Fairfield Warde High School

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Fairfield Public Schools Recommissioning (RCx) and Testing, Adjusting, & Balancing (TAB) Study

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

EXECUTIVE SUMMARY (May 2023 Update)

Fairfield Warde High School was deemed to be school priority number six by Fairfield Public Schools, a higher priority due to the HVAC operating conditions and reported ongoing control issues. 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.

The school ventilation systems comprise of approximately 49 Rooftop HVAC Units and 4 indoor Air Handling Units with steam, hot water coils, and some with mechanical cooling capability. From a high-level perspective, our field visit study performed in June/July of 2022 had determined the HVAC systems are in poor condition with many units in need of major services tasks, repairs and or upgrades/replacement. In almost all cases coils were found to be fouled, control dampers and actuators in need of service, repair, or adjustment. It had been observed during our field visit that unit filters were recently replaced and clean, however other mechanical operational issues remain. Of note, two H&V systems serving the locker rooms were found not delivering any ventilation air to the spaces (pulleys removed with motor running), allowing humidity build up and overall stuffy environment. A common observation with many rooftop units included metal Pre-filters on the outdoor air intakes were found plugged with pollen, dirt and should be power washed and or replaced to allow for needed space ventilation. Even though filters were changed in late spring of this year, it was clear with most units that over the years filters were not changed at regular as needed intervals.

Aside from above mentioned HVAC units, the building ventilation system has in place exhaust fans for various purposes including, but not limited to, toilet exhaust, kitchen exhaust, mechanical / electrical space ventilation, etc. The Building Automation (BAS) control system consists of an Metasys Legacy control system through Johnson Controls, though monitoring and control of HVAC systems is limited. Within the past 2-years, Automated Logic replaced the older NCU gateway controllers, and through an S4 Systems integrator provided an overlay Automated Logic WebCTRL BAS system. This overlay system did provide improved access and control of building systems, however based upon field observations and remote BAS Access it would seem systems are not being controlled as efficiently and repeatably as would be expected. Many of the legacy JCI I/O devices and DDC controllers have far exceeded the expected life span and even with the new ALC overlay system it cannot remedy issues at the local equipment level. Controls and I/O devices should be upgraded in their entirety to help ensure good ventilation and temperature control of the spaces, while incorporating energy savings control strategies.

We performed our on-site RCx inspection starting originally on August 12, 2020, through August 14, 2020, and then provided a detailed follow-up late May through July 2022. Our TAB field review began in August 2022 and was completed in May 2023 after maintenance and limited improvements in system operation and controls were made prior to the spring of 2023. The goal of this study is primarily focused towards addressing the operational conditions and 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 uncontrollable with units running excessively without unoccupied mode of control or good ventilation control, however it should be noted that this school has the potential for being one of the better ventilated buildings in the district if the equipment, controls sequences, and end devices were functioning properly. Preliminary findings from the Retro-Commissioning (RCx) and air-side Testing Adjusting and Balancing (TAB) to date 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

Our field observations indicate, many of the individual occupied spaces at this school likely do not fully comply with the applicable building codes or guidelines regarding indoor air quality and outdoor ventilation

The ideal supply of outside air to interior occupied spaces should be based upon the 2018 Connecticut Building Code, which is based on the most currently adopted 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.

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 undesirable or unhealthy levels. It should be noted that 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

By individual space area/volume measurements and ventilation air being delivered, it could then be determined if spaces conform to the requirements within IMC 2015 and the results are calculated based on individual space classification and category. Additionally, these readings should be based upon "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 can maintain 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 **68,649 CFM**. The TAB process revealed that **91,190 CFM** of outside air is delivered to these spaces, resulting in a **22,510 CFM** surplus or **132.8%** of the required minimum flow. However, the ventilation calculations reveal that only **34.5%** of the occupied zones met the requirements (101 out of 293). This means that the building is being more than adequately supplied with ventilation airflow when looked at from the entire building perspective, but this is deceptive since most of the zones are being starved of OA while others are receiving too much, the latter of which it could actually be reduced to save energy.

A common calculation used for measuring the amount of air flushed through the spaces 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 ft^2 room with 10 ft ceilings will have a volume of 10,000 ft^3. If 250 CFM is delivered to this space, that results in 15,000 ft^3 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 spaces 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 **3.628 ACH**. This is slightly 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. There is a positive expectation here since many of the spaces were being served by units without proper control or were otherwise not operating.

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 0.641**
- For spaces that at least met or exceeded code, the outside air **ACH was 3.463**
- The combined outside air **ACH for the entire building was 1.877**. This does not meet the recommended minimum of 2.000 ACH but it does seem within reach.

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 (RA + OA)	Total OACH (OA/EA)	OACH for zones that do not meet code	OACH for zones that meet code
3.628	1.877	0.641	3.463

Outside Air Flow Improvement Recommendations

Immediate action should be taken to improve upon HVAC Units and Controls operation and sequences of operations. This alone will help ensure required outside ventilation air will be delivered to spaces that currently have little or none and will necessarily improve building performance as a result. The HVAC systems should holistically be rebalanced to current design requirements and the BAS control system should generally be reviewed for improvements. This building has not seen any major overhauls in many years, so a full recommissioning effort would uncover even more than just ventilation concerns.

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". ASHRAE also gave a presentation on June 16, 2020, regarding Recommendations and Activities for re-opening 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 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 May 0f 2022, where prior 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 the building before and after occupancy for at least two (2) hours, if possible.
- Consider installation of UV-C or bi-polar ionization to recirculating air systems where installation of these systems does not interfere with the unit construction or operation.
- 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.
- Increase restroom exhaust where possible while maintaining a positive building pressurization to the exterior. This should not be done while the outside air dampers are in need of repair.
- Perform ductwork inspection and cleaning if needed for existing systems.

Control Sequence Update Recommendations

Without undertaking needed repairs or upgrade to the Building Automation (BAS) System, phase II retro-commissioning of the BAS control system should be delayed. With the Automated Logic Corporation (ALC) structural overlay upgrades to the JCI Legacy control systems using a 3rd party integration device called S-4 controllability has improved slightly. While the ALC overlay systems does not impact existing sequences of operation, it should make the process of adjusting parameters easier for future work.

Full Retro-commissioning the building mechanical and control systems is strongly recommended after systems are improved, it is currently difficult determine the extent of repairs or replacements needed with the existing control system, however our cursory review and evaluation determined the following services should be considered as high priority considerations:

- Re-establish a secure and robust BAS communication network to all gateways and building mechanical and electrical systems.
- Future budget for a systematic total gut and update of Building Automation System to Automated Logic as data network integrity is compromised, many of the Legacy field controllers and I/O devices have failed.
- Consider an upgrade of older legacy zone and equipment controllers with new end devices that will allow advanced control routines to be implemented, thereby improving environmental control, indoor air quality, while optimizing energy utilization.

- Immediately address the communication issues that prevents manipulating the controls as needed. 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.
- Modify sequences of operations to provide a pre/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 once damper control has been regained, 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 CO_2 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

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 determined required and have the ability. Even units that currently meet code requirements for ventilation flow rates could be increased if there is not a negative energy impact but should not be increased beyond the capacity of the unit to heat or cool the air. Total space air change rates (ACH) 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 created also leave the ductwork and remain charged when they enter occupied spaces. If the particles encounter 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 could 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. Retrofitting these systems into existing units is difficult but if there are complaints about building humidity then it is worth considering, but is would be very costly. 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, the recommendations discussed above should be enacted before humidification is considered.

To best confirm that the implementation of the above recommendations is met as well as other improvements, we again recommend performing Recommissioning of this 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.

The Fairfield Warde High School's extensive application of Rooftop mounted HVAC units allow for some amount of recirculation air, it could be suggested following are recommendations would be beneficial with improving indoor air quality throughout the school if implemented:

- For Rooftop Units that have dual series filter racks where the first has room for 2" filters and the second has room for 4" or greater filters, the 2" filters should be MERV 8 for pre-filtering, but the larger filters should remain MERV 13+.
- Based upon our observations HVAC unit filter changes on high occupancy or dusty areas 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 without impacting energy usage greatly.
- The following bullet items may be performed inhouse or through outside service providers that could improve indoor air quality and energy consumption. 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 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: All fen belts should be reviewed for proper fitting. Some motors might need to be repositioned in the unit to fix the tension or adjust for alignment. Consider installing belt tensioners where it is possible to extend intervals between belt changes without compromising unit efficiency as the belt wears out.

General Rooftop Unit Upgrade or Replacement Recommendations

In review of the more typical Warde High School Rooftop Units (RTUs) serving classroom areas, we have identified not only that these RTUs are in very poor condition in need of replacement, but the spaces served have little to no individual space temperature and ventilation control as well. To address these issues would involve considerable air distribution and control changes, however, will also result in much improved control of space temperatures, indoor air quality and energy use reduction.

As an example, we feel that by only addressing a like-for-like replacement of the three Fits House Rooftop Units, both environmental and air quality issues would likely persist. Many of the existing systems operate as large single-zone unit distributing conditioned air to the spaces without any individual room by room control for both space temperature and ventilation other than some in duct reheat coils. Back in approx. 2008, some classroom areas were provided with supply duct hot water reheat coils, but without also providing VAV terminal boxes the control of space temperatures, regulated ventilation, and optimizing energy use would not be ideal. In summary, existing HVAC Rooftop Units currently has limitations with individual temperature control without CO2 based demand ventilation control.

In the swing seasons and hot days these systems can produce classroom overcooling and undercooling due to averaging return air temperature (RAT) for cooling control, rather than individual control of space temperatures. It is probable that the areas experience high humidity issues, as there are no means to control space humidity levels which should be between 40% and 60% RH. It is therefore suggested that future replacement RTUs should be specified with VFDs on the supply fans and hot gas reheat to provide dehumidification during the summer months. Added VAV Terminal Boxes (with reheat were needed) where applicable will allow the variable speed fans to deliver ventilation air quantities to match the needs of the space occupants. With the addition of VAV Terminal Boxes the system would have the ability to control and monitor individual space Carbon Dioxide (CO2) ventilation levels utilizing demand base ventilation programing, while optimizing energy savings.

Field Study Findings & General Comments, Warde High School

- General Comment: Rooftop condensing units for split air-conditioning systems (AC/CU) have exposed refrigerant piping where the insulation has been completely deteriorated by the sun. All these refrigerant tubes should be reinsulated and coated with UV-resistant materials. These will conserve energy by limiting losses through exposed piping and will help avoid the piping breaking causing loss of refrigerant charge in the system.
- General Comment: We recommend splash pads or blocks to be placed below all RTU condensate drains to prevent any damage
- General Comment: All outside air bird screen or pollen wire filters should be cleaned/replaced
- General Comment: All dampers and linkages should be cleaned and lubricated to allow free movement and reduce potential of damage to actuators or linkages. Replace damper seals where necessary.
- General Comment: Condensate trap heights are important to allow for the condensate pans to drain. The installation of these traps depends on the static pressure at the condensate section of the unit while running, which can vary significantly depending on if the unit is a blow-through (positive pressure) or draw-through (negative pressure) configuration. It was common to find drain pans with sitting water in them and only a small amount of water coming out of the drain, which indicates improper trap heights. Most units at the schools are draw-through, so the outlet of the traps needs to be much lower than the inlet. A thorough review of these should be conducted.
- General Comment: Units that have two sets of filters with 2" MERV 13 pre-filters protecting 4" MERV 13 final filters. This increases the pressure drop across the filter rack with minimal effect on the improvement of indoor air quality. 2" MERV 8 prefilters would be suggested.
- Cafeteria Serving Area: Many upper windows for the kitchen near RTU-B-3 were first reported in 2021 to be cracked/not sealing against the frame properly. A compromised building envelope leads to thermal losses and potential indoor air quality concerns.
- General Comment: dirty HVAC fan squirrel cages and coils should be cleaned, and filters changed at regular intervals.
- General Comment: It had been observed that many filter racks at Warde are distorted / have screws along the length that catch the filters as they are moved in or out, causing some damage upon changeout. We observed many filters damage during installation. We recommend straightening the racks and fixing bypasses created in this way.
- The A-wing Exhaust guywires are not affixed to the roof anymore.

CONCLUSIONS

Fairfield Public Schools has 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 while the Fairfield Warde High School has good potential for being a well-ventilated building, it does not meet the current minimum ventilation requirements per 2015 IMC mainly due to the lack of automated control and general functionality of the HVAC systems.

While some recommendations will help improve performance, there are a number of key recommendations that should be implemented immediately that impact ventilation and environmental conditions. These include bringing into proper operation the outside air dampers for all units, providing better means of access to ductwork and accessories for a rebalancing effort leading to redistributing

outside airflow throughout the building, and providing additional calibration or flow control devices for better monitoring and maintenance procedures. Given the results of this survey, we highly recommend further evaluation to be performed with whole-building Recommissioning, which would entail BAS controls recommissioning and rebalancing, as well as any engineered ventilation calculations/modifications required to aid in code compliance.

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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 a multi-year assessment that began in 2022 under the previous ventilation study for both of the high schools. As such, it is possible that some of the items listed in the following tables could include issues that are no longer applicable, were corrected previously, or had been corrected but are once again resulting in a problem. 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	Survey Date	Unit/Zone	Indoor Air Quality And Ventilation Issue (194)
	Open	May 2023	A06A Work Room	This space has no ventilation
	Open	May 2023	A06D Wood Storage	There is no ventilation to this space
	Open	May 2023	A07 Transportation / Automotive Shop	RTU-A6 serves this area and has not run in 15+ years
	Open	May 2023	A07A Automotive Project Room/Storage	No ventilation or EX
	Open	May 2023	A07B Tool Room	There is no ventilation to this space
	Open	May 2023	A08A Black Box Storage	There is no ventilation to this space
	Open	May 2023	B.02 Ejector Pit	There is no ventilation to this space
	Open	May 2023	B.03 Vault	There is no ventilation to this space
	Open	May 2023	B.04 Elec	There is no ventilation to this space
	Open	May 2023	B.05 Storage	There is no ventilation to this space
	Open	May 2023	B.06 Storage	There is no ventilation to this space
	Open	May 2023	B.07 Receiving	There is no ventilation to this space
	Open	May 2023	B.08 Men	There is no ventilation to this space
	Open	May 2023	B.09 Women	There is no ventilation to this space
	Open	May 2023	B.10 Storage	There is no ventilation to this space

Action Taken	Status	Survey Date	Unit/Zone	Indoor Air Quality And Ventilation Issue (194)
	Open	May 2023	B.11 Storage	There is no ventilation to this space
	Open	May 2023	B.12 Storage	There is no ventilation to this space
	Open	May 2023	B.13 Storage	There is no ventilation to this space
	Open	May 2023	B.14 Freezer	There is no ventilation to this space
	Open	May 2023	B.15 Storage	There is no ventilation to this space
	Open	May 2023	B01.2 Girls near School Store	This space is only served by a 8" x 8" exhaust grille
	Open	May 2023	B03 Cafeteria	Only has ceiling mounted cassettes with no OA to them
	Open	May 2023	B04G Filter Storage (under café)	No ventilation to this space or EX
	Open	May 2023	B04I Laundry	No ventilation to this space or EX
	Open	May 2023	C02 Main Office	Associated Unit wrapped in blue tarp
	Open	May 2023	C03 Pupil Personnel Admin Conference	Associated Unit wrapped in blue tarp
	Open	May 2023	C04 Office	Associated Unit wrapped in blue tarp
	Open	May 2023	C05 Mail Room	Associated Unit wrapped in blue tarp
	Open	May 2023	C06 Testing Room/Office	Associated Unit wrapped in blue tarp
	Open	May 2023	C07 Student Services	Associated Unit wrapped in blue tarp
	Open	May 2023	C09 Financial Office	Associated Unit wrapped in blue tarp
	Open	May 2023	C11 Supply	Associated Unit wrapped in blue tarp
	Open	May 2023	C12 Archive	Associated Unit wrapped in blue tarp

Action Taken	Status	Survey Date	Unit/Zone	Indoor Air Quality And Ventilation Issue (194)
	Open	May 2023	C13 Conference A	Associated Unit wrapped in blue tarp
	Open	May 2023	C14 Head Principal	Associated Unit wrapped in blue tarp
	Open	May 2023	C21 A/V Storage	Associated Unit wrapped in blue tarp
	Open	May 2023	C22 Work Room	Associated Unit wrapped in blue tarp
	Open	May 2023	C23 Periodicals	Associated Unit wrapped in blue tarp
	Open	May 2023	C24 Office	Associated Unit wrapped in blue tarp
	Open	May 2023	C25 Teacher Resource Room	Associated Unit wrapped in blue tarp
	Open	May 2023	C27 Creative Studio	Associated Unit wrapped in blue tarp
	Open	May 2023	C28 Maker Space	Associated Unit wrapped in blue tarp
	Open	May 2023	C29 Meeting Room A	Associated Unit wrapped in blue tarp
	Open	May 2023	C30 Meeting Room B	Associated Unit wrapped in blue tarp
	Open	May 2023	C31 Flex Classroom L	Associated Unit wrapped in blue tarp
	Open	May 2023	C32 Flex Classroom R	Associated Unit wrapped in blue tarp
	Open	May 2023	C33 Media Lab	Associated Unit wrapped in blue tarp
	Open	June 2022	C35 TV Production Studio	Does not seem like the right quantity of RGDs for a space this size
	Open	May 2023	C41A Storage	No ventilation or EX
	Open	June 2022	Cafeteria	Cafeteria Serving Area: Many upper windows for the kitchen near RTU-B-3 first reported in 2021 to be cracked/not sealing against the frame properly. A compromised building envelope leads to thermal losses and potential indoor air quality concerns.

Action Taken	Status	Survey Date	Unit/Zone	Indoor Air Quality And Ventilation Issue (194)
	Open	May 2023	D15.1 Stage Storage	Pheumatic valve allowing air to feed this space is not functional
	Open	May 2023	D15.1 Storage	Pheumatic valve allowing air to feed this space is not functional
	Open	May 2023	D25 Under Kitchen Storage	There is no ventilation to this space
	Open	May 2023	D43 Storage	There is no ventilation to this space
	Open	May 2023	DT9 Storage	There is no ventilation to this space
	Open	May 2023	E29.1 Toilet near Boys Locker Room	There is no ventilation to this space
	Open	May 2023	E29.2 Storage	There is no ventilation to this space
	Open	May 2023	ECC00 Early Childhood Center Main Entrance	There is no ventilation to this space
	Open	May 2023	ECC01B Nurse Storage	There is no ventilation to this space
	Open	May 2023	ECC03A Main Office Storage	There is no ventilation to this space
	Open	May 2023	ECC10.1 10 Work Room Storage	There is no ventilation to this space
	Open	June 2022	F03 Classroom	No heating or SA observed, east-facing rooms operable windows only
	Open	June 2022	F06 Classroom	No heating or SA observed, east-facing rooms operable windows only
	Open	June 2022	F07 Classroom	No heating or SA observed, east-facing rooms operable windows only
	Open	June 2022	F09 Classroom	No heating or SA observed, east-facing rooms operable windows only
	Open	June 2022	F10 Classroom	No heating or SA observed, east-facing rooms operable windows only

Action Taken	Status	Survey Date	Unit/Zone	Indoor Air Quality And Ventilation Issue (194)
	Open	June 2022	F11 Classroom	No ventilation
	Open	June 2022	F12 Classroom	No ventilation
	Open	June 2022	F13 Classroom	No ventilation
	Open	June 2022	F14 Classroom	No ventilation
	Open	June 2022	F15 Classroom	No ventilation
	Open	May 2023	F41.1 Storage	No ventilation
	Open	May 2023	F41.2 Elec	Fan not running
	Open	May 2023	F42.1 Data Closet	No ventilation
	Open	May 2023	F42A Black Room	No ventilation
	Open	May 2023	F43 Work Room	No ventilation
	Open	May 2023	G02.1 Elec	No ventilation
	Open	June 2022	HV-D-1	The unit returns air from the mechanical space that it is in (Small Gym MER South). By code, this is not allowed since it will have adverse effects on the indoor air quality. The return air must be ducted to the space or a section of the building where all of the materials are plenum-rated.
	Open	June 2022	HV-D-3	The coil is coated with dust, pollen, and debris; this requires a full cleaning.
	Open	June 2022	HV-D-3	The unit returns air from the mechanical space that it is in (Small Gym MER South). By code, this is not allowed since it will have adverse effects on the indoor air quality. The return air must be ducted to the space or a section of the building where all of the materials are plenum-rated.

Action Taken	Status	Survey Date	Unit/Zone	Indoor Air Quality And Ventilation Issue (194)
	Open	May 2023	M02A Choral Storage	No ventilation
	Open	May 2023	P08A Girls	Has an exhaust grille with no flow
	Open	May 2023	P08B Cust	Has an exhaust grille with no flow
	Open	May 2023	P08C Boys	Has an exhaust grille with no flow
	Open	May 2023	P16A Laundry	No ventilation or EX
	Open	May 2023	P17A Textile Storage	No ventilatiom
	Open	May 2023	P18 Teachers Room	No ventilatiom
	Open	June 2022	P20 Chemistry Science Classroom	Short cycling concern, all RGDs along the same wall
	Open	May 2023	P22 Teachers Room	No ventilation
	Open	May 2023	P25 Faculty	RTU-L1 supply fan does not run
	Open	May 2023	P26 Resource Learning Center	RTU-L1 supply fan does not run
	Open	May 2023	P28 Classroom	RTU-L1 supply fan does not run
	Open	May 2023	P30 Classroom	RTU-L1 supply fan does not run
	Open	May 2023	P30.1 Boys	RTU-L1 supply fan does not run
	Open	May 2023	P30.3 Girls	RTU-L1 supply fan does not run
	Open	May 2023	P31A Greenhouse	No ventilation, radiant only
	Open	May 2023	P35 Classroom	RTU - L1 supply fan does not run
	Open	May 2023	P36 Classroom	RTU - L1 supply fan does not run

Action Taken	Status	Survey Date	Unit/Zone	Indoor Air Quality And Ventilation Issue (194)
	Open	June 2022	RTU-A-1	Filters changes 5/13/22 and are clean (4) 24 x 24 x 2 and (4) 12 x 24 x 2. Unit may not have operated since change.
	Open	June 2022	RTU-A-1	The coil is dirty
	Open	June 2022	RTU-A-1	The unit interior is dirty
	Open	June 2022	RTU-A-1	Unit not operating.
	Open	June 2022	RTU-A-2	The coil is dirty and drain pan crusty
	Open	June 2022	RTU-A-2	The unit interior is dirty
	Open	June 2022	RTU-A-2	Unit not operating
	Open	June 2022	RTU-A-3	Coil very dirty and drain pan crusty
	Open	June 2022	RTU-A-3	Filters changes 5/13/22 and are clean (4) 20 x 25 x 2, Metal prefilter dirty.
	Open	June 2022	RTU-A-3	The condenser coils need to be combed to straighten the fins
	Open	June 2022	RTU-A-4	Coil very dirty and drain pan crusty
	Open	June 2022	RTU-A-4	Filters changes 5/13/22 and are clean (2) 16 x 20 x 2, (1) 14 x 20 x 2, (1) 14 x 25 x 2. No metal prefilter
	Open	May 2023	RTU-A-4	Outside air damper is not modulating
	Open	June 2022	RTU-A-6	AAON Unit not operating. Steam heat
	Open	June 2022	RTU-A-6	Filters changes 5/13/22 and are clean (6) 16 x 20 x 2 and no indication unit has operated since change.
	Open	May 2023	RTU-A-6	This unit is not operational
	Open	June 2022	RTU-A-7	The coil is dirty

Action Taken	Status	Survey Date	Unit/Zone	Indoor Air Quality And Ventilation Issue (194)
	Open	June 2022	RTU-A-7	We found this unit running in 100% return air recirculation.
	Open	May 2023	RTU-B-1	OA and MA dmapers are not responding to command
	Open	June 2022	RTU-B-1	The unit was found off
	Open	May 2023	RTU-B-2	OA and MA dmapers are not responding to command
	Open	June 2022	RTU-C-1	Metal Pre-filter plugged, replace or power if wash does not correct DP
	Open	May 2023	RTU-C-1	Outside air damper is not modulating
	Open	June 2022	RTU-C-1	The condenser coil need cleaning
	Open	June 2022	RTU-C-1	The unit was found not running, and it seems that it hasn't run in a while.
	Open	June 2022	RTU-C-2	Coil slightly dirty, drain pan ok
	Open	June 2022	RTU-C-3	Coil somewhat dirty
	Open	June 2022	RTU-C-3	The 2" pre-filters are dirty
	Open	May 2023	RTU-C-3	The entire unit is wrapped in a blue tarp on the roof
	Open	June 2022	RTU-E-1	Coil very dirty
	Open	May 2023	RTU-E-1	OA damper inkage is broken, damper stuck at 100% open
	Open	June 2022	RTU-E-2	Filters changes 5/13/22 and are clean (8) 24 x 24 x 2. Looks like has not run in a long time.
	Open	June 2022	RTU-E-4	Filters changes 5/13/22 and are clean (8) 24 x 24 x 2. Looks like has not run in a long time.
	Open	May 2023	RTU-E-4	Outside air damper is not modulating

Action Taken	Status	Survey Date	Unit/Zone	Indoor Air Quality And Ventilation Issue (194)
	Open	June 2022	RTU-E-5	Filters changes 5/13/22 and are clean (8) 24 x 24 x 2. Looks like has not run in a long time.
	Open	June 2022	RTU-E-6	Filters are extremely dirty and wet
	Open	June 2022	RTU-E-6	The coil is dirty
	Open	June 2022	RTU-E-6	The unit interior is dirty
	Open	May 2023	RTU-E-8	OA louver is completely clogged
	Open	June 2022	RTU-E-8	The condenser coil should be cleaned
	Open	June 2022	RTU-F-1	The unit interior is very dirty. We observed large sections of rust and corrosion inside the cabinets particularly near the condensate pans.
	Open	June 2022	RTU-F-1	Unit exceeded lifespan and not fully operational
	Open	June 2022	RTU-F-2	Unit exceeded lifespan and not fully operational with many internal issues
	Open	June 2022	RTU-F-2	Unit not operating
	Open	June 2022	RTU-F-4	Unit exceeded lifespan and not fully operational
	Open	June 2022	RTU-L-1	Filters changes 5/13/22 and are clean (4) 24 x 24 x 2 and no indication unit has operated since change.
	Open	June 2022	RTU-L-1	Supply Fan not running as well Return Fan.
	Open	June 2022	RTU-L-1	The coil and the coil section of the unit are dirty
	Open	May 2023	RTU-L-1	This unit is not operational
	Open	June 2022	RTU-L-10	Coil somewhat dirty, should be cleaned
	Open	June 2022	RTU-L-10	Filter changes 5/13/22 and are clean (4) 24 x 24 x 2, system has not run in a while

Action Taken	Status	Survey Date	Unit/Zone	Indoor Air Quality And Ventilation Issue (194)
	Open	June 2022	RTU-L-10	Unit supply fan off. No return fans
	Open	June 2022	RTU-L-11	Facilities staff informed us that this unit was never operational from the beginning, and it has been abandoned in place.
	Open	June 2022	RTU-L-2	Control dampers should be cleaned and lubricated. Dampers were observed with OAD Damper 100& open along with Return Air Damper and Exhaust Damper was closed
	Open	May 2023	RTU-L-2	OA dmapers are not responding to command
	Open	June 2022	RTU-L-2	Supply Fan not running while Return Fan was.
	Open	June 2022	RTU-L-3	Supply Fan AX-58 belt needs replacement
	Open	June 2022	RTU-L-4	Coil dirty but ok and drain pan crusty
	Open	June 2022	RTU-L-5	Coil very dirty and drain pan crusty
	Open	June 2022	RTU-L-5	Filters changes 5/13/22 and are clean. Metal prefilter plugged.
	Open	June 2022	RTU-L-6	Coil somewhat dirty, should be cleaned
	Open	May 2023	RTU-L-6	OA dmapers are not responding to command, 100% Open
	Open	June 2022	RTU-L-7	Coil somewhat dirty, should be cleaned
	Open	June 2022	RTU-L-7	Filter changes 5/13/22 and are clean (4) 24 x 24 x 2, system has not run in a while
	Open	June 2022	RTU-L-7	Unit supply fan belt and fan pulley missing. Return fan also off. Return fan loose.
	Open	June 2022	RTU-L-8	Coil somewhat dirty, should be cleaned
	Open	June 2022	RTU-L-9	Coil very dirty

Action Taken	Status	Survey Date	Unit/Zone	Indoor Air Quality And Ventilation Issue (194)
	Open	June 2022	RTU-L-9	Filters changes 5/13/22 and are clean (4) 12 x 24 x 2 and (4) 24 x 24 x 2. Unit may not have operated since change.
	Open	June 2022	RTU-L-9	The unit was found off, but the outside air damper remained at 100% open. This should be closed whenever the unit is off, but it is unclear if the damper is stuck or if this is a sequence issue.
	Open	June 2022	RTU-W-1	Coil very dirty
	Open	June 2022	RTU-W-1	Control dampers should be cleaned and lubricated. No FA being introduced
	Open	May 2023	RTU-W-1	OA and MA dmapers are not responding to command
	Open	June 2022	RTU-W-1	SF A-49 Belt loose and RF Pully off Fan Wheel. A-52 Belt
	Open	May 2023	RTU-W-3	OA and MA dmapers are not responding to command
	Open	June 2022	RTU-W-3	Supply Fan AX 58 belt and Fan Wheel wobbling generating humming noise. Bearings may be bad
	Open	June 2022	RTU-W-3	There is too much bypass in the filter rack
	Open	May 2023	RTU-W-4	OA and MA dmapers are not responding to command
	Open	June 2022	RTU-W-4	There is too much bypass in the filter rack
	Open	June 2022	RTU-W-5	Filters changes 5/13/22 20x35x1, Cheap filter, frame should handle 2” filter
	Open	June 2022	RTU-W-6	Control dampers should be cleaned and lubricated. No FA being introduced
	Open	June 2022	RTU-W-6	DX Coil dirty
	Open	June 2022	RTU-W-6	The filters seem to be slightly oversized. The door of the unit crushes the filter when closed and forms small bypasses.

Action Taken	Status	Survey Date	Unit/Zone	Indoor Air Quality And Ventilation Issue (194)
	Open	June 2022	RTU-W-8	Control dampers should be cleaned and lubricated. No FA being introduced
	Open	June 2022	RTU-W-8	DX Coil dirty
	Open	June 2022	RTU-W-8	Metal O.A. filters very dirty, should be replaced or power washed clean
	Open	June 2022	RTU-W-8	The filters seem to be slightly oversized. The door of the unit crushes the filter when closed and forms small bypasses.
	Open	June 2022	RTU-W-9	Area not provided with any supply ventilation
	Open	June 2022	RTU-W-9	Facilities staff informed us that this unit was never operational from the beginning, and it has been abandoned in place.
	Open	June 2022	RTU-W-9	Unit not operating and is disrepair
	Open	June 2022	T01.6 Data	No supplemental cooling, very warm
	Open	May 2023	T16B Storage	No ventialtion or EX
	Open	June 2022	T18 Physics Science Classroom	Short cycling concern, all RGDs along the same wall
	Open	June 2022	T22 Science Classroom	Short cycling concern, all RGDs along the same wall
	Open	June 2022	T23 Classroom	Short cycling concern, all RGDs along the same wall
	Open	May 2023	T27.1 Storage	There is ventilation to this space
	Open	May 2023	T27.2 Storage	There is ventilation to this space
	Open	May 2023	A06A Work Room	This space has no ventilation
	Open	May 2023	A06D Wood Storage	There is no ventilation to this space
	Open	May 2023	A07 Transportation / Automotive Shop	RTU-A6 serves this area and has not run in 15+ years

Action Taken	Status	Survey Date	Unit/Zone	Indoor Air Quality And Ventilation Issue (194)
	Open	May 2023	A07A Automotive Project Room/Storage	No ventilation or EX
	Open	May 2023	A07B Tool Room	There is no ventilation to this space
	Open	May 2023	A08A Black Box Storage	There is no ventilation to this space

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 in the 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	Survey Date	Unit/Zone	Maintenance Issue (106)
	Open	June 2022	A03.1 Storage	Damaged ceiling
	Open	June 2022	A05C Cl#2 Storage	HOT, data rack and copier located here
	Open	June 2022	C03 Pupil Personnel Admin Conference	Usually cold, electric baseboard heater
	Open	June 2022	C12 Archive	Warm
	Open	June 2022	C23 Periodicals	Warm
	Open	May 2023	C40 Elec	EF makes excessive noise when on
	Open	May 2023	DT8 Toilet	Stand alone EF not operating
	Open	June 2022	Exhaust Fans	The A-wing Plymovent EF guywires are not affixed to the roof anymore.
	Open	June 2022	F01.3 Meeting Room	Flourescent lights emit distinct buzz
	Open	June 2022	F04 Classroom	Really louad 8"x12" SA diffuser in corridor just outside of this room, No heating
	Open	June 2022	F05 Classroom	No heating
	Open	June 2022	F08 Science Classroom	No heating
	Open	June 2022	F08A Prep Room	No heating
	Open	June 2022	F19.1 (2F) Data	Really louad 8"x12" SA diffuser in corridor just outside of this room

Action Taken	Status	Survey Date	Unit/Zone	Maintenance Issue (106)
	Open	June 2022	F23 Science Classroom	Rumbling in the corridor above ceiling
	Open	June 2022	General RTU	General Comment: It had been observed that many filter racks at Warde are distorted / have screws along the length that catch the filters as they are moved in or out, causing some damage upon changeout. We observed many filters damage during installation. We recommend straightening the racks and fixing bypasses created in this way.
	Open	June 2022	General RTU	General Comment: Most HVAC fan squirrel cages were in need of being cleaned.
	Open	May 2023	P06 Classroom	RTU-7 missing fan sheave
	Open	May 2023	P08 Classroom	RTU-7 missing fan sheave
	Open	June 2022	P09 Computer Lab	Loud SA
	Open	May 2023	P09 Computer Lab	RTU-7 missing fan sheave
	Open	May 2023	P10 Classroom	RTU-7 missing fan sheave
	Open	May 2023	P11 Classroom	RTU-7 missing fan sheave
	Open	June 2022	P38A Career Center Initial Evaluation Office	Loud SA
	Open	June 2022	P40.1 Curriculum Conference/Meeting	Loud SA
	Open	June 2022	P40.S Curriculum South Office	Loud SA
	Open	June 2022	RTU-A-1	The filter section lower door handle is broken in the shut position
	Open	June 2022	RTU-A-2	Control dampers seals coming off the condenser coils need to be combed to straighten the fins
	Open	June 2022	RTU-A-2	The dampers need to be lubricated

Action Taken	Status	Survey Date	Unit/Zone	Maintenance Issue (106)
	Open	June 2022	RTU-A-2	The supply air duct insulation seams are coming undone near the steam coil. There appear to be some sections where the duct is leaking, as evidenced by the insulation ballooning. With the insulation damaged, water could get into the ductwork in these locations, so it should be patched wherever possible.
	Open	June 2022	RTU-A-3	Control dampers should be cleaned and lubricated. ODA cracked
	Open	June 2022	RTU-A-3	The condenser fans are imbalanced
	Open	June 2022	RTU-A-3	There was excessive water found in the filter section of the unit. Some debris was noted in the water; and should be cleaned out.
	Open	June 2022	RTU-A-4	Control dampers should be cleaned and lubricated. Dampers were observed with OAD Damper closed.
	Open	June 2022	RTU-A-4	The unit was running but the DX cooling was not operating. We would have expected it to, given the conditions.
	Open	June 2022	RTU-A-5	Control dampers package flapper style. With a 50-degree day no outside air was being introduced
	Open	June 2022	RTU-A-6	Control dampers should be cleaned and lubricated.
	Open	June 2022	RTU-A-6	For the unit serving Technical Education, the unit nameplate tags this unit at RTU-A-3, but that designation is taken by another unit. The previous list had this unit as “AC-E-6” but this building section is still A. For this report, the unit is designated as “RTU-A-6”.
	Open	June 2022	RTU-A-7	For the unit serving the Early Childhood Center, the unit nameplate tags this unit at RTU- A-1, but that designation is taken by another unit. The previous list had this unit as “AC- E-7” but this building section is still A. For this report, the unit is designated as “RTU-A- 7”.

Action Taken	Status	Survey Date	Unit/Zone	Maintenance Issue (106)
	Open	June 2022	RTU-A-7	Piping insulation inside of the unit is damaged
	Open	June 2022	RTU-A-7	The condensate pan is dirty and needs to be cleaned out
	Open	June 2022	RTU-A-7	With the positioning of the ductwork and piping for this unit, access is impossible without stepping on one or the other. This has led to the insulation being crushed, which compromised both the vapor barrier and the effectiveness of the insulation. Additionally, the ductwork itself seems to have been damaged. Repairing the damaged insulation and installing a permanent means of accessing this unit are recommended to prevent future damage.
	Open	June 2022	RTU-B-3	Debris was found inside of the unit
	Open	June 2022	RTU-C-1	A 55 belt, could be tighter
	Open	June 2022	RTU-C-1	Coil clean for its age, trap should be replaced.
	Open	June 2022	RTU-C-1	Control dampers should be cleaned and lubricated and adjusted.
	Open	June 2022	RTU-C-2	25.0 HP supply fan, belts appear loose.
	Open	June 2022	RTU-C-2	Access to this unit is precarious. Recommend installing a permanent stair/ladder to safely traverse over the solar panel electrical conduit.
	Open	June 2022	RTU-C-2	Control dampers should be cleaned adjusted, reconnected, and lubricated.
	Open	June 2022	RTU-C-2	Lightning cable needs to be refastened to top of RTU
	Open	June 2022	RTU-C-3	Control dampers should be cleaned and lubricated.
	Open	June 2022	RTU-C-3	Supply ductwork membrane cut, water infiltration, should be repaired.
	Open	June 2022	RTU-E-2	Control damper should be cleaned and lubricated.

Action Taken	Status	Survey Date	Unit/Zone	Maintenance Issue (106)
	Open	June 2022	RTU-E-4	Control damper should be cleaned and lubricated.
	Open	June 2022	RTU-E-6	The condensate pan is dirty and needs to be cleaned out
	Open	June 2022	RTU-E-6	Unit nameplate is missing, could not confirm model/serial
	Open	June 2022	RTU-E-8	The fan belt is incredibly loose and is whipping around on the pulleys, though it has not yet fallen off.
	Open	June 2022	RTU-F-1	The supply fan belt is loose
	Open	June 2022	RTU-F-1	The supply fan is imbalanced
	Open	June 2022	RTU-F-2	The supply fan belt is loose
	Open	June 2022	RTU-F-2	The supply fan is imbalanced
	Open	June 2022	RTU-F-4	The damper actuator linkage was detached, and the damper were found locked in place at approximately 90% return air position.
	Open	June 2022	RTU-F-4	The supply fan belt is loose
	Open	June 2022	RTU-F-4	The supply fan is imbalanced
	Open	June 2022	RTU-H-6	This unit was found above the auditorium with no nameplate and only the label “AC-H- 6” painted on the side. It is assumed to not be needed since RTU-AUD now serves the auditorium.
	Open	June 2022	RTU-L-1	Control dampers should be cleaned and lubricated.
	Open	June 2022	RTU-L-1	The condensate pan is dirty and needs to be cleaned out
	Open	June 2022	RTU-L-10	Control dampers should be cleaned and lubricated.

