VANZELM ENGINEERS

Walter Fitzgerald Campus

309 Barberry Road
Southport, CT 06890

FAIRFIELD PUBLIC SCHOOLS
WALTER FITZGERALD CAMPUS

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

van Zelm Project # 2020102.00 (17-WFC)
December 12, 2022

VAN ZELM HEYWOOD & SHADFORD, INC.

1200 CONVERSE STREET
LONGMEADOW, MA 01106
P: 617.218.9976

10 TALCOTT NOTCH
FARMINGTON, CT 06032
P: 860.284.5064

862 BRAWLEY SCHOOL ROAD, SUITE 207
MOORESVILLE, NC 28117
P: 704-799-7275

www.vanzelm.com

TABLE OF CONTENTS

Walter Fitzgerald Campus

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

EXECUTIVE SUMMARY

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

Walter Fitzgerald Campus is located at 309 Barberry Road Southport, CT and serves as a transformative High School educational facility for students seeking a quality education within a smaller school environment where additional attention can help students excel in achieving academic goals.

The school HVAC systems comprise mainly of room finned tube radiation, four (4) newer Trane constant volume rooftop units manufactured in 2021, and one (1) older Snyder General air handling unit with DX cooling, and general exhaust fans for various purposes including, but not limited to, toilet exhaust, kitchen exhaust, mechanical/electrical space ventilation, etc. Some spaces have operable windows, which might vary in use depending on the particular occupant or environmental conditions, but these are not directly tied into any monitoring system nor are expected to be used for the purposes of providing fresh outside air as a component of the building ventilation. It was noted that none of the HVAC systems currently introduce no ventilation air to the spaces. While the Trane RTU systems appear to be in relatively decent condition as far as mechanical operation is concerned, the older Snyder General air handling unit needs major mechanical services and should be considered to have exceeded its useful life. Local control sequences and functionality are in question as we were only able to take a snapshot in time of the systems operation, and there was not Building Automation System (BAS) integration at this time.

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

Overall, the performance of the building regarding ventilation was determined to be poor throughout as there is no direct outside air being delivered to the occupied spaces, only through operable windows. This lack of ventilation air to the building would make compliance the 2015 version of the International Mechanical Code (2015 IMC) difficult. 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. 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

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

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

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

Outside Air Flow and Air Change Rate Information

The "Ventilation Data Calculations" Appendix contains the data from all RCx findings regarding ventilation requirements within occupied spaces that are currently not being met. This data conforms to the requirements within IMC 2015 and the results are calculated based on individual space classification and category.

A common calculation used for measuring the amount of air flushed through each space every hour is the Air Change Rate (ACH), and for this analysis specifically we are concerned with the Outside Air Change Rate (OACH). At its core, this is a ratio of the volume of air that can theoretically completely fill the volume of each space and how many times it can do that every hour. For example, a 1000 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 space regarding the OACH. While general spaces like classrooms and offices are among the space categories that do not have outside air ACH requirements, these rates help to give some insight into overall performance. Current recommendations prescribe a total ACH of at least 3 throughout the building, without falling below the minimum outside air CFM. 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.. There are alternative means to achieve desired ACH rates to improve indoor air quality, however current system configurations do not provide for desired ventilation air ACH.

Outside Air Flow Improvement Recommendations

Other than a major HVAC system redesign that would allow for improved mechanical ventilation, there are some actions that could be taken to address indoor air quality. Such recommendations could include: Deploying stand-alone HEPA filtrations units throughout, upgrading RTU filter MERV ratings to 11 or higher, and investigate the potential for retrofitting RTU units to allow for economizer operation controlled and monitored by a BAS system.

Aside from the above, since the emergence of the COVID-19 virus in December 2019, the specific requirements and precautions taken regarding outside air have become more stringent. For example, ASHRAE has been continuously investigating the transmission of COVID-19 through HVAC systems and has made recommendations on how to adapt existing HVAC systems to minimize transmission of COVID-19. Changes to building systems to address the virus also positively improve the performance of the ventilation systems with handling the filtration of other particulate that directly impacts building air quality. On April 14, 2020, ASHRAE released a document "ASHRAE Position Document on Infectious Aerosols". This report was provided in an Appendix to the FPS high school ventilation summary reports. ASHRAE also gave a presentation on June 16, 2020, regarding Recommendations and Activities for 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 (many not currently applicable) 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. This is not possible currently!

