VAN ZELM ENGINEERS

Fairfield Ludlowe High School

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

van Zelm Project # 2020102.00 (01-FLHS)
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Fairfield Ludlowe High School

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

EXECUTIVE SUMMARY

Fairfield Ludlowe High School was deemed to be school priority number one (1) 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 the current International Mechanical Code (2015 IMC) regarding Ventilation for Acceptable Indoor Air Quality.

The school ventilation systems comprise of approximately 16 Rooftop HVAC Units, 7 Air Handling Units, 8 Heating and Ventilation Units, 3 Make-up Units with 4 Lab Hoods, 3 DOAS Units, 55 Unit Ventilators, and 41 VAV Terminal Boxes. From a high-level perspective, our field visit study performed in March of 2022 had determined the HVAC systems are in fair condition with many units in need of some 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. 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 over 65 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 was in the process of being upgraded from Johnson Controls Metasys Legacy control system to a fully native Automated Logic WebCTRL BAS system. This ongoing upgrade will include major comfort and energy savings control strategies, along with CO2-based Demand Control Ventilation (DCV) strategies to allow occupied spaces to meet, or exceed 2105 IMC and ASHRAE 62.1 ventilation requirements.

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 was not executed as the BAS controls renovation project included a rebalancing effort for all HVAC and ventilation systems to design levels. 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 regarding ventilation post BAS upgrade and building rebalancing would be expected to be excellent. 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. 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 shared goals to determine the building ventilation capability and performance for Fairfield Ludlowe High School. Based on our findings, we have some insight as to ventilation codes and suggestions as indicated below.

2015 International Mechanical Code (IMC) Compliance

Our review of the proposed BAS control renovation project, it would be expected that occupied spaces at this school will likely fully comply with the applicable building codes and 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.

It shall be noted that this school will utilize automatic space Carbon Dioxide (CO_2) Demand Controlled Ventilation (DCV) to increase or decrease outdoor ventilation air into areas based upon CO_2 levels within the spaces. There is a definitive correlation between CO_2 levels and cubic feet per minute (CFM) of ventilation air per person that could be controlled by the Building Automation System (BAS) to meet ASHRAE 62.1 (2016) indoor ventilation requirements for schools. The formula to calculate CFM/Person utilizes: Standard Outdoor CO_2 level in ppm, Measured Indoor CO_2 level in ppm, and CO_2 Generation Rates (cfm) for Different Metabolic Rates by Age i.e., CO_2 generation by an individual for a classroom would be lower than within an art room. Active DCV control is an acceptable alternate method to determine if ventilation requirements are met and will be used to supersede rooms that otherwise may fail otherwise using traditional spot data collection measures and ASHRAE approved matrixes!

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

Without CO_2-based DCV, individual space area/volume measurements and ventilation air being delivered would then be used to determine if spaces conform to the requirements within IMC 2015 and the results

are calculated based on individual space classification and category, however in this case such calculations will not be required.

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. With the building rebalancing effort underway, the TAB contractor will determine and set ACH rates.

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. It is our understanding that the current BAS upgrade project will address this recommendation.

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.

- 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

In review of the BAS renovation controls submittals, sequences of operations will be provided to optimize occupant comfort, energy efficiency and greatly improved ventilation and air distrubtion throughout.

Equipment Upgrade or Replacement Recommendations

Generally, the HVAC equipment is aged with some areas without air conditioning and individual space ventilation control. This could be addressed with the implementation of additional Direct Outdoor Air (DOA) energy recovery units and space Variable Refrigerant Flow (VRF) systems.

Additionally, 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.

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.
- The following bullet items may be performed in-house 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 is reduced, and dirt builds up will impact free movement. This can result in control actuators failures or broken damper hardware, which would need to be replaced.
    - 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 Ludlowe High School Rooftop Units (RTUs) serving classroom areas, we have identified not only that several RTUs have exceeded their expected life in need of replacement.