Action Taken	Status	Survey Date	Unit/Zone	Maintenance Issue (106)
	Open	June 2022	RTU-L-2	The condensate pan is dirty and needs to be cleaned out
	Open	June 2022	RTU-L-3	18 Kw Electric heat at 460V wires look frayed
	Open	June 2022	RTU-L-3	Control dampers should be cleaned and lubricated. ODA damper cracked open
	Open	June 2022	RTU-L-3	Filters changes 5/13/22 starting to show fouling (change frequently). (4) 20 x 25 x 2. Filters 3' Longer than track but sealed ok
	Open	June 2022	RTU-L-4	Control dampers should be cleaned and lubricated.
	Open	June 2022	RTU-L-4	This unit is mounted directly on the roof without some sort of structural/acoustic base. It is one of the smaller units, but this is still not advised. Sits too close to roof deck edge
	Open	June 2022	RTU-L-5	(4) 20"x25"x2" Unit no cooling during inspection.
	Open	June 2022	RTU-L-5	Control dampers should be cleaned and lubricated and adjusted,
	Open	June 2022	RTU-L-6	The supply fan belt is loose
	Open	June 2022	RTU-L-7	Control dampers should be cleaned and lubricated.
	Open	May 2023	RTU-L-7	Unit is missing fan sheave
	Open	June 2022	RTU-L-9	The mixed air damper shaft is disconnected from the actuator at the linkage
	Open	June 2022	RTU-M-1	There is no safe access to this unit. Planks are used to bridge the gap between the nearby roof and the unit itself
	Open	June 2022	RTU-W-1	The duct insulation vapor barrier is compromised where it connects to the unit. This should be sealed to prevent damage to the insulation.

Action Taken	Status	Survey Date	Unit/Zone	Maintenance Issue (106)
	Open	June 2022	RTU-W-1	Wasps have infested the unit exterior; we advise caution when nearby
	Open	May 2023	RTU-W-2	Belts on supply fan are loose
	Open	June 2022	RTU-W-2	Control dampers should be cleaned and lubricated. ODA damper cracked open
	Open	June 2022	RTU-W-3	Control dampers should be cleaned and lubricated. ODA damper cracked open
	Open	June 2022	RTU-W-3	Filters changes 5/13/22 starting to show fouling (change frequently). (4) 20 x 25 x 2. Filters 3' Longer than track but sealed ok
	Open	June 2022	RTU-W-3	The condenser fans are imbalanced, causing excessive rattling
	Open	June 2022	RTU-W-3	The supply fan squirrel cage is wobbling, and the belt is slightly loose
	Open	June 2022	RTU-W-4	Filters changes 5/13/22 starting to show fouling (change frequently). (4) 20 x 25 x 2. Filters 3' Longer than track but sealed ok
	Open	June 2022	RTU-W-4	The condenser fans are imbalanced, causing excessive rattling
	Open	June 2022	RTU-W-5	Control dampers under package unit control
	Open	June 2022	RTU-W-6	Drain pan crusty
	Open	June 2022	RTU-W-6	The condenser fans are imbalanced, causing excessive rattling
	Open	May 2023	RTU-W-7	RA damper not functioning and is 100% open
	Open	June 2022	RTU-W-7	Supply fan spring isolators missing bolts ready to fall apart
	Open	June 2022	RTU-W-7	The supply fan belts are loose
	Open	June 2022	RTU-W-8	Drain pan crusty

Action Taken	Status	Survey Date	Unit/Zone	Maintenance Issue (106)
	Open	June 2022	RTU-W-8	The condensate trap is not the right height for a draw-through configuration, causing too little condensate to drain out.
	Open	June 2022	RTU-W-8	The duct insulation vapor barrier is compromised where it connects to the unit. This should be sealed to prevent damage to the insulation.
	Open	May 2023	T16.2 Elec	Stand alone EF not operating
	Open	May 2023	T24.1 Data	The stand alone EF serving this space is not operating
	Open	June 2022	T27 Learning Center (Formerly Motor Room)	Loud SA
	Open	June 2022	T29 Classroom	Loud SA
	Open	June 2022	T31.1 Faculty Men Restroom	Loud SA
	Open	June 2022	T33 Biology Science Classroom	Loud SA

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	Survey Date	Unit/Zone	Control Issue (40)
	Open	June 2022	C41A Storage	BAS controls located here obstructed by materials
	Open	May 2023	HV-01	Unit is not taking commands from S4 Device
	Open	May 2023	P13 Kitchen Classroom	Tested on hand, unit not run on auto
	Open	May 2023	P16 Kitchen	Tested on hand, unit does not run on auto
	Open	May 2023	P20 Chemistry Science Classroom	Not under control by ALC
	Open	May 2023	P21 Prep	Not under control by ALC
	Open	May 2023	P21A Science Office	Not under control by ALC
	Open	May 2023	P23 Chemistry Science Classroom	Not under control by ALC
	Open	June 2022	RTU-A-1	Control dampers should be cleaned and lubricated with 100 % open while unit is off
	Open	June 2022	RTU-A-2	Control dampers should be cleaned and lubricated and do not look like they have operated for a long time. ODA cracked <15%
	Open	May 2023	RTU-A-7	MA damper is broken in the unit
	Open	June 2022	RTU-A-7	The programming module was found within the unit control cabinet, plugged into the convenience receptacle on the exterior of the unit with an extension cord. Upon discussion with the

Action Taken	Status	Survey Date	Unit/Zone	Control Issue (40)
				facilities staff, they informed us that unit does not receive a cooling signal command from the control system. Whenever cooling is desired, somebody needs to go to the roof and manually enable it. This manual enable only lasts for 75 minutes when it would need to be re-enabled. This is not something that would have been corrected with the controller upgrade by ALC, so further investigation should be done.
	Open	June 2022	RTU-B-2	This unit was operating with much higher airflow than expected compared to RTU-B-1 and 3.
	Open	June 2022	RTU-B-3	Some of the control relays appear to have burned out and should be changed
	Open	June 2022	RTU-C-2	Filters changes 5/13/22 clean due to no outdoor air. Found damper linkage unhooked, nut and bolt laying inside unit. Damper appears to be asking for economizer. Relief dampers closed, negative pressure, manually opened O.A damper relief cracked slightly.
	Open	June 2022	RTU-E-1	Control dampers should be cleaned and lubricated with 100 % open while unit is off.
	Open	June 2022	RTU-E-1	York unit not operating in Auto. Disconnect broken with no linkage rod.
	Open	May 2023	RTU-E-2	Controls have no communication with these units
	Open	June 2022	RTU-E-2	York unit not operating in Auto. Disconnect broken with no linkage rod.
	Open	May 2023	RTU-E-3	Controls have no communication with these units
	Open	June 2022	RTU-E-4	York unit not operating in Auto. Disconnect broken with no linkage rod.
	Open	June 2022	RTU-E-5	York unit operating in Auto. Disconnect broken with no linkage rod.
	Open	May 2023	RTU-E-6	Controls have no communication with these units
	Open	May 2023	RTU-F-1	Controls have no communication with these units

Action Taken	Status	Survey Date	Unit/Zone	Control Issue (40)
	Open	June 2022	RTU-F-1	The DX cooling was not running at the time of inspection, but we would have expected it to be given the conditions.
	Open	June 2022	RTU-F-1	The mixed air damper jackshaft is bent, possibly from over torquing. Dampers should be cleaned and lubricated to free up movement, along with the jackshaft being replaced.
	Open	May 2023	RTU-F-2	Unit is not in the control system
	Open	May 2023	RTU-L-10	Unit only runs in Hand
	Open	May 2023	RTU-L-3	Unit controller does not respond to command
	Open	June 2022	RTU-L-6	Control dampers should be cleaned and lubricated. Dampers were 100 % open while unit was off.
	Open	June 2022	RTU-L-6	Unit supply fan would not run-in auto, only in hand. Return fan on.
	Open	June 2022	RTU-L-8	Control dampers should be cleaned and lubricated. Dampers were 100 % open while unit was off.
	Open	May 2023	RTU-L-8	Unit controller does not respond to command
	Open	June 2022	RTU-L-8	Unit supply fan would not run-in auto, only in hand. Return fan on.
	Open	June 2022	RTU-L-9	Control dampers should be cleaned and lubricated with 100 % open while unit is off.
	Open	May 2023	RTU-L-9	Unit only runs in Hand
	Open	June 2022	RTU-L-9	York unit not operating in Auto. Disconnect broken with no linkage rod.
	Open	June 2022	RTU-W-4	Control dampers under package unit control with ODA damper fully closed. should be cleaned and lubricated.
	Open	June 2022	RTU-W-5	This new unit, and similar units, have packaged economizer control. This means that commands

Action Taken	Status	Survey Date	Unit/Zone	Control Issue (40)
				from the building automation system will not necessarily be able to open the outside air dampers if additional ventilation is desired when the unit controller decides that conditions are not favorable to do so. As part of improvements for increasing ventilation, the controls system should be reviewed, and devices/wiring should be adjusted to accommodate these commands.
	Open	June 2022	RTU-W-7	Control dampers should be cleaned and lubricated and adjusted. O.A. damper did not close on shut down.

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.

Action Taken	Status	Survey Date	Unit/Zone	Information Only Findings (51)
	Info Only	May 2023	A01.5B Project Room	Layout changed, room does not exist
	Info Only	May 2023	A01A OT/PT Storage (Project Room)	Layout changed, room does not exist
	Info Only	June 2022	B.01 Boiler Room	General Note: Many subrooms are not identified with room numbers
	Info Only	June 2022	B01.1 Boys near School Store	No door, open to corridor
	Info Only	June 2022	B04A Storage	GGM key does not work on this door, ask for assistance
	Info Only	May 2023	B04A Storage	Associated Unit removed
	Info Only	May 2023	B04B Dishwashing	Associated Unit removed
	Info Only	May 2023	B04C Storage	Associated Unit removed
	Info Only	May 2023	B04D FRZR	Associated Unit removed
	Info Only	June 2022	B04H Dry Storage	GGM key does not work on this door, ask for assistance
	Info Only	June 2022	B5A Office	GGM key does not work on this door, ask for assistance
	Info Only	May 2023	C01 The Bubble/Math Resource	This area is part of the main office
	Info Only	June 2022	C06 Testing Room/Office	GGM key does not work on this door, ask for assistance
	Info Only	May 2023	C36A MDF	+ Wall split unit
	Info Only	May 2023	F19.1 (2F) Data	Wall split unit

Action Taken	Status	Survey Date	Unit/Zone	Information Only Findings (51)
	Info Only	May 2023	G03 Fitness Center	This unit is on/off only. No VFD.
	Info Only	May 2023	G05.1 Storage	This unit is on/off only. No VFD.
	Info Only	May 2023	G05.2 Storage	This unit is on/off only. No VFD.
	Info Only	May 2023	G07 Office	This unit is on/off only. No VFD.
	Info Only	May 2023	G07.1 Storage	This unit is on/off only. No VFD.
	Info Only	May 2023	G07.2 Storage	This unit is on/off only. No VFD.
	Info Only	May 2023	G08 Office	This unit is on/off only. No VFD.
	Info Only	May 2023	G08.1 Toilet	This unit is on/off only. No VFD.
	Info Only	May 2023	G09 Coaches Locker Room	This unit is on/off only. No VFD.
	Info Only	May 2023	G14 Team Room	This unit is on/off only. No VFD.
	Info Only	May 2023	G1A/B Wrestling Room	This unit is no longer being used
	Info Only	May 2023	M01 Orchestra	This RTU is on/off only. No VFD.
	Info Only	June 2022	P08A Girls	No door, open to corridor
	Info Only	June 2022	P08C Boys	No door, open to corridor
	Info Only	May 2023	P19 Teachers Room	Wall split unit only
	Info Only	May 2023	P24.1 2P Data	Wall split unit only
	Info Only	June 2022	P30.3 Girls	No door, open to corridor
	Info Only	May 2023	RTU-A-1	Unit is only 100% OA
	Info Only	May 2023	RTU-A-6	Unit is only 100% OA

Action Taken	Status	Survey Date	Unit/Zone	Information Only Findings (51)
	Info Only	June 2022	RTU-B-2	The top filters were found installed facing the wrong direction. We faced them correctly.
	Info Only	June 2022	RTU-C-1	York unit like W-6, W-8. Older but may have life left
	Info Only	June 2022	RTU-C-3	York unit like W-6, W-8. Older but functional
	Info Only	June 2022	RTU-L-11	This MagicAire unit, located on the L roof, does not have an actual designation.
	Info Only	June 2022	RTU-L-4	York unit like W-6, W-8. Older but functional
	Info Only	June 2022	RTU-L-5	York unit like W-6, W-8. Older but functional
	Info Only	June 2022	RTU-L-6	Filter safe off plated missing. Cx reinstalled. Filters changes 5/13/22 and are clean (4) 24 x 24 x 2
	Info Only	June 2022	RTU-W-6	SF Belt A-54 Belt, constant speed no VFD
	Info Only	June 2022	RTU-W-7	Steam heating Coil clean, drain pan ok, no cooling
	Info Only	June 2022	RTU-W-8	SF Belt AX-58 Belt, constant speed no VFD
	Info Only	June 2022	RTU-W-9	This MagicAire unit, located on the W roof, does not have an actual designation.
	Info Only	June 2022	T07.1 Girls	No door, open to corridor
	Info Only	June 2022	T07.3 Boys	No door, open to corridor
	Info Only	May 2023	T23 Classroom	Print says unit is defunct
	Info Only	May 2023	T23A Work Room	Room no longer exists
	Info Only	June 2022	T35 Special Ed. Coord. Waiting Area	GGM key does not work on this door, ask for assistance
	Info Only	June 2022	T38 Security Office	New walls, double office but not full separation. 110 ft^2 rear, 230 ft^2 front

APPENDIX 2 – Ventilation Data Calculations

Project Name:	**Fairfield Public Schools RCx & TAB Study**
Project Number:	**2020102.00.06**
Scope	**Ventilation Calculation by Building**
Date	**May 31, 2023**

Fairfield Warde High School

VANZELM ENGINEERS

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	A01	Observation	Offices	Office spaces	**152**	0%	20%	RTU-A4	255	9.5	2423	5	5.0	0.06	5	40	**0**	-40	-100.0%	**Fails**	**0.000**
1	A01.1	Storage	None	None	**68**	0%	20%	RTU-A4	25	9.2	230	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	A01.2	Toilet	Public Spaces	Toilet rooms - public	**101**	0%	20%	RTU-A4	55	9	495	1	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	A01.5	Maint/Carpenter	Storage	Warehouses	**-70**	---	---	EF-B1	150	8	1200	2	0.0	0.06	0	9	**0**	-9	-100.0%	**Fails**	**0.000**
1	A01.5.1	Janitor near A1.5 Maint/Carpenter	Storage	Warehouses	**-200**	---	---	EF-B1	50	10.3	515	1	0.0	0.06	0	3	**0**	-3	-100.0%	**Fails**	**0.000**
1	A01.5A	Central Service Work Room	Storage	Warehouses	**20**	0%	20%	RTU-A4	600	9	5400	6	0.0	0.06	0	36	**0**	-36	-100.0%	**Fails**	**0.000**
1	A01.5B	Project Room	Storage	Warehouses	**0**	---	---	---	120	11.6	1392	0	0.0	0.06	0	7	**0**	-7	-100.0%	**Fails**	**0.000**
1	A01.5C	Office	Offices	Office spaces	**0**	---	---	---	112	9	1008	1	5.0	0.06	5	12	**0**	-12	-100.0%	**Fails**	**0.000**
1	A01.5D	Maintenance Locker Room	Storage	Warehouses	**-30**	0%	20%	RTU-A4 + EF-B1	200	8	1600	2	0.0	0.06	0	12	**0**	-12	-100.0%	**Fails**	**0.000**
1	A01A	OT/PT Storage (Project Room)	None	None	**0**	---	---	---	41	8.5	349	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	A02	Child Development	Education	Day Care (through age 4)	**921**	36%	20%	RTU-A2	1100	9.3	10230	24	10.0	0.18	25	438	**332**	-106	-24.2%	**Fails**	**1.947**
1	A03	CAD Room	Education	Computer lab	**1355**	36%	20%	RTU-A2	1300	10.1	13130	27	10.0	0.12	25	426	**488**	62	14.6%	**Meets**	**2.230**
1	A03.1	Storage	None	None	**46**	36%	20%	RTU-A2	52	9.6	499	0	0.0	0.00	0	0	**17**	17	0.0%	N/A	**2.043**
1	A04	Graphic Arts	Education	Computer lab	**2417**	18%	10%	RTU-3	2500	10.1	25250	28	10.0	0.12	25	580	**435**	-145	-25.0%	**Fails**	**1.034**
1	A05	Computer Repair	Education	Computer lab	**1296**	36%	20%	RTU-A2	1265	10.1	12777	28	10.0	0.12	25	432	**467**	35	8.2%	**Meets**	**2.193**
1	A05A	South Storage	None	None	**134**	36%	20%	RTU-A2	85	8	680	3	0.0	0.00	0	0	**48**	48	0.0%	N/A	**4.235**
1	A05B	Cl#1 Storage	None	None	**77**	36%	20%	RTU-A2	45	9.5	428	1	0.0	0.00	0	0	**28**	28	0.0%	N/A	**3.930**
1	A05C	Cl#2 Storage	None	None	**109**	36%	20%	RTU-A2	45	9.5	428	1	0.0	0.00	0	0	**39**	39	0.0%	N/A	**5.474**
1	A05D	Cl#3 Storage	None	None	**159**	36%	20%	RTU-A2	45	9.5	428	1	0.0	0.00	0	0	**57**	57	0.0%	N/A	**8.000**
1	A06	Wood Shop	Education	Wood/metal shops	**4162**	100%	100%	RTU-A1	2700		0	28	10.0	0.18	20	766	**4162**	3396	443.3%	**Meets**	
1	A06A	Work Room	Workrooms	Copy, printing rooms	**0**	---	---	---	190	8	1520	2	5.0	0.06	4	21	**0**	-21	-100.0%	**Fails**	**0.000**

Project Name:	**Fairfield Public Schools RCx & TAB Study**
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Scope	**Ventilation Calculation by Building**
Date	**May 31, 2023**

Fairfield Warde High School

VANZELM ENGINEERS

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	A06B	Office	Offices	Office spaces	**38**	100%	100%	RTU-A1	443	176	5331	2	5.0	0.06	5	37	**38**	1	3.9%	**Meets**	**0.428**
1	A06C	Storage	None	None	**-211**	---	---	EX	35	8.5	298	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	A06D	Wood Storage	Storage	Warehouses	**0**	------	---	---	275		0	1	0.0	0.06	0	17	**0**	-17	-100.0%	**Fails**	
1	A07	Transportation / Automotive Shop	Education	Wood/metal shops	**0**	---		EF-A2	2850	15	42750	28	10.0	0.18	20	793	**0**	-793	-100.0%	**Fails**	**0.000**
1	A07.1	Boys near Automotive	Public Spaces	Toilet rooms - public	**-166**	---	---	EF-A2	131	9.3	1218	2	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	A07.2	Janitor	Storage	Warehouses	**-122**	---	---	EF-A2	26	9.3	242	1	0.0	0.06	0	2	**0**	-2	-100.0%	**Fails**	**0.000**
1	A07.3	Girls near Automotive	Public Spaces	Toilet rooms - public	**-320**	---	---	EF-A2	263	9.3	2446	2	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	A07A	Automotive Project Room/Storage	Storage	Warehouses	**0**	---	---	---	110	11.9	1309	2	0.0	0.06	0	7	**0**	-7	-100.0%	**Fails**	**0.000**
1	A07B	Tool Room	Education	Wood/metal shops	**0**	---	---	---	250	11.9	2975	4	10.0	0.18	20	85	**0**	-85	-100.0%	**Fails**	**0.000**
1	A08	Black Box Theater	Theaters	Stages, studios	**2340**	23%	10%	RTU-A5	1150	17.2	19780	50	10.0	0.06	70	569	**528**	-41	-7.2%	**Fails**	**1.602**
1	A08A	Black Box Storage	Storage	Warehouses	**0**	---	---	---	65	10	650	0	0.0	0.06	0	4	**0**	-4	-100.0%	**Fails**	**0.000**
B	B.01	Boiler Room	None	None	**0**	---	---	---	1500	15	22500	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
B	B.02	Ejector Pit	None	None	**0**	---	---	---	315	20	6300	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
B	B.03	Vault	None	None	**0**	---	---	---	275	6.5	1788	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
B	B.04	Elec	None	None	**0**	---	---	---	760	6.5	4940	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
B	B.05	Storage	None	None	**0**	---	---	---	1375	9	12375	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
B	B.06	Storage	None	None	**0**	---	---	---	825	9	7425	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
B	B.07	Receiving	None	None	**0**	---	---	---	2900	9	26100	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
B	B.08	Men	Public Spaces	Toilet rooms - public	**0**	---	---	---	40	8	320	1	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
B	B.09	Women	Public Spaces	Toilet rooms - public	**0**	---	---	---	40	8	320	1	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
B	B.10	Storage	None	None	**0**	---	---	---	1350	9	12150	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**

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Fairfield Warde High School

VANZELM ENGINEERS

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)
B	B.11	Storage	None	None	**0**	---	---	---	300	9	2700	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
B	B.12	Storage	None	None	**0**	---	---	---	1950	9	17550	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
B	B.13	Storage	None	None	**0**	---	---	---	901	9	8109	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
B	B.14	Freezer	None	None	**0**	---	---	---	200	7	1400	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
B	B.15	Storage	None	None	**0**	---	---	---	7000	9	63000	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	B01	School Store	Retail stores, sales floors and showroom floors	Sales (except as below)	**611**	28%	20%	RTU-B3	200	9.4	1880	2	7.5	0.12	15	39	**171**	132	338.5%	**Meets**	**5.457**
1	B01.1	Boys near School Store	Public Spaces	Toilet rooms - public	**-104**	---	------	EF-B1	75	8	600	2	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	B01.2	Girls near School Store	Public Spaces	Toilet rooms - public	**0**	---	---	EF-B1	65	8	520	1	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	B02	Faculty Dining	Food and beverage service	Cafeteria, fast food	**0**	28%	20%	RTU-B3	1000	9.1	9100	12	7.5	0.18	100	270	**409**	139	51.5%	**Meets**	**2.697**
1	B03	Student Activity Center	Education	Multiuse assembly	**3172**	100%	50%	RTU-B2	1300	17.5	22750	72	7.5	0.06	100	618	**3172**	2554	413.3%	**Meets**	**8.366**
1	B03	Cafeteria	Food and beverage service	Cafeteria, fast food	**0**	---	---	---	5430	9.3	50499	436	7.5	0.18	100	4247	**0**	-4247	-100.0%	**Fails**	**0.000**
1	B03A	Student Office	Offices	Office spaces	**302**	100%	50%	RTU-B2	200	13	2600	2	5.0	0.06	5	22	**302**	280	1272.7%	**Meets**	**6.969**
1	B03B	Student Office	Offices	Office spaces	**508**	100%	50%	RTU-B2	200	13	2600	2	5.0	0.06	5	22	**508**	486	2209.1%	**Meets**	**11.723**
1	B03C	Student Gallery	Education	Multiuse assembly	**193**	100%	50%	RTU-B2	375	9	3375	10	7.5	0.06	100	98	**193**	96	97.9%	**Meets**	**3.431**
1	B04	Kitchen	Food and beverage service	Kitchens (cooking)	**880**	100%	100%	RTU-B1	1550	13.6	21080	12	0.0	0.00	0	0	**880**	880	0.0%	N/A	**2.505**
1	B04A	Storage	None	None	**0**	100%	50%	RTU-B2	161	8.9	1433	1	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	B04B	Dishwashing	Food and beverage service	Kitchens (cooking)	**0**	0	0	RTU-B1	225	8.9	2003	3	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	B04C	Storage	None	None	**0**	100%	100%	MVA	95	8.8	836	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	B04D	FRZR	None	None	**0**	---	---	RTU-B1	100	8	800	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	B04E	REFR	None	None	**0**	---	---	---	100	8	800	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	B04F	Cust	Storage	Warehouses	**-406**	---		EX	80	10.5	840	1	0.0	0.06	0	5	**0**	-5	-100.0%	**Fails**	**0.000**

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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)
B	B04G	Filter Storage (under café)	None	None	**0**	---	---	---	3370	9	30330	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	B04H	Dry Storage	None	None	**0**	0	0	---	95	8.9	846	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	B04I	Laundry	None	None	**0**	---	---	---	53	8.6	456	1	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	B05	Servery	Food and beverage service	Dining Rooms	**1840**	100%	100%	RTU-B1	1650	8.5	14025	100	7.5	0.18	70	1047	**1840**	793	75.7%	**Meets**	**7.872**
1	B5A	Office	Offices	Office spaces	**0**	100%	100%	RTU-B1	90	8.6	774	2	5.0	0.06	5	15	**0**	-15	-100.0%	**Fails**	**0.000**
1	BT4	Women	Public Spaces	Toilet rooms - public	**-108**	---	---	EF-B1	112	8.6	963	1	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	BT5	Men	Public Spaces	Toilet rooms - public	**-139**	---	---	EF-B1	57	8.6	490	1	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	C01	The Bubble/Math Resource	Education	Classroom (ages 9+)	**0**	---	---	---	535	10.5	5618	10	10.0	0.12	35	164	**0**	-164	-100.0%	**Fails**	**0.000**
1	C02	Main Office	Offices	Office spaces	**404**	NA	NA	RTU-C-3	1250	9.5	11875	6	5.0	0.06	5	105	**0**	-105	-100.0%	**Fails**	**0.000**
1	C03	Pupil Personnel Admin Conference	Offices	Conference rooms	**152**	NA	NA	RTU-C-3	325	8.5	2763	10	5.0	0.06	50	70	**0**	-70	-100.0%	**Fails**	**0.000**
1	C04	Office	Offices	Office spaces	**99**	NA	NA	RTU-C-3	175	9.1	1593	5	5.0	0.06	5	36	**0**	-36	-100.0%	**Fails**	**0.000**
1	C05	Mail Room	Offices	Office spaces	**93**	NA	NA	RTU-C-3	160	9.1	1456	2	5.0	0.06	5	20	**0**	-20	-100.0%	**Fails**	**0.000**
1	C06	Testing Room/Office	Offices	Office spaces	**110**	NA	NA	RTU-C-3	150	9.1	1365	1	5.0	0.06	5	14	**0**	-14	-100.0%	**Fails**	**0.000**
1	C07	Student Services	Offices	Office spaces	**90**	NA	NA	RTU-C-3	230	9	2070	5	5.0	0.06	5	39	**0**	-39	-100.0%	**Fails**	**0.000**
1	C09	Financial Office	Offices	Office spaces	**66**	NA	NA	RTU-C-3	75	9.1	683	1	5.0	0.06	5	10	**0**	-10	-100.0%	**Fails**	**0.000**
1	C11	Supply	Storage	Warehouses	**56**	NA	NA	RTU-C-3	50	8.5	425	1	0.0	0.06	0	3	**0**	-3	-100.0%	**Fails**	**0.000**
1	C12	Archive	Storage	Warehouses	**80**	NA	NA	RTU-C-3	80	8.5	680	1	0.0	0.06	0	5	**0**	-5	-100.0%	**Fails**	**0.000**
1	C13	Conference A	Offices	Conference rooms	**164**	NA	NA	RTU-C-3	315	8.9	2804	8	5.0	0.06	50	59	**0**	-59	-100.0%	**Fails**	**0.000**
1	C14	Head Principal	Offices	Office spaces	**229**	NA	NA	RTU-C-3	275	9.1	2503	6	5.0	0.06	5	47	**0**	-47	-100.0%	**Fails**	**0.000**
1	C21	A/V Storage	None	None	**203**	NA	NA	RTU-C-3	260	8	2080	4	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	C22	Work Room	Workrooms	Copy, printing rooms	**239**	NA	NA	RTU-C-3	225	8	1800	4	5.0	0.06	4	34	**0**	-34	-100.0%	**Fails**	**0.000**

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					(cfm)	(%)	(%)		(sq.ft)	(ft)	(cu.ft)	Adult	(cfm/ person)	(cfm/sf)	(#/1000sf)	(cfm)	(cfm)	(cfm)	(%)		(AC/hr)
1	C23	Periodicals	Workrooms	Copy, printing rooms	**178**	NA	NA	RTU-C-3	205	8	1640	2	5.0	0.06	4	22	**0**	-22	-100.0%	**Fails**	**0.000**
1	C24	Office	Offices	Office spaces	**240**	NA	NA	RTU-C-3	225	8	1800	8	5.0	0.06	5	54	**0**	-54	-100.0%	**Fails**	**0.000**
1	C25	Teacher Resource Room	Offices	Office spaces	**366**	NA	NA	RTU-C-3	350	8	2800	13	5.0	0.06	5	86	**0**	-86	-100.0%	**Fails**	**0.000**
1	C27	Creative Studio	Workrooms	Copy, printing rooms	**60**	NA	NA	RTU-C-3	165	8.4	1386	5	5.0	0.06	4	35	**0**	-35	-100.0%	**Fails**	**0.000**
1	C28	Maker Space	Workrooms	Copy, printing rooms	**59**	NA	NA	RTU-C-3	165	8.4	1386	5	5.0	0.06	4	35	**0**	-35	-100.0%	**Fails**	**0.000**
1	C29	Meeting Room A	Offices	Conference rooms	**58**	NA	NA	RTU-C-3	165	8.4	1386	5	5.0	0.06	50	35	**0**	-35	-100.0%	**Fails**	**0.000**
1	C30	Meeting Room B	Offices	Conference rooms	**57**	NA	NA	RTU-C-3	165	8.4	1386	5	5.0	0.06	50	35	**0**	-35	-100.0%	**Fails**	**0.000**
1	C31	Flex Classroom L	Education	Classroom (ages 9+)	**209**	NA	NA	RTU-C-3	550	8.4	4620	28	10.0	0.12	35	346	**0**	-346	-100.0%	**Fails**	**0.000**
1	C32	Flex Classroom R	Education	Classroom (ages 9+)	**578**	NA	NA	RTU-C-3	530	8.4	4452	28	10.0	0.12	35	344	**0**	-344	-100.0%	**Fails**	**0.000**
1	C33	Media Lab	Education	Media Center	**653**	NA	NA	RTU-C-3	775	8.4	6510	30	10.0	0.12	25	393	**0**	-393	-100.0%	**Fails**	**0.000**
1	C34	Library/Media Center	Education	Media Center	**1452**	100%	100%	RTU-C-1	5060	13.7	69322	128	10.0	0.12	25	1887	**1452**	-435	-23.1%	**Fails**	**1.257**
1	C35	TV Production Studio	Education	Media Center	**338**	100%	100%	RTU-C-1	1280	14.3	18304	28	10.0	0.12	25	434	**338**	-96	-22.0%	**Fails**	**1.108**
1	C35A	Control	Education	Media Center	**37**	100%	100%	RTU-C-1	170	8	1360	3	10.0	0.12	25	50	**37**	-13	-26.6%	**Fails**	**1.632**
1	C36	Office	Offices	Office spaces	**108**	100%	100%	RTU-C-1	165	8.5	1403	3	5.0	0.06	5	25	**108**	83	333.7%	**Meets**	**4.620**
1	C36A	MDF	None	None	**114**	100%	100%	RTU-C-1	145	9	1305	1	0.0	0.00	0	0	**114**	114	0.0%	**Meets**	**5.241**
1	C37A	Lecture Hall A	Education	Lecture Classroom	**389**	100%	100%	RTU-C-1	675	9	6075	30	7.5	0.06	65	266	**329**	64	23.9%	**Meets**	**3.249**
1	C37A	Lecture Hall B	Education	Lecture Classroom	**376**	100%	100%	RTU-C-1	675	9	6075	30	7.5	0.06	65	266	**376**	111	41.6%	**Meets**	**3.714**
1	C40	Elec	None	None	**68**	100%	100%	RTU-C-1 EF	100	11.5	1150	0	0.0	0.00	0	0	**158**	158	0.0%	**N/A**	**8.243**
1	C41	Health Center Reception	Hospitals nursing and convalescent homes	Patient rooms	**355**	100%	100%	RTU-C-1	485	8	3880	7	25.0	0.00	10	175	**355**	180	102.9%	**Meets**	**5.490**
1	C41A	Storage	None	None	**0**	100%	100%	RTU-C-1	15	8	120	0	0.0	0.00	0	0	**0**	0	0.0%	**N/A**	**0.000**
1	C42	Treatment Room	Hospitals nursing and convalescent homes	Patient rooms	**125**	18%	10%	RTU-C-2	134	8	1072	3	25.0	0.00	10	75	**23**	-52	-69.3%	**Fails**	**1.287**

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					(cfm)	(%)	(%)		(sq.ft)	(ft)	(cu.ft)	Adult	(cfm/ person)	(cfm/sf)	(#/1000sf)	(cfm)	(cfm)	(cfm)	(%)		(AC/hr)
1	C43	Nurse Office South	Offices	Office spaces	**125**	18%	10%	RTU-C-2	100	8	800	1	5.0	0.06	5	11	**23**	12	109.1%	**Meets**	**1.725**
1	C44	Nurse Office West	Offices	Office spaces	**149**	18%	10%	RTU-C-2	110	8	880	3	5.0	0.06	5	22	**27**	5	25.0%	**Meets**	**1.841**
1	C45	Mail Room	Workrooms	Copy, printing rooms	**117**	18%	10%	RTU-C-2	100	8	800	2	5.0	0.06	4	16	**21**	5	31.3%	**Meets**	**1.575**
1	C46	Medication/Conference Room	Offices	Conference rooms	**268**	18%	10%	RTU-C-2	135	8	1080	4	5.0	0.06	50	28	**48**	20	70.8%	**Meets**	**2.667**
1	C47	Resting Room	Hospitals nursing and convalescent homes	Patient rooms	**393**	18%	10%	RTU-C-2	335	8	2680	7	25.0	0.00	10	175	**71**	-104	-59.4%	**Fails**	**1.590**
1	CT1	Women	Public Spaces	Toilet rooms - public	**0**	0	0	TX-C1	50	8	400	1	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	CT2	Men	Public Spaces	Toilet rooms - public	**0**	0	0	TX-C1	50	8	400	1	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	CT3	Student Restroom	Public Spaces	Toilet rooms - public	**0**	---	---	TX-C1	50	8	400	1	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	CT4	Staff Restroom	Public Spaces	Toilet rooms - public	**0**	---	---	TX-C1	33	8	264	1	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	D15	Auditorium	Education	Auditoriums	**133**	68%	50%	RTU-AUD-D1	6200	Varies	97000	680	5.0	0.06	150	3772	**10960**	7188	190.6%	**Meets**	**6.779**
1	D15.1	Stage Storage	Storage	Warehouses	**0**	0	0	RTU-AUD-D1	400	15	6000	4	0.0	0.06	0	24	**0**	-24	-100.0%	**Fails**	**0.000**
1	D15.1	Storage	None	None	**0**	0	0	RTU-AUD-D1	350	8.5	2975	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	D15A	Stage	Theaters	Stages, studios	**3468**	68%	50%	RTU-AUD-D1	2200	31	68200	50	10.0	0.06	70	632	**2358**	1726	273.1%	**Meets**	**2.074**
1	D17	Dressing Room 1	Education	Locker/dressing room	**0**	0	0	RTU-AUD-D1	250	7.9	1975	10	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	D17A	Storage for Dressing Room 1	None	None	**-94**	---	---	EF-D-1	15	7.9	119	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	D19	Dressing Room 2	Education	Locker/dressing room	**0**	68%	50%	RTU-AUD-D1	250	7.9	1975	10	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	D19A	Storage for Dressing Room 2	None	None	**-86**	---	---	EF-D-1	15	7.9	119	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
B	D25	Under Kitchen Storage	None	None	**0**	---	---	---	2050	9	18450	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	D43	Storage	None	None	**0**	---	---	---	71	8.6	611	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	DT5	Women	Public Spaces	Toilet rooms - public	**-286**	---	---	TX-C1	175	7.7	1348	3	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	DT6	Men	Public Spaces	Toilet rooms - public	**-229**	---	---	TX-C1	150	7.7	1155	3	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**

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					(cfm)	(%)	(%)		(sq.ft)	(ft)	(cu.ft)	Adult	(cfm/ person)	(cfm/sf)	(#/1000sf)	(cfm)	(cfm)	(cfm)	(%)		(AC/hr)
1	DT7	Cust	Storage	Warehouses	**-161**	---	---	TX-C1	120	8.8	1056	1	0.0	0.06	0	7	**0**	-7	-100.0%	**Fails**	**0.000**
1	DT8	Toilet	Public Spaces	Toilet rooms - public	**0**	---	---	TX-C1	50	7.7	385	1	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	DT9	Storage	None	None	**0**	---	---	TX-C1	25	10	250	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	E17	Storage	None	None	**149**	9%	100%	HV-D1	50	9	450	0	0.0	0.00	0	0	**8**	8	0.0%	N/A	**1.067**
1	E18	Storage	None	None	**156**	9%	100%	HV-D1	125	9	1125	0	0.0	0.00	0	0	**9**	9	0.0%	N/A	**0.480**
1	E19	Storage	None	None	**81**	9%	100%	HV-D1	270	9	2430	0	0.0	0.00	0	0	**5**	5	0.0%	N/A	**0.123**
1	E20	Storage	None	None	**155**	9%	100%	HV-D1	125	9	1125	0	0.0	0.00	0	0	**10**	10	0.0%	N/A	**0.533**
1	E21	Storage	None	None	**166**	9%	100%	HV-D1	50	9	450	0	0.0	0.00	0	0	**9**	9	0.0%	N/A	**1.200**
1	E22	Girls Locker Room	Education	Sports locker rooms	**190**	9%	100%	HV-D1	1550	11	17050	30	0.0	0.00	0	0	**14**	14	0.0%	N/A	**0.049**
1	E23	Team Room near Girls Locker Room	Education	Sports locker rooms	**275**	9%	100%	HV-D1	200	11	2200	20	0.0	0.00	0	0	**107**	107	0.0%	N/A	**2.918**
1	E24	Office	Offices	Office spaces	**149**	9%	100%	HV-D1	125	9	1125	1	5.0	0.06	5	13	**11**	-2	-12.0%	**Fails**	**0.587**
1	E26	Storage	None	None	**117**	9%	100%	HV-D1	55	11	605	0	0.0	0.00	0	0	**8**	8	0.0%	N/A	**0.793**
1	E27	Team Room	Education	Sports locker rooms	**129**	9%	100%	HV-D1	250	11	2750	20	0.0	0.00	0	0	**9**	9	0.0%	N/A	**0.196**
1	E28	Locker Room	Education	Sports locker rooms	**160**	9%	100%	HV-D1	180	11	1980	5	0.0	0.00	0	0	**10**	10	0.0%	N/A	**0.303**
1	E29	Boys Locker Room	Education	Sports locker rooms	**202**	9%	0	HV-D1	1650	11	18150	30	0.0	0.00	0	0	**14**	14	0.0%	N/A	**0.046**
1	E29.1	Toilet near Boys Locker Room	Public Spaces	Toilet rooms - public	**0**	0	0	---	40	11	440	1	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	E29.2	Storage	None	None	**0**	0	0	---	40	11	440	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	E34	Locker	Education	Sports locker rooms	**124**	4%	20%	HV-D3	90	11	990	5	0.0	0.00	0	0	**5**	5	0.0%	N/A	**0.303**
1	E34.1	Toilet near Locker E34	Public Spaces	Toilet rooms - public	**210**	4%	20%	HV-D3	60	8	480	1	0.0	0.00	0	0	**8**	8	0.0%	N/A	**1.000**
1	E35	Visiting Team Room	Education	Sports locker rooms	**762**	4%	20%	HV-D3	425	11	4675	20	0.0	0.00	0	0	**10**	10	0.0%	N/A	**0.128**
1	E36	Office	Offices	Office spaces	**131**	4%	20%	HV-D3	180	9	1620	1	5.0	0.06	5	16	**5**	-11	-68.4%	**Fails**	**0.185**