- Filter changes should become more frequent and with MERV 11 rating. Current policy indicates a twice-annual filter change at all schools. The filters had been observed to be dirty and in need of replacement and scheduled to be changed at the time of inspection.

- Increase total air change rates to between 3 and 6 ACH where possible while still satisfying minimum OA ventilation. This is not currently!

- Flush or purge the building before and after occupancy for at least two (2) hours, if possible. This is not possible currently!

- 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.
- Provide humidification to maintain 40% RH during the heating seasons, if possible.
- Provide dehumidification in the summer to maintain room RH below 60%.
- Supplement poorly or un-ventilated areas with portable HEPA filtration units in classrooms until such time as proper ventilation can be delivered to the space.
- Increase restroom exhaust where possible while maintaining a positive building pressurization to the exterior.
- Perform duct cleaning for existing systems.

Control Sequence Update Recommendations

It would be suggested that an integrated Building Automation System (BAS) be installed with enhanced control and monitoring of existing systems and occupied spaces. Monitoring occupied area temperatures, humidity and CO2 levels will help secure a profile as to the level of natural ventilation provided, and how it compares to code requirements. This information can help drive next steps for improved building ventilation.

Equipment Upgrade or Replacement Recommendations

We could recommend with a future HVAC systems redesign, consideration for adding Energy Recovery Ventilators (ERV) combined with zone Variable Refrigerant Flow (VRF) systems. Energy Recovery Ventilators are packaged heat recovery units that mostly utilize an air-to-air heat exchanger to recover waste heat from the exhaust air and transfer it to the outside air, powered by supply and exhaust air fans. With this 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.

An alternative measure could include the installation of a self-contained HEPA filtration unit in areas where increasing fresh air is limited, or supplemental air cleaning technology, such as ultraviolet-C (UV-C) light or bi-polar ionization 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 come in contact with pathogens in the occupied space, the charge removes hydrogen from the pathogen so that it is no longer able to sustain itself. For this reason, bi-polar ionization is preferred to UV-C air cleaning because bi-polar ionization has the ability to decontaminate pathogens outside of the ductwork whereas UV-C only decontaminates pathogens that enter the ducts.

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

CONCLUSIONS

Fairfield Public Schools should consider taking measures to address identified deficiencies regarding the recommended proper filtration upgrades for indoor air quality (IAQ) improvements, this study found that the Walter Fitzgerald Complex is challenged to meet the current minimum ventilation requirements per 2015 IMC mainly due to the lack of ventilation air abilities with HVAC systems.

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

T:\2020\2020102.00\z_CX_Department\Schools Working Folder\17 Walter Fitzgerald\07 Report\Report Pieces\17 - WFC RCx & TAB Report Narrative rev 1-25-24.docx

VANZELM ENGINEERS

APPENDICES

APPENDIX 1 – Issues List

APPENDIX 2 – Ventilation Data Calculations

Project Name:	**Fairfield Public Schools RCx & TAB Study**
Project Number:	**2020102.00.17**
Scope	**Ventilation Calculation by Building**
Date	**December 22, 2022**