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 with the ongoing controls and TAB efforts. This study found that the Fairfield Ludlowe High School has good potential for being a well-ventilated building and will have no issue maintaining minimum ventilation requirements per 2015. Given the anticipated results of after the controls renovation project is completed, we would only suggest that every three to five years consideration to perform a building Recommissioning of HVAC systems and BAS controls.

APPENDICES

APPENDIX 1 – Issues List

Not applicable with BAS Renovation project

APPENDIX 2 – Ventilation Data Calculations

Project Name	**Fairfield Public Schools RCx**	Fairfield Ludlowe High School
Project Numb	*2020102.00*	
Scope	**Ventilation Calculation by Building**	
Date	**January 24, 2024**	

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Zone Identification									IMC 2015 Ventilation Calculations													
Floor	Room#	Room Name	Occupancy Classification	Category	Infiltration 1 = Y 0 = N	Zone Area, Az, per space (sq.ft)	Ceiling Height (ft)	Volume, per space (cu.ft)	Zone Population, Pz, per space Adult	People OA Rate in Breathing Zone, Rp (cfm/ person)	Area OA Rate in Breathing Zone, Ra (cfm/sf)	Default Occupant Density (#/1000sf)	Breathing Zone OA Vbz=RpPz + RaAz (cfm)	Table 6-2 Zone Air Distribution Effectiveness Ez	Zone OA Flor, Voz (cfm)	LEED EQ c2 (30% more than 62.1-2007) Zone OA Flow, Voz (cfm)	Make-Up Air (cfm)	Min. Ventilation Airflow (cfm)	ACTUAL VENTILATION AIR FLOW (cfm)	Excess Ventilation Air (cfm)	IMC CFM/PERSON PASS/FAIL	Ventilation ACH (AC/hr)	CO2 DCV Pass Option
0	001	Group Exercise	Education	Classroom (ages 9+)	0	1525	9.6	14640		10.0	0.12	35	717	1	717	940		**717**		-717	**Fails**	**0.000**	**Meets**
0	002	Art Classroom	Education	Art Classroom	0	1216	9.6	11674		10.0	0.18	20	462	1	462	610		**462**		-462	**Fails**	**0.000**	**Meets**
0	002A	Storage	Storage	Warehouses	0			0		0.0	0.06	0	0	1	0	0		**0**		0	**Meets**		
0	003	Storage	Storage	Warehouses	0			0		0.0	0.06	0	0	1	0	0		**0**		0	**Meets**		
0	004	Art Classroom	Education	Art Classroom	0	1216	9.6	11674		10.0	0.18	20	462	1	462	610		**462**		-462	**Fails**	**0.000**	**Meets**
0	005	Dark Room	Education	Classroom (ages 9+)	0	430	9.6	4128		10.0	0.12	35	202	1	202	270		**202**		-202	**Fails**	**0.000**	**Meets**
0	006	Art Classroom	Education	Art Classroom	0	1132	12	13584		10.0	0.18	20	430	1	430	560		**430**		-430	**Fails**	**0.000**	**Meets**
0	006A	Storage	Storage	Warehouses	0			0		0.0	0.06	0	0	1	0	0		**0**		0	**Meets**		
0	007	Art Classroom	Education	Art Classroom	0	1050	16	16800		10.0	0.18	20	399	1	399	520		**399**		-399	**Fails**	**0.000**	**Meets**
0	007A	Storage	Storage	Warehouses	0			0		0.0	0.06	0	0	1	0	0		**0**		0	**Meets**		
0	007B	Kiln	Education	Wood/metal shops	0			0		10.0	0.18	20	0	1	0	0		**0**		0	**Meets**		
0	008	Art Storage	Storage	Art Classroom	0	260	12.75	3315		10.0	0.18	20	99	1	99	130		**99**		-99	**Fails**	**0.000**	
0	010	Auto Shop	Education	Classroom (ages 9+)	0	2241	14.33	32114		10.0	0.12	35	1053	1	1053	1370		**1053**		-1053	**Fails**	**0.000**	**Meets**
0	010A	Storage	Storage	Warehouses	0	369	14.33	5288		0.0	0.06	0	22	1	22	30		**22**		-22	**Fails**	**0.000**	
0	011	Elec Mech	Storage	Warehouses	0			0		0.0	0.06	0	0	1	0	0		**0**		0	**Meets**		
0	012	Mech	Storage	Warehouses	0			0		0.0	0.06	0	0	1	0	0		**0**		0	**Meets**		
0	13	Boys	Public Spaces	Toilet rooms - public	0			0		0.0	0.00	0	0	1	0	0		**0**		0	**Meets**		
0	14	Girls	Public Spaces	Toilet rooms - public	0			0		0.0	0.00	0	0	1	0	0		**0**		0	**Meets**		
0	015	Graphics Lab	Education	Computer lab	0	2311	11.33	26184		10.0	0.12	25	855	1	855	1120		**855**		-855	**Fails**	**0.000**	**Meets**
0	015A	Elec	Storage	Warehouses	0			0		0.0	0.06	0	0	1	0	0		**0**		0	**Meets**		
0	016	Girls Team Room	Education	Classroom (ages 9+)	0	1500	12	18000		10.0	0.12	35	705	1	705	920		**705**		-705	**Fails**	**0.000**	**Meets**
0	017	Girls Team Room	Education	Classroom (ages 9+)	0	358	12.33	4414		10.0	0.12	35	168	1	168	220		**168**		-168	**Fails**	**0.000**	**Meets**
0	018	Girls Locker Room	Education	Locker/dressing room	0	1727	12.33	21294		0.0	0.00	0	0	1	0	0		**0**		0	**Meets**	**0.000**	
0	019	Office	Offices	Office spaces	0	287	8	2296		5.0	0.06	5	24	1	24	40		**24**		-24	**Fails**	**0.000**	**Meets**
0	020	Team Room	Education	Classroom (ages 9+)	0	320	12.33	3946		10.0	0.12	35	150	1	150	200		**150**		-150	**Fails**	**0.000**	**Meets**
0	021	Office	Offices	Office spaces	1			0		5.0	0.06	5	0	1	0	0		**0**		0	**Meets**		
0	022	Boys Locker Room	Education	Locker/dressing room	1	1620	12.33	19975		0.0	0.00	0	0	1	0	0		**0**		0	**Meets**	**0.000**	
0	022B	Office	Offices	Office spaces	0			0		5.0	0.06	5	0	1	0	0		**0**		0	**Meets**		
0	023	Storage	Storage	Warehouses	0			0		0.0	0.06	0	0	1	0	0		**0**		0	**Meets**		
0	024	Wood Shop	Education	Wood/metal shops	1	1867	12.33	23020	16	10.0	0.18	20	496	1	496	650		**496**		-496	**Fails**	**0.000**	**Meets**
0	024A	Finish Room	Education	Wood/metal shops	0	142	12.33	1751		10.0	0.18	20	54	1	54	80		**54**		-54	**Fails**	**0.000**	**Meets**
0	024B	Office	Offices	Office spaces	0	155		0		5.0	0.06	5	13	1	13	20		**13**		-13	**Fails**		**Meets**
0	024C	Wood Storage	Storage	Warehouses	0	445	12.33	5487		0.0	0.06	0	27	1	27	40		**27**		-27	**Fails**	**0.000**	
0	025	Boys Team Room	Education	Classroom (ages 9+)	0	326	12.33	4020	15	10.0	0.12	35	189	1	189	250		**189**		-189	**Fails**	**0.000**	
0	026	Boys Team Room	Education	Classroom (ages 9+)	0	328	12.33	4044		10.0	0.12	35	154	1	154	210		**154**		-154	**Fails**	**0.000**	