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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	E36.1	Cust near Office E36	Storage	Warehouses	**166**	---	---	EF	25	9	225	1	0.0	0.06	0	2	**0**	-2	-100.0%	**Fails**	**0.000**
1	E45	Team Room	Education	Sports locker rooms	**620**	4%	20%	HV-D3	475	11	5225	20	0.0	0.00	0	0	**15**	15	0.0%	N/A	**0.172**
1	E45.1	Storage near Team Room E45	None	None	**180**	4%	20%	HV-D3	185	11	2035	0	0.0	0.00	0	0	**4**	4	0.0%	N/A	**0.118**
1	E46	Laundry	Dry cleaners laundries	Commercial Laundry	**97**	4%	20%	HV-D3	185	9	1665	1	25.0	0.00	10	25	**4**	-21	-84.0%	**Fails**	**0.144**
1	E47	Trainer	Sports and amusement	Health club/aerobics room	**180**	4%	20%	HV-D3	205	9	1845	2	20.0	0.06	40	52	**7**	-45	-86.6%	**Fails**	**0.228**
1	E52A	Orchestra Storage	Storage	Warehouses	**361**	44%	50%	RTU-E8	350	10	3500	10	0.0	0.06	0	21	**159**	138	657.1%	**Meets**	**2.726**
1	ECC00	Early Childhood Center Main Entrance	Offices	Main entry lobbies	**0**	---	---	---	1100	10	11000	5	5.0	0.06	10	91	**0**	-91	-100.0%	**Fails**	**0.000**
1	ECC01	Nurse	Hospitals nursing and convalescent homes	Patient rooms	**23**	13%	20%	RTU-A7	135	8.5	1148	4	25.0	0.00	10	100	**3**	-97	-97.0%	**Fails**	**0.157**
1	ECC01A	Treatment Room	Hospitals nursing and convalescent homes	Patient rooms	**28**	13%	20%	RTU-A7	160	8.5	1360	2	25.0	0.00	10	50	**4**	-46	-92.0%	**Fails**	**0.176**
1	ECC01B	Nurse Storage	None	None	**0**	---	---	---	14	8.5	119	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	ECC01C	Nurse Toilet	Public Spaces	Toilet rooms - public	**-68**	---	---	TX-C2	64	8	512	2	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	ECC02	Gymnasium/Gross Motor	Sports and amusement	Health club/aerobics room	**278**	13%	20%	RTU-A7	1350	17.3	23355	16	20.0	0.06	40	401	**36**	-365	-91.0%	**Fails**	**0.092**
1	ECC03	Main Office	Offices	Office spaces	**23**	13%	20%	RTU-A7	135	8.5	1148	5	5.0	0.06	5	33	**3**	-30	-90.9%	**Fails**	**0.157**
1	ECC03A	Main Office Storage	None	None	**0**	---	---	---	25	8.5	213	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	ECC04	Conference	Offices	Conference rooms	**56**	13%	20%	RTU-A7	250	8.5	2125	10	5.0	0.06	50	65	**7**	-58	-89.2%	**Fails**	**0.198**
1	ECC05	OT/PT	Hospitals nursing and convalescent homes	Physical Therapy	**150**	13%	20%	RTU-A7	700	8.5	5950	10	15.0	0.00	20	150	**20**	-130	-86.7%	**Fails**	**0.202**
1	ECC06	S&L Pathology Office	Offices	Office spaces	**34**	13%	20%	RTU-A7	85	8.5	723	2	5.0	0.06	5	15	**4**	-11	-73.5%	**Fails**	**0.332**
1	ECC07	Psych./Soc. Office	Offices	Office spaces	**35**	13%	20%	RTU-A7	170	8.5	1445	7	5.0	0.06	5	45	**6**	-39	-86.7%	**Fails**	**0.249**
1	ECC08	S&L Pathology Office	Offices	Office spaces	**97**	13%	20%	RTU-A7	85	8.5	723	2	5.0	0.06	5	15	**13**	-2	-13.9%	**Fails**	**1.080**
1	ECC09	Office	Offices	Office spaces	**94**	13%	20%	RTU-A7	90	8.5	765	2	5.0	0.06	5	15	**12**	-3	-22.1%	**Fails**	**0.941**
1	ECC09.1	Cust	Storage	Warehouses	**-35**	---	---	EF-A2	22	11.9	262	1	0.0	0.06	0	1	**0**	-1	-100.0%	**Fails**	**0.000**

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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	ECC09.2	Toilet	Public Spaces	Toilet rooms - public	**-87**	---	---	EF-A2	36	8	288	1	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	ECC10	Work Room	Workrooms	Copy, printing rooms	**204**	13%	20%	RTU-A7	175	8.5	1488	3	5.0	0.06	4	26	**27**	2	5.9%	**Meets**	**1.089**
1	ECC10.1	10 Work Room Storage	None	None	**0**	---	---	---	25	8.5	213	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	ECCA	Classroom A	Education	Classroom (ages 9+)	**193**	13%	20%	RTU-A7	725	10	7250	22	10.0	0.12	35	307	**25**	-282	-91.9%	**Fails**	**0.207**
1	ECCA.1	Classroom A Toilet	Public Spaces	Toilet rooms - public	**-45**	---	---	EF-A2	55	8	440	1	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	ECCB	Classroom B	Education	Classroom (ages 9+)	**172**	13%	20%	RTU-A7	915	10	9150	28	10.0	0.12	35	390	**22**	-368	-94.4%	**Fails**	**0.144**
1	ECCB.1	Classroom B Toilet	Public Spaces	Toilet rooms - public	**-142**	---	---	EF-A2	55	8	440	1	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	ECCB.2	Classroom B Storage/Work Room	Workrooms	Copy, printing rooms	**0**	13%	20%	RTU-A7	75	8	600	3	5.0	0.06	4	20	**0**	-20	-100.0%	**Fails**	**0.000**
1	ECCC	Classroom C	Education	Classroom (ages 9+)	**154**	13%	20%	RTU-A7	760	10	7600	16	10.0	0.12	35	251	**20**	-231	-92.0%	**Fails**	**0.158**
1	ECCC.1	Classroom C Toilet	Public Spaces	Toilet rooms - public	**-106**	---	---	EF-A2	55	8	440	1	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	ECCD	Classroom D	Education	Classroom (ages 9+)	**195**	13%	20%	RTU-A7	850	10	8500	18	10.0	0.12	35	282	**25**	-257	-91.1%	**Fails**	**0.176**
1	ECCD.1	Classroom D Toilet	Public Spaces	Toilet rooms - public	**-88**	---	---	EF-A2	55	8	440	1	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	ECCE	Classroom E	Education	Classroom (ages 9+)	**92**	13%	20%	RTU-A7	700	9	6300	12	10.0	0.12	35	204	**12**	-192	-94.1%	**Fails**	**0.114**
1	ECCE.1	Classroom E Toilet	Public Spaces	Toilet rooms - public	**-89**	---	---	EF-A2	55	8	440	1	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	ECCF	Classroom F	Education	Classroom (ages 9+)	**206**	13%	20%	RTU-A7	975	11.5	11213	16	10.0	0.12	35	277	**27**	-250	-90.3%	**Fails**	**0.144**
1	ECCF.1	Classroom F Toilet	Public Spaces	Toilet rooms - public	**-73**	---	---	EF-A2	63	8	504	2	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	ECCF.2	Classroom F Office	Offices	Office spaces	**20**	13%	20%	RTU-A7	100	8	800	2	5.0	0.06	5	16	**3**	-13	-81.3%	**Fails**	**0.225**
1	ET11	Cust	Storage	Warehouses	**-92**	---	---	EF-T-24A	57	10	570	1	0.0	0.06	0	3	**0**	-3	-100.0%	**Fails**	**0.000**
1	ET12	Boys	Public Spaces	Toilet rooms - public	**-112**	---	---	EF-T-24A	127	10	1270	2	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	F01	Fitts House	Offices	Reception Areas	**172**	36%	20%	RTU-F-1	460	9	4140	6	5.0	0.06	30	58	**62**	4	7.6%	**Meets**	**0.899**
1	F01.1	Conference	Offices	Conference rooms	**176**	36%	20%	RTU-F-1	162	9.4	1523	8	5.0	0.06	50	50	**63**	13	26.7%	**Meets**	**2.482**

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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	F01.2	Dean	Offices	Office spaces	**119**	36%	20%	RTU-F-1	321	9.4	3017	6	5.0	0.06	5	49	**43**	-6	-12.7%	**Fails**	**0.855**
1	F01.3	Meeting Room	Offices	Conference rooms	**139**	36%	20%	RTU-F-1	268	9	2412	9	5.0	0.06	50	61	**50**	-11	-18.1%	**Fails**	**1.244**
1	F01.4	House Principal	Offices	Office spaces	**413**	36%	20%	RTU-F-1	450	9.4	4230	6	5.0	0.06	5	57	**149**	92	161.4%	**Meets**	**2.113**
1	F01.5	Mail/Copy Room	Workrooms	Copy, printing rooms	**166**	36%	20%	RTU-F-1	276	9	2484	3	5.0	0.06	4	32	**60**	28	90.1%	**Meets**	**1.449**
1	F01.6	Toilet	Public Spaces	Toilet rooms - public	**-129**	---	---	---	40	8.5	340	1	0.0	0.00	0	0	**0**	0	0.0%	**N/A**	**0.000**
1	F02	Reception	Offices	Conference rooms	**68**	36%	20%	RTU-F-1	220	9	1980	4	5.0	0.06	50	33	**25**	-8	-24.7%	**Fails**	**0.758**
1	F02A	North Office	Offices	Office spaces	**50**	36%	20%	RTU-F-1	112	9.4	1053	4	5.0	0.06	5	27	**18**	-9	-32.6%	**Fails**	**1.026**
1	F02B	East Office	Offices	Office spaces	**62**	36%	20%	RTU-F-1	162	9.4	1523	4	5.0	0.06	5	30	**22**	-8	-26.0%	**Fails**	**0.867**
1	F02C	South Office	Offices	Office spaces	**45**	36%	20%	RTU-F-1	142	9.4	1335	4	5.0	0.06	5	29	**16**	-13	-43.9%	**Fails**	**0.719**
1	F03	Classroom	Education	Classroom (ages 9+)	**879**	36%	20%	RTU-F-1	655	10	6550	27	10.0	0.12	35	349	**316**	-33	-9.4%	**Fails**	**2.895**
1	F04	Classroom	Education	Classroom (ages 9+)	**396**	36%	20%	RTU-F-1	655	9.5	6223	21	10.0	0.12	35	289	**142**	-147	-50.8%	**Fails**	**1.369**
1	F05	Classroom	Education	Classroom (ages 9+)	**435**	36%	20%	RTU-F-1	655	9.5	6223	29	10.0	0.12	35	369	**157**	-212	-57.4%	**Fails**	**1.514**
1	F06	Classroom	Education	Classroom (ages 9+)	**866**	36%	20%	RTU-F-1	655	9.5	6223	31	10.0	0.12	35	389	**312**	-77	-19.7%	**Fails**	**3.008**
1	F07	Classroom	Education	Classroom (ages 9+)	**881**	36%	20%	RTU-F-1	655	9.5	6223	30	10.0	0.12	35	379	**317**	-62	-16.3%	**Fails**	**3.057**
1	F08	Science Classroom	Education	Science Laboratories	**645**	36%	20%	RTU-F-1	1170	9.5	11115	25	10.0	0.18	25	461	**232**	-229	-49.6%	**Fails**	**1.252**
1	F08A	Prep Room	Education	Science Laboratories	**70**	36%	20%	RTU-F-1	153	9.5	1454	2	10.0	0.18	25	48	**25**	-23	-47.4%	**Fails**	**1.032**
1	F09	Classroom	Education	Classroom (ages 9+)	**840**	36%	20%	RTU-F-1	655	9.5	6223	27	10.0	0.12	35	349	**302**	-47	-13.4%	**Fails**	**2.912**
1	F10	Classroom	Education	Classroom (ages 9+)	**322**	100%	NA	RTU-F-2	655	9.5	6223	25	10.0	0.12	35	329	**322**	-7	-2.0%	**Fails**	**3.105**
1	F11	Classroom	Education	Classroom (ages 9+)	**1131**	100%	NA	RTU-F-2	1000	9.5	9500	24	10.0	0.12	35	360	**1131**	771	214.2%	**Meets**	**7.143**
1	F12	Classroom	Education	Classroom (ages 9+)	**821**	100%	NA	RTU-F-2	655	9.5	6223	27	10.0	0.12	35	349	**821**	472	135.5%	**Meets**	**7.916**
1	F13	Classroom	Education	Classroom (ages 9+)	**351**	100%	NA	RTU-F-2	655	9.5	6223	28	10.0	0.12	35	359	**351**	-8	-2.1%	**Fails**	**3.384**

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					(cfm)	(%)	(%)		(sq.ft)	(ft)	(cu.ft)	Adult	(cfm/ person)	(cfm/sf)	(#/1000sf)	(cfm)	(cfm)	(cfm)	(%)		(AC/hr)
1	F14	Classroom	Education	Classroom (ages 9+)	**1244**	100%	NA	RTU-F-2	1140	9.5	10830	28	10.0	0.12	35	417	**1244**	827	198.5%	**Meets**	**6.892**
1	F15	Classroom	Education	Classroom (ages 9+)	**277**	100%	NA	RTU-F-2	655	9.5	6223	27	10.0	0.12	35	349	**277**	-72	-20.5%	**Fails**	**2.671**
1	F16	Prep	Education	Science Laboratories	**309**	100%	NA	RTU-F-2	480	9	4320	3	10.0	0.18	25	116	**309**	193	165.5%	**Meets**	**4.292**
1	F17	Science Classroom	Education	Science Laboratories	**1200**	100%	NA	RTU-F-2	1200	9	10800	27	10.0	0.18	25	486	**1200**	714	146.9%	**Meets**	**6.667**
1	F18	Science Classroom	Education	Science Laboratories	**720**	100%	NA	RTU-F-2	1300	9	11700	27	10.0	0.18	25	504	**720**	216	42.9%	**Meets**	**3.692**
1	F19	Prep	Education	Science Laboratories	**194**	100%	NA	RTU-F-2	600	9	5400	3	10.0	0.18	25	138	**194**	56	40.6%	**Meets**	**2.156**
1	F19.1 (2F)	Data	None	None	**0**	---	---	---	60	8.6	516	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	F20	Science Classroom	Education	Science Laboratories	**639**	100%	NA	RTU-F-2	1100	9	9900	27	10.0	0.18	25	468	**639**	171	36.5%	**Meets**	**3.873**
1	F20A	Marine Biology Prep	Education	Science Laboratories	**103**	100%	NA	RTU-F-2	204	9	1836	3	10.0	0.18	25	67	**103**	36	54.4%	**Meets**	**3.366**
1	F21	Teachers Room	Offices	Office spaces	**106**	18%	20%	RTU-F-3	116	9.4	1090	0	5.0	0.06	5	10	**19**	9	92.7%	**Meets**	**1.045**
1	F21.1	Women	Public Spaces	Toilet rooms - public	**-252**	---	---	EF-36B	70	8.5	595	2	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
2	F22	Learning Center	Offices	Office spaces	**1741**	18%	20%	RTU-F-3	900	9.5	8550	18	5.0	0.06	5	144	**313**	169	117.4%	**Meets**	**2.196**
2	F23	Science Classroom	Education	Science Laboratories	**929**	18%	20%	RTU-F-3	1200	9.5	11400	28	10.0	0.18	25	496	**167**	-329	-66.3%	**Fails**	**0.879**
2	F24	Classroom	Education	Classroom (ages 9+)	**553**	18%	20%	RTU-F-3	645	9.5	6128	28	10.0	0.12	35	357	**100**	-257	-72.0%	**Fails**	**0.979**
2	F25	Classroom	Education	Classroom (ages 9+)	**585**	18%	20%	RTU-F-3	655	9.5	6223	28	10.0	0.12	35	359	**105**	-254	-70.7%	**Fails**	**1.012**
2	F26	Classroom	Education	Classroom (ages 9+)	**1088**	18%	20%	RTU-F-3	655	9.5	6223	28	10.0	0.12	35	359	**196**	-163	-45.3%	**Fails**	**1.890**
2	F27	Classroom	Education	Classroom (ages 9+)	**1022**	18%	20%	RTU-F-3	635	9.5	6033	28	10.0	0.12	35	356	**184**	-172	-48.3%	**Fails**	**1.830**
2	F28	Classroom	Education	Classroom (ages 9+)	**738**	18%	20%	RTU-F-3	655	9.5	6223	28	10.0	0.12	35	359	**133**	-226	-62.9%	**Fails**	**1.282**
2	F29	Classroom	Education	Classroom (ages 9+)	**594**	18%	20%	RTU-F-3	655	9.5	6223	28	10.0	0.12	35	359	**107**	-252	-70.2%	**Fails**	**1.032**
2	F30	Teacher's Lounge	Offices	Office spaces	**844**	33%	20%	RTU-F-4	520	9.5	4940	8	5.0	0.06	5	71	**279**	208	291.9%	**Meets**	**3.389**
2	F31	Classroom	Education	Classroom (ages 9+)	**1121**	33%	20%	RTU-F-4	800	9.5	7600	28	10.0	0.12	35	376	**370**	-6	-1.6%	**Fails**	**2.921**

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VANZELM ENGINEERS

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	F32	Classroom	Education	Classroom (ages 9+)	**631**	33%	20%	RTU-F-4	655	9.5	6223	28	10.0	0.12	35	359	**208**	-151	-42.0%	**Fails**	**2.006**
2	F32.1	Girls	Public Spaces	Toilet rooms - public	**-132**	---	---	EF-2F	268	9.5	2546	4	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
2	F32.2	Cust	Storage	Warehouses	**-44**	---	---	EF-2F	80	8.9	712	1	0.0	0.06	0	5	**0**	-5	-100.0%	**Fails**	**0.000**
2	F32.3	Boys	Public Spaces	Toilet rooms - public	**-99**	---	---	EF-2F	223	9.5	2119	4	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
2	F33	Classroom	Education	Classroom (ages 9+)	**627**	18%	20%	RTU-F-3	655	9.5	6223	28	10.0	0.12	35	359	**113**	-246	-68.5%	**Fails**	**1.090**
2	F34	Classroom	Education	Classroom (ages 9+)	**1140**	18%	20%	RTU-F-3	655	9.5	6223	28	10.0	0.12	35	359	**205**	-154	-42.8%	**Fails**	**1.977**
2	F35	Classroom	Education	Classroom (ages 9+)	**1193**	18%	20%	RTU-F-3	655	9.5	6223	25	10.0	0.12	35	329	**215**	-114	-34.6%	**Fails**	**2.073**
2	F36	Classroom	Education	Classroom (ages 9+)	**1113**	18%	20%	RTU-F-3	655	9.5	6223	28	10.0	0.12	35	359	**200**	-159	-44.2%	**Fails**	**1.928**
2	F37	House Computer Lab	Education	Computer lab	**2095**	18%	20%	RTU-F-3	1475	9.5	14013	28	10.0	0.12	25	457	**377**	-80	-17.5%	**Fails**	**1.614**
2	F38	Classroom	Education	Classroom (ages 9+)	**997**	18%	20%	RTU-F-3	655	9.5	6223	28	10.0	0.12	35	359	**130**	-229	-63.7%	**Fails**	**1.254**
2	F39	Classroom	Education	Classroom (ages 9+)	**1332**	18%	20%	RTU-F-3	655	9.5	6223	28	10.0	0.12	35	359	**240**	-119	-33.1%	**Fails**	**2.314**
2	F40	Classroom	Education	Classroom (ages 9+)	**2287**	18%	20%	RTU-F-3	1200	9.6	11520	22	10.0	0.12	35	364	**410**	46	12.6%	**Meets**	**2.135**
2	F41	Art Studio Classroom	Education	Art Classroom	**1328**	18%	20%	RTU-F-3	1100	9.5	10450	27	10.0	0.18	20	468	**239**	-229	-48.9%	**Fails**	**1.372**
2	F41.1	Storage	None	None	**0**	---	---	---	20	9.5	190	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
2	F41.2	Elec	None	None	**0**	---	---	---	70	11	770	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
2	F41A	Kiln	Storage	Warehouses	**498**	18%	20%	RTU-F-3	275	9.3	2558	2	0.0	0.06	0	17	**90**	74	445.5%	**Meets**	**2.111**
2	F42	Classroom	Education	Classroom (ages 9+)	**1393**	18%	20%	RTU-F-3	1100	9.5	10450	27	10.0	0.12	35	402	**251**	-151	-37.6%	**Fails**	**1.441**
2	F42.1	Data Closet	Storage	Warehouses	**0**	---	---	---	18	9.5	171	0	0.0	0.06	0	1	**0**	-1	-100.0%	**Fails**	**0.000**
2	F42.2	Men	Public Spaces	Toilet rooms - public	**-250**	---	---	EF-36B	70	8.5	595	2	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
2	F42A	Black Room	Workrooms	Darkrooms	**0**	---	---	---	40	9.1	364	1	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
2	F42B	Dark Room	Workrooms	Darkrooms	**666**	18%	20%	RTU-F-3	390	9.1	3549	11	0.0	0.00	0	0	**120**	120	0.0%	N/A	**2.029**

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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	F43	Work Room	Workrooms	Copy, printing rooms	**0**	---	---	---	115	8.5	978	0	5.0	0.06	4	9	**0**	-9	-100.0%	**Fails**	**0.000**
1	FT1	Boys	Public Spaces	Toilet rooms - public	**626**	100%	15%	RTU-E1 + EF-E1	232	9.5	2204	5	0.0	0.00	0	0	**280**	280	0.0%	N/A	**7.623**
1	FT2	Girls	Public Spaces	Toilet rooms - public	**678**	100%	15%	RTU-E1 + EF-E1	270	9.5	2565	5	0.0	0.00	0	0	**278**	278	0.0%	N/A	**6.503**
1	FT3	Cust	Storage	Warehouses	**157**	---	---	EF-E1	80	8.9	712	1	0.0	0.06	0	5	**0**	-5	-100.0%	**Fails**	**0.000**
1	G01	Small Gymnasium	Sports and amusement	Gym, stadium, arena (play area)	**28590**	5% + 2%	20% + 20%	HV-D-2 + HV-D-4	8100	31	251100	200	0.0	0.30	0	2430	**2001**	-429	-17.7%	**Fails**	**0.478**
1	G02	Large Gymnasium	Sports and amusement	Gym, stadium, arena (play area)	**9740**	0%,0%,100%,38%	0%,0%,100%,20%	RTU- E2, E3, E4 + E5	13500	31.3	422550	1800	0.0	0.30	0	4050	**6749**	2699	66.6%	**Meets**	**0.958**
1	G02.1	Elec	None	None	**0**	0	0	---	45	11	495	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	G03	Storage	None	None	**0**	---	---	---	175	11	1925	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	G03	Fitness Center	Sports and amusement	Health club/weight room	**4732**	0	NA	RTU-E6	860	16.4	14104	15	20.0	0.06	10	352	**0**	-352	-100.0%	**Fails**	**0.000**
1	G04	Varisty Coach Locker Room	Education	Sports locker rooms	**1582**	4%	20%	HV-03	1100	11	12100	30	0.0	0.00	0	0	**36**	36	0.0%	N/A	**0.179**
1	G04	Fitness Center	Sports and amusement	Health club/weight room	**5064**	4%	20%	HV-03	860	16.4	14104	15	20.0	0.06	10	352	**203**	-149	-42.3%	**Fails**	**0.864**
1	G05	Team Room	Education	Sports locker rooms	**1502**	4%	20%	HV-03	180	11	1980	20	0.0	0.00	0	0	**26**	26	0.0%	N/A	**0.788**
1	G05.1	Storage	None	None	**211**	0%	0%	RTU-E6	75	11	825	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	G05.2	Storage	None	None	**470**	0%	0%	RTU-E6	200	11	2200	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	G07	Office	Offices	Office spaces	**63**	0%	0%	RTU - E7	90	9	810	1	5.0	0.06	5	10	**0**	-10	-100.0%	**Fails**	**0.000**
1	G07.1	Storage	None	None	**69**	0%	0%	RTU - E7	90	9	810	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	G07.2	Storage	None	None	**88**	0%	0%	RTU - E7	160	9	1440	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	G08	Office	Offices	Office spaces	**219**	0%	0%	RTU - E7	120	9	1080	1	5.0	0.06	5	12	**0**	-12	-100.0%	**Fails**	**0.000**
1	G08.1	Toilet	Public Spaces	Toilet rooms - public	**-34**	---	---	EF-E8	70	9	630	1	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	G09	Coaches Locker Room	Education	Sports locker rooms	**970**	0%	0%	RTU-E7 + EF-E8	630	11	6930	10	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	G14	Team Room	Education	Sports locker rooms	**810**	0%	0%	RTU-E7 + EF-E8	670	11	7370	20	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**

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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	G15	Storage	None	None	**0**	0%	0%	EF-E8	50	9	450	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	G16	Storage	None	None	**0**	0%	0%	Ef-E8	95	9	855	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
2	G1A/B	Wrestling Room	Sports and amusement	Health club/aerobics room	**0**	0%	0%	RTU - H-6	1650	11.2	18480	28	20.0	0.06	40	659	**0**	-659	-100.0%	**Fails**	**0.000**
1	G20	Office	Offices	Office spaces	**238**	100%	15%	RTU- E1	165	11	1815	1	5.0	0.06	5	15	**238**	223	1497.3%	**Meets**	**7.868**
1	G20.1	Toilet near G20 Office	Public Spaces	Toilet rooms - public	**-109**	---	---	EF-E8	80	9	720	1	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	M01	Orchestra	Education	Music/theater/dance	**1628**	44%	50%	RTU-E-8	2300	14.2	32660	45	10.0	0.06	35	588	**716**	128	21.8%	**Meets**	**1.315**
1	M02	Choral Room	Education	Music/theater/dance	**411**	15%	15%	RTU-M-1	1500	13.8	20700	50	10.0	0.06	35	590	**62**	-528	-89.5%	**Fails**	**0.180**
1	M02A	Choral Storage	Storage	Warehouses	**0**	---	---	---	75	9.5	713	1	0.0	0.06	0	5	**0**	-5	-100.0%	**Fails**	**0.000**
1	M03	Resource Center	Offices	Conference rooms	**128**	15%	15%	RTU-M-1	855	8.5	7268	6	5.0	0.06	50	81	**19**	-62	-76.6%	**Fails**	**0.157**
1	M03A	Resource Office	Offices	Office spaces	**33**	15%	15%	RTU-M-1	165	8.5	1403	3	5.0	0.06	5	25	**5**	-20	-79.9%	**Fails**	**0.214**
1	M04	Practice	Education	Music/theater/dance	**41**	15%	15%	RTU-M-1	167	8.5	1420	6	10.0	0.06	35	70	**6**	-64	-91.4%	**Fails**	**0.254**
1	M05	Keyboard	Education	Music/theater/dance	**136**	15%	15%	RTU-M-1	800	9.6	7680	18	10.0	0.06	35	228	**20**	-208	-91.2%	**Fails**	**0.156**
1	M05A	Control Room	Education	Music/theater/dance	**10**	15%	15%	RTU-M-1	130	8.5	1105	4	10.0	0.06	35	48	**2**	-46	-95.8%	**Fails**	**0.109**
1	M05B	Mixing Room	Education	Music/theater/dance	**17**	15%	15%	RTU-M-1	95	8.5	808	1	10.0	0.06	35	16	**2**	-14	-87.3%	**Fails**	**0.149**
1	M06	Office	Offices	Office spaces	**47**	15%	15%	RTU-M-1	160	8.5	1360	4	5.0	0.06	5	30	**7**	-23	-76.4%	**Fails**	**0.309**
1	M07	Practice	Education	Music/theater/dance	**67**	15%	15%	RTU-M-1	125	8.5	1063	4	10.0	0.06	35	48	**10**	-38	-78.9%	**Fails**	**0.565**
1	M08	Practice	Education	Music/theater/dance	**58**	15%	15%	RTU-M-1	100	8.5	850	3	10.0	0.06	35	36	**9**	-27	-75.0%	**Fails**	**0.635**
1	M09	Band Room	Education	Music/theater/dance	**365**	15%	15%	RTU-M-1	2000	20	40000	60	10.0	0.06	35	720	**55**	-665	-92.4%	**Fails**	**0.083**
1	M09.1	Girls	Public Spaces	Toilet rooms - public	**0**	---	---	EF	100	8.5	850	2	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	M09.2	Boys	Public Spaces	Toilet rooms - public	**0**	---	---	EF	100	8.5	850	2	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	M09A	Band Storage	Storage	Warehouses	**56**	15%	15%	RTU-M-1	90	8.5	765	3	0.0	0.06	0	5	**8**	3	48.1%	**Meets**	**0.627**

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					(cfm)	(%)	(%)		(sq.ft)	(ft)	(cu.ft)	Adult	(cfm/ person)	(cfm/sf)	(#/1000sf)	(cfm)	(cfm)	(cfm)	(%)		(AC/hr)
1	M09B	Instrument Storage	Storage	Warehouses	**39**	15%	15%	RTU-M-1	225	8.5	1913	10	0.0	0.06	0	14	**6**	-8	-55.6%	**Fails**	**0.188**
1	P01	Pequot House	Offices	Office spaces	**71**	21%	15%	RTU-L4	250	9.2	2300	5	5.0	0.06	5	40	**15**	-25	-62.5%	**Fails**	**0.391**
1	P01.1	Toilet	Public Spaces	Toilet rooms - public	**-183**	---	---	EF-LIF	50	8.4	420	1	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	P01.2	IP Data	None	None	**-165**	---	---	EF-LIF	50	7.9	395	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	P01.3	Mail/Copy Room	Workrooms	Copy, printing rooms	**87**	21%	15%	RTU- L4	180	9.5	1710	2	5.0	0.06	4	21	**18**	-3	-13.5%	**Fails**	**0.632**
1	P01.4	Dean	Offices	Office spaces	**199**	21%	15%	RTU- L4	270	9.4	2538	5	5.0	0.06	5	41	**42**	1	1.9%	**Meets**	**0.993**
1	P01.5	Meeting Room	Offices	Conference rooms	**60**	21%	15%	RTU- L4	285	8.5	2423	8	5.0	0.06	50	57	**13**	-44	-77.2%	**Fails**	**0.322**
1	P01.6	House Principal	Offices	Office spaces	**101**	21%	15%	RTU- L4	365	9.2	3358	6	5.0	0.06	5	52	**21**	-31	-59.5%	**Fails**	**0.375**
1	P01.7	Conference	Offices	Conference rooms	**92**	21%	15%	RTU- L4	155	9.2	1426	8	5.0	0.06	50	49	**19**	-30	-61.5%	**Fails**	**0.799**
1	P02	Guidance Reception	Offices	Reception Areas	**41**	21%	15%	ATU-L4	240	8.6	2064	4	5.0	0.06	30	34	**9**	-25	-73.8%	**Fails**	**0.262**
1	P02A	North Office	Offices	Office spaces	**36**	21%	15%	RTU-L4	125	8.6	1075	4	5.0	0.06	5	28	**8**	-20	-70.9%	**Fails**	**0.447**
1	P02B	West Office	Offices	Office spaces	**32**	21%	15%	RTU-L4	125	8.6	1075	4	5.0	0.06	5	28	**7**	-21	-74.5%	**Fails**	**0.391**
1	P02C	South Office	Offices	Office spaces	**41**	21%	15%	RTU-L4	125	8.6	1075	4	5.0	0.06	5	28	**9**	-19	-67.3%	**Fails**	**0.502**
1	P03	Classroom	Education	Classroom (ages 9+)	**588**	100%	20%	RTU-L6	655	10.1	6616	28	10.0	0.12	35	359	**588**	229	64.0%	**Meets**	**5.333**
1	P04	A/D Reception	Offices	Reception Areas	**47**	21%	15%	RTU-L4	130	9.5	1235	3	5.0	0.06	30	23	**10**	-13	-56.1%	**Fails**	**0.486**
1	P04A	Athletic Director	Offices	Office spaces	**53**	21%	15%	RTU-L4	195	9.5	1853	3	5.0	0.06	5	27	**11**	-16	-58.8%	**Fails**	**0.356**
1	P05	Classroom	Education	Classroom (ages 9+)	**735**	100%	20%	RTU-L6	655	10.1	6616	28	10.0	0.12	35	359	**735**	376	105.0%	**Meets**	**6.666**
1	P06	Classroom	Education	Classroom (ages 9+)	**0**	0	0	RTU-7L	655	10.1	6616	28	10.0	0.12	35	359	**0**	-359	-100.0%	**Fails**	**0.000**
1	P07	Classroom	Education	Classroom (ages 9+)	**774**	100%	20%	RTU-L6	655	10.1	6616	28	10.0	0.12	35	359	**774**	415	115.8%	**Meets**	**7.020**
1	P08	Classroom	Education	Classroom (ages 9+)	**0**	0	0	RTU-7L	655	10.1	6616	28	10.0	0.12	35	359	**0**	-359	-100.0%	**Fails**	**0.000**
1	P08A	Girls	Public Spaces	Toilet rooms - public	**200**	100%	20%	RTU-L6	275	8.5	2338	4	0.0	0.00	0	0	**200**	200	0.0%	N/A	**5.134**

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Fairfield Warde High School

VANZELM ENGINEERS

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	P08B	Cust	Storage	Warehouses	**0**	0	0	---	50	8.3	415	1	0.0	0.06	0	3	**0**	-3	-100.0%	**Fails**	**0.000**
1	P08C	Boys	Public Spaces	Toilet rooms - public	**195**	100%	20%	RTU-L6	270	8.5	2295	4	0.0	0.00	0	0	**195**	195	0.0%	**N/A**	**5.098**
1	P09	Computer Lab	Education	Computer lab	**0**	0	0	RTU-7L	1000	10.1	10100	28	10.0	0.12	25	400	**0**	-400	-100.0%	**Fails**	**0.000**
1	P10	Classroom	Education	Classroom (ages 9+)	**567**	100%	20%	RTU-7L	655	10.1	6616	28	10.0	0.12	35	359	**567**	208	58.1%	**Meets**	**5.142**
1	P11	Classroom	Education	Classroom (ages 9+)	**0**	0	0	RTU-7L	655	10.1	6616	28	10.0	0.12	35	359	**0**	-359	-100.0%	**Fails**	**0.000**
1	P12	Science Classroom	Education	Science Laboratories	**958**	100%	20%	RTU-L6	1300	10.1	13130	28	10.0	0.18	25	514	**958**	444	86.4%	**Meets**	**4.378**
1	P13	Kitchen Classroom	Food and beverage service	Kitchens (cooking)	**3700**	100%	100%	RTU-L-10	1225	9.2	11270	28	0.0	0.00	0	0	**3700**	3700	0.0%	**N/A**	**19.698**
1	P13A	Kitchen Storage	Storage	Warehouses	**0**	0	0	RTU-L7	105	7.9	830	1	0.0	0.06	0	6	**0**	-6	-100.0%	**Fails**	**0.000**
1	P14	Prep	Food and beverage service	Kitchens (cooking)	**65**	100%	20%	RTU-L6	185	8	1480	3	0.0	0.00	0	0	**65**	65	0.0%	**N/A**	**2.635**
1	P15	Barlowe's Restaurant	Food and beverage service	Dining Rooms	**1611**	100%	NA	RTU-L8	775	9	6975	25	7.5	0.18	70	327	**1611**	1284	392.7%	**Meets**	**13.858**
1	P16	Kitchen	Food and beverage service	Kitchens (cooking)	**4528**	100%	100%	RTU-L9	775	8.5	6588	8	0.0	0.00	0	0	**4528**	4528	0.0%	**N/A**	**41.242**
1	P16A	Laundry	Dry cleaners laundries	Commercial Laundry	**0**	---	---	---	65	8.5	553	1	25.0	0.00	10	25	**0**	-25	-100.0%	**Fails**	**0.000**
1	P17	Textile Lab	Education	Art Classroom	**521**	100%	20%	RTU-L6	1100	10.1	11110	28	10.0	0.18	20	478	**521**	43	9.0%	**Meets**	**2.814**
1	P17.1	Women	Public Spaces	Toilet rooms - public	**-108**	---	---	---	70	8.6	602	2	0.0	0.00	0	0	**0**	0	0.0%	**N/A**	**0.000**
1	P17A	Textile Storage	None	None	**0**	---	---	---	112	10.1	1131	1	0.0	0.00	0	0	**0**	0	0.0%	**N/A**	**0.000**
1	P18	Teachers Room	Offices	Office spaces	**0**	---	---	---	155	9.5	1473	3	5.0	0.06	5	24	**0**	-24	-100.0%	**Fails**	**0.000**
1	P19	Teachers Room	Offices	Office spaces	**0**	---	---	---	335	9	3015	7	5.0	0.06	5	55	**0**	-55	-100.0%	**Fails**	**0.000**
1	P20	Chemistry Science Classroom	Education	Science Laboratories	**2302**	100%	100%	RTU-L10	1050	10.2	10710	28	10.0	0.18	25	469	**2302**	1833	390.8%	**Meets**	**12.896**
1	P22	Teachers Room	Offices	Office spaces	**0**	---	---	---	150	8.8	1320	5	5.0	0.06	5	34	**0**	-34	-100.0%	**Fails**	**0.000**
1	P23	Chemistry Science Classroom	Education	Science Laboratories	**1640**	100%	100%	RTU-L10	1000	10.2	10200	28	10.0	0.18	25	460	**1640**	1180	256.5%	**Meets**	**9.647**
1	P23.1	Men's	Public Spaces	Toilet rooms - public	**-150**	---	---	EF	75	8.5	638	2	0.0	0.00	0	0	**0**	0	0.0%	**N/A**	**0.000**

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VANZELM ENGINEERS

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	P23.2	Science Office	Offices	Office spaces	**188**	100%	100%	RTU-L10	125	8.4	1050	2	5.0	0.06	5	18	**188**	171	974.3%	**Meets**	**10.743**
1	P23A	Prep	Education	Science Laboratories	**322**	100%	20%	RTU-L6	160	8.4	1344	2	10.0	0.18	25	49	**322**	273	559.8%	**Meets**	**14.375**
1	P24	Storage/Faculty	Storage	Warehouses	**231**	!00%	20%	RTU-L2	270	9	2430	6	0.0	0.06	0	16	**231**	215	1325.9%	**Meets**	**5.704**
1	P24.1	2P Data	None	None	**0**	---	---	---	42	9	378	0	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	P25	Faculty	Offices	Office spaces	**0**	0	0	RTU-L1	370	9.3	3441	1	5.0	0.06	5	27	**0**	-27	-100.0%	**Fails**	**0.000**
1	P26	Resource Learning Center	Offices	Office spaces	**0**	0	0	RTU-L1	655	10.1	6616	11	5.0	0.06	5	94	**0**	-94	-100.0%	**Fails**	**0.000**
1	P27	Learning Center	Offices	Conference rooms	**662**	100%	20%	RTU-L2	700	10.1	7070	20	5.0	0.06	50	142	**662**	520	366.2%	**Meets**	**5.618**
1	P28	Classroom	Education	Classroom (ages 9+)	**0**	0%	0	RTU-L1	655	10.1	6616	28	10.0	0.12	35	359	**0**	-359	-100.0%	**Fails**	**0.000**
1	P29	Classroom	Education	Classroom (ages 9+)	**756**	100%	20%	RTU-L2	655	10.1	6616	28	10.0	0.12	35	359	**756**	397	110.8%	**Meets**	**6.857**
1	P30	Classroom	Education	Classroom (ages 9+)	**0**	0%	0	RTU-L1	655	10.1	6616	28	10.0	0.12	35	359	**0**	-359	-100.0%	**Fails**	**0.000**
1	P30.1	Boys	Public Spaces	Toilet rooms - public	**0**	---	---	---	270	8.5	2295	4	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	P30.2	Cust	Storage	Warehouses	**0**	---	---	---	55	8.3	457	1	0.0	0.06	0	3	**0**	-3	-100.0%	**Fails**	**0.000**
1	P30.3	Girls	Public Spaces	Toilet rooms - public	**0**	0%	0	RTU-L1	275	8.5	2338	4	0.0	0.00	0	0	**0**	0	0.0%	N/A	**0.000**
1	P31	Biology Science Classroom	Education	Science Laboratories	**865**	100%	20%	RTU-L2	1050	10.1	10605	28	10.0	0.18	25	469	**865**	396	84.4%	**Meets**	**4.894**
1	P31A	Greenhouse	Education	Science Laboratories	**0**	---	---	---	125	7.8	975	3	10.0	0.18	25	53	**0**	-53	-100.0%	**Fails**	**0.000**
1	P32	Prep	Education	Science Laboratories	**157**	100%	20%	RTU-L2	280	8.6	2408	3	10.0	0.18	25	80	**157**	77	95.3%	**Meets**	**3.912**
1	P33	Biology Science Classroom	Education	Science Laboratories	**882**	100%	20%	RTU-L2	1300	10.1	13130	28	10.0	0.18	25	514	**882**	368	71.6%	**Meets**	**4.030**
1	P34	Classroom	Education	Classroom (ages 9+)	**0**	0%	0	RTU-L1	655	10.1	6616	28	10.0	0.12	35	359	**0**	-359	-100.0%	**Fails**	**0.000**
1	P35	Classroom	Education	Classroom (ages 9+)	**0**	0%	0	RTU-L1	655	10.1	6616	28	10.0	0.12	35	359	**0**	-359	-100.0%	**Fails**	**0.000**
1	P36	Classroom	Education	Classroom (ages 9+)	**0**	0%	0	RTU-L1	655	10.1	6616	28	10.0	0.12	35	359	**0**	-359	-100.0%	**Fails**	**0.000**
1	P37	Classroom	Education	Classroom (ages 9+)	**84**	100%	20%	RTU-L2	655	10.1	6616	28	10.0	0.12	35	359	**84**	-275	-76.6%	**Fails**	**0.762**