Walter Fitzgerald Campus

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	N/A	Lobby	Education	Corridors (see Public Spaces)					260	8	2080	1	0.0	0.00	0	0				N/A	**0.000**
1	Amanda	Office	Education	Classroom (ages 9+)					128	8.3	1062	3	10.0	0.12	35	45				N/A	**0.000**
1	N/A	Conference Room	Education	Lecture Classroom					170	9.5	1615	8	7.5	0.06	65	70				N/A	**0.000**
1	N/A	Copy Room	Education	Smoking lounge					145	9.5	1378	3	60.0	0.00	70	180				N/A	**0.000**
1	N/A	Multi-Purpose	Education	Media Center					3281	16.9	55449	80	10.0	0.12	25	1194				N/A	**0.000**
1	N/A	#1 Storage	Education	Corridors (see Public Spaces)					191	8.4	1604	0	0.0	0.00	0	0				N/A	**0.000**
1	N/A	#2 Storage	Education	Corridors (see Public Spaces)					89	8.4	748	0	0.0	0.00	0	0				N/A	**0.000**
1	N/A	OT/PT	Education	Classroom (ages 9+)					1583	15	23745	8	10.0	0.12	35	270				N/A	**0.000**
1	N/A	Main Office	Education	Classroom (ages 9+)					96	8.3	797	1	10.0	0.12	35	22				N/A	**0.000**
1	Meagan	Principal	Education	Classroom (ages 9+)					196	8.3	1627	1	10.0	0.12	35	34				N/A	**0.000**
1	N/A	Storage	Education	Corridors (see Public Spaces)					11	8.3	91	0	0.0	0.00	0	0				N/A	**0.000**
1	N/A	Vault	Education	Corridors (see Public Spaces)					17	8.3	141	0	0.0	0.00	0	0				N/A	**0.000**
1	N/A	Lavatory	Education	Corridors (see Public Spaces)					31	8.3	257	1	0.0	0.00	0	0				N/A	**0.000**
1	N/A	Nurse	Education	Classroom (ages 9+)					135	8.3	1121	2	10.0	0.12	35	36				N/A	**0.000**
1	N/A	Lavatory	Education	Corridors (see Public Spaces)					18	8.3	149	1	0.0	0.00	0	0				N/A	**0.000**
1	N/A	Staff	Education	Classroom (ages 9+)					144	8.3	1195	2	10.0	0.12	35	37				N/A	**0.000**
1	N/A	Storage	Education	Corridors (see Public Spaces)					13	8.6	112	0	0.0	0.00	0	0				N/A	**0.000**
1	N/A	Stock Room	Education	Corridors (see Public Spaces)					159	8.3	1320	3	0.0	0.00	0	0				N/A	**0.000**
1	N/A	Testing	Education	Classroom (ages 9+)					157	8.3	1303	5	10.0	0.12	35	69				N/A	**0.000**
1	N/A	Private	Education	Classroom (ages 9+)					48	8.2	394	1	10.0	0.12	35	16				N/A	**0.000**
1	N/A	Kitchen	Education	Multiuse assembly					234	7.6	1778	2	7.5	0.06	100	29				N/A	**0.000**

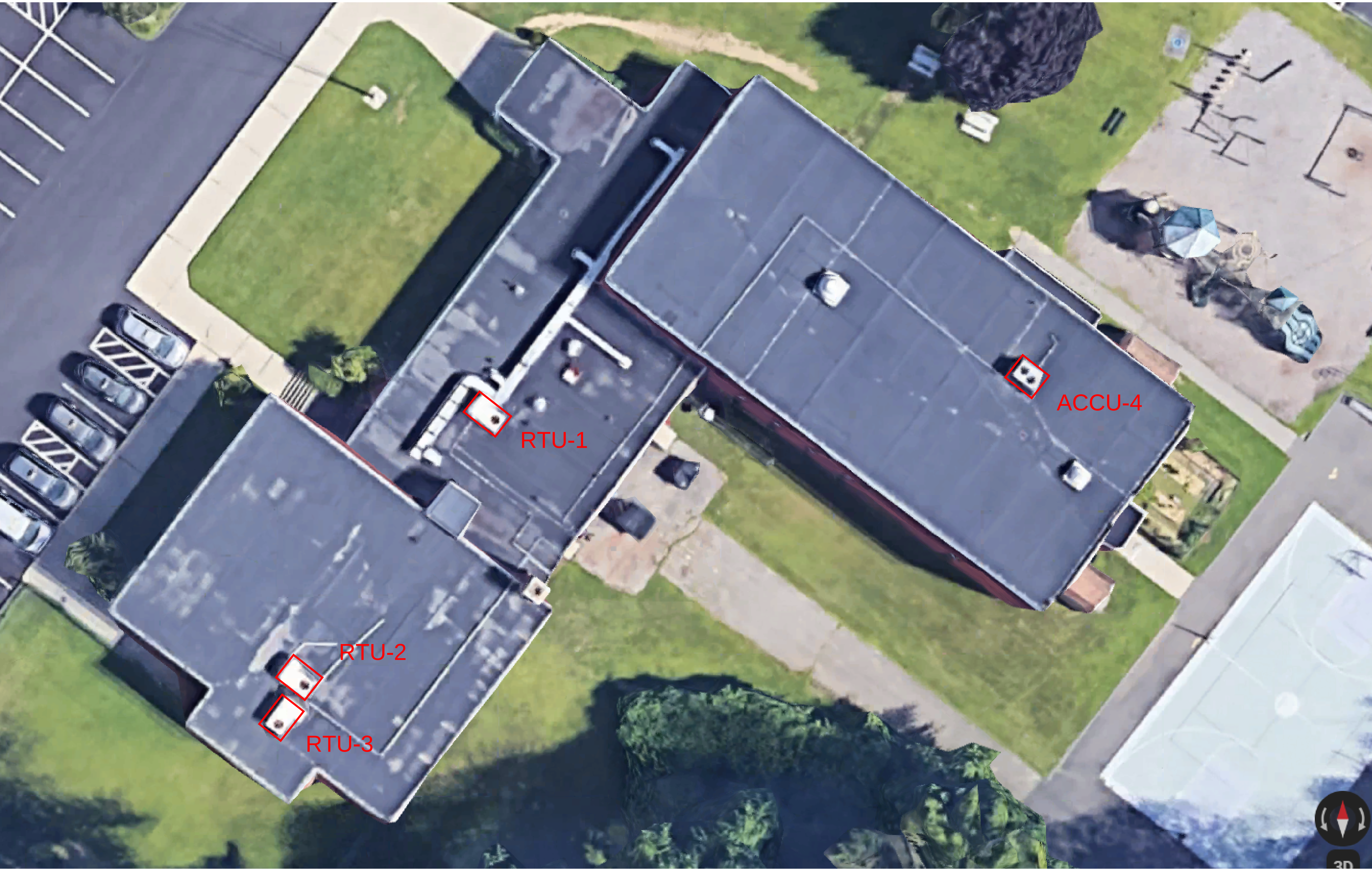
Project Name:	Fairfield Public Schools RCx & TAB Study
Project Number:	2020102.00.17
Scope	Ventilation Calculation by Building
Date	December 22, 2022