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Fairfield Ludlowe High School

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0	027	Trainer	Education	Classroom (ages 9+)	0	242	8.4	2033		10.0	0.12	35	114	1	114	150		114		-114	Fails	0.000	Meets
0	027A	Office	Offices	Office spaces	0	54	8.4	454		5.0	0.06	5	5	1	5	10		5		-5	Fails	0.000	Meets
0	027B	Office	Offices	Office spaces	0	62	8.4	521		5.0	0.06	5	5	1	5	10		5		-5	Fails	0.000	Meets
0	029	Team Room	Education	Classroom (ages 9+)	0	468	12	5616		10.0	0.12	35	220	1	220	290		220		-220	Fails	0.000	
0	029A	Toilet	Public Spaces	Toilet rooms - public	0	145	12	1740		0.0	0.00	0	0	1	0	0		0		0	Meets	0.000	
0	030	Computer Repair	Education	Classroom (ages 9+)	0	1837	12	22044		10.0	0.12	35	863	1	863	1130		863		-863	Fails	0.000	Meets
0	030B	Fuel Pump	Storage	Warehouses	0	163	12	1956		0.0	0.06	0	10	1	10	20		10		-10	Fails	0.000	
0	030B	Storage	Storage	Warehouses	0	109	12	1308		0.0	0.06	0	7	1	7	10		7		-7	Fails	0.000	
0	030C	Tele/Data	Workrooms	Computer (w/o printing)	0			0		5.0	0.06	4	0	1	0	0		0		0	Meets		
0	031	School IT Repair Dept	Education	Computer lab	0	931	12	11172		10.0	0.12	25	344	1	344	450		344		-344	Fails	0.000	Meets
0	032	Computer Lab	Education	Computer lab	0	926	12	11112	4	10.0	0.12	25	151	1	151	200		151		-151	Fails	0.000	Meets
0	033	Mechanical	Storage	Warehouses	0			0		0.0	0.06	0	0	1	0	0		0		0	Meets		
0	034	Storage	Storage	Warehouses	0			0		0.0	0.06	0	0	1	0	0		0		0	Meets		
1	101	Gymnasium	Education	Multiuse assembly	0	11723	26	304798		7.5	0.06	100	9496	1	9496	12350		9496		-9496	Fails	0.000	Meets
1	102	Gym Storage	Storage	Warehouses	0			0		0.0	0.06	0	0	1	0	0		0		0	Meets		
1	103	Gym Storage	Storage	Warehouses	0			0		0.0	0.06	0	0	1	0	0		0		0	Meets		
1	104	Girls	Public Spaces	Toilet rooms - public	0			0		0.0	0.00	0	0	1	0	0		0		0	Meets		
1	105	Boys	Public Spaces	Toilet rooms - public	0			0		0.0	0.00	0	0	1	0	0		0		0	Meets		
1	106	Auxiliary Gymnasium	Education	Multiuse assembly	0	8035	26	208910		7.5	0.06	100	6508	1	6508	8470		6508		-6508	Fails	0.000	Meets
1	107	Band Reshersal	Education	Music/theater/dance	0	1564	10.25	16031	40	10.0	0.06	35	494	1	494	650		494		-494	Fails	0.000	Meets
1	107A	Storage	Storage	Warehouses	0	91	8.6	783		0.0	0.06	0	5	1	5	10		5		-5	Fails	0.000	
1	107B	Storage	Storage	Warehouses	0	317	8.5	2695		0.0	0.06	0	19	1	19	30		19		-19	Fails	0.000	
1	108	Practice	Education	Classroom (ages 9+)	0	115	8.5	978	2	10.0	0.12	35	34	1	34	50		34		-34	Fails	0.000	
1	109	Resource Center	Education	Classroom (ages 9+)	0	342	8.5	2907	3	10.0	0.12	35	71	1	71	100		71		-71	Fails	0.000	Meets
1	110	Practice	Education	Classroom (ages 9+)	0	108	9.5	1026	2	10.0	0.12	35	33	1	33	50		33		-33	Fails	0.000	
1	111	Practice	Education	Classroom (ages 9+)	0	182	8.75	1593		10.0	0.12	35	86	1	86	120		86		-86	Fails	0.000	
1	112	Keyboard	Education	Classroom (ages 9+)	0	488	8	3904	8	10.0	0.12	35	139	1	139	190		139		-139	Fails	0.000	Meets
1	112A	Not Labeled	Offices	Office spaces	0	95	8	760	2	5.0	0.06	5	16	1	16	30		16		-16	Fails	0.000	
1	113	Pump Room/Gen. Stora	Storage	Warehouses	0			0		0.0	0.06	0	0	1	0	0		0		0	Meets		
1	113	Not Labeled	Offices	Office spaces	0			0		5.0	0.06	5	0	1	0	0		0		0	Meets		
1	114	Office	Offices	Office spaces	0	239	8	1912		5.0	0.06	5	20	1	20	30		20		-20	Fails	0.000	Meets
1	115	Choral Room	Education	Music/theater/dance	0	1488	11	16368		10.0	0.06	35	610	1	610	800		610		-610	Fails	0.000	Meets
1	116	Storage	Storage	Warehouses	0	597	11.4	6806		0.0	0.06	0	36	1	36	50		36		-36	Fails	0.000	
1	117	Girls	Public Spaces	Toilet rooms - public	0			0		0.0	0.00	0	0	1	0	0		0		0	Meets		
1	118	Boys	Public Spaces	Toilet rooms - public	0			0		0.0	0.00	0	0	1	0	0		0		0	Meets		
1	121	Orchestra Room	Education	Music/theater/dance	0	2326	10.33	24028		10.0	0.06	35	954	1	954	1240		954		-954	Fails	0.000	Meets
1	122	Fitness Center	Education	Sports locker rooms	0	2439	9.5	23171		0.0	0.00	0	0	1	0	0		0		0	Meets	0.000	
1	123	Office	Offices	Office spaces	0	163	8.1	1320		5.0	0.06	5	14	1	14	20		14		-14	Fails	0.000	Meets
1	124	Reception	Offices	Reception Areas	0	213	8.1	1725		5.0	0.06	30	45	1	45	60		45		-45	Fails	0.000	Meets
1	125	Classroom	Education	Classroom (ages 9+)	0	624	8.75	5460	25	10.0	0.12	35	325	1	325	430		325		-325	Fails	0.000	Meets
1	126	Nursery	Education	Day Care (through age 4)	0	859	8.75	7516		10.0	0.18	25	369	1	369	490		369		-369	Fails	0.000	Meets
1	126A	Toilet	Public Spaces	Toilet rooms - public	0			0		0.0	0.00	0	0	1	0	0		0		0	Meets		
1	127	OT/PT	Hospitals, nursing and con	Patient rooms	0	713	8.5	6061	6	25.0	0.00	10	150	1	150	200		150		-150	Fails	0.000	Meets
1	127A	Toilet	Public Spaces	Toilet rooms - public	0			0		0.0	0.00	0	0	1	0	0		0		0	Meets		
1	127B	Small Group	Education	Multiuse assembly	0	131		0		7.5	0.06	100	106	1	106	140		106		-106	Fails		Meets
1	128	Work Room	Workrooms	Copy, printing rooms	0	385	12	4620		5.0	0.06	4	31	1	31	50		31		-31	Fails	0.000	
1	128A	Mech	Storage	Warehouses	0	311	12	3732		0.0	0.06	0	19	1	19	30		19		-19	Fails	0.000	
1	129	Classroom	Education	Classroom (ages 9+)	0	710	8.3	5893	23	10.0	0.12	35	315	1	315	410		315		-315	Fails	0.000	Meets
1	130	Faculty Room	Offices	Office spaces	0	910	8.12	7389	6	5.0	0.06	5	85	1	85	110		85		-85	Fails	0.000	Meets
1	130A	Activity Room	Education	Multiuse assembly	0	359	8.1	2908		7.5	0.06	100	291	1	291	380		291		-291	Fails	0.000	Meets
1	131	Elev Mech	Storage	Warehouses	0			0		0.0	0.06	0	0	1	0	0		0		0	Meets		
1	131	Boys	Public Spaces	Toilet rooms - public	0			0		0.0	0.00	0	0	1	0	0		0		0	Meets		
1	132	Girls	Public Spaces	Toilet rooms - public	0			0		0.0	0.00	0	0	1	0	0		0		0	Meets		
1	138	Cafeteria	Food and beverage service	Cafeteria, fast food	0	4952	11	54472	352	7.5	0.18	100	3531	1	3531	4600		3531		-3531	Fails	0.000	Meets
1	138A	Storage	Storage	Warehouses	0	410	8	3280		0.0	0.06	0	25	1	25	40		25		-25	Fails	0.000	

