60Hz / 3Ph	
SF Qty/HP	1, 2/0.89//1.66/0.74	Excessive vibration
SF VFD Data	460/400V / 2.6/1.8A / 60Hz	Misaligned fan belt pulley
RF Qty/HP	N/A	Relief backdraft damper with motorized MA/OA damper
RF VFD Data	N/A	
Filter Data (Size Quantity)	4x 16x20x2 MERV 13	
Filter Status	dirty	
Controls Type	Lennox packaged	
Controls Mfr.	Lennox Commercial	
Economizer		
CO ₂ DCV		
Damper Styles	Parallel blade	
Damper Status	Okay	
Heating Type	None, electric heat compatible	Hot gas reheat?
Heating Coil Condition	N/A	
Cooling Type	DX	
Cooling Coil Condition	Dirty, some fins missing	
CU Mfr.	Copeland Scroll	
CU Model	ZPS40K4E-TFD-130	R-410A
CU Serial	11EC8310N	
Drain Pan Status	Dirty but intact	
Notes:		











<u>Unit Tag</u>	RTU-22	Addition comments descriptions
Location	Center East Roof	
Serving	1 st Floor Offices	
Config/Style	CV AHU, SF, w/ Economizer, HW, DX Cooling	Found OFF and in alarm
Mfr.	Lennox	
Model #	LCH048S4TN1G	
Serial #	5611F01203	C/N: N3623
Age (years)	13?	
System CFM	1120	
Max OA CFM	390	
V/Hz/Ph	460V / 60Hz / 3Ph	
SF Qty/HP	1, 2.0	
SF VFD Data	460V / 2.0A / 60Hz	
RF Qty/HP	N/A	
RF VFD Data	N/A	
Filter Data (Size Quantity)	4x 16x20x2	
Filter Status	Very clean	Unit hasn't run or has run very little since the previous filter change
Controls Type	Lennox packaged	
Controls Mfr.	Lennox Commercial	
Economizer	Partial, relief damper	
CO ₂ DCV		
Damper Styles	Parallel blade	
Damper Status	Issue with closure on RA	Wall-mountable t-stat found wired and suspended in the RA duct section, presumably to control the unit based on "space" conditions rather than from a sensor down below. In theory this could work, but in practice it prevents the dampers from closing fully. The wire is quite damaged
Heating Type	Hot Gas Bypass	(Other Lennox units also have Hot Gas Bypass)
Heating Coil Condition	Good	
Cooling Type	DX	
Cooling Coil Condition	Good	
CU Mfr.	Copeland Scroll	

CU Model	ZPS40K4E-TFD-130	
CU Serial	11EC8335N	
Drain Pan Status	Okay	
Notes:		