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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	P38	Career Center	Offices	Office spaces	**951**	100%	20%	RTU-L2	850	9.5	8075	20	5.0	0.06	5	151	**951**	800	529.8%	**Meets**	**7.066**
1	P38A	Career Center Initial Evaluation Office	Offices	Office spaces	**0**	---	---	---	145	9.5	1378	4	5.0	0.06	5	29	**0**	-29	-100.0%	**Fails**	**0.000**
1	P40	Curriculum	Offices	Reception Areas	**194**	100%	20%	RTU-L2	350	9.5	3325	11	5.0	0.06	30	76	**194**	118	155.3%	**Meets**	**3.501**
1	P40.1	Curriculum Conference/Meeting	Offices	Conference rooms	**277**	100%	20%	RTU-L2	135	9.5	1283	6	5.0	0.06	50	38	**277**	239	627.0%	**Meets**	**12.959**
1	P40.E	Curriculum East Office	Offices	Office spaces	**194**	100%	20%	RTU-L2	93	9.5	884	3	5.0	0.06	5	21	**194**	173	842.7%	**Meets**	**13.175**
1	P40.S	Curriculum South Office	Offices	Office spaces	**309**	100%	20%	RTU-L2	114	9.5	1083	3	5.0	0.06	5	22	**309**	287	1314.8%	**Meets**	**17.119**
1	T01	Townsend House	Offices	Reception Areas	**82**	100%	20%	RTU-W4	236	9.3	2195	5	5.0	0.06	30	39	**82**	43	109.4%	**Meets**	**2.242**
1	T01.1	Conference	Offices	Conference rooms	**519**	100%	20%	RTU-W4	150	8.6	1290	8	5.0	0.06	50	49	**519**	470	959.2%	**Meets**	**24.140**
1	T01.2	House Principal	Offices	Office spaces	**429**	100%	20%	RTU-W4	355	8.6	3053	6	5.0	0.06	5	51	**429**	378	736.3%	**Meets**	**8.431**
1	T01.3	Meeting Room	Offices	Conference rooms	**85**	100%	20%	RTU-W4	290	8.6	2494	10	5.0	0.06	50	67	**85**	18	26.1%	**Meets**	**2.045**
1	T01.4	Dean	Offices	Office spaces	**117**	100%	20%	RTU-W4	260	8.6	2236	5	5.0	0.06	5	41	**117**	76	188.2%	**Meets**	**3.140**
1	T01.5	Mail/Copy Room	Workrooms	Copy, printing rooms	**80**	100%	20%	RTU-W4	185	8.6	1591	2	5.0	0.06	4	21	**80**	59	279.1%	**Meets**	**3.017**
1	T01.6	Data	None	None	**114**	100%	20%	RTU-W4	47	9	423	0	0.0	0.00	0	0	**114**	114	0.0%	**N/A**	**16.170**
1	T01.7	Toilet	Public Spaces	Toilet rooms - public	**-135**	---	---	EF-WIF	50	8	400	1	0.0	0.00	0	0	**0**	0	0.0%	**N/A**	**0.000**
1	T02	Reception	Offices	Reception Areas	**77**	100%	20%	RTU-W4	200	9.5	1900	3	5.0	0.06	30	27	**77**	50	185.2%	**Meets**	**2.432**
1	T02A	West Office	Offices	Office spaces	**79**	100%	20%	RTU-W4	150	9.5	1425	4	5.0	0.06	5	29	**79**	50	172.4%	**Meets**	**3.326**
1	T02B	North Office	Offices	Office spaces	**66**	100%	20%	RTU-W4	150	9.5	1425	4	5.0	0.06	5	29	**66**	37	127.6%	**Meets**	**2.779**
1	T02C	East Office	Offices	Office spaces	**74**	100%	20%	RTU-W4	150	9.5	1425	4	5.0	0.06	5	29	**74**	45	155.2%	**Meets**	**3.116**
1	T03	Classroom	Education	Classroom (ages 9+)	**169**	39%	20%	RTU-W2	655	10.1	6616	28	10.0	0.12	35	359	**66**	-293	-81.6%	**Fails**	**0.599**
1	T04	Classroom	Education	Classroom (ages 9+)	**522**	100%	20%	RTU-W1	655	10.1	6616	28	10.0	0.12	35	359	**522**	163	45.6%	**Meets**	**4.734**
1	T05	Classroom	Education	Classroom (ages 9+)	**142**	39%	20%	RTU-W2	655	10.1	6616	28	10.0	0.12	35	359	**55**	-304	-84.7%	**Fails**	**0.499**

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					(cfm)	(%)	(%)		(sq.ft)	(ft)	(cu.ft)	Adult	(cfm/ person)	(cfm/sf)	(#/1000sf)	(cfm)	(cfm)	(cfm)	(%)		(AC/hr)
1	T06	Classroom	Education	Classroom (ages 9+)	**832**	100%	20%	RTU-W1	655	10.1	6616	28	10.0	0.12	35	359	**832**	473	132.0%	**Meets**	**7.546**
1	T07	Classroom	Education	Classroom (ages 9+)	**138**	39%	20%	RTU-W2	655	10.1	6616	28	10.0	0.12	35	359	**54**	-305	-84.9%	**Fails**	**0.490**
1	T07.1	Girls	Public Spaces	Toilet rooms - public	**61**	---	---	TX-W2	265	8.6	2279	5	0.0	0.00	0	0	**0**	0	0.0%	**N/A**	**0.000**
1	T07.2	Cust	Storage	Warehouses	**0**	0	0	TX-W2	50	8.6	430	1	0.0	0.06	0	3	**0**	-3	-100.0%	**Fails**	**0.000**
1	T07.3	Boys	Public Spaces	Toilet rooms - public	**66**	---	---	TX-W2	270	8.6	2322	5	0.0	0.00	0	0	**0**	0	0.0%	**N/A**	**0.000**
1	T08	Computer Lab	Education	Computer lab	**1438**	100%	100%	RTU-W3	1000	10.1	10100	30	10.0	0.12	25	420	**1438**	1018	242.4%	**Meets**	**8.543**
1	T09	Classroom	Education	Classroom (ages 9+)	**159**	39%	20%	RTU-W2	655	10.1	6616	28	10.0	0.12	35	359	**62**	-297	-82.7%	**Fails**	**0.562**
1	T10	Classroom	Education	Classroom (ages 9+)	**517**	100%	20%	RTU-W1	655	10.1	6616	28	10.0	0.12	35	359	**517**	158	44.2%	**Meets**	**4.689**
1	T11	Classroom	Education	Classroom (ages 9+)	**137**	39%	20%	RTU-W2	655	10.1	6616	28	10.0	0.12	35	359	**53**	-306	-85.2%	**Fails**	**0.481**
1	T12	Classroom	Education	Classroom (ages 9+)	**495**	100%	20%	RTU-W1	655	10.1	6616	28	10.0	0.12	35	359	**495**	136	38.0%	**Meets**	**4.489**
1	T13	Classroom	Education	Classroom (ages 9+)	**121**	20%	20%	RTU-W2	655	10.1	6616	28	10.0	0.12	35	359	**47**	-312	-86.9%	**Fails**	**0.426**
1	T14	Classroom	Education	Classroom (ages 9+)	**639**	20%	20%	RTU-W1	655	10.1	6616	28	10.0	0.12	35	359	**639**	280	78.2%	**Meets**	**5.795**
1	T15	Faculty	Offices	Office spaces	**26**	39%	20%	RTU-W2	180	9.5	1710	0	5.0	0.06	5	15	**10**	-5	-34.6%	**Fails**	**0.351**
1	T16	Art Classroom	Education	Art Classroom	**828**	100%	20%	RTU-W1	1400	10.2	14280	28	10.0	0.18	20	532	**828**	296	55.6%	**Meets**	**3.479**
1	T16.1	Women	Public Spaces	Toilet rooms - public	**0**	---	---	TX-W2	72	9.2	662	1	0.0	0.00	0	0	**0**	0	0.0%	**N/A**	**0.000**
1	T16.2	Elec	None	None	**0**	---	---	TX-W2	60	11	660	0	0.0	0.00	0	0	**0**	0	0.0%	**N/A**	**0.000**
1	T16A	Art Resource	Workrooms	Copy, printing rooms	**240**	100%	20%	RTU-W1	295	10.2	3009	2	5.0	0.06	4	28	**240**	212	766.4%	**Meets**	**4.786**
1	T16B	Storage	None	None	**0**	---	---	---	100	8	800	0	0.0	0.00	0	0	**0**	0	0.0%	**N/A**	**0.000**
1	T17	Faculty Pumping/Nursing	Offices	Office spaces	**177**	0	NA	Wall Unit	135	9	1215	1	5.0	0.06	5	13	**0**	-13	-100.0%	**Fails**	**0.000**
1	T18	Physics Science Classroom	Education	Science Laboratories	**896**	0	NA	Wall Unit / EF24A	1060	10.2	10812	28	10.0	0.18	25	471	**0**	-471	-100.0%	**Fails**	**0.000**
1	T19	Teachers Room	Offices	Office spaces	**353**	0	NA	Wall Unit	360	8.9	3204	3	5.0	0.06	5	37	**0**	-37	-100.0%	**Fails**	**0.000**

Project Name:	**Fairfield Public Schools RCx & TAB Study**
Project Number:	**2020102.00.06**
Scope	**Ventilation Calculation by Building**
Date	**May 31, 2023**

Fairfield Warde High School

VANZELM ENGINEERS

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	T21	Teachers Room	Offices	Office spaces	**166**	0	NA	Wall Unit	150	8.9	1335	3	5.0	0.06	5	24	**0**	-24	-100.0%	**Fails**	**0.000**
1	T21.1	Gender Neutral Restroom	Public Spaces	Toilet rooms - public	**0**	0	0	EF-T24A	100	8.1	810	2	0.0	0.00	0	0	**0**	0	0.0%	**N/A**	**0.000**
1	T22	Science Classroom	Education	Science Laboratories	**796**	---	---	EF-T24A	1250	10.2	12750	28	10.0	0.18	25	505	**0**	-505	-100.0%	**Fails**	**0.000**
1	T22A	Prep	Education	Science Laboratories	**271**	20%	20%	RTU-W8	205	8.5	1743	2	10.0	0.18	25	57	**54**	-3	-5.1%	**Fails**	**1.859**
1	T23	Classroom	Education	Classroom (ages 9+)	**0**	0	0	RTU-W9	700	10.2	7140	24	10.0	0.12	35	324	**0**	-324	-100.0%	**Fails**	**0.000**
1	T23A	Work Room	Workrooms	Copy, printing rooms	**0**	---	---	---	150	8.5	1275	2	5.0	0.06	4	19	**0**	-19	-100.0%	**Fails**	**0.000**
1	T24	Book Storage/Copy Room	Storage	Warehouses	**114**	20%	20%	RTU-W8	320	8.3	2656	2	0.0	0.06	0	19	**23**	4	19.8%	**Meets**	**0.520**
1	T24.1	Data	None	None	**0**	0	0	---	60	8.3	498	0	0.0	0.00	0	0	**0**	0	0.0%	**N/A**	**0.000**
1	T25	Book Storage (Formerly OT/PT)	None	None	**287**	20%	20%	RTU-W8	300	9.8	2940	1	0.0	0.00	0	0	**68**	68	0.0%	**N/A**	**1.388**
1	T26	Classroom	Education	Classroom (ages 9+)	**332**	20%	20%	RTU-W8	655	10.2	6681	28	10.0	0.12	35	359	**66**	-293	-81.6%	**Fails**	**0.593**
1	T26.1	Toilet	Public Spaces	Toilet rooms - public	**0**	0	0	---	125	8.3	1038	2	0.0	0.00	0	0	**0**	0	0.0%	**N/A**	**0.000**
1	T27	Learning Center (Former Motor Room)	Offices	Office spaces	**575**	20%	20%	RTU-W8	900	10.2	9180	12	5.0	0.06	5	114	**116**	2	1.8%	**Meets**	**0.758**
1	T27.1	Storage	None	None	**0**	---	---	---	26	10.2	265	0	0.0	0.00	0	0	**0**	0	0.0%	**N/A**	**0.000**
1	T27.2	Storage	None	None	**0**	---	---	---	26	10.2	265	0	0.0	0.00	0	0	**0**	0	0.0%	**N/A**	**0.000**
1	T28	Classroom	Education	Classroom (ages 9+)	**292**	20%	20%	RTU-W8	655	10.2	6681	28	10.0	0.12	35	359	**58**	-301	-83.8%	**Fails**	**0.521**
1	T29	Classroom	Education	Classroom (ages 9+)	**372**	20%	20%	RTU-W8	890	10.2	9078	28	10.0	0.12	35	387	**74**	-313	-80.9%	**Fails**	**0.489**
1	T30	Science Classroom	Education	Science Laboratories	**477**	20%	20%	RTU-W8	1160	10.2	11832	28	10.0	0.18	25	489	**96**	-393	-80.4%	**Fails**	**0.487**
1	T31	Prep	Education	Science Laboratories	**414**	---	---	RTU-W8	270	8	2160	2	10.0	0.18	25	69	**0**	-69	-100.0%	**Fails**	**0.000**
1	T31.1	Faculty Men Restroom	Public Spaces	Toilet rooms - public	**493**	20%	20%	RTU-W8/EF-T24A	270	8	2160	4	0.0	0.00	0	0	**98**	98	0.0%	**N/A**	**2.722**
1	T31.2	Cust	Storage	Warehouses	**-118**	---	---	RTU-W8/EF-T24A	50	8	400	1	0.0	0.06	0	3	**0**	-3	-100.0%	**Fails**	**0.000**
1	T31.3	Girls	Public Spaces	Toilet rooms - public	**440**	20%	20%	RTU-W8/EF-T24A	265	8	2120	4	0.0	0.00	0	0	**88**	88	0.0%	**N/A**	**2.491**

Project Name:	**Fairfield Public Schools RCx & TAB Study**
Project Number:	**2020102.00.06**
Scope	**Ventilation Calculation by Building**
Date	**May 31, 2023**

Fairfield Warde High School

VANZELM ENGINEERS

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	T32	Counseling Waiting Area	Offices	Reception Areas	**236**	31%	20%	RTU-W-6	412	8.5	3502	3	5.0	0.06	30	40	**73**	33	83.8%	**Meets**	**1.251**
1	T32A (W25A)	Office	Offices	Office spaces	**135**	31%	20%	RTU-W-6	108	9.5	1026	2	5.0	0.06	5	16	**42**	26	154.9%	**Meets**	**2.456**
1	T32B (W25B)	Office	Offices	Office spaces	**154**	31%	20%	RTU-W-6	155	9.5	1473	4	5.0	0.06	5	29	**48**	19	63.8%	**Meets**	**1.956**
1	T32C (W25C)	Office	Offices	Office spaces	**174**	31%	20%	RTU-W-6	160	9.5	1520	4	5.0	0.06	5	30	**54**	24	82.4%	**Meets**	**2.132**
1	T32D (W25D	Office	Offices	Office spaces	**151**	31%	20%	RTU-W-6	135	9.5	1283	4	5.0	0.06	5	28	**47**	19	67.3%	**Meets**	**2.199**
1	T32E (W25E)	Office	Offices	Office spaces	**187**	31%	20%	RTU-W-6	135	9.5	1283	4	5.0	0.06	5	28	**58**	30	106.4%	**Meets**	**2.713**
1	T32F (W25F)	Office	Offices	Office spaces	**243**	31%	20%	RTU-W-6	190	9.5	1805	4	5.0	0.06	5	31	**75**	44	138.9%	**Meets**	**2.493**
1	T32G (W25G	Conference	Offices	Conference rooms	**414**	31%	20%	RTU-W-6	255	9.5	2423	10	5.0	0.06	50	65	**128**	63	96.0%	**Meets**	**3.170**
1	T32T (WT12)	Toilet	Public Spaces	Toilet rooms - public	**-88**	31%	20%	EF -TA24	51	9	459	1	0.0	0.00	0	0	**0**	0	0.0%	**Meets**	**0.000**
1	T33	Biology Science Classroom	Education	Science Laboratories	**1155**	31%	20%	RTU-W-6	1330	10.2	13566	28	10.0	0.18	25	519	**358**	-161	-31.1%	**Fails**	**1.583**
1	T34	Classroom	Education	Classroom (ages 9+)	**139**	31%	20%	RTU-W-6	655	10.2	6681	28	10.0	0.12	35	359	**43**	-316	-88.0%	**Fails**	**0.386**
1	T35	Special Ed. Coord. Waiting Area	Offices	Reception Areas	**235**	31%	20%	RTU-W-6	135	9.1	1229	5	5.0	0.06	30	33	**73**	40	120.5%	**Meets**	**3.565**
1	T35.1	Office	Offices	Office spaces	**225**	31%	20%	RTU-W-6	200	9.1	1820	4	5.0	0.06	5	32	**70**	38	118.8%	**Meets**	**2.308**
1	T36	Science Classroom	Education	Science Laboratories	**980**	31%	20%	RTU-W-6	1050	10.1	10605	28	10.0	0.18	25	469	**304**	-165	-35.2%	**Fails**	**1.720**
1	T37	Prep	Education	Science Laboratories	**-281**	31%	20%	EF-W6	215	8	1720	2	10.0	0.18	25	59	**0**	-59	-100.0%	**Fails**	**0.000**
1	T38	Security Office	Offices	Office spaces	**370**	31%	20%	RTU-W-6	340	8.5	2890	6	5.0	0.06	5	50	**115**	65	128.2%	**Meets**	**2.388**

APPENDIX 3 – Roof Map


RTU-A-6
RTU-A-7
RTU-A-1
RTU-A-2
RTU-A-5
RTU-A-3
RTU-A-4
DEFUNCT
RTU-L-11
RTU-B-1
RTU-B-3
RTU-B-2
DEFUNCT
RTU-W-9
RTU-L-8
RTU-L-9
RTU-L-10
RTU-L-7
RTU-L-1
RTU-W-8
RTU-F-1
RTU-F-2
RTU-W-1
RTU-W-2
RTU-L-6
RTU-W-7
RTU-W-3
RTU-L-5
RTU-L-2
RTU-W-6
RTU-F-3
RTU-L-3
RTU-L-4
RTU-C-1
RTU-W-5
RTU-W-4
RTU-F-4
RTU-C-3
RTU-C-2
RTU-E-1
HV-D-1
(inside)
RTU-AUD
(inside)
HV-D-2
(inside)
RTU-E-4
RTU-E-2
DEFUNCT
RTU-H-6
HV-D-4
(inside)
RTU-E-5
RTU-E-3
HV-D-3
(inside)
RTU-M-1
RTU-E-7
RTU-E-6
RTU-E-8
Google
Imagery ©2020 Google, Imagery ©2020 Maxar Technologies, New York GIS, USDA Farm Service Agency, Map data ©2020
United States
Terms
Send feedback
100 ft
3D

APPENDIX 4 – TAB Airflow Survey Data

WING'S TESTING & BALANCING CO., INC.

Fairfield Public Schools

Warde High School

* * * *

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

March 17, 2023

VanZelm Engineers

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

SM-1 License #6803

www.wingstesting.com

WING'S TESTING & BALANCING CO., INC.

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

Re: Warde High School

Dear Bill,

The testing of the above-referenced site has been completed. All data was collected under minimum conditions if possible. Through our testing we found that:

- RTU-F2: Unit is not in the controls system.
- RTU-L1: This unit is not operational.
- RTU's L3 + L8: Unit controller does not respond to command.
- RTU-W3 + W4: OA and mixed air dampers are not responding to command.
- RTU-A6: This unit is not operational.
- RTU-C3: The entire unit is wrapped in a blue tarp on the roof.
- RTU-E2 + E-3: Controls have no communication with these units.

The following pages reflect our findings. 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

Barry Stratos
Certified TABB Technician
CT SM-2 License 6386
MA SM-2 13595

94 North Branford Road • Suite One • Branford, CT 06405
(203) 481-4988 • wings@wingstesting.com
SM-1 License #6803
www.wingstesting.com

VELOCITY PRESSURE READINGS

PROJECT:	FPS - Warde High School					**DATE:**	9/2/22, 3/13/23	
AREA SERVED:	Various					**TECH:**	BS	
TRAVERSE LOCATIONS	**DUCT SIZE "**	**AREA SQ.FT.**	**DESIGN**		**CENT. STAT. PRESS."**	**TEST**		**NOTES**
			FPM	**CFM**		**FPM**	**CFM**	
RTU-F2 Supply	58" x 35"	14.10	---	ND	Velgrid	676	9530	(4)
RTU-F2 OA	58" x 35"	14.10	---	ND	Velgrid	676	9530	
RTU-F2 Return	---	---	---	ND	Calc	---		
RTU-F3 Supply	58" x 35"	14.10	---	ND	Velgrid	423	5964	
RTU-F3 OA	58" x 35"	14.10	---	ND	Velgrid	76	1072	
RTU-F3 Return	---	---	---	ND	Calc	---	4892	
RTU-F4 Supply	46" x 35"	11.18	---	ND	Velgrid	129	1443	
RTU-F4 OA	46" x 35"	11.18	---	ND	Velgrid	42	470	
RTU-F4 Return	---	---	---	ND	Calc	---	973	
RTU-L1 Supply	32" x 24"	5.33	---	ND	Velgrid	0	0	(1)
RTU-L1 OA	32" x 24"	5.33	---	ND	Velgrid	0	0	
RTU-L1 Return	---	---	---	ND	Calc	---	0	
RTU-L2 Supply	32" x 24"	5.33	---	ND	Velgrid	437	2329	
RTU-L2 OA	32" x 24"	5.37	---	ND	Velgrid	437	2329	(3)
RTU-L1 Return	---	---	---	ND	Calc	0	0	
RTU-L3 Supply	30" x 22"	4.58	---	ND	Velgrid	454	2079	
RTU-L3 OA	30" x 22"	4.58	---	ND	Velgrid	0	0	(2)
RTU-L3 Return	---	---	---	ND	Calc	---	---	
RTU-L4 Supply	30" x 20"	4.17	---	ND	Velgrid	192	801	
RTU-L4 OA	30" x 20"	4.17	---	ND	Velgrid	40	167	
RTU-L4 Return	---	---	---	ND	Calc	---	634	

REMARKS

(1) Unit is not operational. Supply fan contactor is no good.
(2) Unit controller not responding.
(3) OA damper not responding.
(4) Unit not in controls system.

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

VELOCITY PRESSURE READINGS

PROJECT:	FPS - Warde High School					**DATE:**	9/1/22, 3/13/23	
AREA SERVED:	Various					**TECH:**	BS	
TRAVERSE LOCATIONS	**DUCT SIZE "**	**AREA SQ.FT.**	**DESIGN**		**CENT. STAT. PRESS."**	**TEST**		**NOTES**
			FPM	**CFM**		**FPM**	**CFM**	
RTU-L5 Supply	28" x 20"	3.89	---	ND	Velgrid	557	2167	
RTU-L5 OA	28" x 20"	3.89	---	ND	Velgrid	201	782	
RTU-L5 Return	---	---	---	ND	Calc	---	1385	
RTU-L6 Supply	32" x 24"	5.33	---	ND	Velgrid	878	4680	
RTU-L6 OA	32" x 24"	5.33	---	ND	Velgrid	878	4680	(4)
RTU-L6 Return	---	---	---	ND	Calc	0	0	
RTU-L7 Supply	24" x 24"	4.0	---	ND	Velgrid	0	0	(1)
RTU-L7 OA	24" x 24"	4.0	---	ND	Velgrid	0	0	
RTU-L7 Return	---	---	---	ND	Calc	---	0	
RTU-L8 Supply	26" x 24"	4.33	---	ND	Velgrid	383	1658	
RTU-L8 OA	26" x 24"	4.33	---	ND	Velgrid	383	1658	(3)
RTU-L8 Return	---	---	---	ND	Calc	0	0	
RTU-L9 Supply	37" x 33"	8.48	---	ND	Velgrid	556	4715	(2)
RTU-L9 OA	37" x 33"	8.48	---	ND	Velgrid	556	4715	
RTU-L9 Return	---	---	---	ND	Calc	0	0	
RTU-L10 Supply	50" x 18"	6.25	---	ND	Velgrid	510	3188	(2)
RTU-L10 OA	50" x 18"	6.25	---	ND	Velgrid	510	3188	
RTU-L10 Return	---	---	---	ND	Calc	0	0	
RTU-M1 Supply	78" x 48"	26.0	---	ND	Velgrid	168	4368	
RTU-M1 OA	77" x 23"	12.3	---	ND	Velgrid	55	677	
RTU-M1 Return	---	---	---	ND	Calc	---	3611	

REMARKS

(1) Unit missing fan sheave.
(2) Unit only runs in hand.
(3) Controller to the unit is non-responsive.
(4) OA damper not responding. OA 100% open.

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

VELOCITY PRESSURE READINGS

PROJECT:	FPS - Warde High School					**DATE:**	8/31/22, 3/14/23	
AREA SERVED:	Various					**TECH:**	BS	
TRAVERSE LOCATIONS	**DUCT SIZE "**	**AREA SQ.FT.**	**DESIGN**		**CENT. STAT. PRESS."**	**TEST**		**NOTES**
			FPM	**CFM**		**FPM**	**CFM**	
RTU-W1 Supply	24" x 25"	4.17	---	ND	Velgrid	895	3729	(2)
RTU-W1 OA	24" x 25"	4.17	---	ND	Velgrid	895	3729	
RTU- W1 Return	---	---	---	ND	Calc	0	0	
RTU-W2 Supply	32" x 24"	5.33	---	ND	Velgrid	122	651	(3)
RTU-W2 OA	32" x 24"	5.33	---	ND	Velgrid	47	251	
RTU-W2 Return	---	---	---	ND	Calc	---	400	
RTU-W3 Supply	29" x 20"	4.03	---	ND	Velgrid	211	850	(4)
RTU-W3 OA	29" x 20"	4.04	---	ND	Velgrid	211	850	
RTU-W3 Return	---	---	---	ND	Calc	0	0	
RTU-W4 Supply	28" x 20"	3.89	---	ND	Velgrid	311	1209	(4)
RTU-W4 OA	28" x 20"	3.89	---	ND	Velgrid	311	1209	
RTU-W4 Return	---	---	---	ND	Calc	0	0	
RTU-W5 Supply	26" x 12"	2.17	---	ND	Velgrid	646	1400	
RTU-W5 OA	26" x 12"	2.17	---	ND	Velgrid	68	148	
RTU-W5 Return	---	---	---	ND		---	1252	
RTU-W6 Supply	30" x 20"	4.17	---	ND	Velgrid	648	2702	
RTU-W6 OA	30" x 20"	4.17	---	ND	Velgrid	202	842	
RTU-W6 Return	---	---	---	ND	Calc	---	1860	
RTU-W7 Supply	30" x 24"	5.0	---	ND	Velgrid	378	1890	(1)
RTU- W7 OA	30" x 24"	5.0	---	ND	Velgrid	210	1050	
RTU-W7 Return	---	---	---	ND	Calc	---	840	
RTU-W8 Supply	30" x 20"	4.17	---	ND	Velgrid	398	1660	
RTU-W8 OA	30" x 20"	4.17	---	ND	Velgrid	78	325	
RTU-W8 Return	---	---	---	ND	Calc	---	1335	

REMARKS

(1) RAD not functioning and is 100% open.
(2) OA and mixed air dampers are not modulating.
(3) Belts on supply fan are loose.
(4) Dampers not responding to controls command.

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

VELOCITY PRESSURE READINGS

PROJECT:	FPS - Warde High School					**DATE:**	8/29/22, 3/14/23	
AREA SERVED:	Various					**TECH:**	BS	
TRAVERSE LOCATIONS	**DUCT SIZE "**	**AREA SQ.FT.**	**DESIGN**		**CENT. STAT. PRESS."**	**TEST**		**NOTES**
			FPM	**CFM**		**FPM**	**CFM**	
RTU- A1 Supply	36" x 38"	9.5	---	ND	Velgrid	474	4503	
RTU- A1 OA	36" x 38"	9.5	---	ND	Velgrid	474	4503	
RTU-A1 Return	---	---	---	ND	Calc	0	0	(1)
RTU-A2 Supply	36" x 20" (x2)	10.0	---	ND	Velgrid	322	3220	
RTU-A2 OA	36" x 20" (x2)	10.0	---	ND	Velgrid	116	1160	
RTU-A2 Return	---	---	---	ND	Calc	---	2060	
RTU- A3 Supply	29" x 20"	4.03	---	ND	Velgrid	584	2354	
RTU- A3 OA	29" x 20"	4.03	---	ND	Velgrid	108	435	
RTU-A3 Return	---	---	---	ND	Calc	---	1919	
RTU-A4 Supply	28" x 19"	3.69	---	ND	Velgrid	510	1882	
RTU-A4 OA	28" x 19"	3.69	---	ND	Velgrid	0	0	(4)
RTU-A4 Return	---	---	---	ND	Calc	---	1882	
RTU-A5 Supply	24" x 18"	3.0	---	ND	Velgrid	780	2340	
RTU-A5 OA	36" x 16"	4.0	---	ND	Velgrid	132	528	
RTU-A5 Return	---	---	---	ND	Calc	---	1812	
RTU-A6 Supply	38" x 12"	3.16	---	ND	Velgrid	0	0	(1,2)
RTU-A6 OA	38" x 12"	3.16	---	ND	Velgrid	0	0	
RTU-A6 Return	---	---	---	ND	Calc	---	0	
RTU-A7 Supply	94" x 15"	9.8	---	ND	Velgrid	537	5263	
RTU-A7 OA	94" x 15"	9.8	---	ND	Velgrid	70	686	(3)
RTU-A7 Return	---	---	---	ND	Calc	---	4577	(3)

REMARKS

(1) Unit is 100% OA.
(2) Unit is not operational.
(3) Mixed air damper broken in unit.
(4) Outside damper not modulating.

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

VELOCITY PRESSURE READINGS

PROJECT:	FPS - Warde High School					**DATE:**	8/30/22, 3/15/23	
AREA SERVED:	Various					**TECH:**	BS	
TRAVERSE LOCATIONS	**DUCT SIZE "**	**AREA SQ.FT.**	**DESIGN**		**CENT. STAT. PRESS."**	**TEST**		**NOTES**
			FPM	**CFM**		**FPM**	**CFM**	
RTU-B1 Supply	26" x 24	4.33	---	ND	Velgrid	216	936	
RTU-B1 OA	26" x 24	4.33	---	ND	Velgrid	216	936	(2)
RTU-B1 Return	---	---	---	ND	Calc	0	0	(1)
RTU-B2 Supply	26" x 24	4.33	---	ND	Velgrid	841	3642	
RTU-B2 OA	26" x 24	4.33	---	ND	Velgrid	841	3642	(2)
RTU-B2 Return	---	---	---	ND	Calc	0	0	(1)
RTU-B3 Supply	36" x 16"	4.0	---	ND	Velgrid	549	2196	
RTU-B3 OA	36" x 16"	4.0	---	ND	Velgrid	156	624	
RTU-B3 Return	---		---	ND	Calc	---	1572	
RTU-C1 Supply	28.5" x 20.5"	4.06	---	ND	Velgrid	727	2950	
RTU-C1 OA	28.5" x 20.5"	4.06	---	ND	Velgrid	727	2950	(2)
RTU-C1 Return	---		---	ND	Calc	0	0	
RTU-C2 Supply	28.5" x 20.5"	4.06	---	ND	Velgrid	370	1502	
RTU-C2 OA	28.5" x 20.5"	4.06	---	ND	Velgrid	68	276	
RTU-C2 Return	---	---	---	ND	Calc	---	1226	
RTU- C3 Supply	---	---	---	ND	NA	NA	NA	(4)
RTU-C3 OA	---	---	---	ND	NA	NA	NA	
RTU-C3 Return	---	---	---	ND	NA	NA	NA	
RTU-AUD.C Supply	---	---	---	ND	---	---	---	(5)
RTU-AUD.C OA	---	---	---	ND	---	---	---	
RTU-AUD.C Return	---	---	---	ND	---	---	---	
	---	---						

REMARKS

(1) Mixed air damper not modulating.
(2) OA damper not modulating.
(3) Controls has no communication with this unit.
(4) Entire unit sufforated, entire unit wrapped in blue tarp with ratchet straps.
(5) This is not a RTU, it is the condensing unit for RTU-AUD-D.

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

VELOCITY PRESSURE READINGS

PROJECT:	FPS - Warde High School					**DATE:**	8/31/22, 3/14/23	
AREA SERVED:	Various					**TECH:**	BS	
TRAVERSE LOCATIONS	**DUCT SIZE "**	**AREA SQ.FT.**	**DESIGN**		**CENT. STAT. PRESS."**	**TEST**		**NOTES**
			FPM	**CFM**		**FPM**	**CFM**	
RTU-AUD.D Supply	40" x 38"	10.55	---	ND	+0.44"	1879	19,823	
RTU-AUD.D OA	---	---	---	ND	Calc	---	13,516	
RTU-AUD.D Return	80" x 24"	13.3	---	ND	Velgrid	473	6307	
HV-01 Supply	28" x 14"	2.72	---	ND	0.92"	2768	7535	(3)
HV-01 OA	16" x 16"	1.78	---	ND	-0.06"	382	679	
HV 01 Return	---	---	---	ND	Calc	---	6856	
HV-02 Supply	---	---	---	ND	Calc	---	14,050	
HV-02 OA	24" x 30"	5.0	---	ND	-0.04"	132	660	
HV 02 Return	34" x 34" ID	8.03	---	ND	-0.54"	1668	13,390	
HV-03 Supply	---	---	---	ND	Calc	---	2665	
HV-03 OA	16" x 16"	1.78	---	ND	0.07"	58	103	
HV-03 Return	48" x 14"	4.67	---	ND	Velgrid	549	2562	
HV-04 Supply	48" x 30"	10.0	---	ND	+0.95"	1454	14,540	
HV-04 OA	---	---	---	ND	Calc	---	231	
HV-04 Return	34" x 22" ID	5.19	---	ND	-0.43"	2757	14,309	
RTU-E1 Supply	18" x 39"	4.875	---	ND	Velgrid	414	2018	
RTU-E1 OA	18" x 39"	4.875	---	ND	Velgrid	414	2018	(1)
RTU-E1 Return	---	---	---	ND	Calc	---	0	
RTU-E2 Supply	50" x 27"	7.92	---	ND	Velgrid	0	0	(2)
RTU-E2 OA	50" x 27"	7.92	---	ND	Velgrid	0	0	
RTU-E2 Return	---	---	---	ND	Calc	0	0	

REMARKS

(1) Outside air damper linkage is broken. Stuck at 100% open.
(2) Controls has no communication with this unit.
(3) Unit not taking commands from S4 device.

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

VELOCITY PRESSURE READINGS

PROJECT:	FPS - Warde High School					**DATE:**	9/1/22, 3/15/23	
AREA SERVED:	Various					**TECH:**	BS	
TRAVERSE LOCATIONS	**DUCT SIZE "**	**AREA SQ.FT.**	**DESIGN**		**CENT. STAT. PRESS."**	**TEST**		**NOTES**
			FPM	**CFM**		**FPM**	**CFM**	
RTU-E3 Supply	50" x 27"	9.375	---	ND	Velgrid	0	0	(2)
RTU-E3 OA	50" x 27"	9.375	---	ND	Velgrid	0	0	
RTU-E3 Return	---	---	---	ND	Calc	---	0	
RTU-E4 Supply	50" x 27"	9.375	---	ND	Velgrid	527	4940	
RTU-E4 OA	50" x 27"	9.375	---	ND	Velgrid	527	4940	(3)
RTU-E4 Return	---	---	---	ND	Calc	0	0	
RTU-E5 Supply	50" x 27"	9.375	---	ND	Velgrid	512	4800	
RTU-E5 OA	50" x 27"	9.375	---	ND	Velgrid	193	1809	
RTU-E5 Return	---	---	---	ND	Calc	---	2991	
RTU-E6 Supply	51" x 21"	7.44	---	ND	Velgrid	734	5461	(2)
RTU-E6 OA	51" x 21"	7.44	---	ND	Velgrid	0	0	
RTU-E6 Return	---	---	---	ND	Calc	---	5461	
RTU-E7 Supply	78" x 48"	26.0	---	ND	Coilscan	292	7592	
RTU-E7 OA	138" x 24"	23.0	---	ND	Velgrid	0	0	
RTU-E7 Return	---	---	---	ND	Calc	---	7592	
RTU-E8 Supply	24" X 78"	13.0	---	ND	Velgrid	126	1638	
RTU-E8 OA	24" X 78"	13.0	---	ND	Velgrid	56	728	(4)
RTU-E8 Return	---	---	---	ND	Calc	---	910	
RTU-F1 Supply	46" x 35"	11.18	---	ND	Velgrid	436	4875	(1)
RTU-F1 OA	46" x 35"	11.18	---	ND	Velgrid	157	1755	
RTU-F1 Return	---	---	---	ND	Calc	---	3120	

REMARKS

(1) Dampers not responding to controls command.
(2) Controls has no communication with this unit.
(3) Outside air actuator not modulating.
(4) Outside air louver completely clogged.