Walter Fitzgerald Campus

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	N/A	Laundry	Education	Corridors (see Public Spaces)					35	7.6	266	1	0.0	0.00	0	0				N/A	**0.000**
1	N/A	Boys	Education	Corridors (see Public Spaces)					238	8.4	1999	3	0.0	0.00	0	0				N/A	**0.000**
1	N/A	Cust	Education	Corridors (see Public Spaces)					35	8.3	291	1	0.0	0.00	0	0				N/A	**0.000**
1	N/A	Lavatory	Education	Corridors (see Public Spaces)					35	8.3	291	1	0.0	0.00	0	0				N/A	**0.000**
1	N/A	Girls	Education	Corridors (see Public Spaces)					245	8.3	2034	3	0.0	0.00	0	0				N/A	**0.000**
1	N/A	Boiler Room	Education	Corridors (see Public Spaces)					243	9.7	2357	0	0.0	0.00	0	0				N/A	**0.000**
1	N/A	Elev Mech	Education	Corridors (see Public Spaces)					30	9.9	297	0	0.0	0.00	0	0				N/A	**0.000**
1	1	Classroom	Education	Classroom (ages 9+)					752	9.6	7219	10	10.0	0.12	35	190				N/A	**0.000**
1	2	Classroom	Education	Classroom (ages 9+)					757	9	6813	10	10.0	0.12	35	191				N/A	**0.000**
1	3	Classroom	Education	Classroom (ages 9+)					578	9.5	5491	10	10.0	0.12	35	169				N/A	**0.000**
1	3B	Not Labeled	Education	Classroom (ages 9+)					179	9.5	1701	0	10.0	0.12	35	84				N/A	**0.000**
1	4	Classroom	Education	Classroom (ages 9+)					751	9.5	7135	10	10.0	0.12	35	190				N/A	**0.000**
2	5	Classroom	Education	Classroom (ages 9+)					758	9.8	7428	10	10.0	0.12	35	191				N/A	**0.000**
2	6	Classroom	Education	Classroom (ages 9+)					762	9.8	7468	10	10.0	0.12	35	191				N/A	**0.000**
2	7	Classroom	Education	Classroom (ages 9+)					807	9.9	7989	10	10.0	0.12	35	197				N/A	**0.000**
2	8	Classroom	Education	Classroom (ages 9+)					792	9.8	7762	10	10.0	0.12	35	195				N/A	**0.000**