Project Name	**Fairfield Public Schools RCx**	Fairfield Ludlowe High School
Project Numb	*2020102.00*	
Scope	**Ventilation Calculation by Building**	
Date	**January 24, 2024**	

VANZELM ENGINEERS

Zone Identification									IMC 2015 Ventilation Calculations													
Floor	Room#	Room Name	Occupancy Classification	Category	Infiltration 1 = Y 0 = N	Zone Area, Az, per space (sq.ft)	Ceiling Height (ft)	Volume, per space (cu.ft)	Zone Population, Pz, per space Adult	People OA Rate in Breathing Zone, Rp (cfm/ person)	Area OA Rate in Breathing Zone, Ra (cfm/sf)	Default Occupant Density (#/1000sf)	Breathing Zone OA Vbz=RpPz + RaAz (cfm)	Table 6-2 Zone Air Distribution Effectiveness Ez	Zone OA Flor, Voz (cfm)	LEED EQ c2 (30% more than 62.1-2007) Zone OA Flow, Voz (cfm)	Make-Up Air (cfm)	Min. Ventilation Airflow (cfm)	ACTUAL VENTILATION AIR FLOW (cfm)	Excess Ventilation Air (cfm)	IMC CFM/PERSON PASS/FAIL	Ventilation ACH (AC/hr)	CO2 DCV Pass Option
1	138B	Storage	Storage	Warehouses	0	169	8	1352		0.0	0.06	0	10	1	10	20		**10**		-10	**Fails**	**0.000**	
1	138C	Senior Commons	Education	Multiuse assembly	0	752	7.666	5765	40	7.5	0.06	100	345	1	345	450		**345**		-345	**Fails**	**0.000**	**Meets**
1	138D	Kitchen	Food and beverage service	Kitchens (cooking)	0	3333	9.66	32197		0.0	0.00	0	0	1	0	0		**0**		0	**Meets**	**0.000**	
1	138E	Wedge Left	Education	Multiuse assembly	0	2000	12	24000	50	7.5	0.06	100	495	1	495	650		**495**		-495	**Fails**	**0.000**	**Meets**
1	138F	Office	Offices	Office spaces	0			0		5.0	0.06	5	0	1	0	0		**0**		0	**Meets**		
1	138G	Toilet	Public Spaces	Toilet rooms - public	0			0		0.0	0.00	0	0	1	0	0		**0**		0	**Meets**		
1	138W	Wedge Right	Education	Multiuse assembly	0	1084	9.5	10298	115	7.5	0.06	100	928	1	928	1210		**928**		-928	**Fails**	**0.000**	**Meets**
1	139	Student Store	Food and beverage service	Cafeteria, fast food	0	150	9.5	1425	2	7.5	0.18	100	42	1	42	60		**42**		-42	**Fails**	**0.000**	
1	142	Falcons Nest Restaurant	Food and beverage service	Dining Rooms	0	1470	9.5	13965	30	7.5	0.18	70	490	1	490	640		**490**		-490	**Fails**	**0.000**	**Meets**
1	142A	Commercial Kitchen	Food and beverage service	Kitchens (cooking)	0	611	9.5	5805		0.0	0.00	0	0	1	0	0		**0**		0	**Meets**	**0.000**	
1	143	Storage	Storage	Warehouses	0			0		0.0	0.06	0	0	1	0	0		**0**		0	**Meets**		
1	144	Elev Mech	Storage	Warehouses	0			0		0.0	0.06	0	0	1	0	0		**0**		0	**Meets**		
1	145	Kitchen Lab	Food and beverage service	Kitchens (cooking)	0	1255	9	11295	26	0.0	0.00	0	0	1	0	0		**0**		0	**Meets**	**0.000**	
1	145A	Storage	Storage	Warehouses	0	69	9	621		0.0	0.06	0	4	1	4	10		**4**		-4	**Fails**	**0.000**	
1	146	Classroom	Education	Classroom (ages 9+)	0	590	9	5310	29	10.0	0.12	35	361	1	361	470		**361**		-361	**Fails**	**0.000**	**Meets**
1	147	Classroom	Education	Classroom (ages 9+)	0	615	9	5535	26	10.0	0.12	35	334	1	334	440		**334**		-334	**Fails**	**0.000**	**Meets**
1	148	Classroom	Education	Classroom (ages 9+)	0	634	9	5706	27	10.0	0.12	35	346	1	346	450		**346**		-346	**Fails**	**0.000**	**Meets**
1	149	Classroom	Education	Classroom (ages 9+)	0	611	9	5499	27	10.0	0.12	35	343	1	343	450		**343**		-343	**Fails**	**0.000**	**Meets**
1	150	Computer Lab	Education	Computer lab	0	1054	9	9486	29	10.0	0.12	25	416	1	416	550		**416**		-416	**Fails**	**0.000**	**Meets**
1	151	Physics	Education	Classroom (ages 9+)	0	1147	9	10323	26	10.0	0.12	35	398	1	398	520		**398**		-398	**Fails**	**0.000**	**Meets**
1	152	Prep	Education	Classroom (ages 9+)	0	190	9	1710	2	10.0	0.12	35	43	1	43	60		**43**		-43	**Fails**	**0.000**	
1	152A	Storage	Storage	Warehouses	0	89	9	801		0.0	0.06	0	5	1	5	10		**5**		-5	**Fails**	**0.000**	
1	153	Science Classroom	Education	Science Laboratories	0	1149	9	10341	25	10.0	0.18	25	457	1	457	600		**457**		-457	**Fails**	**0.000**	**Meets**
1	154	Storage	Storage	Warehouses	0	234	9.5	2223		0.0	0.06	0	14	1	14	20		**14**		-14	**Fails**	**0.000**	
1	155	Custodian	Storage	Warehouses	0	355	9.5	3373		0.0	0.06	0	21	1	21	30		**21**		-21	**Fails**	**0.000**	
1	156	Boiler Room	Storage	Warehouses	0			0		0.0	0.06	0	0	1	0	0		**0**		0	**Meets**		
1	181	Science Classroom	Education	Science Laboratories	0	1212	9	10908	27	10.0	0.18	25	488	1	488	640		**488**		-488	**Fails**	**0.000**	**Meets**
1	181A	Prep	Education	Science Laboratories	0	270	9	2430	2	10.0	0.18	25	69	1	69	90		**69**		-69	**Fails**	**0.000**	
2	201	Black Box Theater	Theaters	Stages, studios	0	1548	11.5	17802	28	10.0	0.06	70	373	1	373	490		**373**		-373	**Fails**	**0.000**	**Meets**
2	201A	Storage	Storage	Warehouses	0			0		0.0	0.06	0	0	1	0	0		**0**		0	**Meets**		
2	202	Classroom	Education	Classroom (ages 9+)	0	690	9	6210	25	10.0	0.12	35	333	1	333	440		**333**		-333	**Fails**	**0.000**	**Meets**
2	203	Classroom	Education	Classroom (ages 9+)	0	868	9	7812	26	10.0	0.12	35	364	1	364	480		**364**		-364	**Fails**	**0.000**	**Meets**
2	203A	Scene Shop	Education	Music/theater/dance	0	838	9	7542	4	10.0	0.06	35	90	1	90	120		**90**		-90	**Fails**	**0.000**	**Meets**
2	205	Classroom	Education	Classroom (ages 9+)	0	1122	9	10098	26	10.0	0.12	35	395	1	395	520		**395**		-395	**Fails**	**0.000**	**Meets**
2	206	Health Suite	Hospitals, nursing and conv	Patient rooms	0	388	9	3492	2	25.0	0.00	10	50	1	50	70		**50**		-50	**Fails**	**0.000**	**Meets**
2	206A	Office	Offices	Office spaces	0	94	9	846	2	5.0	0.06	5	16	1	16	30		**16**		-16	**Fails**	**0.000**	**Meets**
2	206B	Office	Offices	Office spaces	0	93	9	837	2	5.0	0.06	5	16	1	16	30		**16**		-16	**Fails**	**0.000**	**Meets**
2	206C	Treatment	Hospitals, nursing and conv	Patient rooms	0	287	9	2583	2	25.0	0.00	10	50	1	50	70		**50**		-50	**Fails**	**0.000**	**Meets**
2	206D	Office	Offices	Office spaces	0	125	9	1125	2	5.0	0.06	5	18	1	18	30		**18**		-18	**Fails**	**0.000**	**Meets**
2	206E	Med Room	Hospitals, nursing and conv	Patient rooms	0	115	9	1035	1	25.0	0.00	10	25	1	25	40		**25**		-25	**Fails**	**0.000**	**Meets**
2	206F	Cot Room	Hospitals, nursing and conv	Patient rooms	0	217	9	1953	5	25.0	0.00	10	125	1	125	170		**125**		-125	**Fails**	**0.000**	**Meets**
2	206G	Toilet	Public Spaces	Toilet rooms - public	0	47	9	423		0.0	0.00	0	0	1	0	0		**0**		0	**Meets**	**0.000**	
2	209	Mechanical	Storage	Warehouses	0			0		0.0	0.06	0	0	1	0	0		**0**		0	**Meets**		
2	211	Science Classroom	Education	Science Laboratories	0	1417	8.5	12045	26	10.0	0.18	25	515	1	515	670		**515**		-515	**Fails**	**0.000**	**Meets**
2	211A	Storage	Storage	Warehouses	0	74	8.5	629		0.0	0.06	0	4	1	4	10		**4**		-4	**Fails**	**0.000**	
2	212	Prep	Education	Science Laboratories	0	371	8.5	3154	1	10.0	0.18	25	77	1	77	100		**77**		-77	**Fails**	**0.000**	
2	213	Science Classroom	Education	Classroom (ages 9+)	0	1387	8.5	11790	26	10.0	0.12	35	426	1	426	560		**426**		-426	**Fails**	**0.000**	**Meets**
2	214	Science Classroom	Education	Classroom (ages 9+)	0	1235	8.5	10498	26	10.0	0.12	35	408	1	408	540		**408**		-408	**Fails**	**0.000**	**Meets**
2	214A	Storage	Education	Science Laboratories	0	40	8.5	340		10.0	0.18	25	17	1	17	30		**17**		-17	**Fails**	**0.000**	
2	214B	Prep	Education	Science Laboratories	0	230	8.5	1955	2	10.0	0.18	25	61	1	61	80		**61**		-61	**Fails**	**0.000**	
2	214C	Storage	Education	Science Laboratories	0	40	8.5	340		10.0	0.18	25	17	1	17	30		**17**		-17	**Fails**	**0.000**	**Meets**
2	215	Classroom	Education	Classroom (ages 9+)	0	649	9.5	6166	28	10.0	0.12	35	358	1	358	470		**358**		-358	**Fails**	**0.000**	**Meets**
2	216	Girl	Public Spaces	Toilet rooms - public	0	255	9.5	2423		0.0	0.00	0	0	1	0	0		**0**		0	**Meets**	**0.000**	
2	217	Custodian	Storage	Warehouses	0	39	9.5	371	2	0.0	0.06	0	2	1	2	10		**2**		-2	**Fails**	**0.000**	
2	218	Toilet	Public Spaces	Toilet rooms - public	0	39	9.5	371	1	0.0	0.00	0	0	1	0	0		**0**		0	**Meets**	**0.000**	