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

AIR DEVICE REPORT

PROJECT:	FPS - Ward High School	**DATE:**	9/1/22, 3/17/23
SYSTEM / AREA:	RTU-A7	**TECH:**	BS

LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
RTU-A7										
Classroom B	1	2408	FH	---	ND	---	39			
Classroom B	2	2408	FH	---	ND	---	48			
Classroom B	3	2408	FH	---	ND	---	49			
Classroom B	4	2408	FH	---	ND	---	46			
Classroom A	5	2408	FH	---	ND	---	54			
Classroom A	6	2408	FH	---	ND	---	46			
Classroom A	7	2408	FH	---	ND	---	45			
Classroom A	8	2408	FH	---	ND	---	48			
Corridor	9	2408	FH	---	ND	---	28			
Corridor	10	2408	FH	---	ND	---	37			
Corridor	11	2408	FH	---	ND	---	33			
Corridor	12	2408	FH	---	ND	---	30			
Classroom C	13	2408	FH	---	ND	---	38			
Classroom C	14	2408	FH	---	ND	---	39			
Classroom C	15	2408	FH	---	ND	---	38			
Classroom C	16	2408	FH	---	ND	---	39			
Classroom D	17	2408	FH	---	ND	---	51			
Classroom D	18	2408	FH	---	ND	---	47			
Classroom D	19	2408	FH	---	ND	---	45			
Classroom D	20	2408	FH	---	ND	---	52			
Classroom E	21	2408	FH	---	ND	---	23			
Classroom E	22	2408	FH	---	ND	---	23			
Classroom E	23	2408	FH	---	ND	---	26			
Classroom E	24	2408	FH	---	ND	---	30			
Main Office	25	2408	FH	---	ND	---	23			
Conference	26	2408	FH	---	ND	---	30			
Conference	27	2408	FH	---	ND	---	23			
Classroom F	28	2408	FH	---	ND	---	56			
Classroom F	29	2408	FH	---	ND	---	50			
Classroom F	30	2408	FH	---	ND	---	46			
Classroom F	31	2408	FH	---	ND	---	54			
Storage	32	2406	FH	---	ND	---	20			
OT/PT	33	2408	FH	---	ND	---	36			
OT/PT	34	2408	FH	---	ND	---	42			
OT/PT	35	2408	FH	---	ND	---	40			
OT/PT	36	2408	FH	---	ND	---	32			

REMARKS

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

AIR DEVICE REPORT

PROJECT:	FPS - Ward High School	**DATE:**	9/2/22, 3/17/23
SYSTEM / AREA:	RTU-A7	**TECH:**	BS

LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
RTU-A7 (Cont.)										
Storage	37	2406	FH	---	ND	---	26			
Office 8	38	2408	FH	---	ND	---	97			
Office 9	39	2408	FH	---	ND	---	94			
Workroom 10	40	2408	FH	---	ND	---	204			
Office 7	41	2408	FH	---	ND	---	35			
Office 6	42	2408	FH	---	ND	---	34			
Nurse	43	2408	FH	---	ND	---	23			
Treatment	44	2408	FH	---	ND	---	28			
Gym 2	45	22" x 6"	.66	---	ND	102	67			
Gym 2	46	22" x 6"	.66	---	ND	108	71			
Gym 2	47	22" x 6"	.66	---	ND	112	74			
Gym 2	48	22" x 6"	.66	---	ND	100	66			
							1545			

REMARKS

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

AIR DEVICE REPORT

PROJECT:	FPS - Ward High School							**DATE:**	9/2/22, 3/17/23	
SYSTEM / AREA:	Various							**TECH:**	BS	
				DESIGN		**TEST**		**FINAL**		
LOCATION	**NO.**	**SIZE**	**A K**	**FPM**	**CFM**	**FPM**	**CFM**	**FPM**	**CFM**	**NOTES**
Boy's Locker										
(Large Gym)										
Supply	1	12" x 6"	.36	---	ND	840	302			
Supply	2	12" x 6"	.36	---	ND	575	207			
Supply	3	12" x 6"	.36	---	ND	385	139			
					ND		648			
Exhaust	1	12" x 6"	.36	---	ND	400	144			
Exhaust	2	12" x 6"	.36	---	ND	450	162			
Exhaust	3	12" x 6"	.36	---	ND	480	173			
Exhaust	4	12" x 6"	.36	---	ND	210	76			
Exhaust	5	12" x 6"	.36	---	ND	260	94			
Exhaust	6	12" x 6"	.36	---	ND	570	205			
					ND		854			
Coach's Locker										
Supply	1	12" x 6"	.36	---	ND	565	203			
Supply	2	12" x 6"	.36	---	ND	375	135			
Supply	3	12" x 6"	.36	---	ND	515	185			
Supply	4	12" x 6"	.36	---	ND	650	234			
Supply	5	12" x 6"	.36	---	ND	395	142			
					ND		899			
Exhaust	1	12" x 6"	.36	---	ND	500	180			
Exhaust	2	12" x 6"	.36	---	ND	360	130			
Exhaust	3	12" x 6"	.36	---	ND	375	135			
Exhaust	4	12" x 6"	.36	---	ND	450	162			
Exhaust	5	12" x 6"	.36	---	ND	210	76			
					ND		683			
					ND		683			
(REF Shower)										
Exhaust	1	12" x 6"	.36	---	ND	95	34			
(REF Locker)										
Supply	1	2408	FH	---	ND	---	219			

REMARKS

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

AIR DEVICE REPORT

PROJECT: FPS - Ward High School **DATE:** 9/2/22, 3/17/23

SYSTEM / AREA: Various **TECH:** BS

LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
Girl's Locker										
Supply										
E19	1	12" x 6"	.36	---	ND	540	194			
E19	2	12" x 6"	.36	---	ND	800	288			
E19	3	12" x 6"	.36	---	ND	910	328			
E19	4	12" x 6"	.36	---	ND	800	288			
E19	5	12" x 6"	.36	---	ND	905	326			
E19	6	12" x 6"	.36	---	ND	975	351			
					ND		1775			
Exhaust										
E19	1	12" x 6"	.36	---	ND	0	0			
E19	2	12" x 6"	.36	---	ND	0	0			
E19	3	12" x 6"	.36	---	ND	0	0			
E19	4	12" x 6"	.36	---	ND	0	0			
E19	5	12" x 6"	.36	---	ND	74	27			
E19	6	12" x 6"	.36	---	ND	40	14			
E19	7	12" x 6"	.36	---	ND	50	18			
E19	8	12" x 6"	.36	---	ND	0	0			
					ND		59			
Boy's Locker										
Supply	1	12" x 6"	.36	---	ND	0	0			
Supply	2	12" x 6"	.36	---	ND	742	267			
Supply	3	12" x 6"	.36	---	ND	720	277			
Supply	4	12" x 6"	.36	---	ND	630	227			
Supply	5	12" x 6"	.36	---	ND	540	194			
Supply	6	12" x 6"	.36	---	ND	210	76			
Supply	7	12" x 6"	.36	---	ND	360	130			
Supply	8	12" x 6"	.36	---	ND	490	176			
					ND		1347			
Exhaust	1	12" x 6"	.36	---	ND	135	49			
Exhaust	2	12" x 6"	.36	---	ND	365	131			
Exhaust	3	12" x 6"	.36	---	ND	425	153			

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

AIR DEVICE REPORT

PROJECT: FPS - Ward High School **DATE:** 9/2/22

SYSTEM / AREA: Various **TECH:** BS

LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
Boy's Locker										
(Exhaust Cont.)										
Exhaust	4	12" x 6"	.36	---	ND	415	149			
Exhaust	5	12" x 6"	.36	---	ND	275	99			
Exhaust	6	12" x 6"	.36	---	ND	330	119			
Exhaust	7	12" x 6"	.36	---	ND	75	25			
					ND		725			
Visitor Locker										
Supply	1	12" x 6"	.36	---	ND	410	148			
	2	12" x 6"	.36	---	ND	315	113			
					ND		261			
Exhaust	1	12" x 6"	.36	---	ND	360	130			
Exhaust	2	12" x 6"	.36	---	ND	375	135			
Exhaust	3	12" x 6"	.36	---	ND	325	117			
Exhaust	4	12" x 6"	.36	---	ND	330	119			
					ND		501			
G3	1	24" x 6"	.80	---	ND	1940	1552			
G3	2	24" x 6"	.80	---	ND	1985	1588			
G3	3	24" x 6"	.80	---	ND	1990	1592			
					ND		4732			
G4	1	24" x 6"	.80	---	ND	2190	1752			
G4	2	24" x 6"	.80	---	ND	2140	1712			
G4	3	24" x 6"	.80	---	ND	2000	1600			
					ND		5064			

REMARKS

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

Project Name:	**Fairfield Public Schools RCx: Fairfield Warde High School**
Project Number:	*2020102.00.06*
Scope	**TAB Data**
Date	

Zone Identification								
Floor	Room#	Room Name	Design Min CFM (cfm)	Actual OA at Min (OA cfm)	Unit Actual OA % (OA% of Total)	BAS OA Damper Cond (pos. %)	Space Served By RTU/AHU Unit	Notes
1	A01	Observation	152	0	0%	20%	RTU-A4	
1	A01.1	Storage	68	0	0%	20%	RTU-A4	
1	A01.2	Toilet	101	0	0%	20%	RTU-A4	
1	A01.5	Maint/Carpenter	EX 70	---	---	---	EF-B1	
1	A01.5.1	Janitor near A1.5 Maint/Carpenter	-200	---	---	---	EF-B1	
1	A01.5A	Central Service Work Room	20	0	0%	20%	RTU-A4	
1	A01.5B	Project Room	---	---	---	---	---	Layout changed, room does not exist
1	A01.5C	Office	0	---	---	---	---	
1	A01.5D	Maintenance Locker Room	30 EX 60	0	0%	20%	RTU-A4 + EF-B1	
1	A01A	OT/PT Storage (Project Room)	---	---	---	---	---	Layout changed, room does not exist
1	A02	Child Development	921	332	36%	20%	RTU-A2	
1	A03	CAD Room	1355	488	36%	20%	RTU-A2	
1	A03.1	Storage	46	17	36%	20%	RTU-A2	
1	A04	Graphic Arts	2417	435	18%	20%	RTU-3	
1	A05	Computer Repair	1296	467	36%	10%	RTU-A2	
1	A05A	South Storage	134	48	36%	20%	RTU-A2	
1	A05B	Cl#1 Storage	77	28	36%	20%	RTU-A2	
1	A05C	Cl#2 Storage	109	39	36%	20%	RTU-A2	
1	A05D	Cl#3 Storage	159	57	36%	20%	RTU-A2	
1	A06	Wood Shop	4162	4162	100%	100%	RTU-A1	
1	A06A	Work Room	---	---	---	---	---	This space has no ventilation
1	A06B	Office	38	38	100%	100%	RTU-A1	
1	A06C	Storage	EX 211	---	---	---	EX	

Project Name:	**Fairfield Public Schools RCx: Fairfield Warde High School**
Project Number:	*2020102.00.06*
Scope	**TAB Data**
Date	

Zone Identification

Floor	Room#	Room Name	Design Min CFM (cfm)	Actual OA at Min (OA cfm)	Unit Actual OA % (OA% of Total)	BAS OA Damper Cond (pos. %)	Space Served By RTU/AHU Unit	Notes
1	A06D	Wood Storage	---	---	------	---	---	There is no ventilation to this space
1	A07	Transportation / Automotive Shop	0	---	---		EF-A2	RTU-A6 serves this area and has not run in 15+ years
1	A07.1	Boys near Automotive	Ex 166	---	---	---	EF-A2	
1	A07.2	Janitor	EX 122	---	---	---	EF-A2	
1	A07.3	Girls near Automotive	EX 320	---	---	---	EF-A2	
1	A07A	Automotive Project Room/Storage	---	---	---	---	---	No ventilation or EX

Project Name:	**Fairfield Public Schools RCx: Fairfield Warde High School**
Project Number:	*2020102.00.06*
Scope	**TAB Data**
Date	

Zone Identification

Floor	Room#	Room Name	Design Min CFM (cfm)	Actual OA at Min (OA cfm)	Unit Actual OA % (OA% of Total)	BAS OA Damper Cond (pos. %)	Space Served By RTU/AHU Unit	Notes
1	A07B	Tool Room						There is no ventilation to this space
1	A08	Black Box Theater	2340	528	23%	10%	RTU-A5	
1	A08A	Black Box Storage	---	---	---	---	---	There is no ventilation to this space
B	B.01	Boiler Room	---	---	---	---	---	
B	B.02	Ejector Pit	---	---	---	---	---	There is no ventilation to this space
B	B.03	Vault	---	---	---	---	---	There is no ventilation to this space
B	B.04	Elec	---	---	---	---	---	There is no ventilation to this space
B	B.05	Storage	---	---	---	---	---	There is no ventilation to this space
B	B.06	Storage	---	---	---	---	---	There is no ventilation to this space
B	B.07	Receiving	---	---	---	---	---	There is no ventilation to this space
B	B.08	Men	---	---	---	---	---	There is no ventilation to this space
B	B.09	Women	---	---	---	---	---	There is no ventilation to this space
B	B.10	Storage	---	---	---	---	---	There is no ventilation to this space
B	B.11	Storage	---	---	---	---	---	There is no ventilation to this space
B	B.12	Storage	---	---	---	---	---	There is no ventilation to this space
B	B.13	Storage	---	---	---	---	---	There is no ventilation to this space
B	B.14	Freezer	---	---	---	---	---	There is no ventilation to this space
B	B.15	Storage	---	---	---	---	---	There is no ventilation to this space
1	B01	School Store	611	171	28%	20%	RTU-B3	
1	B01.1	Boys near School Store	-104	---	---	------	EF-B1	
1	B01.2	Girls near School Store	0	---	---	---	EF-B1	This space is only served by a 8x8 exhaust grille
1	B02	Faculty Dining	0	409	28%	20%	RTU-B3	
1	B03	Student Activity Center	3172	3172	100%	50%	RTU-B2	

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Zone Identification

Floor	Room#	Room Name	Design Min CFM (cfm)	Actual OA at Min (OA cfm)	Unit Actual OA % (OA% of Total)	BAS OA Damper Cond (pos. %)	Space Served By RTU/AHU Unit	Notes
1	B03	Cafeteria	---	---	---	---	---	Only has ceiling mounted cassetts with no OA to them
1	B03A	Student Office A	302	302	100%	50%	RTU-B2	
1	B03B	Student Office B	508	508	100%	50%	RTU-B2	
1	B03C	Student Gallery	193	193	100%	50%	RTU-B2	
1	B04	Kitchen	880	880	100%	100%	RTU-B1	
1	B04A	Storage	0	0	100%	50%	RTU-B2	Unit removed
1	B04B	Dishwashing	0	0	0	0	RTU-B1	Unit removed
1	B04C	Storage	0	0	100%	100%	MVA	Unit removed
1	B04D	FRZR	---	---	---	---	RTU-B1	Unit removed
1	B04E	REFR	---	---	---	---	---	
1	B04F	Cust	EX 141, EX265	---	---		EX	
B	B04G	Filter Storage (under café)	---	---	---	---	---	No ventilation to this space or EX
1	B04H	Dry Storage	0	0	0	0	---	
1	B04I	Laundry	---	---	---	---	---	No ventilation to this space or EX
1	B05	Servery	1840	1840	100%	100%	RTU-B1	
1	B5A	Office	0	0	100%	100%	RTU-B1	
1	BT4	Women	EX108	---	---	---	EF-B1	
1	BT5	Men	EX 139	---	---	---	EF-B1	
1	C01	The Bubble/Math Resource	---	--	---	---	---	This area is part of the main office
1	C02	Main Office	404	NA	NA	NA	RTU-C-3	Unit wrapped in blue tarp
1	C03	Pupil Personnel Admin Conference	152	NA	NA	NA	RTU-C-3	Unit wrapped in blue tarp
1	C04	Office	99	NA	NA	NA	RTU-C-3	Unit wrapped in blue tarp
1	C05	Mail Room	93	NA	NA	NA	RTU-C-3	Unit wrapped in blue tarp

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Zone Identification

Floor	Room#	Room Name	Design Min CFM (cfm)	Actual OA at Min (OA cfm)	Unit Actual OA % (OA% of Total)	BAS OA Damper Cond (pos. %)	Space Served By RTU/AHU Unit	Notes
1	C06	Testing Room/Office	110	NA	NA	NA	RTU-C-3	Unit wrapped in blue tarp
1	C07	Student Services	90	NA	NA	NA	RTU-C-3	Unit wrapped in blue tarp
1	C09	Financial Office	66	NA	NA	NA	RTU-C-3	Unit wrapped in blue tarp
1	C11	Supply	56	NA	NA	NA	RTU-C-3	Unit wrapped in blue tarp
1	C12	Archive	80	NA	NA	NA	RTU-C-3	
1	C13	Conference A	164	NA	NA	NA	RTU-C-3	
1	C14	Head Principal	229	NA	NA	NA	RTU-C-3	
1	C21	A/V Storage	203	NA	NA	NA	RTU-C-3	
1	C22	Work Room	239	NA	NA	NA	RTU-C-3	
1	C23	Periodicals	178	NA	NA	NA	RTU-C-3	
1	C24	Office	240	NA	NA	NA	RTU-C-3	
1	C25	Teacher Resource Room	366	NA	NA	NA	RTU-C-3	
1	C27	Creative Studio	60	NA	NA	NA	RTU-C-3	
1	C28	Maker Space	59	NA	NA	NA	RTU-C-3	
1	C29	Meeting Room A	58	NA	NA	NA	RTU-C-3	
1	C30	Meeting Room B	57	NA	NA	NA	RTU-C-3	
1	C31	Flex Classroom L	209	NA	NA	NA	RTU-C-3	
1	C32	Flex Classroom R	578	NA	NA	NA	RTU-C-3	
1	C33	Media Lab	653	NA	NA	NA	RTU-C-3	
1	C34	Library/Media Center	1452	1452	100%	100%	RTU-C-1	
1	C35	TV Production Studio	338	338	100%	100%	RTU-C-1	
1	C35A	Control	37	37	100%	100%	RTU-C-1	
1	C36	Office	108	108	100%	100%	RTU-C-1	

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1	C36A	MDF	114	114	100%	100%	RTU-C-1	+ Wall split unit
1	C37A	Lecture Hall A	389	329	100%	100%	RTU-C-1	
1	C37A	Lecture Hall B	376	376	100%	100%	RTU-C-1	
1	C40	Elec	158 EX 90	158	100%	100%	RTU-C-1 EF	EF makes excessive noise when on
1	C41	Health Center Reception	355	355	100%	100%	RTU-C-1	
1	C41A	Storage	---	---	100%	100%	RTU-C-1	No ventilation or EX
1	C42	Treatment Room	125	23	18%	10%	RTU-C-2	
1	C43	Nurse Office South	125	23	18%	10%	RTU-C-2	
1	C44	Nurse Office West	149	27	18%	10%	RTU-C-2	
1	C45	Mail Room	117	21	18%	10%	RTU-C-2	
1	C46	Medication/Conference Room	268	48	18%	10%	RTU-C-2	
1	C47	Resting Room	393	71	18%	10%	RTU-C-2	
1	CT1	Women	EX 0	0	0	0	TX-C1	
1	CT2	Men	EX 0	0	0	0	TX-C1	
1	CT3	Student Restroom	0	---	---	---	TX-C1	
1	CT4	Staff Restroom	0	---	---	---	TX-C1	
1	D15	Auditorium	16,117	10,960	68%	50%	RTU-AUD-D1	
1	D15.1	Stage Storage	0	0	0	0	RTU-AUD-D1	Pheumatic valve allowing air to feed this space is not functional
1	D15.1	Storage	0	0	0	0	RTU-AUD-D1	Pheumatic valve allowing air to feed this space is not functional
1	D15A	Stage	3468	2358	68%	50%	RTU-AUD-D1	
1	D17	Dressing Room 1	0	0	0	0	RTU-AUD-D1	
1	D17A	Storage for Dressing Room 1	Ex 94	---	---	---	EF-D-1	
1	D19	Dressing Room 2	0	0	68%	50%	RTU-AUD-D1	

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1	D19A	Storage for Dressing Room 2	EX 86	---	---	---	EF-D-1	
B	D25	Under Kitchen Storage	---	---	---	---	---	There is no ventilation to this space
1	D43	Storage	---	---	---	---	---	There is no ventilation to this space
1	DT5	Women	EX 286	---	---	---	TX-C1	
1	DT6	Men	EX 229	---	---	---	TX-C1	
1	DT7	Cust	EX 161	---	---	---	TX-C1	
1	DT8	Toilet	EX 0	---	---	---	TX-C1	Stand alone EF not operating
1	DT9	Storage	---	---	---	---	TX-C1	There is no ventilation to this space
1	E17	Storage	88S/61E	8	9%	100%	HV-D1	
1	E18	Storage	104S/52E	9	9%	100%	HV-D1	
1	E19	Storage	55S/26E	5	9%	100%	HV-D1	
1	E20	Storage	106S/49E	10	9%	100%	HV-D1	
1	E21	Storage	104S/62E	9	9%	100%	HV-D1	
1	E22	Girls Locker Room	151S/39E	14	9%	100%	HV-D1	
1	E23	Team Room near Girls Locker Room	1192S/156E	107	9%	100%	HV-D1	
1	E24	Office	116S/33	11	9%	100%	HV-D1	
1	E26	Storage	91S/26E	8	9%	100%	HV-D1	
1	E27	Team Room	96S/33E	9	9%	100%	HV-D1	
1	E28	Locker Room	110S/50E	10	9%	100%	HV-D1	
1	E29	Boys Locker Room	156S/46E	14	9%	0	HV-D1	
1	E29.1	Toilet near Boys Locker Room	0	0	0	0	---	There is no ventilation to this space
1	E29.2	Storage	0	0	0	0	---	There is no ventilation to this space
1	E34	Locker	124	5	4%	20%	HV-D3	

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1	E34.1	Toilet near Locker E34	210	8	4%	20%	HV-D3	
1	E35	Visiting Team Room	501E/261S	10	4%	20%	HV-D3	
1	E36	Office	131S	5	4%	20%	HV-D3	
1	E36.1	Cust near Office E36	166E	---	---	---	EF	
1	E45	Team Room	369S/251E	15	4%	20%	HV-D3	
1	E45.1	Storage near Team Room E45	94S/86E	4	4%	20%	HV-D3	
1	E46	Laundry	97	4	4%	20%	HV-D3	
1	E47	Trainer	180	7	4%	20%	HV-D3	
1	E52A	Orchestra Storage	36/S	159	44%	50%	RTU-E8	
1	ECC00	Early Childhood Center Main Entrance	---	---	---	---	---	There is no ventilation to this space
1	ECC01	Nurse	23	3	13%	20%	RTU-A7	
1	ECC01A	Treatment Room	28	4	13%	20%	RTU-A7	
1	ECC01B	Nurse Storage	---	---	---	---	---	There is no ventilation to this space
1	ECC01C	Nurse Toilet	-68	---	---	---	TX-C2	
1	ECC02	Gymnasium/Gross Motor	278	36	13%	20%	RTU-A7	
1	ECC03	Main Office	23	3	13%	20%	RTU-A7	
1	ECC03A	Main Office Storage	---	---	---	---	---	There is no ventilation to this space
1	ECC04	Conference	56	7	13%	20%	RTU-A7	
1	ECC05	OT/PT	150	20	13%	20%	RTU-A7	
1	ECC06	S&L Pathology Office	34	4	13%	20%	RTU-A7	
1	ECC07	Psych./Soc. Office	35	6	13%	20%	RTU-A7	
1	ECC08	S&L Pathology Office	97	13	13%	20%	RTU-A7	
1	ECC09	Office	94	12	13%	20%	RTU-A7	

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1	ECC09.1	Cust	-35	---	---	---	EF-A2	
1	ECC09.2	Toilet	-87	---	---	---	EF-A2	
1	ECC10	Work Room	204	27	13%	20%	RTU-A7	
1	ECC10.1	10 Work Room Storage	---	---	---	---	---	There is no ventilation to this space
1	ECCA	Classroom A	193	25	13%	20%	RTU-A7	
1	ECCA.1	Classroom A Toilet	-45	---	---	---	EF-A2	
1	ECCB	Classroom B	172	22	13%	20%	RTU-A7	
1	ECCB.1	Classroom B Toilet	-142	---	---	---	EF-A2	
1	ECCB.2	Classroom B Storage/Work Room	0	0	13%	20%	RTU-A7	
1	ECCC	Classroom C	154	20	13%	20%	RTU-A7	
1	ECCC.1	Classroom C Toilet	-106	---	---	---	EF-A2	
1	ECCD	Classroom D	195	25	13%	20%	RTU-A7	
1	ECCD.1	Classroom D Toilet	-88	---	---	---	EF-A2	
1	ECCE	Classroom E	92	12	13%	20%	RTU-A7	
1	ECCE.1	Classroom E Toilet	-89	---	---	---	EF-A2	
1	ECCF	Classroom F	206	27	13%	20%	RTU-A7	
1	ECCF.1	Classroom F Toilet	-73	---	---	---	EF-A2	
1	ECCF.2	Classroom F Office	20	3	13%	20%	RTU-A7	
1	ET11	Cust	Ex 92	---	---	---	EF-T-24A	
1	ET12	Boys	EX 112	---	---	---	EF-T-24A	
1	F01	Fitts House	172	62	36%	20%	RTU-F-1	
1	F01.1	Conference	176	63	36%	20%	RTU-F-1	
1	F01.2	Dean	119	43	36%	20%	RTU-F-1	

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1	F01.3	Meeting Room	139	50	36%	20%	RTU-F-1	
1	F01.4	House Principal	413	149	36%	20%	RTU-F-1	
1	F01.5	Mail/Copy Room	166	60	36%	20%	RTU-F-1	
1	F01.6	Toilet	EX 129	---	---	---	---	
1	F02	Reception	68	25	36%	20%	RTU-F-1	
1	F02A	North Office	50	18	36%	20%	RTU-F-1	
1	F02B	East Office	62	22	36%	20%	RTU-F-1	
1	F02C	South Office	45	16	36%	20%	RTU-F-1	
1	F03	Classroom	879	316	36%	20%	RTU-F-1	
1	F04	Classroom	396	142	36%	20%	RTU-F-1	
1	F05	Classroom	435	157	36%	20%	RTU-F-1	
1	F06	Classroom	866	312	36%	20%	RTU-F-1	
1	F07	Classroom	881	317	36%	20%	RTU-F-1	
1	F08	Science Classroom	645 HEX 633	232	36%	20%	RTU-F-1	
1	F08A	Prep Room	70	25	36%	20%	RTU-F-1	
1	F09	Classroom	840	302	36%	20%	RTU-F-1	
1	F10	Classroom	322	322	100%	NA	RTU-F-2	
1	F11	Classroom	1131	1131	100%	NA	RTU-F-2	
1	F12	Classroom	821	821	100%	NA	RTU-F-2	
1	F13	Classroom	351	351	100%	NA	RTU-F-2	
1	F14	Classroom	1244	1244	100%	NA	RTU-F-2	
1	F15	Classroom	277	277	100%	NA	RTU-F-2	
1	F16	Prep	309 HEX 499	309	100%	NA	RTU-F-2	

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1	F17	Science Classroom	1200 HEX 505	1200	100%	NA	RTU-F-2	
1	F18	Science Classroom	720	720	100%	NA	RTU-F-2	
1	F19	Prep	194	194	100%	NA	RTU-F-2	
1	F19.1 (2F)	Data	EX 0	---	---	---	---	Wall split unit
1	F20	Science Classroom	639 HEX 533	639	100%	NA	RTU-F-2	
1	F20A	Marine Biology Prep	103 HEX 499	103	100%	NA	RTU-F-2	
1	F21	Teachers Room/Storage	106	19	18%	20%	RTU-F-3	
1	F21.1	Women	EX 252	---	---	---	EF-36B	
2	F22	Learning Center	1741	313	18%	20%	RTU-F-3	
2	F23	Science Classroom	929 EX 1224	167	18%	20%	RTU-F-3	
2	F24	Classroom	553	100	18%	20%	RTU-F-3	
2	F25	Classroom	585	105	18%	20%	RTU-F-3	
2	F26	Classroom	1088	196	18%	20%	RTU-F-3	
2	F27	Classroom	1022	184	18%	20%	RTU-F-3	
2	F28	Classroom	738	133	18%	20%	RTU-F-3	
2	F29	Classroom	594	107	18%	20%	RTU-F-3	
2	F30	Teacher's Lounge	844	279	33%	20%	RTU-F-4	
2	F31	Classroom	1121	370	33%	20%	RTU-F-4	
2	F32	Classroom	631	208	33%	20%	RTU-F-4	
2	F32.1	Girls	EX 132	---	---	---	EF-2F	
2	F32.2	Cust	EX 44	---	---	---	EF-2F	
2	F32.3	Boys	EX 99	---	---	---	EF-2F	
2	F33	Classroom	627	113	18%	20%	RTU-F-3	

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2	F34	Classroom	1140	205	18%	20%	RTU-F-3	
2	F35	Classroom	1193	215	18%	20%	RTU-F-3	
2	F36	Classroom	1113	200	18%	20%	RTU-F-3	
2	F37	House Computer Lab	2095	377	18%	20%	RTU-F-3	
2	F38	Classroom	997	130	18%	20%	RTU-F-3	
2	F39	Classroom	1332	240	18%	20%	RTU-F-3	
2	F40	Classroom	2287	410	18%	20%	RTU-F-3	
2	F41	Art Studio Classroom	1328	239	18%	20%	RTU-F-3	
2	F41.1	Storage	0	---	---	---	---	No ventilation
2	F41.2	Elec	EX 0	---	---	---	---	Fan not running
2	F41A	Kiln	498	90	18%	20%	RTU-F-3	
2	F42	Classroom	1393	251	18%	20%	RTU-F-3	
2	F42.1	Data Closet	0	---	---	---	---	No ventilation
2	F42.2	Men	EX 250	---	---	---	EF-36B	
2	F42A	Black Room	0	---	---	---	---	No ventilation
2	F42B	Dark Room	666	120	18%	20%	RTU-F-3	
2	F43	Work Room	0	---	---	---	---	No ventilation
1	FT1	Boys	280S/346E	280	100%	15%	RTU-E1 + EF-E1	
1	FT2	Girls	400E/278S	278	100%	15%	RTU-E1 + EF-E1	
1	FT3	Cust	157E	---	---	---	EF-E1	
1	G01	Small Gymnasium	28,590	2001	5% + 2%	20% + 20%	HV-D-2 + HV-D-4	
1	G02	Large Gymnasium	9740	6749	0%,0%,100%,38%	0%,0%,100%,20%	RTU- E2, E3, E4 + E5	
1	G02.1	Elec	0	0	0	0	---	No ventilation

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1	G03	Storage	NA	---	---	---	---	
1	G03	Fitness Center	4732	0	0	NA	RTU-E6	This unit is on/off only. No VFD.
1	G04	Varisty Coach Locker Room	683E/8995	36	4%	20%	HV-03	
1	G04	Fitness Center	5064	203	4%	20%	HV-03	
1	G05	Team Room/Boys Locker	854E/648S	26	4%	20%	HV-03	
1	G05.1	Storage	211	0	0%	0%	RTU-E6	This unit is on/off only. No VFD.
1	G05.2	Storage	470	0	0%	0%	RTU-E6	This unit is on/off only. No VFD.
1	G07	Office	63	0	0%	0%	RTU - E7	This unit is on/off only. No VFD.
1	G07.1	Storage	69	0	0%	0%	RTU - E7	This unit is on/off only. No VFD.
1	G07.2	Storage	88	0	0%	0%	RTU - E7	This unit is on/off only. No VFD.
1	G08	Office	219	0	0%	0%	RTU - E7	This unit is on/off only. No VFD.
1	G08.1	Toilet	-34	---	---	---	EF-E8	This unit is on/off only. No VFD.
1	G09	Coaches Locker Room	OE/970S	0	0%	0%	RTU-E7 + EF-E8	This unit is on/off only. No VFD.
1	G14	Team Room	OE/810S	0	0%	0%	RTU-E7 + EF-E8	This unit is on/off only. No VFD.
1	G15	Storage	0	0	0%	0%	EF-E8	
1	G16	Storage	0	0	0%	0%	Ef-E8	
2	G1A/B	Wrestling Room	0	0	0%	0%	RTU - H-6	This unit is no longer being used
1	G20	Office	238	238	100%	15%	RTU- E1	
1	G20.1	Toilet near G20 Office	-109	---	---	---	EF-E8	
1	M01	Orchestra	1628	716	44%	50%	RTU-E-8	This RTU is on/off only. No VFD.
1	M02	Choral Room	411	62	15%	15%	RTU-M-1	
1	M02A	Choral Storage	0	---	---	---	---	No ventilation
1	M03	Resource Center	128	19	15%	15%	RTU-M-1	

Project Name:	**Fairfield Public Schools RCx: Fairfield Warde High School**
Project Number:	*2020102.00.06*
Scope	**TAB Data**
Date	

Zone Identification

Floor	Room#	Room Name	Design Min CFM (cfm)	Actual OA at Min (OA cfm)	Unit Actual OA % (OA% of Total)	BAS OA Damper Cond (pos. %)	Space Served By RTU/AHU Unit	Notes
1	M03A	Resource Office	33	5	15%	15%	RTU-M-1	
1	M04	Practice	41	6	15%	15%	RTU-M-1	
1	M05	Keyboard	136	20	15%	15%	RTU-M-1	
1	M05A	Control Room	10	2	15%	15%	RTU-M-1	
1	M05B	Mixing Room	17	2	15%	15%	RTU-M-1	
1	M06	Office	47	7	15%	15%	RTU-M-1	
1	M07	Practice	67	10	15%	15%	RTU-M-1	
1	M08	Practice	58	9	15%	15%	RTU-M-1	
1	M09	Band Room	365	55	15%	15%	RTU-M-1	
1	M09.1	Girls	0	---	---	---	EF	
1	M09.2	Boys	0	---	---	---	EF	
1	M09A	Band Storage	56	8	15%	15%	RTU-M-1	
1	M09B	Instrument Storage	39	6	15%	15%	RTU-M-1	
1	P01	Pequot House	71	15	21%	15%	RTU-L4	
1	P01.1	Toilet	EX 183	---	---	---	EF-LIF	
1	P01.2	IP Data	EX 165	---	---	---	EF-LIF	
1	P01.3	Mail/Copy Room	87	18	21%	15%	RTU- L4	
1	P01.4	Dean	199	42	21%	15%	RTU- L4	
1	P01.5	Meeting Room	60	13	21%	15%	RTU- L4	
1	P01.6	House Principal	101	21	21%	15%	RTU- L4	
1	P01.7	Conference	92	19	21%	15%	RTU- L4	
1	P02	Guidance Reception	41	9	21%	15%	ATU-L4	
1	P02A	North Office	36	8	21%	15%	RTU-L4	

Project Name:	**Fairfield Public Schools RCx: Fairfield Warde High School**
Project Number:	*2020102.00.06*
Scope	**TAB Data**
Date	

Zone Identification

Floor	Room#	Room Name	Design Min CFM (cfm)	Actual OA at Min (OA cfm)	Unit Actual OA % (OA% of Total)	BAS OA Damper Cond (pos. %)	Space Served By RTU/AHU Unit	Notes
1	P02B	West Office	32	7	21%	15%	RTU-L4	
1	P02C	South Office	41	9	21%	15%	RTU-L4	
1	P03	Classroom	588	588	100%	20%	RTU-L6	
1	P04	A/D Reception	47	10	21%	15%	RTU-L4	
1	P04A	Athletic Director	53	11	21%	15%	RTU-L4	
1	P05	Classroom	735	735	100%	20%	RTU-L6	
1	P06	Classroom	0	0	0	0	RTU-7L	RTU-7 missing fan sheave
1	P07	Classroom	774	774	100%	20%	RTU-L6	
1	P08	Classroom	0	0	0	0	RTU-7L	RTU-7 missing fan sheave
1	P08A	Girls	200 EX 0	200	100%	20%	RTU-L6	Has an exhaust grille with no flow
1	P08B	Cust	0	0	0	0	---	Has an exhaust grille with no flow
1	P08C	Boys	195 EX 0	195	100%	20%	RTU-L6	Has an exhaust grille with no flow
1	P09	Computer Lab	0	0	0	0	RTU-7L	RTU-7 missing fan sheave
1	P10	Classroom	567	567	100%	20%	RTU-7L	RTU-7 missing fan sheave
1	P11	Classroom	0	0	0	0	RTU-7L	RTU-7 missing fan sheave
1	P12	Science Classroom	958	958	100%	20%	RTU-L6	
1	P13	Kitchen Classroom	3700 EX 4492	3700	100%	100%	RTU-L-10	Tested on hand, unit not run on auto
1	P13A	Kitchen Storage	0	0	0	0	RTU-L7	
1	P14	Prep	65	65	100%	20%	RTU-L6	
1	P15	Barlowe's Restaurant	1611	1611	100%	NA	RTU-L8	
1	P16	Kitchen	4528 Hood EX 7512	4528	100%	100%	RTU-L9	Tested on hand, unit not run on auto
1	P16A	Laundry	---	---	---	---	---	No ventilation or EX
1	P17	Textile Lab	521	521	100%	20%	RTU-L6	

Project Name:	**Fairfield Public Schools RCx: Fairfield Warde High School**
Project Number:	*2020102.00.06*
Scope	**TAB Data**
Date	

Zone Identification

Floor	Room#	Room Name	Design Min CFM (cfm)	Actual OA at Min (OA cfm)	Unit Actual OA % (OA% of Total)	BAS OA Damper Cond (pos. %)	Space Served By RTU/AHU Unit	Notes
1	P17.1	Women	EX 108	---	---	---	---	
1	P17A	Textile Storage	---	---	---	---	---	No ventilatiom
1	P18	Teachers Room	---	---	---	---	---	No ventilatiom
1	P19	Teachers Room	---	---	---	---	---	Wall split unit only
1	P20	Chemistry Science Classroom	2302 EX 1210	2302	100%	100%	RTU-L10	Not under control by ALC
1	P22	Teachers Room	---	---	---	---	---	No ventilation
1	P23	Chemistry Science Classroom	1640 EX 1244	1640	100%	100%	RTU-L10	Not under control by ALC
1	P23.1	Men's	EX 150	---	---	---	EF	
1	P21A	Science Office	188	188	100%	100%	RTU-L10	Not under control by ALC
1	P21	Prep	322	322	100%	20%	RTU-L6	Not under control by ALC
1	P24	Storage/Faculty	231	231	!00%	20%	RTU-L2	
1	P24.1	2P Data	---	---	---	---	---	Wall split unit only
1	P25	Faculty	0	0	0	0	RTU-L1	RTU-L1 supply fan does not run
1	P26	Resource Learning Center	0	0	0	0	RTU-L1	RTU-L1 supply fan does not run
1	P27	Learning Center	662	662	100%	20%	RTU-L2	
1	P28	Classroom	0	0	0%	0	RTU-L1	RTU-L1 supply fan does not run
1	P29	Classroom	756	756	100%	20%	RTU-L2	
1	P30	Classroom	0	0	0%	0	RTU-L1	RTU-L1 supply fan does not run
1	P30.1	Boys	0 EX 0	---	---	---	---	RTU-L1 supply fan does not run
1	P30.2	Cust	EX 0	---	---	---	---	
1	P30.3	Girls	0 EX 0	0	0%	0	RTU-L1	RTU-L1 supply fan does not run
1	P31	Biology Science Classroom	865	865	100%	20%	RTU-L2	
1	P31A	Greenhouse	---	---	---	---	---	No ventilation, radiant only

Project Name:	**Fairfield Public Schools RCx: Fairfield Warde High School**
Project Number:	*2020102.00.06*
Scope	**TAB Data**
Date	