APPENDIX 3 – Roof Map


RTU-1
ACCU-4
RTU-2
RTU-3
3D

APPENDIX 4 – TAB Airflow Survey Data

APPENDIX 5 – RCx Unit and Room Take-Off Data

Project Name:	**Fairfield Public Schools RCx**	
Project Number:	*2020102.00.17*	*RCM, RA, JRK*
Scope	**Room Take-Off Data**	
Date	**April 25, 2022**	
	Walter Fitzgerald Campus	

Zone Identification

Floor	Room#	Room Name	Area (SF)	Ceiling Height	Volume	People	Notes	Identified Defficiencies	Pictures Y /N
1	N/A	Lobby	260	8	2080	1	1- Supply Recessed Unit heater		
1	Amanda	Office	128	8.3	1062	3	1- Supply FTR		
1	N/A	Conference Room	170	9.5	1615	8	1- Supply FTR		
1	N/A	Copy Room	145	9.5	1378	3	1-Supply FTR		
1	N/A	Multi-Purpose	3281	16.9	55449	80	4-Ceiling Supplies, 1-Wall Return, FTR		
1	N/A	#1 Storage	191	8.4	1604	0	FTR		
1	N/A	#2 Storage	89	8.4	748	0	FTR		
1	N/A	OT/PT	1583	15	23745	8	A/C FTR	Ceiling Volume Estimated	
1	N/A	Main Office	96	8.3	797	1	1- Supply FTR		
1	Meagan	Principal	196	8.3	1627	1	1- Supply FTR		
1	N/A	Storage	11	8.3	91	0			
1	N/A	Vault	17	8.3	141	0			
1	N/A	Lavatory	31	8.3	257	1	1- Exhaust		
1	N/A	Nurse	135	8.3	1121	2	1-Supply FTR		
1	N/A	Lavatory	18	8.3	149	1	1- Exhaiust, FTR		
1	N/A	Staff	144	8.3	1195	2	1-Supply FTR		
1	N/A	Storage	13	8.6	112	0			
1	N/A	Stock Room	159	8.3	1320	3	1-Supply FTR		
1	N/A	Testing	157	8.3	1303	5	1-Supply, Recesesed CUH		
1	N/A	Private	48	8.2	394	1	1- Exhaust	Shower	

Project Name:	**Fairfield Public Schools RCx**	
Project Number:	*2020102.00.17*	*RCM, RA, JRK*
Scope	**Room Take-Off Data**	
Date	**April 25, 2022**	
	Walter Fitzgerald Campus	

Zone Identification

Floor	Room#	Room Name	Area (SF)	Ceiling Height	Volume	People	Notes	Identified Defficiencies	Pictures Y /N
1	N/A	Kitchen	234	7.6	1778	2	1-Supply FTR		
1	N/A	Laundry	35	7.6	266	1	Nothing	Dryer exhaust	
1	N/A	Boys	238	8.4	1999	3	Exhaust		
1	N/A	Cust	35	8.3	291	1			
1	N/A	Lavatory	35	8.3	291	1	Exhaust		
1	N/A	Girls	245	8.3	2034	3	Exhaust		
1	N/A	Boiler Room	243	9.7	2357	0			
1	N/A	Elev Mech	30	9.9	297	0			
1	1	Classroom	752	9.6	7219	10	2- Ceiling Supplies, 2-Seidewall returns. Convector Rooms very hot		
1	2	Classroom	757	9	6813	10	1-Supply, 1-Return	New Drop ceiling	
1	3	Classroom	578	9.5	5491	10	4-Ceiling Supplies Conv.		
1	3B	Not Labeled	179	9.5	1701	0	1-Supply, no lights, int.		
1	4	Classroom	751	9.5	7135	10	2- Ceiling Supplies, 2-Seidewall returns. Convector Rooms very hot		
2	5	Classroom	758	9.8	7428	10	2- Ceiling Supplies, 2-Seidewall returns. Convector Rooms very hot		
2	6	Classroom	762	9.8	7468	10	2- Ceiling Supplies, 2-Seidewall returns. Convector Rooms very hot		
2	7	Classroom	807	9.9	7989	10	2- Ceiling Supplies, 2-Seidewall returns. Convector Rooms very hot		
2	8	Classroom	792	9.8	7762	10	3-Large Ceiling Supplies, Conv. Hot		