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VANZELM ENGINEERS

Zone Identification									IMC 2015 Ventilation Calculations													
Floor	Room#	Room Name	Occupancy Classification	Category	Infiltration 1 = Y 0 = N	Zone Area, Az, per space (sq.ft)	Ceiling Height (ft)	Volume, per space (cu.ft)	Zone Population, Pz, per space Adult	People OA Rate in Breathing Zone, Rp (cfm/ person)	Area OA Rate in Breathing Zone, Ra (cfm/sf)	Default Occupant Density (#/1000sf)	Breathing Zone OA Vbz=RpPz + RaAz (cfm)	Table 6-2 Zone Air Distribution Effectiveness Ez	Zone OA Flor, Voz (cfm)	LEED EQ c2 (30% more than 62.1-2007) Zone OA Flow, Voz (cfm)	Make-Up Air (cfm)	Min. Ventilation Airflow (cfm)	ACTUAL VENTILATION AIR FLOW (cfm)	Excess Ventilation Air (cfm)	IMC CFM/PERSON PASS/FAIL	Ventilation ACH (AC/hr)	CO2 DCV Pass Option
2	219	Boys	Public Spaces	Toilet rooms - public	0	255	9.5	2423		0.0	0.00	0	0	1	0	0		0		0	Meets	0.000	
2	220	Classroom	Education	Classroom (ages 9+)	0	615	9.5	5843	25	10.0	0.12	35	324	1	324	430		324		-324	Fails	0.000	Meets
2	221	Faculty Lounge	Offices	Office spaces	0	688	9.5	6536	26	5.0	0.06	5	171	1	171	230		171		-171	Fails	0.000	Meets
2	222	Guidance	Offices	Conference rooms	0	275	9	2475	2	5.0	0.06	50	27	1	27	40		27		-27	Fails	0.000	Meets
2	222A	Office	Offices	Office spaces	0	102	9	918	2	5.0	0.06	5	16	1	16	30		16		-16	Fails	0.000	Meets
2	222B	Office	Offices	Office spaces	0	147	9	1323	2	5.0	0.06	5	19	1	19	30		19		-19	Fails	0.000	Meets
2	222C	Office	Offices	Office spaces	0	132	9	1188	2	5.0	0.06	5	18	1	18	30		18		-18	Fails	0.000	Meets
2	223	Classroom	Education	Classroom (ages 9+)	0	614	9.5	5833	25	10.0	0.12	35	324	1	324	430		324		-324	Fails	0.000	Meets
2	224	Classroom	Education	Classroom (ages 9+)	0	638	9.5	6061	25	10.0	0.12	35	327	1	327	430		327		-327	Fails	0.000	Meets
2	225	Classroom	Education	Classroom (ages 9+)	0	694	9.5	6593	25	10.0	0.12	35	333	1	333	440		333		-333	Fails	0.000	Meets
2	226	Classroom	Education	Classroom (ages 9+)	0	621	9.5	5900	25	10.0	0.12	35	325	1	325	430		325		-325	Fails	0.000	Meets
2	227	Classroom	Education	Classroom (ages 9+)	0	633	9.5	6014	25	10.0	0.12	35	326	1	326	430		326		-326	Fails	0.000	Meets
2	228	Classroom	Education	Classroom (ages 9+)	0	625	9.5	5938	25	10.0	0.12	35	325	1	325	430		325		-325	Fails	0.000	Meets
2	230	Special Education	Education	Classroom (ages 9+)	0	1250	9.5	11875	25	10.0	0.12	35	400	1	400	520		400		-400	Fails	0.000	Meets
2	230A	Office	Offices	Office spaces	0			0		5.0	0.06	5	0	1	0	0		0		0	Meets		
2	232	Classroom	Education	Classroom (ages 9+)	0	621	9.5	5900	25	10.0	0.12	35	325	1	325	430		325		-325	Fails	0.000	Meets
2	233	Classroom	Education	Classroom (ages 9+)	0	772	9.5	7334	25	10.0	0.12	35	343	1	343	450		343		-343	Fails	0.000	Meets
2	234	Computer Lab	Education	Computer lab	0	1285	10	12850	26	10.0	0.12	25	414	1	414	540		414		-414	Fails	0.000	Meets
2	235	Science Classroom	Education	Science Laboratories	0	1051	10	10510	25	10.0	0.18	25	439	1	439	580		439		-439	Fails	0.000	Meets
2	236	Prep	Education	Science Laboratories	0	250	7.5	1875	2	10.0	0.18	25	65	1	65	90		65		-65	Fails	0.000	
2	237	Science Classroom	Education	Science Laboratories	0	1025	10	10250	25	10.0	0.18	25	435	1	435	570		435		-435	Fails	0.000	Meets
2	238	Girls	Public Spaces	Toilet rooms - public	0			0		0.0	0.00	0	0	1	0	0		0		0	Meets		
2	239	Boys	Public Spaces	Toilet rooms - public	0			0		0.0	0.00	0	0	1	0	0		0		0	Meets		
2	242	Faculty Lounge	Offices	Office spaces	0	675	10	6750	25	5.0	0.06	5	166	1	166	220		166		-166	Fails	0.000	Meets
2	243	Classroom	Education	Classroom (ages 9+)	0			0	25	10.0	0.12	35	250	1	250	330		250		-250	Fails		Meets
2	244	Classroom	Education	Classroom (ages 9+)	0	644	8.5	5474	25	10.0	0.12	35	327	1	327	430		327		-327	Fails	0.000	Meets
2	245	Reception	Offices	Reception Areas	0	265	8.5	2253	4	5.0	0.06	30	36	1	36	50		36		-36	Fails	0.000	Meets
2	245A	Office	Offices	Office spaces	0	108	8.5	918	2	5.0	0.06	5	16	1	16	30		16		-16	Fails	0.000	Meets
2	245B	Office	Offices	Office spaces	0	108	8.5	918	2	5.0	0.06	5	16	1	16	30		16		-16	Fails	0.000	Meets
2	245C	Office	Offices	Office spaces	0	91	8.5	774	2	5.0	0.06	5	15	1	15	30		15		-15	Fails	0.000	Meets
2	246	Conference	Offices	Conference rooms	0	380	8.5	3230	12	5.0	0.06	50	83	1	83	110		83		-83	Fails	0.000	Meets
2	247	House Office	Offices	Office spaces	0	219	9	1971	4	5.0	0.06	5	33	1	33	50		33		-33	Fails	0.000	Meets
2	247A	Tele/Data	Workrooms	Copy, printing rooms	0			0		5.0	0.06	4	0	1	0	0		0		0	Meets		
2	247B	Work Room	Workrooms	Copy, printing rooms	0	200	12	2400	2	5.0	0.06	4	22	1	22	30		22		-22	Fails	0.000	Meets
2	247C	Dean	Offices	Office spaces	0	236	9	2124	4	5.0	0.06	5	34	1	34	50		34		-34	Fails	0.000	Meets
2	247D	Housemaster	Offices	Office spaces	0	352	9	3168	4	5.0	0.06	5	41	1	41	60		41		-41	Fails	0.000	Meets
2	247E	Server	Workrooms	Copy, printing rooms	0	60	9.75	585		5.0	0.06	4	5	1	5	10		5		-5	Fails	0.000	
2	248	Tele/Data	Workrooms	Copy, printing rooms	0	149	8.5	1267		5.0	0.06	4	12	1	12	20		12		-12	Fails	0.000	
2	249	Classroom	Education	Classroom (ages 9+)	0	645	8.5	5483	26	10.0	0.12	35	337	1	337	440		337		-337	Fails	0.000	Meets
2	250	Classroom	Education	Classroom (ages 9+)	0	638	8.5	5423	26	10.0	0.12	35	337	1	337	440		337		-337	Fails	0.000	Meets
2	251	Classroom	Education	Classroom (ages 9+)	0	637	8.5	5415	26	10.0	0.12	35	336	1	336	440		336		-336	Fails	0.000	Meets
2	252	Classroom	Education	Classroom (ages 9+)	0	637	8.5	5415	26	10.0	0.12	35	336	1	336	440		336		-336	Fails	0.000	Meets
2	253	Classroom	Education	Classroom (ages 9+)	0	637	8.5	5415	26	10.0	0.12	35	336	1	336	440		336		-336	Fails	0.000	Meets
2	254	Classroom	Education	Classroom (ages 9+)	0	637	8.5	5415	26	10.0	0.12	35	336	1	336	440		336		-336	Fails	0.000	Meets
2	255	Classroom	Education	Classroom (ages 9+)	0	663	9.3	6166	26	10.0	0.12	35	340	1	340	450		340		-340	Fails	0.000	Meets
2	256	Classroom	Education	Classroom (ages 9+)	0	655	9.3	6092	26	10.0	0.12	35	339	1	339	450		339		-339	Fails	0.000	Meets
2	257	Classroom	Education	Classroom (ages 9+)	0	784	9.3	7291	26	10.0	0.12	35	354	1	354	470		354		-354	Fails	0.000	Meets
2	258	Girls	Public Spaces	Toilet rooms - public	0			0		0.0	0.00	0	0	1	0	0		0		0	Meets		
2	259	Women	Public Spaces	Toilet rooms - public	0			0		0.0	0.00	0	0	1	0	0		0		0	Meets		
2	260	Men	Public Spaces	Toilet rooms - public	0			0		0.0	0.00	0	0	1	0	0		0		0	Meets		
2	261	Boys	Public Spaces	Toilet rooms - public	0	288	8.5	2448		0.0	0.00	0	0	1	0	0		0		0	Meets	0.000	
2	262	Classroom	Education	Classroom (ages 9+)	0	598	8.5	5083		10.0	0.12	35	281	1	281	370		281		-281	Fails	0.000	Meets
2	263	Classroom	Education	Classroom (ages 9+)	0	288	8.5	2448		10.0	0.12	35	135	1	135	180		135		-135	Fails	0.000	Meets
2	265	Storage	Storage	Warehouses	0	66	13	858		0.0	0.06	0	4	1	4	10		4		-4	Fails	0.000	
2	265A	Acid Tank	Storage	Warehouses	0	89	13	1157		0.0	0.06	0	5	1	5	10		5		-5	Fails	0.000	