Zone Identification

Floor	Room#	Room Name	Design Min CFM (cfm)	Actual OA at Min (OA cfm)	Unit Actual OA % (OA% of Total)	BAS OA Damper Cond (pos. %)	Space Served By RTU/AHU Unit	Notes
1	P32	Prep	157	157	100%	20%	RTU-L2	
1	P33	Biology Science Classroom	882	882	100%	20%	RTU-L2	
1	P34	Classroom	0	0	0%	0	RTU-L1	
1	P35	Classroom	0	0	0%	0	RTU-L1	RTU - L1 supply fan does not run
1	P36	Classroom	0	0	0%	0	RTU-L1	RTU - L1 supply fan does not run
1	P37	Classroom	84	84	100%	20%	RTU-L2	
1	P38	Career Center	951	951	100%	20%	RTU-L2	
1	P38A	Career Center Initial Evaluation Office	---	---	---	---	---	Duplicate room of P40.S
1	P40	Curriculum	194	194	100%	20%	RTU-L2	
1	P40.1	Curriculum Conference/Meeting	277	277	100%	20%	RTU-L2	
1	P40.E	Curriculum East Office	194	194	100%	20%	RTU-L2	
1	P40.S	Curriculum South Office	309	309	100%	20%	RTU-L2	
1	T01	Townsend House	82	82	100%	20%	RTU-W4	
1	T01.1	Conference	519	519	100%	20%	RTU-W4	
1	T01.2	House Principal	429	429	100%	20%	RTU-W4	
1	T01.3	Meeting Room	85	85	100%	20%	RTU-W4	
1	T01.4	Dean	117	117	100%	20%	RTU-W4	
1	T01.5	Mail/Copy Room	80	80	100%	20%	RTU-W4	
1	T01.6	Data	114 EX 216	114	100%	20%	RTU-W4	
1	T01.7	Toilet	EX 135	---	---	---	EF-WIF	
1	T02	Reception	77	77	100%	20%	RTU-W4	
1	T02A	West Office	79	79	100%	20%	RTU-W4	
1	T02B	North Office	66	66	100%	20%	RTU-W4	

Project Name:	**Fairfield Public Schools RCx: Fairfield Warde High School**
Project Number:	*2020102.00.06*
Scope	**TAB Data**
Date	

Zone Identification

Floor	Room#	Room Name	Design Min CFM (cfm)	Actual OA at Min (OA cfm)	Unit Actual OA % (OA% of Total)	BAS OA Damper Cond (pos. %)	Space Served By RTU/AHU Unit	Notes
1	T02C	East Office	74	74	100%	20%	RTU-W4	
1	T03	Classroom	169	66	39%	20%	RTU-W2	
1	T04	Classroom	522	522	100%	20%	RTU-W1	
1	T05	Classroom	142	55	39%	20%	RTU-W2	
1	T06	Classroom	832	832	100%	20%	RTU-W1	
1	T07	Classroom	138	54	39%	20%	RTU-W2	
1	T07.1	Girls	61 EX 0	---	---	---	TX-W2	
1	T07.2	Cust	0	0	0	0	TX-W2	
1	T07.3	Boys	66 EX 0	---	---	---	TX-W2	
1	T08	Computer Lab	1438	1438	100%	100%	RTU-W3	
1	T09	Classroom	159	62	20%	20%	RTU-W2	
1	T10	Classroom	517	517	20%	20%	RTU-W1	
1	T11	Classroom	137	53	20%	20%	RTU-W2	
1	T12	Classroom	495	495	20%	20%	RTU-W1	
1	T13	Classroom	121	47	20%	20%	RTU-W2	
1	T14	Classroom	639	639	20%	20%	RTU-W1	
1	T15	Faculty	26	10	20%	20%	RTU-W2	
1	T16	Art Classroom	828	828	20%	20%	RTU-W1	
1	T16.1	Women	EX 0	---	---	---	TX-W2	
1	T16.2	Elec	0	---	---	---	TX-W2	Stand alone EF not operating
1	T16A	Art Resource	240	240	100%	20%	RTU-W1	
1	T16B	Storage	---	---	---	---	---	No ventialtion or EX
1	T17	Faculty Pumping/Nursing	177	0	0	NA	Wall Unit	

Project Name:	**Fairfield Public Schools RCx: Fairfield Warde High School**
Project Number:	*2020102.00.06*
Scope	**TAB Data**
Date	

Zone Identification

Floor	Room#	Room Name	Design Min CFM (cfm)	Actual OA at Min (OA cfm)	Unit Actual OA % (OA% of Total)	BAS OA Damper Cond (pos. %)	Space Served By RTU/AHU Unit	Notes
1	T18	Physics Science Classroom	896 EX 1314	0	0	NA	Wall Unit / EF24A	
1	T19	Teachers Room	353	0	0	NA	Wall Unit	
1	T21	Teachers Room	166	0	0	NA	Wall Unit	
1	T21.1	Gender Neutral Restroom	0 EX 0	0	0	0	EF-T24A	
1	T22	Science Classroom	796 EX	---	---	---	EF-T24A	
1	T22A	Prep	271	54	20%	20%	RTU-W8	
1	T23	Classroom	0	0	0	0	RTU-W9	Print says unit is defunct
1	1T20A	Office	157	33	20%	20%	RTU-W8	
1	T23A	Work Room	---	---	---	---	---	Room no longer exists
1	T24	Book Storage/Copy Room	114	23	20%	20%	RTU-W8	
1	T24.1	Data	EX 0	0	0	0	---	The stand alone EF serving this space is not operating
1	T25	Book Storage (Formerly OT/PT)	287	68	20%	20%	RTU-W8	
1	T26	Classroom	332	66	20%	20%	RTU-W8	
1	T26.1	Toilet	EX 0	0	0	0	---	
1	T27	Learning Center (Formerly Motor Room)	575	116	20%	20%	RTU-W8	
1	T27.1	Storage	0	---	---	---	---	There is ventilation to this space
1	T27.2	Storage	0	---	---	---	---	There is ventilation to this space
1	T28	Classroom	292	58	20%	20%	RTU-W8	
1	T29	Classroom	372	74	20%	20%	RTU-W8	
1	T30	Science Classroom	477 H-471	96	20%	20%	RTU-W8	
1	T31	Prep	RET 726 H1-414 H2-0	---	---	---	RTU-W8	
1	T31.1	Faculty Men Restroom	493 EX 398	98	20%	20%	RTU-W8/EF-T24A	
1	T31.2	Cust	EX 118	---	---	---	RTU-W8/EF-T24A	

Project Name:	**Fairfield Public Schools RCx: Fairfield Warde High School**
Project Number:	*2020102.00.06*
Scope	**TAB Data**
Date	

Zone Identification

Floor	Room#	Room Name	Design Min CFM (cfm)	Actual OA at Min (OA cfm)	Unit Actual OA % (OA% of Total)	BAS OA Damper Cond (pos. %)	Space Served By RTU/AHU Unit	Notes
1	T31.3	Girls	440 EX 435	88	31%	20%	RTU-W8/EF-T24A	
1	T32	Counseling Waiting Area	236	73	31%	20%	RTU-W-6	
1	T32A (W25A)	Office	135	42	31%	20%	RTU-W-6	
1	T32B (W25B)	Office	154	48	31%	20%	RTU-W-6	
1	T32C (W25C)	Office	174	54	31%	20%	RTU-W-6	
1	T32D (W25D)	Office	151	47	31%	20%	RTU-W-6	
1	T32E (W25E)	Office	187	58	31%	20%	RTU-W-6	
1	T32F (W25F)	Office	243	75	31%	20%	RTU-W-6	
1	T32G (W25G)	Conference	414	128	31%	20%	RTU-W-6	
1	T32T (WT12)	Toilet	EX 88	---	31%	20%	EF -TA24	
1	T33	Biology Science Classroom	1155, H-483	358	31%	20%	RTU-W-6	
1	T34	Classroom	139	43	31%	20%	RTU-W-6	
1	T35	Special Ed. Coord. Waiting Area	235	73	31%	20%	RTU-W-6	
1	T35.1	Office	225	70	31%	20%	RTU-W-6	
1	T36	Science Classroom	980	304	31%	20%	RTU-W-6	
1	T37	Prep	EX 281	---	31%	20%	EF-W6	
1	T38	Security Office	370	115	31%	20%	RTU-W-6	

APPENDIX 5 – RCx Unit and Room Take-Off Data

Project Name:	**Fairfield Public Schools RCx**
Project Number:	*2020102.00.06*
Scope	**Room Take-Off Data**
Date	**April 17, 2022**

RCM, RA, JRK

Fairfield Warde High School

Zone Identification

Floor	Room#	Room Name	Area (SF)	Ceiling Height	Volume	People	Notes	Identified Deficiencies	Pictures Y /N
1	A01	Observation	255	9.5	2422.5	5	1 SA 1 RA		
1	A01.1	Storage	25	9.2	230	0	1 SA		
1	A01.2	Toilet	55	9	495	1	1 EA		
1	A01.5	Maint/Carpenter	150	8	1200	2	1 RA		
1	A01.5.1	Janitor near A1.5 Maint/Carpenter	50	10.3	515	1	1 EA		
1	A01.5A	Central Service Work Room	600	9	5400	6	1 SA 1 EA, 1x Mitsubishi Split AC		
1	A01.5B	Project Room	120	11.6	1392	0	Nothing		
1	A01.5C	Office	112	9	1008	1	1 SA 1 EA		
1	A01.5D	Maintenance Locker Room	200	8	1600	2	1 RA		
1	A01A	OT/PT Storage (Project Room)	41	8.5	348.5	0	1 SA		
1	A02	Child Development	1100	9.3	10230	24	4 SA 2 RA FTR		
1	A03	CAD Room	1300	10.1	13130	27	4 SA 3 RA FTR, 31x Computer, 3x 3D Printers		
1	A03.1	Storage	52	9.6	499.2	0	Near auto	Damaged ceiling	
1	A04	Graphic Arts	2500	10.1	25250	28	6 SA 4 RA FTR, 27x Computers, 4x Copiers, 2x+ Screeners		
1	A05	Computer Repair	1265	10.1	12776.5	28	4SA 3 RA FTR, 28x Computers		
1	A05A	South Storage	85	8	680	3	1 SA		
1	A05B	Cl#1 Storage	45	9.5	427.5	1	1 SA		
1	A05C	Cl#2 Storage	45	9.5	427.5	1	1 SA, no supply cooling	HOT, data rack and copier located here	
1	A05D	Cl#3 Storage	45	9.5	427.5	1	1 SA		
1	A06	Wood Shop	2700		0	28	Dedicated Rooftop unit, 1 SA 2 RA FTR, Dust Collector		
1	A06A	Work Room	190	8	1520	2	1 SA, FTR, 2x RA motorized dampers?		
1	A06B	Office	243 200	17 6	5331	2	1 RA FTR, Upper/lower split section		
1	A06C	Storage	35	8.5	297.5	0	Nothing		
1	A06D	Wood Storage	275		0	1	Nothing		
1	A07	Transportation / Automotive Shop	2850	15	42750	28	5 SA 4 RA FTR, 2x UH		
1	A07.1	Boys near Automotive	131	9.3	1218.3	2	2 EA, FTR		
1	A07.2	Janitor	26	9.3	241.8	1	1 RA		
1	A07.3	Girls near Automotive	263	9.3	2445.9	2	1 EA, FTR		
1	A07A	Automotive Project Room/Storage	110	11.9	1309	2	Auto vestibule		
1	A07B	Tool Room	250	11.9	2975	4	Nothing		
1	A08	Black Box Theater	1150	17.2	19780	50	4 SA 2 RA		
1	A08A	Black Box Storage	65	10	650	0	Nothing		
B	B.01	Boiler Room	1500	15	22500	0	OA Louvers only	General Note: Many subrooms are not identified with room numbers	
B	B.02	Ejector Pit	315	20	6300	0	Shared louvers with Boiler Room		
B	B.03	Vault	275	6.5	1787.5	0	Nothing		
B	B.04	Elec	760	6.5	4940	0	Nothing		
B	B.05	Storage	1375	9	12375	0	Nothing		

Project Name:	**Fairfield Public Schools RCx**
Project Number:	*2020102.00.06*
Scope	**Room Take-Off Data**
Date	**April 17, 2022**

RCM, RA, JRK

Fairfield Warde High School

Zone Identification

Floor	Room#	Room Name	Area (SF)	Ceiling Height	Volume	People	Notes	Identified Deficiencies	Pictures Y /N
B	B.06	Storage	825	9	7425	0	Nothing		
B	B.07	Receiving	2900	9	26100	0	Nothing		
B	B.08	Men	40	8	320	1	1 EA		
B	B.09	Women	40	8	320	1	1 EA		
B	B.10	Storage	1350	9	12150	0	Nothing		
B	B.11	Storage	300	9	2700	0	Nothing		
B	B.12	Storage	1950	9	17550	0	Nothing		
B	B.13	Storage	901	9	8109	0	Nothing		
B	B.14	Freezer	200	7	1400	0	Nothing		
B	B.15	Storage	7000	9	63000	0	Nothing		
1	B01	School Store	200	9.4	1880	2	1 SA		
1	B01.1	Boys near School Store	75	8	600	2	1 EA	No door, open to corridor	
1	B01.2	Girls near School Store	65	8	520	1	1 EA		
1	B02	Faculty Dining	1000	9.1	9100	12	3 SA 1 RA		
1	B03	Student Activity Center	1300	17.5	22750	72	8 SA 7 RA FTR		
1	B03	Cafeteria	5430	9.3	50499	436	8 RA, 5x Unit Vents		
1	B03A	Student Office	200	13	2600	2	1 SA FTR		
1	B03B	Student Office	200	13	2600	2	1 SA FTR		
1	B03C	Student Gallery	375	9	3375	10	1 SA		
1	B04	Kitchen	1550	13.6	21080	12	1 SA, 2x Kitchen Hood		
1	B04A	Storage	161	8.9	1432.9	1	1 SA	GGM key does not work on this door, ask for assistance	
1	B04B	Dishwashing	225	8.9	2002.5	3	1 SA 1 EA, 1x DWEF		
1	B04C	Storage	95	8.8	836	0	1 SA		
1	B04D	FRZR	100	8	800	0	Nothing		
1	B04E	REFR	100	8	800	0	Nothing		
1	B04F	Cust	80	10.5	840	1	1 SA 1 EA		
B	B04G	Filter Storage (under café)	3370	9	30330	0	CUHs		
1	B04H	Dry Storage	95	8.9	845.5	0	1 SA	GGM key does not work on this door, ask for assistance	
1	B04I	Laundry	53	8.6	455.8	1	1x Exh Louver, no fan		
1	B05	Servery	1650	8.5	14025	100	4 SA 4 RA		
1	B5A	Office	90	8.6	774	2	1 SA	GGM key does not work on this door, ask for assistance	
1	BT4	Women	112	8.6	963.2	1	1 EA		
1	BT5	Men	57	8.6	490.2	1	1 EA		
1	C01	The Bubble/Math Resource	535	10.5	5617.5	10	Near Main Office and Library, 1 RGD (S/R?)		
1	C02	Main Office	1250	9.5	11875	6	5 SA 1 RA		
1	C03	Pupil Personnel Admin Conference	325	8.5	2762.5	10	2 SA 1 RA	Usually cold, electric baseboard heater	
1	C04	Office	175	9.1	1592.5	5	1 SA		

Project Name:	**Fairfield Public Schools RCx**
Project Number:	*2020102.00.06*
Scope	**Room Take-Off Data**
Date	**April 17, 2022**

RCM, RA, JRK

Fairfield Warde High School

Zone Identification

Floor	Room#	Room Name	Area (SF)	Ceiling Height	Volume	People	Notes	Identified Deficiencies	Pictures Y /N
1	C05	Mail Room	160	9.1	1456	2	1 SA, open to main office		
1	C06	Testing Room/Office	150	9.1	1365	1	1 SA 1 RA	GGM key does not work on this door, ask for assistance	
1	C07	Student Services	230	9	2070	5	1SA, open to Main Office		
1	C09	Financial Office	75	9.1	682.5	1	1 SA		
1	C11	Supply	50	8.5	425	1	1 SA		
1	C12	Archive	80	8.5	680	1	1 SA	Warm	
1	C13	Conference A	315	8.9	2803.5	8	2 SA 2 RA		
1	C14	Head Principal	275	9.1	2502.5	6	1SA 1 RA		
1	C21	A/V Storage	260	8	2080	4	1 SA		
1	C22	Work Room	225	8	1800	4	1 SA		
1	C23	Periodicals	205	8	1640	2	1 SA, 1x large copier, 2x printer	Warm	
1	C24	Office	225	8	1800	8	1 SA 1 RA		
1	C25	Teacher Resource Room	350	8	2800	13	2 SA		
1	C27	Creative Studio	165	8.4	1386	5	1 SA, 1x Transfer grille to Media Center		
1	C28	Maker Space	165	8.4	1386	5	1 SA, 1x Transfer grille to Media Center		
1	C29	Meeting Room A	165	8.4	1386	5	1 SA, 1x Transfer grille to Media Center		
1	C30	Meeting Room B	165	8.4	1386	5	1 SA, 1x Transfer grille to Media Center		
1	C31	Flex Classroom L	550	8.4	4620	28	2 SA 2 RA		
1	C32	Flex Classroom R	530	8.4	4452	28	2 SA 2 RA		
1	C33	Media Lab	775	8.4	6510	30	4 SA, 30x Computers		
1	C34	Library/Media Center	5060	13.7	69322	128	29 RGDs (unknown S/R), 21x Computers, 2x copiers		
1	C35	TV Production Studio	1280	14.3	18304	28	1 SA 1 RA, Large theater lights	Does not seem like the right quantity of RGDs for a space this size	
1	C35A	Control	170	8	1360	3	1 SA 1 RA, lighting control equipment		
1	C36	Office	165	8.5	1402.5	3	1 SA 1 RA, 5x+ computers		
1	C36A	MDF	145	9	1305	1	2 SA 1 RA, 1x Mitsubishi Split AC, Library RTU VFD located here		
1	C37A	Lecture Hall A	675	9	6075	30	4 SA 2 RA, Partition (open) connecting to Lecture Hall B		
1	C37A	Lecture Hall B	675	9	6075	30	4 SA 2 RA, Partition (open) connecting to Lecture Hall A		
1	C40	Elec	100	11.5	1150	0	1 SA 1 EA		
1	C41	Health Center Reception	485	8	3880	7	3 SA 2 RA		
1	C41A	Storage	15	8	120	0	Nothing	BAS controls located here obstructed by materials	
1	C42	Treatment Room	134	8	1072	3	1 SA 1 RA FTR		
1	C43	Nurse Office South	100	8	800	1	1 SA 1 RA FTR		
1	C44	Nurse Office West	110	8	880	3	1 SA 1 RA FTR		
1	C45	Mail Room	100	8	800	2	1 SA 1 RA FTR, 1x Copier		
1	C46	Medication/Conference Room	135	8	1080	4	1 SA 1 RA FTR, Obstructed RA grille		
1	C47	Resting Room	335	8	2680	7	2 SA 1 RA		
1	CT1	Women	50	8	400	1	1 EA		

Project Name:	**Fairfield Public Schools RCx**
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1	CT2	Men	50	8	400	1	1 EA		
1	CT3	Student Restroom	50	8	400	1	1 EA		
1	CT4	Staff Restroom	33	8	264	1	1 EA		
1	D15	Auditorium	6200	Varies	97000	680	9 SA 6 RA	Section Area Height Volume Rear Walk 450 8.9 4005	
1	D15.1	Stage Storage	400	15	6000	4	1 RA		
1	D15.1	Storage	350	8.5	2975	0	Across from Auditorium		
1	D15A	Stage	2200	31	68200	50	2 RA, open to Auditorium		
1	D17	Dressing Room 1	250	7.9	1975	10	2 EA		
1	D17A	Storage for Dressing Room 1	15	7.9	118.5	0	1 EA		
1	D19	Dressing Room 2	250	7.9	1975	10	2 EA		
1	D19A	Storage for Dressing Room 2	15	7.9	118.5	0	1 EA		
B	D25	Under Kitchen Storage	2050	9	18450	0	Under Kitchen		
1	D43	Storage	71	8.6	610.6	0	1 EA		
1	DT5	Women	175	7.7	1347.5	3	1 EA, FTR		
1	DT6	Men	150	7.7	1155	3	1 EA, FTR		
1	DT7	Cust	120	8.8	1056	1	1 EA		
1	DT8	Toilet	50	7.7	385	1	1 EA, 1x Electric Baseboard		
1	DT9	Storage	25	10	250	0	Nothing		
1	E17	Storage	50	9	450	0			
1	E18	Storage	125	9	1125	0			
1	E19	Storage	270	9	2430	0			
1	E20	Storage	125	9	1125	0			
1	E21	Storage	50	9	450	0			
1	E22	Girls Locker Room	1550	11	17050	30			
1	E23	Team Room near Girls Locker Room	200	11	2200	20			
1	E24	Office	125	9	1125	1			
1	E26	Storage	55	11	605	0			
1	E27	Team Room	250	11	2750	20			
1	E28	Locker Room	180	11	1980	5			
1	E29	Boys Locker Room	1650	11	18150	30			
1	E29.1	Toilet near Boys Locker Room	40	11	440	1			
1	E29.2	Storage	40	11	440	0			
1	E34	Locker	90	11	990	5			
1	E34.1	Toilet near Locker E34	60	8	480	1	1 EA		
1	E35	Visiting Team Room	425	11	4675	20			
1	E36	Office	180	9	1620	1			
1	E36.1	Cust near Office E36	25	9	225	1			

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1	E45	Team Room	475	11	5225	20			
1	E45.1	Storage near Team Room E45	185	11	2035	0			
1	E46	Laundry	185	9	1665	1			
1	E47	Trainer	205	9	1845	2			
1	E52A	Orchestra Storage	350	10	3500	10	3 SA		
1	ECC00	Early Childhood Center Main Entrance	1100	10	11000	5	4 SA, can't observe RA due to decorative acoustical ceiling		
1	ECC01	Nurse	135	8.5	1147.5	4	1 SA		
1	ECC01A	Treatment Room	160	8.5	1360	2	1 SA 1 RA		
1	ECC01B	Nurse Storage	14	8.5	119	0	Nothing		
1	ECC01C	Nurse Toilet	64	8	512	2	1 EA		
1	ECC02	Gymnasium/Gross Motor	1350	17.3	23355	16	4 SA 1 RA		
1	ECC03	Main Office	135	8.5	1147.5	5	1 SA 1 RA		
1	ECC03A	Main Office Storage	25	8.5	212.5	0	Nothing		
1	ECC04	Conference	250	8.5	2125	10	2 SA 2 RA		
1	ECC05	OT/PT	700	8.5	5950	10	4 SA 2 RA		
1	ECC06	S&L Pathology Office	85	8.5	722.5	2	1 SA 1 RA		
1	ECC07	Psych./Soc. Office	170	8.5	1445	7	1 SA 1 RA		
1	ECC08	S&L Pathology Office	85	8.5	722.5	2	1 SA 1 RA		
1	ECC09	Office	90	8.5	765	2	1 SA 1 RA		
1	ECC09.1	Cust	22	11.9	261.8	1	Nothing		
1	ECC09.2	Toilet	36	8	288	1	1 EA		
1	ECC10	Work Room	175	8.5	1487.5	3	1 SA		
1	ECC10.1	10 Work Room Storage	25	8.5	212.5	0	Nothing		
1	ECCA	Classroom A	725	10	7250	22	4 SA 2 RA, FTR		
1	ECCA.1	Classroom A Toilet	55	8	440	1	1 EA		
1	ECCB	Classroom B	915	10	9150	28	4 SA 2 RA, FTR		
1	ECCB.1	Classroom B Toilet	55	8	440	1	1 EA		
1	ECCB.2	Classroom B Storage/Work Room	75	8	600	3	1 SA 1 RA		
1	ECCC	Classroom C	760	10	7600	16	4 SA 2 RA, FTR		
1	ECCC.1	Classroom C Toilet	55	8	440	1	1 EA		
1	ECCD	Classroom D	850	10	8500	18	4 SA 2 RA, FTR		
1	ECCD.1	Classroom D Toilet	55	8	440	1	1 EA		
1	ECCE	Classroom E	700	9	6300	12	4 SA 2 RA, FTR		
1	ECCE.1	Classroom E Toilet	55	8	440	1	1 EA		
1	ECCF	Classroom F	975	11.5	11212.5	16	4 SA 2 RA, FTR		
1	ECCF.1	Classroom F Toilet	63	8	504	2	1 EA		
1	ECCF.2	Classroom F Office	100	8	800	2	1 SA 1 RA, ECC		

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1	ET11	Cust	57	10	570	1	1 SA 1 EA, Roof Access		
1	ET12	Boys	127	10	1270	2	1 SA 1 EA		
1	F01	Fitts House	460	9	4140	6	1 SA 1 RA		
1	F01.1	Conference	162	9.4	1522.8	8	2 SA 1 RA		
1	F01.2	Dean	321	9.4	3017.4	6	2 SA 1 RA		
1	F01.3	Meeting Room	268	9	2412	9	2 SA 1 RA, 4x Computers, 1x copier	Flourescent lights emit distinct buzz	
1	F01.4	House Principal	450	9.4	4230	6	2 SA 1 RA		
1	F01.5	Mail/Copy Room	276	9	2484	3	1 SA, 1x large copier, 1x fridge, 1x microwave		
1	F01.6	Toilet	40	8.5	340	1	1 EA		
1	F02	Reception	220	9	1980	4	1 SA 1 RA, 1x large copier		
1	F02A	North Office	112	9.4	1052.8	4	1 SA 1 RA		
1	F02B	East Office	162	9.4	1522.8	4	1 SA 1 RA		
1	F02C	South Office	142	9.4	1334.8	4	1 SA 1 RA		
1	F03	Classroom	655	10	6550	27	Nothing	No heating or SA observed, east-facing rooms operable windows only	
1	F04	Classroom	655	9.5	6222.5	21	2 RA?	Really louad 8"x12" SA diffuser in corridor just outside of this room, No	
1	F05	Classroom	655	9.5	6222.5	29	1 RA	No heating	
1	F06	Classroom	655	9.5	6222.5	31	Nothing	No heating or SA observed, east-facing rooms operable windows only	
1	F07	Classroom	655	9.5	6222.5	30	Nothing	No heating or SA observed, east-facing rooms operable windows only	
1	F08	Science Classroom	1170	9.5	11115	25	2 RA	No heating	
1	F08A	Prep Room	153	9.5	1453.5	2	1 RA	No heating	
1	F09	Classroom	655	9.5	6222.5	27	Nothing	No heating or SA observed, east-facing rooms operable windows only	
1	F10	Classroom	655	9.5	6222.5	25	Nothing	No heating or SA observed, east-facing rooms operable windows only	
1	F11	Classroom	1000	9.5	9500	24	21x Computers, 2x Copiers, fridge, microwave, 1x Mitsubishi Split AC	No ventilation	
1	F12	Classroom	655	9.5	6222.5	27	Nothing	No ventilation	
1	F13	Classroom	655	9.5	6222.5	28	Nothing	No ventilation	
1	F14	Classroom	1140	9.5	10830	28	27x Computers, 1x Copiers, 1x plotter, 1x Mitsubishi Split AC	No ventilation	
1	F15	Classroom	655	9.5	6222.5	27	Nothing	No ventilation	
1	F16	Prep	480	9	4320	3	1 RA, shared Exh Hood with F17 Science Classroom		
1	F17	Science Classroom	1200	9	10800	27	2 RA, Exh Hood		
1	F18	Science Classroom	1300	9	11700	27	2 RA, Exh Hood		
1	F19	Prep	600	9	5400	3	1 RA, shared Exh Hood with F18 Science Classroom, 1x fridge		
1	F19.1 (2F)	Data	60	8.6	516	0	1x EF, 1x Mitsubishi Split AC	Really louad 8"x12" SA diffuser in corridor just outside of this room	
1	F20	Science Classroom	1100	9	9900	27	2 RA, Exh Hood		
1	F20A	Marine Biology Prep	204	9	1836	3	1 SA, shared Exh Hood with F20 Science Classroom		
1	F21	Teachers Room	116	9.4	1090.4	0	2 SA		
1	F21.1	Women	70	8.5	595	2	2 EA		
2	F22	Learning Center	900	9.5	8550	18	SA / RA supplied around light fixtures		

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2	F23	Science Classroom	1200	9.5	11400	28	6 SA 1 RA	Rumbling in the corridor above ceiling	
2	F24	Classroom	645	9.5	6127.5	28	SA / RA supplied around light fixtures		
2	F25	Classroom	655	9.5	6222.5	28	SA / RA supplied around light fixtures		
2	F26	Classroom	655	9.5	6222.5	28	1 RA		
2	F27	Classroom	635	9.5	6032.5	28	SA / RA supplied around light fixtures		
2	F28	Classroom	655	9.5	6222.5	28	SA / RA supplied around light fixtures		
2	F29	Classroom	655	9.5	6222.5	28	SA / RA supplied around light fixtures		
2	F30	Teacher's Lounge	520	9.5	4940	8	1 RA?		
2	F31	Classroom	800	9.5	7600	28	SA / RA supplied around light fixtures		
2	F32	Classroom	655	9.5	6222.5	28	SA / RA supplied around light fixtures		
2	F32.1	Girls	268	9.5	2546	4	3 EA FTR		
2	F32.2	Cust	80	8.9	712	1	1 RA FTR		
2	F32.3	Boys	223	9.5	2118.5	4	3 EA		
2	F33	Classroom	655	9.5	6222.5	28	SA / RA supplied around light fixtures		
2	F34	Classroom	655	9.5	6222.5	28	SA / RA supplied around light fixtures		
2	F35	Classroom	655	9.5	6222.5	25	SA / RA supplied around light fixtures		
2	F36	Classroom	655	9.5	6222.5	28	SA / RA supplied around light fixtures		
2	F37	House Computer Lab	1475	9.5	14012.5	28	SA / RA supplied around light fixtures, 1x Mitsubishi Split AC, Multi-		
2	F38	Classroom	655	9.5	6222.5	28	SA / RA supplied around light fixtures		
2	F39	Classroom	655	9.5	6222.5	28	SA / RA supplied around light fixtures		
2	F40	Classroom	1200	9.6	11520	22	SA / RA supplied around light fixtures, 3 RA		
2	F41	Art Studio Classroom	1100	9.5	10450	27	SA / RA supplied around light fixtures, 3 RA		
2	F41.1	Storage	20	9.5	190	0	Nothing		
2	F41.2	Elec	70	11	770	0	1x EF		
2	F41A	Kiln	275	9.3	2557.5	2	2 SA 1 RA, 2x Kiln EF		
2	F42	Classroom	1100	9.5	10450	27	1 SA 3 RA, 20x Computers, 6x Copiers		
2	F42.1	Data Closet	18	9.5	171	0	Nothing		
2	F42.2	Men	70	8.5	595	2	2 EA FTR		
2	F42A	Black Room	40	9.1	364	1	Nothing		
2	F42B	Dark Room	390	9.1	3549	11	2 SA 2 RA, Central column duct with 2 grilles for RA		
2	F43	Work Room	115	8.5	977.5	0	Nothing		
1	FT1	Boys	232	9.5	2204	5	3 EA		
1	FT2	Girls	270	9.5	2565	5	3 EA		
1	FT3	Cust	80	8.9	712	1	1 EA		
1	G01	Small Gymnasium	8100	31	251100	200	4 SA 8 RA		
1	G02	Large Gymnasium	13500	31.3	422550	1800	4 Dedicated RTUs, 24 SA, 4 RA		
1	G02.1	Elec	45	11	495	0			

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1	G03	Storage	175	11	1925	0			
1	G03	Fitness Center	860	16.4	14104	15	3 SA 1 EA		
1	G04	Varisty Coach Locker Room	1100	11	12100	30			
1	G04	Fitness Center	860	16.4	14104	15	3 SA 1 EA		
1	G05	Team Room	180	11	1980	20			
1	G05.1	Storage	75	11	825	0			
1	G05.2	Storage	200	11	2200	0			
1	G07	Office	90	9	810	1			
1	G07.1	Storage	90	9	810	0			
1	G07.2	Storage	160	9	1440	0			
1	G08	Office	120	9	1080	1			
1	G08.1	Toilet	70	9	630	1			
1	G09	Coaches Locker Room	630	11	6930	10			
1	G14	Team Room	670	11	7370	20			
1	G15	Storage	50	9	450	0			
1	G16	Storage	95	9	855	0			
2	G1A/B	Wrestling Room	1650	11.2	18480	28	8 SA		
1	G20	Office	165	11	1815	1			
1	G20.1	Toilet near G20 Office	80	9	720	1	1 SA 1 EA		
1	M01	Orchestra	2300	14.2	32660	45	8 SA 6 RA		
1	M02	Choral Room	1500	13.8	20700	50	6 SA 2 RA, FTR		
1	M02A	Choral Storage	75	9.5	712.5	1	Nothing		
1	M03	Resource Center	855	8.5	7267.5	6	3 SA 2 RA, FTR		
1	M03A	Resource Office	165	8.5	1402.5	3	1 SA 1 RA, FTR		
1	M04	Practice	167	8.5	1419.5	6	1 SA 1 RA		
1	M05	Keyboard	800	9.6	7680	18	4 SA 2 RA		
1	M05A	Control Room	130	8.5	1105	4	1 SA 1 RA		
1	M05B	Mixing Room	95	8.5	807.5	1	1 SA 1 RA		
1	M06	Office	160	8.5	1360	4	1 SA 1 RA		
1	M07	Practice	125	8.5	1062.5	4	1 SA 1 RA		
1	M08	Practice	100	8.5	850	3	1 SA 1 RA		
1	M09	Band Room	2000	20	40000	60	6 SA 2 RA, FTR		
1	M09.1	Girls	100	8.5	850	2	1 SA 1 RA		
1	M09.2	Boys	100	8.5	850	2	1 SA 1 RA		
1	M09A	Band Storage	90	8.5	765	3	1 SA 1 RA		
1	M09B	Instrument Storage	225	8.5	1912.5	10	1 SA 1 RA, 1x CUH		
1	P01	Pequot House	250	9.2	2300	5	1 SA 1 RA		

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1	P01.1	Toilet	50	8.4	420	1	1 EA		
1	P01.2	IP Data	50	7.9	395	0	1 EF		
1	P01.3	Mail/Copy Room	180	9.5	1710	2	1 SA 1 RA, FTR, 1x large copier, 1x fridge		
1	P01.4	Dean	270	9.4	2538	5	1 SA 1 RA, FTR		
1	P01.5	Meeting Room	285	8.5	2422.5	8	2 SA 1 RA, FTR, 4x Computers, 1x copier		
1	P01.6	House Principal	365	9.2	3358	6	2 SA 1 RA, FTR		
1	P01.7	Conference	155	9.2	1426	8	1 SA 1 RA, FTR		
1	P02	Guidance Reception	240	8.6	2064	4	1 SA 1 RA, 1x large copier, 1x fridge		
1	P02A	North Office	125	8.6	1075	4	1 SA 1 RA, FTR		
1	P02B	West Office	125	8.6	1075	4	1 SA 1 RA, FTR		
1	P02C	South Office	125	8.6	1075	4	1 SA 1 RA, FTR		
1	P03	Classroom	655	10.1	6615.5	28	2 SA 2 RA, FTR		
1	P04	A/D Reception	130	9.5	1235	3	1 SA 1 RA		
1	P04A	Athletic Director	195	9.5	1852.5	3	1 SA, FTR		
1	P05	Classroom	655	10.1	6615.5	28	2 SA 2 RA, FTR		
1	P06	Classroom	655	10.1	6615.5	28	2 SA 2 RA, FTR		
1	P07	Classroom	655	10.1	6615.5	28	2 SA 2 RA, FTR		
1	P08	Classroom	655	10.1	6615.5	28	2 SA 2 RA, FTR		
1	P08A	Girls	275	8.5	2337.5	4	1 SA 3 EA, FTR	No door, open to corridor	
1	P08B	Cust	50	8.3	415	1	1 EA		
1	P08C	Boys	270	8.5	2295	4	1 SA 4 EA FTR	No door, open to corridor	
1	P09	Computer Lab	1000	10.1	10100	28	4 SA 2 RA, FTR	Loud SA	
1	P10	Classroom	655	10.1	6615.5	28	2 SA 2 RA, FTR		
1	P11	Classroom	655	10.1	6615.5	28	2 SA 2 RA, FTR		
1	P12	Science Classroom	1300	10.1	13130	28	3 SA 3 RA, FTR		
1	P13	Kitchen Classroom	1225	9.2	11270	28	6 SA 2 RA, FTR, 4x Range Hoods, 1x Industrial Freezer, 6x Ovens, 1x		
1	P13A	Kitchen Storage	105	7.9	829.5	1	1 SA, 1x Washer/Dryer, 1x Industrial Freezer		
1	P14	Prep	185	8	1480	3	1 SA 1 RA		
1	P15	Barlowe's Restaurant	775	9	6975	25	4 SA 2 RA FTR, 1x Fridge, 1x Freezer		
1	P16	Kitchen	775	8.5	6587.5	8	4 SA, 2x Range Hoods, 1x DEF Hood		
1	P16A	Laundry	65	8.5	552.5	1	1x Transfer Grille to P16 Kitchen		
1	P17	Textile Lab	1100	10.1	11110	28	3 SA 1 RA, FTR		
1	P17.1	Women	70	8.6	602	2	2 EA		
1	P17A	Textile Storage	112	10.1	1131.2	1	FTR		
1	P18	Teachers Room	155	9.5	1472.5	3	1 SA 1 RA, FTR		
1	P19	Teachers Room	335	9	3015	7	2 SA 2 RA, FTR		
1	P20	Chemistry Science Classroom	1050	10.2	10710	28	2 SA 2 RA, FTR, 1x Exh Hood	Short cycling concern, all RGDs along the same wall	

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Project Number:	*2020102.00.06*
Scope	**Room Take-Off Data**
Date	**April 17, 2022**

RCM, RA, JRK

Fairfield Warde High School

Zone Identification

Floor	Room#	Room Name	Area (SF)	Ceiling Height	Volume	People	Notes	Identified Deficiencies	Pictures Y /N
1	P22	Teachers Room	150	8.8	1320	5	1 SA 1 RA, FTR		
1	P23	Chemistry Science Classroom	1000	10.2	10200	28	2 SA 2 RA, FTR, 1x Exh Hood		
1	P23.1	Men's	75	8.5	637.5	2	2 EA		
1	P23.2	Science Office	125	8.4	1050	2	1 SA 1 RA, FTR		
1	P23A	Prep	160	8.4	1344	2	1 SA 1 RA, FTR, 1x Exh Hood shared with P23 Chemistry Science Classroom		
1	P24	Storage/Faculty	270	9	2430	6	1 SA, FTR		
1	P24.1	2P Data	42	9	378	0	1x Mitsubishi Split AC		
1	P25	Faculty	370	9.3	3441	1	1 SA 1 RA, FTR, 1x Wall-Mount Blower Unit		
1	P26	Resource Learning Center	655	10.1	6615.5	11	2 SA 2 RA, FTR		
1	P27	Learning Center	700	10.1	7070	20	2 SA 2 RA, FTR		
1	P28	Classroom	655	10.1	6615.5	28	2 SA 2 RA, FTR		
1	P29	Classroom	655	10.1	6615.5	28	2 SA 2 RA, FTR		
1	P30	Classroom	655	10.1	6615.5	28	2 SA 2 RA, FTR		
1	P30.1	Boys	270	8.5	2295	4	1 SA 4 EA, FTR		
1	P30.2	Cust	55	8.3	456.5	1	1 EA		
1	P30.3	Girls	275	8.5	2337.5	4	1 SA 3 EA, FTR	No door, open to corridor	
1	P31	Biology Science Classroom	1050	10.1	10605	28	3 SA 2 RA, FTR, 1x Exh Hood		
1	P31A	Greenhouse	125	7.8	975	3	Outside-ish for natural ventilation, FTR		
1	P32	Prep	280	8.6	2408	3	1 SA 1 RA, FTR, 1x Exh Hood shared with P31 Biology Science Classroom, 1x		
1	P33	Biology Science Classroom	1300	10.1	13130	28	3 SA 2 RA, FTR, 1x Exh Hood		
1	P34	Classroom	655	10.1	6615.5	28	2 SA 2 RA, FTR		
1	P35	Classroom	655	10.1	6615.5	28	2 SA 2 RA, FTR		
1	P36	Classroom	655	10.1	6615.5	28	2 SA 2 RA, FTR		
1	P37	Classroom	655	10.1	6615.5	28	2 SA 2 RA, FTR		
1	P38	Career Center	850	9.5	8075	20	4 SA 2 RA, FTR, 6x Computers, 1x copier, 1x fridge		
1	P38A	Career Center Initial Evaluation Office	145	9.5	1377.5	4	1SA 1RA FTR	Loud SA	
1	P40	Curriculum	350	9.5	3325	11	1SA 1RA FTR		
1	P40.1	Curriculum Conference/Meeting	135	9.5	1282.5	6	1SA 1RA	Loud SA	
1	P40.E	Curriculum East Office	93	9.5	883.5	3	1SA 1RA FTR		
1	P40.S	Curriculum South Office	114	9.5	1083	3	1SA 1RA FTR	Loud SA	
1	T01	Townsend House	236	9.3	2194.8	5	1 SA 1 RA		
1	T01.1	Conference	150	8.6	1290	8	1 SA 1 RA		
1	T01.2	House Principal	355	8.6	3053	6	2 SA 1 RA		
1	T01.3	Meeting Room	290	8.6	2494	10	2 SA 1 RA, 4x Computers, 1x copier		
1	T01.4	Dean	260	8.6	2236	5	1 SA 2 RA, FTR		
1	T01.5	Mail/Copy Room	185	8.6	1591	2	1 SA 1 RA, 1x large copier, 1x fridge		
1	T01.6	Data	47	9	423	0	1 SA 1 RA, BAS control panel	No supplemental cooling, very warm	