PROJECT: 2020102.17 FAIRFIELD PUBLIC SCHOOLS – WALTER FITZGERALD CAMPUS EQUIPMENT DATA SHEET

Unit Tag	**AHU-1**	**CU-1**
Location	Attic	High Roof
Serving	Café, Aerobics	AHU-1
Config/Style	DX- Air Handler	Condensing Unit
Mfr.	Snyder General	Carrier Gemini
Model #	B100C3	38AUZA08AOAOA5A0A0A0
Serial #	R885100012	3012C91328
Age (years)	Unknown	Unknown
System CFM		
Max OA CFM		
V/Hz/Ph	208-230/60/3	208-230/60/3
SF Qty/HP	1.5 (1) A-43 Belt	
SF VFD Data	N/A	
RF Qty/HP	N/A	
RF VFD Data	N/A	
Filter Data (Size Quantity)	(3) 20x25x2 Filters do not cover air stream 100%	
Filter Status	Clean, Filters do not cover air stream 100%	
Controls Type	Factory DDC	
Controls Mfr.	Trane	
Economizer	No	
CO_2 DCV	No	
Damper Styles	No	
Damper Status	No	
Heating Type	Gas Burner	
Heating Coil Condition	New, did not witness operation.	
Cooling Type	DX Cooling did not witness operation.	
Cooling Coil Condition	Coil clean.	
Drain Pan Status	Pan clean	
Notes:	Unit has no Outdoor air hood and or damper controls. Strictly a recirculation residential install. No lightning protection on RTU's. No Service outlets on roof.	Refrigerant line insulation has failed, single compressor, dual condenser fans, crankcase heater.

Photos

PROJECT: 2020102.17 FAIRFIELD PUBLIC SCHOOLS – WALTER FITZGERALD CAMPUS EQUIPMENT DATA SHEET

PROJECT: 2020102.17 FAIRFIELD PUBLIC SCHOOLS – WALTER FITZGERALD CAMPUS EQUIPMENT DATA SHEET

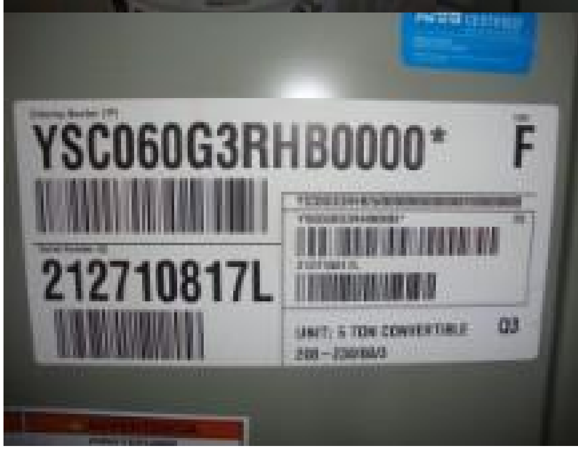
PROJECT: 2020102.17 FAIRFIELD PUBLIC SCHOOLS – WALTER FITZGERALD CAMPUS EQUIPMENT DATA SHEET

Unit Tag	**RTU-1**	**Addition comments descriptions**
Location	Roof	
Serving	Admin	
Config/Style	Packaged Gas DX- Precedent Convertible	
Mfr.	Trane	
Model #	YSC060G3RHB250000	
Serial #	212710817L	
Age (years)	7/2021	
System CFM		
Max OA CFM		
V/Hz/Ph	208-230/60/3	
SF Qty/HP	1.0	
SF VFD Data	ECM Direct Drive	
RF Qty/HP	N/A	
RF VFD Data	N/A	
Filter Data (Size Quantity)	(2) 20x34x1	1” Filter in a 2” Rack, filter deflection, sagging present
Filter Status	4/11/22 Clean, 2” filter would be a better fit	
Controls Type	Factory DDC	
Controls Mfr.	Trane	
Economizer	No	
CO_2 DCV	No	
Damper Styles	No	
Damper Status	No	
Heating Type	Gas Burner	
Heating Coil Condition	New, did not witness heating operation.	
Cooling Type	DX Cooling	
Cooling Coil Condition	Coil clean but bottom ¼ ice buildup, Refrigerant charge? 40-degree O.A. temperatures, compressor running, no economizer	
Drain Pan Status	Ice present, pan clean and draining with door access open	
Notes:	Unit has no Outdoor air hood and or damper controls. Strictly a recirculation residential install. No lightning protection on RTU’s. No Service outlets on roof	