Project Name	**Fairfield Public Schools RCx**	Fairfield Ludlowe High School
Project Numb	*2020102.00*	
Scope	**Ventilation Calculation by Building**	
Date	**January 24, 2024**	

VANZELM ENGINEERS

Zone Identification									IMC 2015 Ventilation Calculations													
Floor	Room#	Room Name	Occupancy Classification	Category	Infiltration 1 = Y 0 = N	Zone Area, Az, per space (sq.ft)	Ceiling Height (ft)	Volume, per space (cu.ft)	Zone Population, Pz, per space Adult	People OA Rate in Breathing Zone, Rp (cfm/ person)	Area OA Rate in Breathing Zone, Ra (cfm/sf)	Default Occupant Density (#/1000sf)	Breathing Zone OA Vbz=RpPz + RaAz (cfm)	Table 6-2 Zone Air Distribution Effectiveness Ez	Zone OA Flor, Voz (cfm)	LEED EQ c2 (30% more than 62.1-2007) Zone OA Flow, Voz (cfm)	Make-Up Air (cfm)	Min. Ventilation Airflow (cfm)	ACTUAL VENTILATION AIR FLOW (cfm)	Excess Ventilation Air (cfm)	IMC CFM/PERSON PASS/FAIL	Ventilation ACH (AC/hr)	CO2 DCV Pass Option
2	266	Reception	Offices	Reception Areas	0	363	9	3267	6	5.0	0.06	30	52	1	52	70		**52**		-52	**Fails**	**0.000**	
2	266A	Office	Offices	Office spaces	0	204	9	1836	6	5.0	0.06	5	42	1	42	60		**42**		-42	**Fails**	**0.000**	**Meets**
2	266B	Office	Offices	Office spaces	0	166	9	1494	2	5.0	0.06	5	20	1	20	30		**20**		-20	**Fails**	**0.000**	**Meets**
2	266C	Conference	Offices	Conference rooms	0	190	9	1710	10	5.0	0.06	50	61	1	61	80		**61**		-61	**Fails**	**0.000**	**Meets**
2	266D	Office	Offices	Office spaces	0	170	9	1530	5	5.0	0.06	5	35	1	35	50		**35**		-35	**Fails**	**0.000**	**Meets**
2	266E	Storage	Storage	Warehouses	0	111	9	999		0.0	0.06	0	7	1	7	10		**7**		-7	**Fails**	**0.000**	
2	267	Custodian	Offices	Office spaces	0	110	7.5	825		5.0	0.06	5	9	1	9	20		**9**		-9	**Fails**	**0.000**	
2	269	Classroom	Education	Classroom (ages 9+)	0	1067	9	9603	26	10.0	0.12	35	388	1	388	510		**388**		-388	**Fails**	**0.000**	**Meets**
2	271	Media Center	Education	Media Center	0	6241	10	62410		10.0	0.12	25	2309	1	2309	3010		**2309**		-2309	**Fails**	**0.000**	**Meets**
2	271B	Group Study	Education	Classroom (ages 9+)	0	236	9	2124		10.0	0.12	35	111	1	111	150		**111**		-111	**Fails**	**0.000**	**Meets**
2	271C	Group Study	Education	Classroom (ages 9+)	0	236	9	2124		10.0	0.12	35	111	1	111	150		**111**		-111	**Fails**	**0.000**	**Meets**
2	271D	Group Study	Education	Classroom (ages 9+)	0	236	9	2124		10.0	0.12	35	111	1	111	150		**111**		-111	**Fails**	**0.000**	**Meets**
2	271E	Group Study	Education	Classroom (ages 9+)	0	236	9	2124		10.0	0.12	35	111	1	111	150		**111**		-111	**Fails**	**0.000**	**Meets**
2	271F	Periodical Storage	Storage	Warehouses	0	345	9.5	3278		0.0	0.06	0	21	1	21	30		**21**		-21	**Fails**	**0.000**	
2	271G	Office/Work Room	Offices	Office spaces	0			0		5.0	0.06	5	0	1	0	0		**0**		0	**Meets**		
2	272	A/V Storage	Workrooms	Copy, printing rooms	0			0		5.0	0.06	4	0	1	0	0		**0**		0	**Meets**		
2	273	Multi Media Lab	Education	Music/theater/dance	0	830	9.5	7885	6	10.0	0.06	35	110	1	110	150		**110**		-110	**Fails**	**0.000**	**Meets**
2	274	Classroom	Education	Classroom (ages 9+)	0	608	9.5	5776	26	10.0	0.12	35	333	1	333	440		**333**		-333	**Fails**	**0.000**	**Meets**
2	275	TV Producation	Education	Music/theater/dance	0	964	12	11568	4	10.0	0.06	35	98	1	98	130		**98**		-98	**Fails**	**0.000**	**Meets**
2	275A	Control Room	Education	Music/theater/dance	0	114	12	1368	3	10.0	0.06	35	37	1	37	50		**37**		-37	**Fails**	**0.000**	**Meets**
2	276	Distance Learning	Education	Classroom (ages 9+)	0	602	9.5	5719		10.0	0.12	35	283	1	283	370		**283**		-283	**Fails**	**0.000**	**Meets**
2	277	Lecture Hall	Education	Lecture hall (fixed seats)	0	1472	11	16192	32	7.5	0.06	150	328	1	328	430		**328**		-328	**Fails**	**0.000**	**Meets**
2	278	Book Room	Education	Classroom (ages 9+)	0	372	9.5	3534	2	10.0	0.12	35	65	1	65	90		**65**		-65	**Fails**	**0.000**	
2	280	Auditorium	Education	Auditoriums	0	8221	23	189083	500	5.0	0.06	150	2993	1	2993	3900		**2993**		-2993	**Fails**	**0.000**	**Meets**
2	280B	Aud Storage	Offices	Office spaces	0	99	8.5	842		5.0	0.06	5	8	1	8	20		**8**		-8	**Fails**	**0.000**	**Meets**
2	280C	Aud Storage	Offices	Office spaces	0	118	8.5	1003		5.0	0.06	5	10	1	10	20		**10**		-10	**Fails**	**0.000**	**Meets**
2	280E	Storage	Storage	Warehouses	0	606	7	4242		0.0	0.06	0	36	1	36	50		**36**		-36	**Fails**	**0.000**	
2	281	Classroom	Education	Classroom (ages 9+)	0	607	9.5	5767	28	10.0	0.12	35	353	1	353	460		**353**		-353	**Fails**	**0.000**	**Meets**
2	282	Classroom	Education	Classroom (ages 9+)	0	868	9.5	8246	27	10.0	0.12	35	374	1	374	490		**374**		-374	**Fails**	**0.000**	**Meets**
2	283	Classroom	Education	Classroom (ages 9+)	0	684	9	6156		10.0	0.12	35	321	1	321	420		**321**		-321	**Fails**	**0.000**	**Meets**
2	284	Classroom	Education	Classroom (ages 9+)	0	700	8.5	5950	25	10.0	0.12	35	334	1	334	440		**334**		-334	**Fails**	**0.000**	**Meets**
2	282	Main Office	Offices	Office spaces	0	1004	9.25	9287	8	5.0	0.06	5	100	1	100	140		**100**		-100	**Fails**	**0.000**	**Meets**
2	282A	Office	Offices	Office spaces	0	129	9.25	1193	2	5.0	0.06	5	18	1	18	30		**18**		-18	**Fails**	**0.000**	**Meets**
2	282B	File Storage	Storage	Warehouses	0	170	9.25	1573	8	0.0	0.06	0	10	1	10	20		**10**		-10	**Fails**	**0.000**	
2	282C	Office	Offices	Office spaces	0	198	9.25	1832	3	5.0	0.06	5	27	1	27	40		**27**		-27	**Fails**	**0.000**	**Meets**
2	282D	Principal	Offices	Office spaces	0	272	9.25	2516	3	5.0	0.06	5	31	1	31	50		**31**		-31	**Fails**	**0.000**	**Meets**
2	283	Conference	Offices	Conference rooms	0	336	9.25	3108	10	5.0	0.06	50	70	1	70	100		**70**		-70	**Fails**	**0.000**	**Meets**
2	284	Conference	Offices	Conference rooms	0	173	9.25	1600	8	5.0	0.06	50	50	1	50	70		**50**		-50	**Fails**	**0.000**	**Meets**
2	285	House Office	Offices	Office spaces	0	417	9.25	3857	5	5.0	0.06	5	50	1	50	70		**50**		-50	**Fails**	**0.000**	**Meets**
2	285A	Toilet	Public Spaces	Toilet rooms - public	0	47	9.25	435		0.0	0.00	0	0	1	0	0		**0**		0	**Meets**	**0.000**	
2	285D	Housemaster	Offices	Office spaces	0	286	9.25	2646	8	5.0	0.06	5	57	1	57	80		**57**		-57	**Fails**	**0.000**	**Meets**
2	285E	Dean	Offices	Office spaces	0	177	9.25	1637	4	5.0	0.06	5	31	1	31	40		**31**		-31	**Fails**	**0.000**	**Meets**
2	286	Counceling	Offices	Conference rooms	0	289	9.25	2673	4	5.0	0.06	50	37	1	37	50		**37**		-37	**Fails**	**0.000**	**Meets**
2	286A	Office	Offices	Office spaces	0	120	9.25	1110	4	5.0	0.06	5	27	1	27	40		**27**		-27	**Fails**	**0.000**	**Meets**
2	286B	Office	Offices	Office spaces	0	124	9.25	1147	4	5.0	0.06	5	27	1	27	40		**27**		-27	**Fails**	**0.000**	**Meets**
2	286C	Office	Offices	Office spaces	0	129	9.25	1193	2	5.0	0.06	5	18	1	18	30		**18**		-18	**Fails**	**0.000**	**Meets**
2	286D	Office	Offices	Office spaces	0	133	9.25	1230	2	5.0	0.06	5	18	1	18	30		**18**		-18	**Fails**	**0.000**	**Meets**
2	286E	Office	Offices	Office spaces	0	159	9.25	1471	3	5.0	0.06	5	25	1	25	40		**25**		-25	**Fails**	**0.000**	**Meets**
2	286F	Conference	Education	Classroom (ages 9+)	0	193	9.25	1785	10	10.0	0.12	35	123	1	123	170		**123**		-123	**Fails**	**0.000**	**Meets**
2	287	Reception	Offices	Reception Areas	0	90	9.25	833	1	5.0	0.06	30	10	1	10	20		**10**		-10	**Fails**	**0.000**	**Meets**
2	287A	Security	Offices	Office spaces	0	198	9.25	1832	2	5.0	0.06	5	22	1	22	30		**22**		-22	**Fails**	**0.000**	**Meets**
2	288	Men	Public Spaces	Toilet rooms - public	0	125	8.5	1063	1	0.0	0.00	0	0	1	0	0		**0**		0	**Meets**	**0.000**	
2	289	Women	Public Spaces	Toilet rooms - public	0	125	8.5	1063	1	0.0	0.00	0	0	1	0	0		**0**		0	**Meets**	**0.000**	
2	291	Toilet	Public Spaces	Toilet rooms - public	0			0		0.0	0.00	0	0	1	0	0		**0**		0	**Meets**		
2	292	Transition Office	Offices	Office spaces	0	172	8.5	1462	4	5.0	0.06	5	30	1	30	40		**30**		-30	**Fails**	**0.000**	**Meets**