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Fairfield Warde High School

Zone Identification

Floor	Room#	Room Name	Area (SF)	Ceiling Height	Volume	People	Notes	Identified Deficiencies	Pictures Y /N
1	T01.7	Toilet	50	8	400	1	1 EA		
1	T02	Reception	200	9.5	1900	3	1 SA 1 RA		
1	T02A	West Office	150	9.5	1425	4	1 SA 1 RA		
1	T02B	North Office	150	9.5	1425	4	1 SA 1 RA		
1	T02C	East Office	150	9.5	1425	4	1 SA 1 RA		
1	T03	Classroom	655	10.1	6615.5	28	2 SA 2 RA, FTR		
1	T04	Classroom	655	10.1	6615.5	28	2 SA 2 RA, FTR		
1	T05	Classroom	655	10.1	6615.5	28	2 SA 2 RA, FTR		
1	T06	Classroom	655	10.1	6615.5	28	2 SA 2 RA, FTR		
1	T07	Classroom	655	10.1	6615.5	28	2 SA 2 RA, FTR		
1	T07.1	Girls	265	8.6	2279	5	1 SA 3 EA	No door, open to corridor	
1	T07.2	Cust	50	8.6	430	1	1 EA		
1	T07.3	Boys	270	8.6	2322	5	1 SA 4 EA	No door, open to corridor	
1	T08	Computer Lab	1000	10.1	10100	30	4 SA 2 RA, 30x Computers, 1x copier, 1x Smartboard		
1	T09	Classroom	655	10.1	6615.5	28	2 SA 2 RA, FTR		
1	T10	Classroom	655	10.1	6615.5	28	2 SA 2 RA, FTR		
1	T11	Classroom	655	10.1	6615.5	28	2 SA 2 RA, FTR		
1	T12	Classroom	655	10.1	6615.5	28	2 SA 2 RA, FTR		
1	T13	Classroom	655	10.1	6615.5	28	2 SA 2 RA, FTR		
1	T14	Classroom	655	10.1	6615.5	28	2 SA 2 RA, FTR		
1	T15	Faculty	180	9.5	1710	0	1 SA		
1	T16	Art Classroom	1400	10.2	14280	28	4 SA 1 big RA, FTR		
1	T16.1	Women	72	9.2	662.4	1	1 SA 2 EA		
1	T16.2	Elec	60	11	660	0	Nothing		
1	T16A	Art Resource	295	10.2	3009	2	2 SA 1 RA, FTR		
1	T16B	Storage	100	8	800	0	Nothing		
1	T17	Faculty Pumping/Nursing	135	9	1215	1	1 SA 1 RA, FTR		
1	T18	Physics Science Classroom	1060	10.2	10812	28	2 SA 2 RA?	Short cycling concern, all RGDs along the same wall	
1	T19	Teachers Room	360	8.9	3204	3	2 SA 2 RA, 1x large copier, 1x Mitsubishi Split AC, FTR		
1	T21	Teachers Room	150	8.9	1335	3	1 SA 1 RA, FTR		
1	T21.1	Gender Neutral Restroom	100	8.1	810	2	1 EA, FTR		
1	T22	Science Classroom	1250	10.2	12750	28	2 SA 2 RA	Short cycling concern, all RGDs along the same wall	
1	T22A	Prep	205	8.5	1742.5	2	1 SA 1 RA		
1	T23	Classroom	700	10.2	7140	24	2 SA 1 RA	Short cycling concern, all RGDs along the same wall	
1	T23A	Work Room	150	8.5	1275	2	1 SA 1 RA, FTR		
1	T24	Book Storage/Copy Room	320	8.3	2656	2	1 SA 1 RA, FTR, 1x Mitsubishi Split AC		
1	T24.1	Data	60	8.3	498	0	1 EF?, 1x Mitsubishi Split AC		

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Zone Identification

Floor	Room#	Room Name	Area (SF)	Ceiling Height	Volume	People	Notes	Identified Deficiencies	Pictures Y /N
1	T25	Book Storage (Formerly OT/PT)	300	9.8	2940	1	1 SA 1 RA, FTR		
1	T26	Classroom	655	10.2	6681	28	2 SA 2 RA, FTR		
1	T26.1	Toilet	125	8.3	1037.5	2	1 EA		
1	T27	Learning Center (Formerly Motor	900	10.2	9180	12	3 SA 1 RA	Loud SA	
1	T27.1	Storage	26	10.2	265.2	0	Nothing		
1	T27.2	Storage	26	10.2	265.2	0	Nothing		
1	T28	Classroom	655	10.2	6681	28	2 SA 2 RA, FTR		
1	T29	Classroom	890	10.2	9078	28	2 SA 3 RA, FTR	Loud SA	
1	T30	Science Classroom	1160	10.2	11832	28	3 SA 3 RA, 1x Exh Hood		
1	T31	Prep	270	8	2160	2	1 RA, 1x Exh Hood shared with T30 Science Classroom, 1x Exh Hood		
1	T31.1	Faculty Men Restroom	270	8	2160	4	1 SA 4 EA	Loud SA	
1	T31.2	Cust	50	8	400	1	1 EA		
1	T31.3	Girls	265	8	2120	4	1 SA 3 EA		
1	T32	Counseling Waiting Area	412	8.5	3502	3	2 SA 2 RA		
1	T32A (W25A)	Office	108	9.5	1026	2	1 SA 1 RA		
1	T32B (W25B)	Office	155	9.5	1472.5	4	1 SA 1 RA, FTR		
1	T32C (W25C)	Office	160	9.5	1520	4	1 SA 1 RA, FTR		
1	T32D (W25D)	Office	135	9.5	1282.5	4	1 SA 1 RA, FTR		
1	T32E (W25E)	Office	135	9.5	1282.5	4	1 SA 1 RA, FTR		
1	T32F (W25F)	Office	190	9.5	1805	4	1 SA 1 RA, FTR		
1	T32G (W25G)	Conference	255	9.5	2422.5	10	2 SA 1 RA		
1	T32T (WT12)	Toilet	51	9	459	1	1 EA		
1	T33	Biology Science Classroom	1330	10.2	13566	28	4 SA 2 RA, 1x Exh Hood	Loud SA	
1	T34	Classroom	655	10.2	6681	28	2 SA 2 RA, FTR		
1	T35	Special Ed. Coord. Waiting Area	135	9.1	1228.5	5	1 SA 1 RA	GGM key does not work on this door, ask for assistance	
1	T35.1	Office	200	9.1	1820	4	1 SA 1 RA, FTR		
1	T36	Science Classroom	1050	10.1	10605	28	3 SA 4 RA, FTR		
1	T37	Prep	215	8	1720	2	1 RA		
1	T38	Security Office	340	8.5	2890	6	1 SA 1 RA, FTR	New walls, double office but not full separation. 110 ft^2 rear, 230 ft^2	

VANZELM ENGINEERS

FPS RCx Conditional Narrative:

Date Documented: 06/14/22- 6/20/22 RCM **By: RCM-REA**

School: FWHS **Dates of Surveys: 06/01/22 – 6-16-22**

1. Overall High-Level Summary Related to Building Ventilation and Equipment Condition:

   FWHS school was recently viewed by vanZelm earlier but after a quick spot check of several units it was determined that they should all be reviewed as the conditions of these units were not good. We found several units off, dampers in the wrong positions, damper seals missing, damper linkage disconnected, belts broken, pulleys off fan shafts, units with freeze stats tripped. Supply fans off with return fans operating. Return fans on with supply fan off. Follow-up visits to survey all units had determined that little if any of the findings and recommendations made during our 2021 Ventilation Assessment Study had been accomplished and HVAC equipment and Controllability of the same is in need of serious attention.

2. HVAC Systems Overview:

   HVAC systems are in poor condition with many units in need of major services tasks, repairs and or upgrades/replacement. In almost all cases coils were found to be fouled, control dampers and actuators in need of service, repair, or adjustment. Only the filters as of recent have been provided the attention while other components remained as is. Of note, two H&V systems serving the locker rooms were found with supply fan motors running without a belt, yet filters were changed very recently and have not signs of fouling.

3. Filters, Coils and Belts Overview:

   Several metal Pre-filters on the outdoor air intakes were plugged with pollen, dirt and should be power washed and or replaced.
   Filters were changed in May of this year, however most units shows signs that over the years filters were not changed at regular intervals

4. Controls and BAS Systems Information including Type, Brand, and General Condition:

   Based upon field observations and remote BAS Access it would seem systems are not being controlled as efficiently and repeatably as would be expected. Many of the legacy JCI I/O devices and DDC controllers have far exceeded expected life span and even with the new ALC overlay system it cannot remedy issues at the local equipment level. Controls and I/O devices should be upgraded in its entirety to help ensure good ventilation and temperature control of the spaces, while incorporating energy savings control strategies.

5. Other Notations Related to Survey Data and any Staff Feedback:

N/A

6. Recommendations to improve IAQ and ventilation Rates in Occupied Areas:

Have proper PM and controls upgraded. Once completed have entire building Retro-Commissioning the entire school including air balancing systems. Energy consumption may indeed increase with some measures, but a healthier environment will be the result

7. Energy Savings Potential:

We see tremendous opportunities to reduce energy consumption through control routines such as DCV, optimizing systems runtime and tighter space temperature control.

8. Other Noteworthy Comments:

The following notes were observations of Rooftop Equipment on 5/26/22 by RCM

- W-1:-
  - Filters changes 5/13/22 and are clean (4) 20 x 25 x 2
  - Coil very dirty
  - Control dampers should be cleaned and lubricated. No FA being introduced
  - SF A-49 Belt loose and RF Pully off Fan Wheel. A-52 Belt
- W-2:
  - Filters changes 5/13/22 and are clean (4) 24 x 24 x 2
  - Coil clean, drain pan ok
  - Control dampers should be cleaned and lubricated. ODA damper cracked open
- W-3:
  - Filters changes 5/13/22 starting to show fouling (change frequently). (4) 20 x 25 x 2. Filters 3' Longer than track but sealed ok
  - Coil clean, drain pan ok
  - 2 Compressors
  - 18 Kw Electric heat at 460V
  - Control dampers should be cleaned and lubricated. ODA damper cracked open
  - Supply Fan AX 58 belt and Fan Wheel wobbling generating humming noise. Bearings may be bad
- W-4:
  - Filters changes 5/13/22 starting to show fouling (change frequently). (4) 20 x 25 x 2. Filters 3' Longer than track but sealed ok
  - Coil clean, drain pan ok
  - 2 Compressors
  - 16 Kw Electric heat at 460V
  - Control dampers under package unit control with ODA damper fully closed. should be cleaned and lubricated.
  - Supply Fan AX 54 belt
- L-3:
  - Filters changes 5/13/22 starting to show fouling (change frequently). (4) 20 x 25 x 2. Filters 3' Longer than track but sealed ok
  - Coil clean, drain pan ok
  - 2 Compressors
  - 18 Kw Electric heat at 460V
  - Control dampers should be cleaned and lubricated. ODA damper cracked open
  - Supply Fan AX-58 blet
- L2 or L5:
  - Supply Fan not running while Return Fan was.
  - Filters changes 5/13/22 and are clean (4) 24 x 24 x 2
  - Coil clean
  - Control dampers should be cleaned and lubricated. Dampers were observed with OAD Damper 100& open along with Return Air Damper and Exhaust Damper was closed??
- L-1:

- Supply Fan not running as well Return Fan.
- Filters changes 5/13/22 and are clean (4) 24 x 24 x 2 and no indication unit has operated since change.
- Coil somewhat dirty
- Control dampers should be cleaned and lubricated.

❖ A-4:

- Filters changes 5/13/22 and are clean (2) 16 x 20 x 2, (1) 14 x 20 x 2, (1) 14 x 25 x 2. No metal prefilter
- Coil very dirty and drain pan crusty
- Control dampers should be cleaned and lubricated. Dampers were observed with OAD Damper closed.

❖ A-3:

- Cooling only
- Filters changes 5/13/22 and are clean (4) 20 x 25 x 2, Metal prefilter dirty.
- Coil very ok and drain pan crusty
- Control dampers should be cleaned and lubricated. ODA cracked

❖ A-2:

- Unit not operating
- Filters changes 5/13/22 and are clean (2) 18 x 25 x 2, (2) 24 x 24 x 2.
- Coil very ok and drain pan crusty
- Control dampers should be cleaned and lubricated and do not look like they have operated for a long time. ODA cracked <15%
- Control dampers seals coming off (see picture)

❖ A-1:

- Unit not operating.
- Filters changes 5/13/22 and are clean (4) 24 x 24 x 2 and (4) 12 x 24 x 2. Unit may not have operated since change.
- Coil somewhat dirty
- Control dampers should be cleaned and lubricated with 100 % open while unit is off.

❖ A-6:

- AAON Unit not operating. Steam heat
- 100% outdoor air unit.
- Filters changes 5/13/22 and are clean (6) 16 x 20 x 2 and no indication unit has operated since change.
- Coil ok
- Control dampers should be cleaned and lubricated.

❖ A-5:

- New Trane unit installed 2021
- Steam heat with DX 2-stage.
- Filters changes 5/13/22 and are clean (4) 20 x 25 x 2 clean.
- Control dampers package flapper style. With a 50 degree day no outside air was being introduced.

❖ L-9:

- York unit not operating in Auto. Disconnect broken with no linkage rod.
- 100% outdoor air unit with steam heat
- Filters changes 5/13/22 and are clean (4) 12 x 24 x 2 and (4) 24 x 24 x 2. Unit may not have operated since change.
- Coil very dirty
- Control dampers should be cleaned and lubricated with 100 % open while unit is off.

❖ E-1 Gym:

- York unit not operating in Auto. Disconnect broken with no linkage rod.
- 100% outdoor air unit with steam heat
- 20 HP Supply fan with two AP58 belts
- Filters changes 5/13/22 and are clean (6) 12 x 24 x 2.
- Coil very dirty
- Control dampers should be cleaned and lubricated with 100 % open while unit is off.

❖ E-2 Gym:

- York unit not operating in Auto. Disconnect broken with no linkage rod.
- 100% outdoor air unit with steam heat
- 20 HP Supply fan with two AP58 belts
- Filters changes 5/13/22 and are clean (8) 24 x 24 x 2. Looks like has not run in a long time.
- Coil ok
- Control damper should be cleaned and lubricated.

❖ E-5 Gym:

- York unit operating in Auto. Disconnect broken with no linkage rod.
- 100% outdoor air unit with steam heat
- 20 HP Supply fan with two AP58 belts loose
- Filters changes 5/13/22 and are clean (8) 24 x 24 x 2. Looks like has not run in a long time.
- Coil ok

❖ ACH-6 Wrestling:

- Unit Steam heat but is in disrepair
- No ventilation to area

The following notes were observations of Rooftop Equipment on 5/26/22 by REA

- RTU-W-8:
  - Filters changes 5/13/22 and are clean (4) 20 x 25 x 2
  - DX Coil dirty
  - Drain pan crusty
  - Control dampers should be cleaned and lubricated. No FA being introduced
  - SF Belt AX-58 Belt, constant speed no VFD
  - Metal O.A. filters very dirty, should be replaced or power washed clean
- RTU-W-7:
  - Supply fan spring isolators missing bolts ready to fall apart
  - Filters changes 5/13/22 and are clean
  - Steam heating Coil clean, drain pan ok, no cooling
  - Control dampers should be cleaned and lubricated and adjusted. O.A. damper did not close on shut down.
- RTU-W-6:
  - Filters changes 5/13/22 and are clean (4) 20 x 25 x 2
  - DX Coil dirty
  - Drain pan crusty
  - Control dampers should be cleaned and lubricated. No FA being introduced
  - SF Belt A-54 Belt, constant speed no VFD

- RTU-W-5:

  Trane President Model WSC048H4R0A26D Serial 212715507L Man. Date 07/2021
  - Filters changes 5/13/22 20x35x1, Cheap filter, frame should handle 2" filter
  - Coil clean, drain pan clean
  - 1 Compressors
  - Control dampers under package unit control
  - Direct drive Supply Fan
- RTU-C-2:
  - Newer Trane serving Media/Library
  - Filters changes 5/13/22 clean due to no outdoor air. Found damper linkage unhooked, nut and bolt laying inside unit. Damper appears to be asking for economizer. Relief dampers closed, negative pressure, manually opened O.A damper relief cracked slightly.
  - Coil slightly dirty, drain pan ok
  - 25.0 HP supply fan, belts appear loose.
  - Control dampers should be cleaned adjusted, reconnected, and lubricated.
  - Lightning cable needs to be refastened to top of RTU
- RTU-C-1:
  - York unit like W-6, W-8. Older but functional
  - Supply Fan not running.
  - Filters changes 5/13/22 and are clean (4) 24 x 24 x 2
  - Coil clean for its age, trap should be replaced.

- A 55 belt, could be tighter
- Control dampers should be cleaned and lubricated and adjusted.
- Metal Pre-filter plugged, replace or power if wash does not correct DP

❖ RTU-C-3:
- York unit like W-6, W-8. Older but functional
- Filters changes 5/13/22 and are clean (4) 24 x 24 x 2.
- Coil somewhat dirty
- Control dampers should be cleaned and lubricated.
- Supply ductwork membrane cut, water infiltration, should be repaired.

❖ RTU-L-4:
- York unit like W-6, W-8. Older but functional
- Two compressors, electric resistance heat
- Filters changes 5/13/22 and are clean. Metal prefilter OK.
- Coil dirty but ok and drain pan crusty
- Control dampers should be cleaned and lubricated.
- Unit sits too close to roof deck
-

❖ RTU-L-5:
- York unit like W-6, W-8. Older but functional
- DX Compressors, electric resistance heat
- Filters changes 5/13/22 and are clean. Metal prefilter plugged.
- (4) 20”x25”x2” Unit no cooling during inspection.
- Coil very dirty and drain pan crusty
- Control dampers should be cleaned and lubricated and adjusted,
- 2.0 supply fan H.P.

❖ RTU-L-6:
- York H&V unit.
- Unit supply fan would not run-in auto, only in hand. Return fan on.
- Filter safe off plated missing. Cx reinstalled. Filters changes 5/13/22 and are clean (4) 24 x 24 x 2
- Coil somewhat dirty, should be cleaned
- Control dampers should be cleaned and lubricated. Dampers were 100 % open while unit was off.
- 5.0 Supply HP, 7.5 Exhaust H.P.

❖ RTU-L-7:
- York H&V unit.
- Unit supply fan belt and fan pulley missing. Return fan also off. Return fan loose.
- Filter changes 5/13/22 and are clean (4) 24 x 24 x 2, system has not run in a while
- Coil somewhat dirty, should be cleaned
- Control dampers should be cleaned and lubricated.
- 3.0 Supply HP, 3.0 Exhaust H.P.

- RTU-L-10:
    - York H&V unit.
    - Unit supply fan off. No return fans
    - Filter changes 5/13/22 and are clean (4) 24 x 24 x 2, system has not run in a while
    - Coil somewhat dirty, should be cleaned
    - Control dampers should be cleaned and lubricated.
    - 5.0 Supply HP
- RTU-L-8:
    - York H&V unit.
    - Unit supply fan would not run-in auto, only in hand. Return fan on.
    - Filters changes 5/13/22 and are clean (4) 24 x 24 x 2
    - Coil somewhat dirty, should be cleaned
    - Control dampers should be cleaned and lubricated. Dampers were 100 % open while unit was off.
    - 1.5 Supply HP, 1.0 Exhaust H.P

- RTU-E-2 Gym:
    - York unit not operating in Auto. Disconnect broken with no linkage rod.
    - Outdoor air closed, return air open
    - Heating only unit with steam heat
    - 20 HP Supply fan with two AP58 belts
    - Filters changes 5/13/22 and are clean (6) 12 x 24 x 2.
    - Coil ok
    - Control dampers should be cleaned and lubricated with 100 % open while unit is off.
- RTU-E-4 Gym:
    - York unit operating in Auto.
    - Outdoor air closed, return air open, dampers switched when shut down. Unit has steam heat coil is OK
    - 20 HP Supply fan with two AP58 belts
    - Filters changes 5/13/22 and are clean (8) 24 x 24 x 2.
    - Belts squeal upon hard start.
    - Control damper should be cleaned and lubricated and adjusted.

PROJECT: 2020102.00 FAIRFIELD PUBLIC SCHOOLS – FAIRFIELD WARDE HIGH SCHOOL EQUIPMENT DATA SHEET

Unit Tag	**RTU-A-1**	**Addition comments descriptions**
Location	Roof-A	Survey 5-26-22
Serving	Wood Shop	
Config/Style		
Mfr.	York	
Model #	CP 125 FC 5 0 460	
Serial #	AGNM 014467	
Age (years)		
System CFM	6000	
Max OA CFM	100%	
V/Hz/Ph		
SF Qty/HP	Not operating. BX-68 Belt.	
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	4-24x24x2, 4-12x24x2	
Filter Status	Clean	
Controls Type		
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles		
Damper Status		
Heating Type	NA	
Heating Coil Condition		
Cooling Type	DX	
Cooling Coil Condition	Ok	
Drain Pan Status		
Notes:	From 2020073.00:	
	○ The filters are dirty. Two filters have fallen out of the rack.	

	○ The filter section lower door handle is broken in the shut position. ○ The unit interior is dirty. ○ The coil is dirty.	

PROJECT: 2020102.00 FAIRFIELD PUBLIC SCHOOLS – FAIRFIELD WARDE HIGH SCHOOL EQUIPMENT DATA SHEET

Unit Tag	**RTU-A-2**	**Addition comments descriptions**
Location	Roof-A	Surveyed 5-26-22
Serving	Computer Repair	
Config/Style		
Mfr.	York	
Model #	DH180C00B4DJD2A	
Serial #	NGNM085283	
Age (years)		
System CFM	7000	
Max OA CFM		
V/Hz/Ph		
SF Qty/HP		
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	2-24x24x2, 2-18x25x2	
Filter Status	Clean	
Controls Type		
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles		
Damper Status	Very bad with end seals missing, fixed at 20% with unit off. Looks as if not operable in a long while	
Heating Type		
Heating Coil Condition		
Cooling Type	Dx	
Cooling Coil Condition	Ok	
Drain Pan Status	Crusty, needs cleaning	
Notes:	Unit not running	
	From 2020073.00:	
	○ The unit interior is dirty. ○ The coil is dirty.	

	○ The dampers need to be lubricated. ○ The filters are very dirty and are being pulled out of the racks. ○ The condenser coils need to be combed to straighten the fins. ○ The supply air duct insulation seams are coming undone near the steam coil. There appear to be some sections where the duct is leaking, as evidenced by the insulation ballooning. With the insulation damaged, water could get into the ductwork in these locations, so it should be patched wherever possible.	

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Unit Tag	**RTU-A-3**	**Addition comments descriptions**
Location	Roof-A	Surveyed 5-26-22
Serving	Graphic Arts	
Config/Style		
Mfr.	York	
Model #	DH078C00N4DAG3C	
Serial #	NFNM079333	
Age (years)		
System CFM	2500	
Max OA CFM		
V/Hz/Ph		
SF Qty/HP	A55 Belt good	
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	4-20x25x2	
Filter Status		
Controls Type		
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles		
Damper Status		
Heating Type	NA	
Heating Coil Condition		
Cooling Type	Dx	
Cooling Coil Condition	Ok	
Drain Pan Status	Crusty	
Notes:	From 2020073.00	
	○ There was excessive water found in the filter section of the unit. Some debris and	

	paper was sitting in the water; these should be removed. ○ The condenser fans are imbalanced ○ The condenser coils need to be combed to straighten the fins	

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Unit Tag	**RTU-A-4**	**Addition comments descriptions**
Location	Roof-A	Surveyed 5-26-22
Serving	Nursery	
Config/Style		
Mfr.	York	
Model #	D1EE048A46ECC	
Serial #	NDJM045267	
Age (years)		
System CFM	1430	
Max OA CFM		
V/Hz/Ph		
SF Qty/HP		
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	2-16x20x2, 1 0 `4x25x2, 1-14x20x2 w/ 5" plate	
Filter Status		
Controls Type		
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles	Packaged	
Damper Status	Questionable operation as OA damper has no minimum	
Heating Type		
Heating Coil Condition		
Cooling Type	DX	
Cooling Coil Condition	Very dirty needing cleaning	
Drain Pan Status	Crusty	
Notes:	From 2020073.00	
	○ The unit was running but the DX cooling was not operating. We would have expected it to,	

	given the warm weather conditions.	

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Unit Tag	**RTU-A-5** "RTU-A-2"	**Addition comments descriptions**
Location	Roof-A	Surveyed 5-26-22
Serving	Black Box Theater	
Config/Style		
Mfr.	~~AAON old~~, Trane replacement	
Model #	~~RM-006-2-0-AA01-CHH~~ THC074F4R0A0KGOE0000601C00000D0000000000	
Serial #	~~200308-AMSF00021~~ 20351112L	
Age (years)		
System CFM	2500	
Max OA CFM		
V/Hz/Ph		
SF Qty/HP		
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	~~4-16x20x4~~	
Filter Status	Clean	
Controls Type	Package / ALC	
Controls Mfr.		
Economizer	Packaged with ALC interface	
CO_2 DCV		
Damper Styles		
Damper Status		
Heating Type	Steam	
Heating Coil Condition	Ok	
Cooling Type	2 stage DX	
Cooling Coil Condition	Good	
Drain Pan Status	Good	
Notes:	~~From 2020073.00 Old Aaon~~	
	~~For the unit serving the Black Box Theater, the unit nameplate tags this unit at~~	

	~~RTU-A-2, but that designation is taken by another unit. The previous list had this unit as "AC-E-5" but this building section is still A. For this report, the unit is designated as "RTU-A-5".~~ ~~○ The fan belt is missing.~~ ~~○ The fan bearing is destroyed and needs to be replaced.~~ ~~○ Piping insulation in the unit is damaged.~~	

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Unit Tag	**RTU-A-6** ~~"RTU-A-3"~~	**Addition comments descriptions**
Location	Roof-A	Surveyed 5-26-22
Serving	Tech Ed	
Config/Style		
Mfr.	AAON	
Model #	RK-15-3-00-640	
Serial #	200308-AKSL00294	
Age (years)		
System CFM	6000	
Max OA CFM		
V/Hz/Ph		
SF Qty/HP		
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	6-16x20x4	
Filter Status	Clean	
Controls Type		
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles		
Damper Status	Needs cleaning, lubrication and adjustment as OA damper 100% with unit off	
Heating Type	Steam	
Heating Coil Condition	Needs good cleaning	
Cooling Type	DX	
Cooling Coil Condition	Dirty, should be cleaned	
Drain Pan Status	Crusty	
Notes:	Unit would not run	
	From 2020073.00:	

	○ It seems this unit has not run in a very long time	

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Unit Tag	**RTU-A-7** "RTU-A-1"	**Addition comments descriptions**
Location	Roof-A	
Serving	Early Childhood Center	
Config/Style		
Mfr.	AAON	
Model #	RK-40-3-E0-640	
Serial #	200308-AKST00295	
Age (years)		
System CFM	16000	
Max OA CFM		
V/Hz/Ph		
SF Qty/HP		
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	10-20x25x4	
Filter Status		
Controls Type		
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles		
Damper Status		
Heating Type		
Heating Coil Condition		
Cooling Type		
Cooling Coil Condition		
CU Mfr.		
CU Model		
CU Serial		
Drain Pan Status		
Notes:	From 2020073.00:	

	○ For the unit serving the Early Childhood Center, the unit nameplate tags this unit at RTU- A-1, but that designation is taken by another unit. The previous list had this unit as "AC- E-7" but this building section is still A. For this report, the unit is designated as "RTU-A- 7". ○ The coil is dirty. ○ The condensate pan is dirty and needs to be cleaned out. ○ We found this unit running in 100% return air recirculation. ○ With the positioning of the ductwork and piping for this unit, access is impossible without stepping on one or the other. This has led to the insulation being crushed, which compromised both the vapor barrier and the effectiveness of the insulation. Additionally, the ductwork itself seems to have been damaged. Repairing the damaged insulation and installing a permanent means of accessing this unit are recommended to prevent future damage. ○ Piping insulation inside of the unit is damaged. ○ The programming module was found within the unit control cabinet, plugged into the convenience receptacle on the exterior of the unit with an extension cord. Upon discussion with the facilities staff, they informed us that unit does not receive a cooling	

	signal command from the control system. Whenever cooling is desired, somebody needs to go to the roof and manually enable it. This manual enable only lasts for 75 minutes when it would need to be re-enabled. This is not something that would have been corrected with the controller upgrade by ALC, so further investigation should be done.	

Description	**Photos**
Unit Tag Info	
Unit from afar	
Unit SF Tag Info	
Unit RF/EF Tag Info	
Heating Coil	
Cooling Coil	
Condensate Pan	
Control Dampers	
Filters	
Controls	
Electrical / Misc.	

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Unit Tag	**RTU-AUD**	**Addition comments descriptions**
Location	SG MER N	
Serving	Auditorium	
Config/Style	DX Cooling steam heating w/economizer	
Mfr.	Trane Climate Changer	
Model #	CSAA030UAC00	
Serial #	K12E53712	
Age (years)		
System CFM		
Max OA CFM		
V/Hz/Ph	460/60/3	
SF Qty/HP	20? (2) 5VX-740	
SF VFD Data	ABB	
RF Qty/HP	Yes, too high to verify	
RF VFD Data	ABB	
Filter Data (Size Quantity)	3-12x24x4, 2-16x20x4, 6-20x24x4	
Filter Status	Clean, difficult to change, door hits valves	
Controls Type	Metasys	
Controls Mfr.	JCI Metasys	
Economizer	Available, operation unknown	
CO_2 DCV	Unknown, should be added if not, due to space	
Damper Styles	Duct mounted	
Damper Status	Operational	
Heating Type	Steam	
Heating Coil Condition	OK, could stand for cleaning	
Cooling Type	DX Split Trane	
Cooling Coil Condition	OK	
CU Mfr.	Trane	
Drain Pan Status	OK, difficult to inspect	
Notes:	Return Fan Greenheck TCF dumps air into MER. Wall louver on exterior does not seal tight, difficult to control. Should be modified. I guess this is used	

	for relief but would be better sending this into the other spaces.	

Description	**Photos**
Unit Tag Info	
Unit from afar	
Unit SF Tag Info	
Unit RF/EF Tag Info	
Heating Coil	
Cooling Coil	
Condensate Pan	
Control Dampers	
Filters	
Controls	
Electrical / Misc.	

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Unit Tag	**RTU-B-1**	**Addition comments descriptions**
Location	Roof-B	
Serving	Servery	
Config/Style		
Mfr.	York	
Model #	CP 65 FC 1 1 460	
Serial #	AGNM 014468	
Age (years)		
System CFM	1400	
Max OA CFM		
V/Hz/Ph		
SF Qty/HP		
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	2-24x24x2, 2-12x24x2	
Filter Status		
Controls Type		
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles		
Damper Status		
Heating Type		
Heating Coil Condition		
Cooling Type		
Cooling Coil Condition		
CU Mfr.		
CU Model		
CU Serial		
Drain Pan Status		
Notes:	From 2020073.00: Unit not operating	

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Unit Tag	**RTU-B-2**	**Addition comments descriptions**
Location	Roof-B	
Serving	Student Commons	
Config/Style		
Mfr.	York	
Model #	CP 65 FC 5 5 460	
Serial #	AGNM 014469	
Age (years)		
System CFM	3500	
Max OA CFM		
V/Hz/Ph		
SF Qty/HP		
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	2-24x24x2, 2-12x24x2	
Filter Status		
Controls Type		
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles		
Damper Status		
Heating Type		
Heating Coil Condition		
Cooling Type		
Cooling Coil Condition		
CU Mfr.		
CU Model		
CU Serial		
Drain Pan Status		
Notes:	From 2020073.00:	

	○ This unit was operating with much higher airflow than expected compared to RTU-B-1 and 3.	

Description	**Photos**
Unit Tag Info	
Unit from afar	
Unit SF Tag Info	
Unit RF/EF Tag Info	
Heating Coil	
Cooling Coil	
Condensate Pan	
Control Dampers	
Filters	
Controls	
Electrical / Misc.	

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Unit Tag	**RTU-B-3**	**Addition comments descriptions**
Location	Roof-B	
Serving	Faculty Lounge	
Config/Style		
Mfr.	York	
Model #	CP 65 FC 1-1/2 1 460	
Serial #	AGNM 014470	
Age (years)		
System CFM	2000	
Max OA CFM		
V/Hz/Ph		
SF Qty/HP		
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	2-24x24x2, 2-12x24x2	
Filter Status		
Controls Type		
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles		
Damper Status		
Heating Type		
Heating Coil Condition		
Cooling Type		
Cooling Coil Condition		
CU Mfr.		
CU Model		
CU Serial		
Drain Pan Status		
Notes:		

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Unit Tag	**RTU-C-1**	**Addition comments descriptions**
Location	Roof-C	
Serving	Main Office	
Config/Style		
Mfr.	York	
Model #	DH090C00S4DJD3C	
Serial #	NFNM081594	
Age (years)		
System CFM	1950	
Max OA CFM		
V/Hz/Ph		
SF Qty/HP		
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	4-20x25x2	
Filter Status		
Controls Type		
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles		
Damper Status		
Heating Type		
Heating Coil Condition		
Cooling Type		
Cooling Coil Condition		
CU Mfr.		
CU Model		
CU Serial		
Drain Pan Status		
Notes:	From 2020073.00:	

	○ The unit was found not running, and it seems that it hasn't run in a while. ○ The condenser coil needs cleaning.	

Description	**Photos**
Unit Tag Info	
Unit from afar	
Unit SF Tag Info	
Unit RF/EF Tag Info	
Heating Coil	
Cooling Coil	
Condensate Pan	
Control Dampers	
Filters	
Controls	
Electrical / Misc.	

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Unit Tag	**RTU-C-2**	**Addition comments descriptions**
Location	Roof-C	
Serving	Health Center	
Config/Style		
Mfr.	York	
Model #	DH07C00E4DJC3C	
Serial #	NFNM080730	
Age (years)		
System CFM	3000	
Max OA CFM		
V/Hz/Ph		
SF Qty/HP		
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	4-20x25x2	
Filter Status		
Controls Type		
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles		
Damper Status		
Heating Type		
Heating Coil Condition		
Cooling Type		
Cooling Coil Condition		
CU Mfr.		
CU Model		
CU Serial		
Drain Pan Status		
Notes:	From 2020073.00:	

	○ Access to this unit is precarious. Recommend installing a permanent stair/ladder to safely traverse over the solar panel electrical conduit.	

Description	**Photos**
Unit Tag Info	
Unit from afar	
Unit SF Tag Info	
Unit RF/EF Tag Info	
Heating Coil	
Cooling Coil	
Condensate Pan	
Control Dampers	
Filters	
Controls	
Electrical / Misc.	

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Unit Tag	**RTU-C-3**	**Addition comments descriptions**
Location	Roof-C	
Serving	Media Center	
Config/Style		
Mfr.	Trane	
Model #	SSHLF40E5R46#7BE8C0100CE0V0BA002Z0M8000#	
Serial #	C17E03454	
Age (years)		
System CFM	10000	
Max OA CFM		
V/Hz/Ph		
SF Qty/HP		
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	6-24x24x2, 5-12x24x2, 6-24x24x4, 5-12x24x4	
Filter Status		
Controls Type		
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles		
Damper Status		
Heating Type		
Heating Coil Condition		
Cooling Type		
Cooling Coil Condition		
CU Mfr.		
CU Model		
CU Serial		
Drain Pan Status		
Notes:		

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Unit Tag	**HV-D-1**	**Addition comments descriptions**
Location	SG MER N	
Serving	Girls Locker room	
Config/Style	H&V Steam	
Mfr.	McQuay	
Model #	CAH006FHAM	
Serial #	FBOU040700547	
Age (years)		
System CFM		
Max OA CFM		
V/Hz/Ph	460/60/3	
SF Qty/HP	1.0 BX-28 BROKEN	
SF VFD Data	N/A	
RF Qty/HP	N/A	
RF VFD Data	N/A	
Filter Data (Size Quantity)	2-24x24x2	
Filter Status	(2) 24x24x2	
Controls Type	JCI Metasys	
Controls Mfr.	JCI Metasys	
Economizer	Unknown	
CO_2 DCV	Unknown	
Damper Styles	Factory and duct mounted	
Damper Status	Parallel	
Heating Type	Steam	
Heating Coil Condition	Dirty	
Cooling Type	N/A	
Cooling Coil Condition	N/A	
Drain Pan Status	N/A no cooling required cleaning	
Notes:	Belt broken, system has not run-in months, disconnect off From 2020073.00:	

	○ The unit returns air from the mechanical space that it is in (Small Gym MER South). By code, this is not allowed since it will have adverse effects on the indoor air quality. The return air must be ducted to the space or a section of the building where all of the materials are plenum-rated.	

Description	**Photos**
Unit Tag Info	
Unit from afar	
Unit SF Tag Info	
Unit RF/EF Tag Info	
Heating Coil	
Cooling Coil	
Condensate Pan	
Control Dampers	
Filters	
Controls	
Electrical / Misc.	

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Unit Tag	**HV-D-2**	**Addition comments descriptions**
Location	SG MER N	
Serving	Small Gym North	
Config/Style	Steam H&V	
Mfr.	McQuay	
Model #	CAH006FHAC	
Serial #	FBOU040700547	
Age (years)		
System CFM		
Max OA CFM		
V/Hz/Ph	460/60/3	
SF Qty/HP	15.0 (2) BX-18	
SF VFD Data	N/A	
RF Qty/HP	N/A	
RF VFD Data	N/A	
Filter Data (Size Quantity)	4-20x24x2, 4-12x24x2	
Filter Status	Dirty, access door difficult to open/close	
Controls Type	JCI Metasys	
Controls Mfr.	JCI Metasys	
Economizer	Unknown- Same return air issue as Boy's side.	
CO_2 DCV	Unknown	
Damper Styles	Duct mounted Parallel	
Damper Status	OK, clean, adjust, and lubricate	
Heating Type	Steam	
Heating Coil Condition	Dirty	
Cooling Type	N/A	
Cooling Coil Condition	N/A	
CU Mfr.	N/A, no cooling	
Drain Pan Status	Dirty, interior of unit needs cleaning	
Notes:	Unit has not run in a while, broken belt disconnect off	

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Unit Tag	**HV-D-3**	**Addition comments descriptions**
Location	SG MER 2	
Serving	Boys Locker Small Gym	
Config/Style		
Mfr.	McQuay	
Model #	CAH006FHAM	
Serial #	FBOU040700549	
Age (years)		
System CFM		
Max OA CFM		
V/Hz/Ph	460/60/3	
SF Qty/HP	5.0 B-28	New Motor 1-5-17 Tony
SF VFD Data	N/A	
RF Qty/HP	N/A	
RF VFD Data	N/A	
Filter Data (Size Quantity)	2-24x24x2	
Filter Status	Clean	
Controls Type	Metasys	
Controls Mfr.	Metasys	
Economizer	Unknown	
CO_2 DCV	Unknown	
Damper Styles	Factory	
Damper Status	Parallel	
Heating Type	Steam	
Heating Coil Condition	Dirty, Very, very dirty	
Cooling Type	N/A	
Cooling Coil Condition	N/A	
Drain Pan Status	Filled with Debris	
Notes:	No return air to unit, room is a plenum. Unit was off on freeze protection, belt is broken. From 2020076.00:	

	○ The coil is coated with dust, pollen, and debris; this requires a full cleaning. ○ The unit returns air from the mechanical space that it is in (Small Gym MER South). By code, this is not allowed since it will have adverse effects on the indoor air quality. The return air must be ducted to the space or a section of the building where all of the materials are plenum-rated.	