PROJECT: 2020102.17 FAIRFIELD PUBLIC SCHOOLS – WALTER FITZGERALD CAMPUS EQUIPMENT DATA SHEET

Photos

PROJECT: 2020102.17 FAIRFIELD PUBLIC SCHOOLS – WALTER FITZGERALD CAMPUS EQUIPMENT DATA SHEET



PROJECT: 2020102.17 FAIRFIELD PUBLIC SCHOOLS – WALTER FITZGERALD CAMPUS EQUIPMENT DATA SHEET




PROJECT: 2020102.17 FAIRFIELD PUBLIC SCHOOLS – WALTER FITZGERALD CAMPUS EQUIPMENT DATA SHEET

Unit Tag	**RTU-2**	**Addition comments descriptions**
Location	Roof	
Serving	2nd Floor Classrooms	
Config/Style	Packaged Gas DX- Precedent Convertible	
Mfr.	Trane	
Model #	YSC060G3RHB250000	
Serial #	21251597L	
Age (years)	6/2021	
System CFM		
Max OA CFM		
V/Hz/Ph	208-230/60/3	
SF Qty/HP	1.0	
SF VFD Data	ECM Direct Drive	
RF Qty/HP	N/A	
RF VFD Data	N/A	
Filter Data (Size Quantity)	(2) 20x34x1	1” Filter in a 2” Rack, filter deflection, sagging present
Filter Status	4/11/22 Clean, 2” filter would be a better fit	
Controls Type	Factory DDC	
Controls Mfr.	Trane	
Economizer	No	
CO_2 DCV	No	
Damper Styles	No	
Damper Status	No	
Heating Type	Gas Burner	
Heating Coil Condition	New, did not witness operation.	
Cooling Type	DX Cooling	
Cooling Coil Condition	Coil clean.	
Drain Pan Status	Pan clean	
Notes:	Unit has no Outdoor air hood and or damper controls. Strictly a recirculation residential install. No lightning protection on RTU’s. No Service outlets on roof	

Photos






PROJECT: 2020102.17 FAIRFIELD PUBLIC SCHOOLS – WALTER FITZGERALD CAMPUS EQUIPMENT DATA SHEET

PROJECT: 2020102.17 FAIRFIELD PUBLIC SCHOOLS – WALTER FITZGERALD CAMPUS EQUIPMENT DATA SHEET

Unit Tag	RTU-3	Addition comments descriptions
Location	Roof	
Serving	1st Floor Classrooms	
Config/Style	Packaged Gas DX- Precedent Convertible	
Mfr.	Trane	
Model #	YSC060G3RHB250000	
Serial #	212515994L	
Age (years)	6/2021	
System CFM		
Max OA CFM		
V/Hz/Ph	208-230/60/3	
SF Qty/HP	1.0	
SF VFD Data	ECM Direct Drive	
RF Qty/HP	N/A	
RF VFD Data	N/A	
Filter Data (Size Quantity)	(2) 20x34x1	1" Filter in a 2" Rack, filter deflection, sagging present
Filter Status	4/11/22 Clean, 2" filter would be a better fit	
Controls Type	Factory DDC	
Controls Mfr.	Trane	
Economizer	No	
CO_2 DCV	No	
Damper Styles	No	
Damper Status	No	
Heating Type	Gas Burner	
Heating Coil Condition	New, did not witness operation.	
Cooling Type	DX Cooling did not witness operation.	
Cooling Coil Condition	Coil clean.	
Drain Pan Status	Pan clean	
Notes:	Unit has no Outdoor air hood and or damper controls. Strictly a recirculation residential install. No lightning protection on RTU's. No Service outlets on roof	

Photos

PROJECT: 2020102.17 FAIRFIELD PUBLIC SCHOOLS – WALTER FITZGERALD CAMPUS EQUIPMENT DATA SHEET