Project Name	**Fairfield Public Schools RCx**	Fairfield Ludlowe High School
Project Numb	*2020102.00*	
Scope	**Ventilation Calculation by Building**	
Date	**January 24, 2024**	

VANZELM ENGINEERS

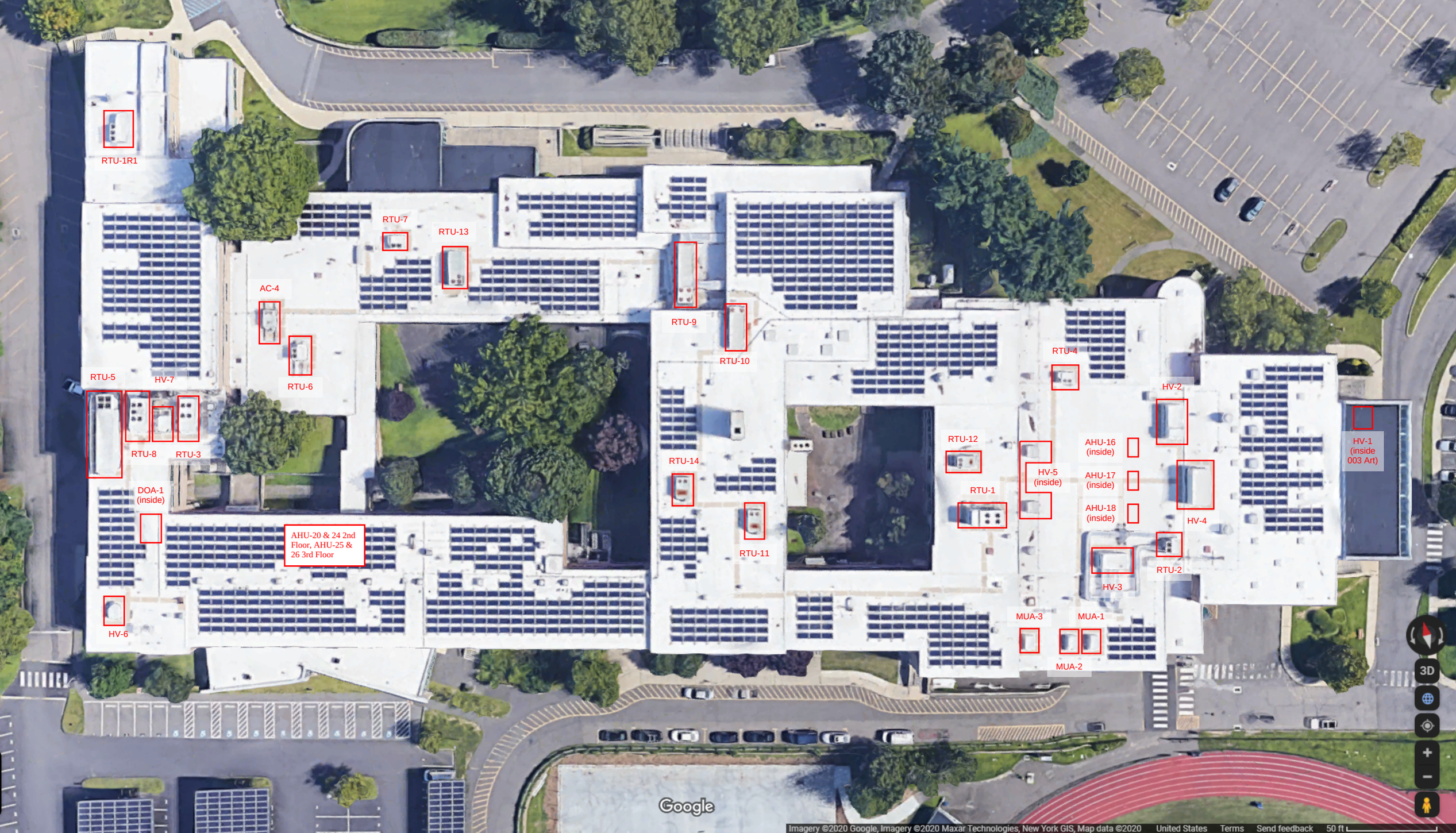
Zone Identification									IMC 2015 Ventilation Calculations													
Floor	Room#	Room Name	Occupancy Classification	Category	Infiltration 1 = Y 0 = N	Zone Area, Az, per space (sq.ft)	Ceiling Height (ft)	Volume, per space (cu.ft)	Zone Population, Pz, per space Adult	People OA Rate in Breathing Zone, Rp (cfm/ person)	Area OA Rate in Breathing Zone, Ra (cfm/sf)	Default Occupant Density (#/1000sf)	Breathing Zone OA Vbz=RpPz + RaAz (cfm)	Table 6-2 Zone Air Distribution Effectiveness Ez	Zone OA Flor, Voz (cfm)	LEED EQ c2 (30% more than 62.1-2007) Zone OA Flow, Voz (cfm)	Make-Up Air (cfm)	Min. Ventilation Airflow (cfm)	ACTUAL VENTILATION AIR FLOW (cfm)	Excess Ventilation Air (cfm)	IMC CFM/PERSON PASS/FAIL	Ventilation ACH (AC/hr)	CO2 DCV Pass Option
2	293	Green Room	Education	Music/theater/dance	0	401	8.5	3409	4	10.0	0.06	35	64	1	64	90		64		-64	Fails	0.000	Meets
2	283A	Dressing	Education	Music/theater/dance	0	115	8.5	978	2	10.0	0.06	35	27	1	27	40		27		-27	Fails	0.000	
2	293B	Storage	Storage	Warehouses	0	58	8.5	493		0.0	0.06	0	3	1	3	10		3		-3	Fails	0.000	
2	293C	Storage	Storage	Warehouses	0	63	8.5	536		0.0	0.06	0	4	1	4	10		4		-4	Fails	0.000	
2	280D	Control Room	Workrooms	Copy, printing rooms	0			0		5.0	0.06	4	0	1	0	0		0		0	Meets		
3	301	Classroom	Education	Classroom (ages 9+)	0	778	8.5	6613	26	10.0	0.12	35	353	1	353	460		353		-353	Fails	0.000	Meets
3	302	Classroom	Education	Classroom (ages 9+)	0	756	8.5	6426	26	10.0	0.12	35	351	1	351	460		351		-351	Fails	0.000	Meets
3	303	Computer Lab	Education	Computer lab	0	1260	8.5	10710	28	10.0	0.12	25	431	1	431	570		431		-431	Fails	0.000	Meets
3	304	Prep/Server	Workrooms	Copy, printing rooms	0	25	8	200	2	5.0	0.06	4	12	1	12	20		12		-12	Fails	0.000	
3	305	Computer Lab	Education	Computer lab	0	893	8	7144	25	10.0	0.12	25	357	1	357	470		357		-357	Fails	0.000	Meets
3	306	Storage	Storage	Warehouses	0	208	8.5	1768	4	0.0	0.06	0	12	1	12	20		12		-12	Fails	0.000	
3	307	Women	Public Spaces	Toilet rooms - public	0			0		0.0	0.00	0	0	1	0	0		0		0	Meets		
3	308	Men	Public Spaces	Toilet rooms - public	0			0		0.0	0.00	0	0	1	0	0		0		0	Meets		
3	309	Custodian	Offices	Office spaces	0			0		5.0	0.06	5	0	1	0	0		0		0	Meets		
3	310	Storage	Storage	Warehouses	0	42	8.6	361	1	0.0	0.06	0	3	1	3	10		3		-3	Fails	0.000	Meets
3	311	Storage	Storage	Warehouses	0	185	8.6	1591	1	0.0	0.06	0	11	1	11	20		11		-11	Fails	0.000	Meets
3	312	Science Classroom	Education	Science Laboratories	0	1797	8.6	15454	26	10.0	0.18	25	583	1	583	760		583		-583	Fails	0.000	Meets
3	313	Science Classroom	Education	Science Laboratories	0	1300	8.6	11180	26	10.0	0.18	25	494	1	494	650		494		-494	Fails	0.000	Meets
3	314	Classroom	Education	Classroom (ages 9+)	0	657	8.6	5650	26	10.0	0.12	35	339	1	339	450		339		-339	Fails	0.000	Meets
3	315	Classroom	Education	Classroom (ages 9+)	0	722	8.6	6209	25	10.0	0.12	35	337	1	337	440		337		-337	Fails	0.000	Meets
3	316	Classroom	Education	Classroom (ages 9+)	0	754	8.6	6484	26	10.0	0.12	35	350	1	350	460		350		-350	Fails	0.000	Meets