Description	**Photos**
Unit Tag Info	
Unit from afar	
Unit SF Tag Info	
Unit RF/EF Tag Info	
Heating Coil	
Cooling Coil	
Condensate Pan	
Control Dampers	
Filters	
Controls	
Electrical / Misc.	

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Unit Tag	**HV-D-4**	**Addition comments descriptions**
Location	SG MER 2	
Serving	Small Gym South	
Config/Style	Steam H&V	
Mfr.	McQuay	
Model #	CAC030FHAM CAH018FVAM	
Serial #	FBOU040700548 FBOUO40700542	
Age (years)		
System CFM		
Max OA CFM		
V/Hz/Ph	460/60/3	
SF Qty/HP	15.0 (2) BX-78	
SF VFD Data	N/A	
RF Qty/HP	N/A	
RF VFD Data	N/A	
Filter Data (Size Quantity)	4-20x24x2, 4-12x24x2 (Horizontal)	
Filter Status	Dirty, one filter not lying flat in rack	
Controls Type	JCI Metasys	
Controls Mfr.	JCI Metasys	
Economizer	Unknown	
CO_2 DCV	Unknown	
Damper Styles	Duct mounted Parallel	
Damper Status	OK, clean, adjust, and lubricate	
Heating Type	Steam	
Heating Coil Condition	Dirty	
Cooling Type	N/A	
Cooling Coil Condition	N/A	
Drain Pan Status	N/A, no cooling	
Notes:	Unit was off, hit reset on disconnect fan started	

Description	**Photos**

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Unit Tag	**RTU-E-1**	**Addition comments descriptions**
Location	Roof-D	Surveyed 5-26-22
Serving	Girls Locker Large Gym	
Config/Style		
Mfr.	York	
Model #	CP 65 FC 3 0 460	
Serial #	AGNM 014471	
Age (years)		
System CFM	2700	
Max OA CFM	100%	
V/Hz/Ph		
SF Qty/HP		
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	6 - 12x24x2	
Filter Status	Clean	
Controls Type		
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles		
Damper Status		
Heating Type	Steam	
Heating Coil Condition	Very Dirty	
Cooling Type		
Cooling Coil Condition		
Drain Pan Status		
Notes:	Electrical Disconnect in need of replacement	

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Unit Tag	**RTU-E-2**	**Addition comments descriptions**
Location	Roof-D	Surveyed 5-23-23
Serving	Large Gym	
Config/Style		
Mfr.	York	
Model #	CP 170 DWDI AF 20 0 460	
Serial #	AGNM 014478	
Age (years)		
System CFM	10000	
Max OA CFM		
V/Hz/Ph		
SF Qty/HP	20 HP	
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	8-24x24x2	
Filter Status	Clean	
Controls Type		
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles		
Damper Status	May be frozen in place due to condition and age. With unit operable, should clean, lubricate, adjust and test stroking through controls	
Heating Type		
Heating Coil Condition	Steam	
Cooling Type	Very dirty	
Cooling Coil Condition		
Drain Pan Status		
Notes:	Unit seems to have been off for a very long time. Does not operate in Auto, or Hand Mode	

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Unit Tag	**RTU-E-3**	**Addition comments descriptions**
Location	Roof-D	
Serving	Large Gym	
Config/Style		
Mfr.	York	
Model #	CP 170 DWDI AF 20 0 460	
Serial #	AGNM 014479	
Age (years)		
System CFM	10000	
Max OA CFM		
V/Hz/Ph		
SF Qty/HP		
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	4-24x24x2	
Filter Status		
Controls Type		
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles		
Damper Status		
Heating Type		
Heating Coil Condition		
Cooling Type		
Cooling Coil Condition		
CU Mfr.		
CU Model		
CU Serial		
Drain Pan Status		
Notes:		

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Unit Tag	**RTU-E-4**	**Addition comments descriptions**
Location	Roof-D	
Serving	Large Gym	
Config/Style		
Mfr.	York	
Model #	CP 170 DWDI AF 20 0 460	
Serial #	AGNM 014480	
Age (years)		
System CFM	10000	
Max OA CFM		
V/Hz/Ph		
SF Qty/HP		
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	4-24x24x2	
Filter Status		
Controls Type		
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles		
Damper Status		
Heating Type		
Heating Coil Condition		
Cooling Type		
Cooling Coil Condition		
CU Mfr.		
CU Model		
CU Serial		
Drain Pan Status		
Notes:		

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Unit Tag	**RTU-E-5**	**Addition comments descriptions**
Location	Roof-D	Surveyed 5-26-22
Serving	Large Gym	
Config/Style		
Mfr.	York	
Model #	CP 170 DWDI AF 20 0 460	
Serial #	AGNM 014481	
Age (years)		
System CFM	10000	
Max OA CFM		
V/Hz/Ph		
SF Qty/HP	(2) AP-58 belts (one very loose)	
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	4-24x24x2	
Filter Status		
Controls Type		
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles		
Damper Status		
Heating Type	Steam	
Heating Coil Condition	Coil very dirty	
Cooling Type		
Cooling Coil Condition		
Drain Pan Status	Needs clening	
Notes:	Unit not operating and Oa damper remained open 50% and RA closed very slowly. Clean, lubricate and adjust dampers linkages before testing	

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Unit Tag	**RTU-E-6**	**Addition comments descriptions**
Location	Roof-E	
Serving	Fitness	
Config/Style		
Mfr.	York	
Model #	Y12AX14C2KDOBBF	
Serial #	NGNM099030	
Age (years)		
System CFM	10800	
Max OA CFM		
V/Hz/Ph	460/60/3	
SF Qty/HP	15.0 (2) BP-54	
SF VFD Data	N/A	
RF Qty/HP	1.0	
RF VFD Data	N/A power exhaust has not run-in years	
Filter Data (Size Quantity)	(12) 16x24x2 Metal prefilters falling apart, replace	
Filter Status	Change date 5/12/22 Clean	
Controls Type	DDC Factory Metasys	
Controls Mfr.	Metasys	
Economizer	Available, power exhaust has not run-in years	
CO_2 DCV		
Damper Styles	Factory Parallel, very dirty	
Damper Status	Very dirty, clean, adjust and Lubricate	
Heating Type	Water	
Heating Coil Condition	Duct mounted	
Cooling Type	Factory DX	
Cooling Coil Condition	Dirty	
CU Mfr.		
CU Model		
CU Serial		
Drain Pan Status		

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Notes:	Condenser coils dirty. No compressors until Reset High pressure switch. Site Glass bubbly. From 2020073.00: ○ Unit nameplate is missing, could not confirm model/serial. ○ The unit interior is dirty. ○ The coil is dirty. The condensate pan is dirty and needs to be cleaned out	

Description	**Photos**
Unit Tag Info	
Unit from afar	
Unit SF Tag Info	
Unit RF/EF Tag Info	
Heating Coil	
Cooling Coil	
Condensate Pan	
Control Dampers	
Filters	
Controls	
Electrical / Misc.	

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Unit Tag	**RTU-E-7**	**Addition comments descriptions**
Location	Roof-L	
Serving	Coaches	
Config/Style	H&V unit	
Mfr.	York	
Model #	CP 65 FC 1-1/2 0 460	
Serial #	AGNM 014472	
Age (years)		
System CFM	1500	
Max OA CFM		
V/Hz/Ph	460/60/3	
SF Qty/HP	1-1/2	
SF VFD Data	N/A	
RF Qty/HP	N/A	
RF VFD Data	N/A	
Filter Data (Size Quantity)	2-24x24x2, 2-12x24x2 Angle filter rack	
Filter Status	Clean 5/12/22 Pollen already building	
Controls Type	Factory DDC	
Controls Mfr.	JCI Metasys	
Economizer	100% O.A.	
CO_2 DCV	N/A	
Damper Styles	Parallel	
Damper Status	OK Clean adjust and lubricate	
Heating Type	Hot water	
Heating Coil Condition	Dirty	
Cooling Type	N/A	
Cooling Coil Condition	N/A	
CU Mfr.		
CU Model		
CU Serial		
Drain Pan Status	N/A, no cooling	
Notes:	Electrical Safety removed	

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Unit Tag	**RTU-E-8**	**Addition comments descriptions**
Location	Roof-E	
Serving	Orchestra	
Config/Style	Duct Mounted hot water, DX cooling Factory	
Mfr.	AAON	
Model #	RM-020-8-0-AA02-CJK	
Serial #	200809-AMSP00288	
Age (years)		
System CFM		
Max OA CFM		
V/Hz/Ph	460/60/3	
SF Qty/HP	(5.0) BX-20	
SF VFD Data	N/A	
RF Qty/HP	3.0 BX-61 Has not run in a while	
RF VFD Data	N/A	
Filter Data (Size Quantity)	6-20x25x2	
Filter Status	Changed 5/2/22 Clean	
Controls Type	Factory	
Controls Mfr.	JCI Metasys	
Economizer	Available, Power exhaust does not look as if it has run in a long time, Controls, or power issue	
CO_2 DCV	Unknown	
Damper Styles	Factory parallel	
Damper Status	OK, No ventilation air during survey	
Heating Type	Hot Water	
Heating Coil Condition	Dirty	
Cooling Type	DX R-22	
Cooling Coil Condition	Dirty, no compressor operation during survey	
Drain Pan Status	Should be flushed after coil cleaning	
Notes:	Several terminals in the control cabinet are not terminated. Relays are burnt, one removed From 2020073.00:	

	○ The condenser coil should be cleaned. ○ The fan belt is incredibly loose and is whipping around on the pulleys, though it has not yet fallen off.	

Description	**Photos**
Unit Tag Info	
Unit from afar	
Unit SF Tag Info	
Unit RF/EF Tag Info	
Heating Coil	
Cooling Coil	
Condensate Pan	
Control Dampers	
Filters	
Controls	
Electrical / Misc.	

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Unit Tag	**RTU-F-1**	**Addition comments descriptions**
Location	Roof-F	
Serving	Classrooms Fitts North	
Config/Style		
Mfr.	Trane	
Model #	SSHCC406HJ45A69D1C01RTX5A	
Serial #	J90B70533	
Age (years)		
System CFM	10000	
Max OA CFM		
V/Hz/Ph		
SF Qty/HP		
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	16-20x20x2	
Filter Status		
Controls Type		
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles		
Damper Status		
Heating Type		
Heating Coil Condition		
Cooling Type		
Cooling Coil Condition		
CU Mfr.		
CU Model		
CU Serial		
Drain Pan Status		
Notes:	From 2020073.00:	

	○ The mixed air damper jackshaft is bent, possibly from over torqueing. Dampers should be greased, and the jackshaft replace. ○ The unit interior is very dirty. We observed large sections of rust and corrosion inside the cabinets particularly near the condensate pans. ○ The DX cooling was not running at the time of inspection, but we would have expected it to be given the conditions. ○ The supply fan belt is loose. ○ The supply fan is imbalanced.	

Description	**Photos**
Unit Tag Info	
Unit from afar	
Unit SF Tag Info	
Unit RF/EF Tag Info	
Heating Coil	
Cooling Coil	
Condensate Pan	
Control Dampers	
Filters	
Controls	
Electrical / Misc.	

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Unit Tag	**RTU-F-2**	**Addition comments descriptions**
Location	Roof-F	
Serving	Classrooms Fitts North	
Config/Style		
Mfr.	Trane	
Model #	SSHCC406HJ45A69D1C01RTX5A	
Serial #	J90B70535	
Age (years)		
System CFM	10000	
Max OA CFM		
V/Hz/Ph		
SF Qty/HP		
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	16-20x20x2	
Filter Status		
Controls Type		
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles		
Damper Status		
Heating Type		
Heating Coil Condition		
Cooling Type		
Cooling Coil Condition		
CU Mfr.		
CU Model		
CU Serial		
Drain Pan Status		
Notes:	From 2020073.00: ○ The supply fan belt is loose.	

	○ The supply fan is imbalanced.	

Description	**Photos**
Unit Tag Info	
Unit from afar	
Unit SF Tag Info	
Unit RF/EF Tag Info	
Heating Coil	
Cooling Coil	
Condensate Pan	
Control Dampers	
Filters	
Controls	
Electrical / Misc.	

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Unit Tag	**RTU-F-3**	**Addition comments descriptions**
Location	Roof-F	
Serving	Classrooms Fitts South	
Config/Style		
Mfr.	Trane	
Model #	SSHLF40E5S44A59EC00100CE0V00A002W0M8000#	
Serial #	C19E03448	
Age (years)		
System CFM	10000	
Max OA CFM		
V/Hz/Ph		
SF Qty/HP		
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	16-20x20x2	
Filter Status		
Controls Type		
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles		
Damper Status		
Heating Type		
Heating Coil Condition		
Cooling Type		
Cooling Coil Condition		
CU Mfr.		
CU Model		
CU Serial		
Drain Pan Status		

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Unit Tag	**RTU-F-4**	**Addition comments descriptions**
Location	Roof-F	
Serving	Classrooms Fitts South	
Config/Style		
Mfr.	Trane	
Model #	SSHCC406HJ45A69D1C01RTX5A	
Serial #	J90B70532	
Age (years)		
System CFM	10000	
Max OA CFM		
V/Hz/Ph		
SF Qty/HP		
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	16-20x20x2	
Filter Status		
Controls Type		
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles		
Damper Status		
Heating Type		
Heating Coil Condition		
Cooling Type		
Cooling Coil Condition		
CU Mfr.		
CU Model		
CU Serial		
Drain Pan Status		

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Notes:	From 2020073.00: ○ The damper actuator linkage was detached, and the damper was found locked in place at approximately 90% return air position. ○ The supply fan belt is loose. The supply fan is imbalanced.	

Description	**Photos**
Unit Tag Info	
Unit from afar	
Unit SF Tag Info	
Unit RF/EF Tag Info	
Heating Coil	
Cooling Coil	
Condensate Pan	
Control Dampers	
Filters	
Controls	
Electrical / Misc.	

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Unit Tag	**RTU-H-6** (Defunct/Abandoned in place)	**Addition comments descriptions**
Location	Roof-H	
Serving	Auditorium	
Config/Style		
Mfr.	Trane	
Model #		
Serial #		
Age (years)		
System CFM		
Max OA CFM		
V/Hz/Ph		
SF Qty/HP		
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)		
Filter Status		
Controls Type		
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles		
Damper Status		
Heating Type		
Heating Coil Condition		
Cooling Type		
Cooling Coil Condition		
CU Mfr.		
CU Model		
CU Serial		
Drain Pan Status		

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Unit Tag	**RTU-L-1**	**Addition comments descriptions**
Location	Roof-L	Surveyed 5-26-22
Serving	Classrooms	
Config/Style		
Mfr.	York	
Model #	CP 85 FC 7-1/2 5 460	
Serial #	AGNM 014473	
Age (years)		
System CFM	5000	
Max OA CFM		
V/Hz/Ph		
SF Qty/HP		
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	4-24x24x2	
Filter Status	Clean	
Controls Type		
Controls Mfr.	Package / JCI	
Economizer		
CO_2 DCV		
Damper Styles		
Damper Status	Function could not be checked, but should be cleaned, lubricated and check adjustments	
Heating Type		
Heating Coil Condition	Should be cleaned	
Cooling Type		
Cooling Coil Condition	Should be cleaned	
Drain Pan Status	caked	
Notes:	Unit disconnect ‘On”, but unit “Off”	
	From 2020073.00	

	○ The coil and the coil section of the unit are dirty. ○ The condensate pan is dirty and needs to be cleaned out.	

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Unit Tag	**RTU-L-2**	**Addition comments descriptions**
Location	Roof-L	Surveyed 5-26-22
Serving	Classrooms	
Config/Style		
Mfr.	York	
Model #	CP 85 FC 7-1/2 5 460	
Serial #	AGNM 014474	
Age (years)		
System CFM	5000	
Max OA CFM		
V/Hz/Ph		
SF Qty/HP	Fan not running	
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	4-24x24x2	
Filter Status		
Controls Type		
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles		
Damper Status	Needs major maintenance and inspection as linkages are off. With unit off, both RA and OA dampers were 100% open, while EA damper 0%	
Heating Type		
Heating Coil Condition		
Cooling Type	DX	
Cooling Coil Condition	Ok	
Drain Pan Status	Ok	
Notes:	Labeled L-5 as well	
	From 2020073.00: o The coil is dirty.	

	The condensate pan is dirty and needs to be cleaned out.	

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Unit Tag	**RTU-L-3**	**Addition comments descriptions**
Location	Roof-L	Surveyed 5-26-22
Serving	Career Center	
Config/Style		
Mfr.	York	
Model #	DH078C00S4DJC3	
Serial #	N0C5711026	
Age (years)		
System CFM	1950	
Max OA CFM		
V/Hz/Ph		
SF Qty/HP	AX-54 belt	
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	4-20x25x2	
Filter Status		
Controls Type	Package and JCI integration	Need to verify operation of package economizer control
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles	Packaged provided dampers and controls and very dirty.	
Damper Status	Clean, lubricate and adjust as OA damper over 50% open while unit is off	
Heating Type		
Heating Coil Condition	Electric 16 kW at 460 Volt	
Cooling Type	DX with 2-compressors	
Cooling Coil Condition	Ok	
Drain Pan Status		
Notes:		

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Unit Tag	**RTU-L-4**	**Addition comments descriptions**
Location	Roof-L	
Serving	Pequot Offices/Guidance	
Config/Style		
Mfr.	York	
Model #	DH102C00S4DJD3C	
Serial #	NENM052972	
Age (years)		
System CFM	3000	
Max OA CFM		
V/Hz/Ph		
SF Qty/HP		
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	4-20x25x2	
Filter Status		
Controls Type		
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles		
Damper Status		
Heating Type		
Heating Coil Condition		
Cooling Type		
Cooling Coil Condition		
CU Mfr.		
CU Model		
CU Serial		
Drain Pan Status		

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Notes:	From 2020073.00: ○ This unit is mounted directly on the roof without some sort of structural/acoustic base. It is one of the smaller units, but this is still not advised.	

Description	**Photos**
Unit Tag Info	
Unit from afar	
Unit SF Tag Info	
Unit RF/EF Tag Info	
Heating Coil	
Cooling Coil	
Condensate Pan	
Control Dampers	
Filters	
Controls	
Electrical / Misc.	

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Unit Tag	**RTU-L-5**	**Addition comments descriptions**
Location	Roof-L	
Serving	Computer Lab	
Config/Style		
Mfr.	York	
Model #	DH078C00S4DJD3C	
Serial #	NENM052939	
Age (years)		
System CFM	2000	
Max OA CFM		
V/Hz/Ph		
SF Qty/HP		
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	4-20x25x2	
Filter Status		
Controls Type		
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles		
Damper Status		
Heating Type		
Heating Coil Condition		
Cooling Type		
Cooling Coil Condition		
CU Mfr.		
CU Model		
CU Serial		
Drain Pan Status		

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Unit Tag	**RTU-L-6**	**Addition comments descriptions**
Location	Roof-L	
Serving	Classrooms	
Config/Style		
Mfr.	York	
Model #	CP 85 FC 7-1/2 5 460	
Serial #	AGNM 014460	
Age (years)		
System CFM	4400	
Max OA CFM		
V/Hz/Ph		
SF Qty/HP		
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	4-24x24x2	
Filter Status		
Controls Type		
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles		
Damper Status		
Heating Type		
Heating Coil Condition		
Cooling Type		
Cooling Coil Condition		
CU Mfr.		
CU Model		
CU Serial		
Drain Pan Status		

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Notes:	From 2020073.00: ○ The supply fan belt is loose. ○ The coil is dirty.	

Description	**Photos**
Unit Tag Info	
Unit from afar	
Unit SF Tag Info	
Unit RF/EF Tag Info	
Heating Coil	
Cooling Coil	
Condensate Pan	
Control Dampers	
Filters	
Controls	
Electrical / Misc.	

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Unit Tag	**RTU-L-7**	**Addition comments descriptions**
Location	Roof-L	
Serving	Classrooms	
Config/Style		
Mfr.	York	
Model #	CP 65 FC 3 3 460	
Serial #	AGNM 014461	
Age (years)		
System CFM	3000	
Max OA CFM		
V/Hz/Ph		
SF Qty/HP		
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	2-24x24x2, 2-12x24x2	
Filter Status		
Controls Type		
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles		
Damper Status		
Heating Type		
Heating Coil Condition		
Cooling Type		
Cooling Coil Condition		
CU Mfr.		
CU Model		
CU Serial		
Drain Pan Status		

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Unit Tag	**RTU-L-8**	**Addition comments descriptions**
Location	Roof-L	
Serving	Kitchen	
Config/Style		
Mfr.	York	
Model #	CP 65 FC 1-1/2 1 460	
Serial #	AGNM 014462	
Age (years)		
System CFM	1950	
Max OA CFM		
V/Hz/Ph		
SF Qty/HP		
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	2-24x24x2, 2-12x24x2	
Filter Status		
Controls Type		
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles		
Damper Status		
Heating Type		
Heating Coil Condition		
Cooling Type		
Cooling Coil Condition		
CU Mfr.		
CU Model		
CU Serial		
Drain Pan Status		

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Unit Tag	**RTU-L-9**	**Addition comments descriptions**
Location	Roof-L	Surveyed 5-23-23
Serving	Barlowes Restaurant	
Config/Style		
Mfr.	York	
Model #	CP 125 FC 5 0 460	
Serial #	AGNM 014463	
Age (years)		
System CFM	6000	
Max OA CFM		
V/Hz/Ph		
SF Qty/HP	Belt very loose slipping RPM	
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	4-24x24x2, 4-12x24x2	
Filter Status	Good	
Controls Type		
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles		
Damper Status	OA Damper fully open with unit off	
Heating Type	Steam	
Heating Coil Condition	Dirty, needs cleaning	
Cooling Type	Dx	
Cooling Coil Condition	Needs cleaning	
Drain Pan Status		
Notes:	Electrical Disconnect off and cover safety mechanism failed	
	Runs in Hand, but dampers or controls not positioning dampers correctly	

	From 2020073.00:	
	○ The coil is dirty. ○ The mixed air damper shaft is disconnected from the actuator at the linkage. ○ The unit was found off, but the outside air damper remained at 100% open. This should be closed whenever the unit is off, but it is unclear if the damper is stuck or if this is a sequence issue.	

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Unit Tag	**RTU-L-10**	**Addition comments descriptions**
Location	Roof-L	
Serving	Classrooms	
Config/Style		
Mfr.	York	
Model #	CP 85 FC 5 0 460	
Serial #	AGNM 014464	
Age (years)		
System CFM	4200	
Max OA CFM		
V/Hz/Ph		
SF Qty/HP		
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	4-24x24x2	
Filter Status		
Controls Type		
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles		
Damper Status		
Heating Type		
Heating Coil Condition		
Cooling Type		
Cooling Coil Condition		
CU Mfr.		
CU Model		
CU Serial		
Drain Pan Status		

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Notes:	From 2020073.00: Unit not operating	

Description	**Photos**
Unit Tag Info	
Unit from afar	
Unit SF Tag Info	
Unit RF/EF Tag Info	
Heating Coil	
Cooling Coil	
Condensate Pan	
Control Dampers	
Filters	
Controls	
Electrical / Misc.	

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Unit Tag	**RTU-L-11** (Defunct/Abandoned in place)	**Addition comments descriptions**
Location	Roof-L	
Serving	Classrooms	
Config/Style		
Mfr.	MagicAire	
Model #		
Serial #		
Age (years)		
System CFM		
Max OA CFM		
V/Hz/Ph		
SF Qty/HP		
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)		
Filter Status		
Controls Type		
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles		
Damper Status		
Heating Type		
Heating Coil Condition		
Cooling Type		
Cooling Coil Condition		
CU Mfr.		
CU Model		
CU Serial		
Drain Pan Status		

PROJECT: 2020102.06 FAIRFIELD PUBLIC SCHOOLS – FAIRFIELD WARDE HIGH SCHOOL EQUIPMENT DATA SHEET

Notes:	From 2020073.00: ○ This MagicAire unit, located on the L roof, does not have an actual designation. ○ Facilities staff informed us that this unit was never operational from the beginning, and it has been abandoned in place.	

Description	**Photos**
Unit Tag Info	
Unit from afar	
Unit SF Tag Info	
Unit RF/EF Tag Info	
Heating Coil	
Cooling Coil	
Condensate Pan	
Control Dampers	
Filters	
Controls	
Electrical / Misc.	

PROJECT: 2020102.06 FAIRFIELD PUBLIC SCHOOLS – FAIRFIELD WARDE HIGH SCHOOL EQUIPMENT DATA SHEET

Unit Tag	**RTU-M-1**	**Addition comments descriptions**
Location	Roof-M	No accessibility High on Dunnage
Serving	Music Education	
Config/Style	Unit Factory DX with duct mounted heating coil	
Mfr.	York	
Model #	Y22AX14Q9KBSBI	
Serial #	N0E5194118	
Age (years)		
System CFM		
Max OA CFM		
V/Hz/Ph		
SF Qty/HP	7-1/2	
SF VFD Data	Danfoss VFD in ERR	
EF Qty/HP		
EF VFD Data	N/A	
Filter Data (Size Quantity)	6-20x25x2, 4-16x25x2	
Filter Status	Clean	
Controls Type		
Controls Mfr.		
Economizer	20% O.A. damper position	
CO_2 DCV	N/A	
Damper Styles		
Damper Status		
Heating Type	Hot water	
Heating Coil Condition	Dirty	
Cooling Type	Packaged DX two Copeland Compressors	Compressors did not run during survey
Cooling Coil Condition	Dirty	
CU Mfr.		
CU Model		
CU Serial		
Drain Pan Status	Dirty, trap was not supported well	

PROJECT: 2020102.06 FAIRFIELD PUBLIC SCHOOLS – FAIRFIELD WARDE HIGH SCHOOL EQUIPMENT DATA SHEET

Notes:	From 2020073.00: ○ There is no safe access to this unit. Planks are used to bridge the gap between the nearby roof and the unit itself.	

Description	**Photos**
Unit Tag Info	
Unit from afar	
Unit SF Tag Info	
Unit RF/EF Tag Info	
Heating Coil	
Cooling Coil	
Condensate Pan	
Control Dampers	
Filters	
Controls	
Electrical / Misc.	

PROJECT: 2020102.06 FAIRFIELD PUBLIC SCHOOLS – FAIRFIELD WARDE HIGH SCHOOL EQUIPMENT DATA SHEET

Unit Tag	**RTU-W-1**	**Addition comments descriptions**
Location	Roof-W	Survey 5-13-22
Serving	Classrooms	
Config/Style		
Mfr.	York	
Model #	CP 65 FC 3 3 460	
Serial #	AGNM 014475	
Age (years)		
System CFM	3000	
Max OA CFM		
V/Hz/Ph		
SF Qty/HP		
SF VFD Data	A-49 Belt	Belt Loose running high negative pressure in unit housing
RF Qty/HP	A-52 Belt	Pulley removed
RF VFD Data		
Filter Data (Size Quantity)	6-12x24x2	
Filter Status	Clean	Signs of not being cleaned on regular basis
Controls Type		
Controls Mfr.	Package JCI	
Economizer		
CO_2 DCV		
Damper Styles	Dampers need cleaning and lubrication	Adjust linkages as needed
Damper Status		
Heating Type	Steam	
Heating Coil Condition	Coil fouled needing cleaning	
Cooling Type		
Cooling Coil Condition		
Drain Pan Status	OK	
Notes:	From 2020073.00:	

	○ The duct insulation vapor barrier is compromised where it connects to the unit. This should be sealed to prevent damage to the insulation. ○ Both the supply and return fan belts are loose and are rubbing ○ Wasps have infested the unit exterior; we advise caution when nearby.	

PROJECT: 2020102.00 FAIRFIELD PUBLIC SCHOOLS – FAIRFIELD WARDE HIGH SCHOOL EQUIPMENT DATA SHEET

Unit Tag	**RTU-W-2**	**Addition comments descriptions**
Location	Roof-W	Survey 5-13-22
Serving	Classrooms	
Config/Style		
Mfr.	York	
Model #	CP 85 FC 7-1/2 7-1/2 460	
Serial #	AGNM 014476	
Age (years)		
System CFM	4200	
Max OA CFM		
V/Hz/Ph		
SF Qty/HP		One belt Loose
SF VFD Data		
RF Qty/HP		Not operating
RF VFD Data		
Filter Data (Size Quantity)	4-24x24x2	
Filter Status	Clean	
Controls Type		
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles		
Damper Status	OA Damper does not close completely, and minimum position cracked open	
Heating Type	Steam	
Heating Coil Condition	Clean	
Cooling Type		
Cooling Coil Condition		
Drain Pan Status	Ok	
Notes:	From 2020073.00:	
	The coil is dirty and has bugs on the entering side	

PROJECT: 2020102.06 FAIRFIELD PUBLIC SCHOOLS – FAIRFIELD WARDE HIGH SCHOOL EQUIPMENT DATA SHEET

Unit Tag	**RTU-W-3**	**Addition comments descriptions**
Location	Roof-W	Surveyed 5-26-22
Serving	Comp. Labs	
Config/Style		
Mfr.	York	
Model #	DH078C00E4DJC3C	
Serial #	NFNM080729	
Age (years)		
System CFM	2000	
Max OA CFM		
V/Hz/Ph		
SF Qty/HP	AX-58 Belt	Motor/Fan loud Whining noise, wheel vibrating as if out of balance, or bad Bearings
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	4-20x25x2	
Filter Status	Note changed 5-13-22 yet signs of fouling	
Controls Type		
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles		
Damper Status	Should be cleaned, lubricated and adjusted as needed	
Heating Type	18kW electric 480 Volt	
Heating Coil Condition		
Cooling Type	DX with 2-compressors	
Cooling Coil Condition	Dirty and should be cleaned	
Notes:	From 2020073.00	

	○ The supply fan squirrel cage is wobbling, and the belt is slightly loose. ○ There is too much bypass in the filter rack. ○ The condenser fans are imbalanced, causing excessive rattling.	

PROJECT: 2020102.00 FAIRFIELD PUBLIC SCHOOLS – FAIRFIELD WARDE HIGH SCHOOL EQUIPMENT DATA SHEET

Unit Tag	**RTU-W-4**	**Addition comments descriptions**
Location	Roof-W	Surveyed 5-13-22
Serving	Townsend Offices/Guidance	
Config/Style		
Mfr.	York	
Model #	DH102C00S4DJC3C	
Serial #	NFNM080767	
Age (years)		
System CFM	3000	
Max OA CFM		
V/Hz/Ph		
SF Qty/HP	AX-54 belt	
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	4-20x25x2	
Filter Status		
Controls Type	Package and JCI integration	Need to verify operation of package economizer control
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles	Packaged provided dampers and controls and very dirty.	
Damper Status	Clean, lubricate and adjust as OA damper over 50% open while unit is off	
Heating Type		
Heating Coil Condition	Electric 16 kW at 460 Volt	
Cooling Type	DX with 2-compressors	
Cooling Coil Condition	Ok	
Drain Pan Status		
Notes:	From 2020073.01:	

	○ There is too much bypass in the filter rack. ○ The condenser fans are imbalanced, causing excessive rattling.	

PROJECT: 2020102.00 FAIRFIELD PUBLIC SCHOOLS – FAIRFIELD WARDE HIGH SCHOOL EQUIPMENT DATA SHEET

Unit Tag	**RTU-W-5**	**Addition comments descriptions**
Location	Roof-W	
Serving	Security	
Config/Style		
Mfr.	York	
Model #	D1EE048A46EBD	
Serial #	NFNM082198	
Age (years)		
System CFM	1200	
Max OA CFM		
V/Hz/Ph		
SF Qty/HP		
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	2-15x20x2, 1-14x25x2 w/ 5" plate	
Filter Status		
Controls Type		
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles		
Damper Status		
Heating Type		
Heating Coil Condition		
Cooling Type		
Cooling Coil Condition		
CU Mfr.		
CU Model		
CU Serial		
Drain Pan Status		

PROJECT: 2020102.00 FAIRFIELD PUBLIC SCHOOLS – FAIRFIELD WARDE HIGH SCHOOL EQUIPMENT DATA SHEET

Notes:	From 2020073.00: ○ The dampers are dirty and require lubrication. ○ The interior of the unit is dirty. ○ The coil is dirty. ○ The condenser coils are dirty and need to be combed to straighten the fins. ○ We found the outside air wire filter laying on the ground. ○ There is too much bypass in the filter rack. ○ This unit, and similar units, have packaged economizer control. This means that commands from the building automation system will not necessarily be able to open the outside air dampers if additional ventilation is desired when the unit controller decides that conditions are not favorable to do so. As part of improvements for increasing ventilation, the controls system should be reviewed, and devices/wiring should be adjusted to accommodate these commands.	

Description	**Photos**
Unit Tag Info	
Unit from afar	
Unit SF Tag Info	
Unit RF/EF Tag Info	
Heating Coil	
Cooling Coil	
Condensate Pan	
Control Dampers	

PROJECT: 2020102.00 FAIRFIELD PUBLIC SCHOOLS – FAIRFIELD WARDE HIGH SCHOOL EQUIPMENT DATA SHEET

Unit Tag	**RTU-W-6**	**Addition comments descriptions**
Location	Roof-W	
Serving	Social Work/Counseling	
Config/Style		
Mfr.	York	
Model #	DH102C00S4DAG3C	
Serial #	NFNM080095	
Age (years)		
System CFM	3000	
Max OA CFM		
V/Hz/Ph		
SF Qty/HP		
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	4-20x25x2	
Filter Status		
Controls Type		
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles		
Damper Status		
Heating Type		
Heating Coil Condition		
Cooling Type		
Cooling Coil Condition		
CU Mfr.		
CU Model		
CU Serial		
Drain Pan Status		

PROJECT: 2020102.00 FAIRFIELD PUBLIC SCHOOLS – FAIRFIELD WARDE HIGH SCHOOL EQUIPMENT DATA SHEET

Notes:	From 2020073.00: ○ The condenser fans are imbalanced, causing excessive rattling. ○ The filters seem to be slightly oversized. The door of the unit crushes the filter when closed and forms small bypasses.	

Description	**Photos**
Unit Tag Info	
Unit from afar	
Unit SF Tag Info	
Unit RF/EF Tag Info	
Heating Coil	
Cooling Coil	
Condensate Pan	
Control Dampers	
Filters	
Controls	
Electrical / Misc.	

PROJECT: 2020102.07 FAIRFIELD PUBLIC SCHOOLS – FAIRFIELD WARDE HIGH SCHOOL EQUIPMENT DATA SHEET

Unit Tag	**RTU-W-7**	**Addition comments descriptions**
Location	Roof-W	
Serving	Classrooms	
Config/Style		
Mfr.	York	
Model #	CP 85 DWDI A5 7-1/2 5 460	
Serial #	AGNM 014477	
Age (years)		
System CFM	5000	
Max OA CFM		
V/Hz/Ph		
SF Qty/HP		
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	4-24x24x2	
Filter Status		
Controls Type		
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles		
Damper Status		
Heating Type		
Heating Coil Condition		
Cooling Type		
Cooling Coil Condition		
CU Mfr.		
CU Model		
CU Serial		
Drain Pan Status		

PROJECT: 2020102.07 FAIRFIELD PUBLIC SCHOOLS – FAIRFIELD WARDE HIGH SCHOOL EQUIPMENT DATA SHEET

Notes:	From 2020073.00: ○ Wasps have infested the unit exterior; we advise caution when nearby. ○ The supply fan belts are loose. ○ The coil is dirty.	

Description	**Photos**
Unit Tag Info	
Unit from afar	
Unit SF Tag Info	
Unit RF/EF Tag Info	
Heating Coil	
Cooling Coil	
Condensate Pan	
Control Dampers	
Filters	
Controls	
Electrical / Misc.	

PROJECT: 2020102.06 FAIRFIELD PUBLIC SCHOOLS – FAIRFIELD WARDE HIGH SCHOOL EQUIPMENT DATA SHEET

Unit Tag	**RTU-W-8**	**Addition comments descriptions**
Location	Roof-W	
Serving	Special Ed	
Config/Style		
Mfr.	York	
Model #	DH078C00E4DAG3C	
Serial #	NFNM079332	
Age (years)		
System CFM	2000	
Max OA CFM		
V/Hz/Ph		
SF Qty/HP		
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)	4-20x25x2	
Filter Status		
Controls Type		
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles		
Damper Status		
Heating Type		
Heating Coil Condition		
Cooling Type		
Cooling Coil Condition		
CU Mfr.		
CU Model		
CU Serial		
Drain Pan Status		

PROJECT: 2020102.06 FAIRFIELD PUBLIC SCHOOLS – FAIRFIELD WARDE HIGH SCHOOL EQUIPMENT DATA SHEET

Notes:	From 2020073.00: ○ The filters seem to be slightly oversized. The door of the unit crushes the filter when closed and forms small bypasses. ○ The duct insulation vapor barrier is compromised where it connects to the unit. This should be sealed to prevent damage to the insulation. ○ The condensate trap is not the right height for a draw-through configuration, causing too little condensate to drain out.	

Description	**Photos**
Unit Tag Info	
Unit from afar	
Unit SF Tag Info	
Unit RF/EF Tag Info	
Heating Coil	
Cooling Coil	
Condensate Pan	
Control Dampers	
Filters	
Controls	
Electrical / Misc.	

PROJECT: 2020102.06 FAIRFIELD PUBLIC SCHOOLS – FAIRFIELD WARDE HIGH SCHOOL EQUIPMENT DATA SHEET

Unit Tag	**RTU-W-9** (Defunct/Abandoned in place)	**Addition comments descriptions**
Location	Roof-W	
Serving	Classrooms	
Config/Style		
Mfr.	MagicAire	
Model #		
Serial #		
Age (years)		
System CFM		
Max OA CFM		
V/Hz/Ph		
SF Qty/HP		
SF VFD Data		
RF Qty/HP		
RF VFD Data		
Filter Data (Size Quantity)		
Filter Status		
Controls Type		
Controls Mfr.		
Economizer		
CO_2 DCV		
Damper Styles		
Damper Status		
Heating Type		
Heating Coil Condition		
Cooling Type		
Cooling Coil Condition		
CU Mfr.		
CU Model		
CU Serial		
Drain Pan Status		

PROJECT: 2020102.06 FAIRFIELD PUBLIC SCHOOLS – FAIRFIELD WARDE HIGH SCHOOL EQUIPMENT DATA SHEET

Notes:	From 2020073.00” ○ This MagicAire unit, located on the W roof, does not have an actual designation. Facilities staff informed us that this unit was never operational from the beginning, and it has been abandoned in place	

Description	**Photos**
Unit Tag Info	
Unit from afar	
Unit SF Tag Info	
Unit RF/EF Tag Info	
Heating Coil	
Cooling Coil	
Condensate Pan	
Control Dampers	
Filters	
Controls	
Electrical / Misc.	