3	317	Classroom	Education	Classroom (ages 9+)	0	630	8.6	5418	26	10.0	0.12	35	336	1	336	440		336		-336	Fails	0.000	Meets
3	318	Classroom	Education	Classroom (ages 9+)	0	654	8.6	5624	26	10.0	0.12	35	338	1	338	450		338		-338	Fails	0.000	Meets
3	319	Classroom	Education	Classroom (ages 9+)	0	639	8.6	5495	26	10.0	0.12	35	337	1	337	440		337		-337	Fails	0.000	Meets
3	320	Classroom	Education	Classroom (ages 9+)	0	616	8.25	5082	26	10.0	0.12	35	334	1	334	440		334		-334	Fails	0.000	Meets
3	321	Classroom	Education	Classroom (ages 9+)	0	618	8.25	5099	26	10.0	0.12	35	334	1	334	440		334		-334	Fails	0.000	Meets
3	322	Classroom	Education	Classroom (ages 9+)	0	662	8.6	5693	26	10.0	0.12	35	339	1	339	450		339		-339	Fails	0.000	Meets
3	323	Classroom	Education	Classroom (ages 9+)	0	651	8.6	5599	26	10.0	0.12	35	338	1	338	440		338		-338	Fails	0.000	Meets
3	324	Classroom	Education	Classroom (ages 9+)	0	539	8.6	4635	26	10.0	0.12	35	325	1	325	430		325		-325	Fails	0.000	Meets
3	325	Classroom	Education	Classroom (ages 9+)	0	632	8.6	5435	26	10.0	0.12	35	336	1	336	440		336		-336	Fails	0.000	Meets
3	326	Classroom	Education	Classroom (ages 9+)	0	623	8.6	5358	26	10.0	0.12	35	335	1	335	440		335		-335	Fails	0.000	Meets
3	327	Classroom	Education	Classroom (ages 9+)	0	810	8.6	6966	26	10.0	0.12	35	357	1	357	470		357		-357	Fails	0.000	Meets
3	328	Classroom	Education	Classroom (ages 9+)	0	618	8.6	5315	26	10.0	0.12	35	334	1	334	440		334		-334	Fails	0.000	Meets
3	329	Classroom	Education	Classroom (ages 9+)	0	665	8.6	5719	26	10.0	0.12	35	340	1	340	450		340		-340	Fails	0.000	Meets
3	330	Elec/Server	Storage	Warehouses	0	284	8.5	2414	1	0.0	0.06	0	17	1	17	30		17		-17	Fails	0.000	
3	331	Marine Biology	Education	Classroom (ages 9+)	0	1010	8.5	8585	26	10.0	0.12	35	381	1	381	500		381		-381	Fails	0.000	Meets
3	331A	Prep	Education	Science Laboratories	0	166	8.5	1411	2	10.0	0.18	25	50	1	50	70		50		-50	Fails	0.000	
3	333	Classroom	Education	Classroom (ages 9+)	0	1035	8.25	8539	26	10.0	0.12	35	384	1	384	500		384		-384	Fails	0.000	Meets
3	334	Girls	Public Spaces	Toilet rooms - public	0			0		0.0	0.00	0	0	1	0	0		0		0	Meets		
3	334	Boys	Public Spaces	Toilet rooms - public	0			0		0.0	0.00	0	0	1	0	0		0		0	Meets		
3	338	Guidance	Offices	Office spaces	0	272	7.6	2067	4	5.0	0.06	5	36	1	36	50		36		-36	Fails	0.000	Meets
3	338A	Office	Offices	Office spaces	0	106	7.6	806	3	5.0	0.06	5	21	1	21	30		21		-21	Fails	0.000	Meets
3	338B	Office	Offices	Office spaces	0	121	8.25	998	3	5.0	0.06	5	22	1	22	30		22		-22	Fails	0.000	Meets
3	338C	Office	Offices	Office spaces	0	130	8.25	1073	3	5.0	0.06	5	23	1	23	30		23		-23	Fails	0.000	Meets
3	339	Custodian	Offices	Office spaces	0			0		5.0	0.06	5	0	1	0	0		0		0	Meets		
3	340	Toilet	Public Spaces	Toilet rooms - public	0			0		0.0	0.00	0	0	1	0	0		0		0	Meets		
3	341	Storage	Storage	Warehouses	0			0		0.0	0.06	0	0	1	0	0		0		0	Meets		
3	342	House Office	Offices	Office spaces	0	636	8	5088	2	5.0	0.06	5	48	1	48	70		48		-48	Fails	0.000	Meets
3	342A	Conference	Offices	Conference rooms	0	255	8	2040	10	5.0	0.06	50	65	1	65	90		65		-65	Fails	0.000	Meets
3	342B	Storage	Storage	Warehouses	0	159	8	1272	3	0.0	0.06	0	10	1	10	20		10		-10	Fails	0.000	
3	342C	Housemaster	Offices	Office spaces	0	300	8	2400	3	5.0	0.06	5	33	1	33	50		33		-33	Fails	0.000	Meets
3	342D	Dean	Offices	Office spaces	0	354	9	3186	4	5.0	0.06	5	41	1	41	60		41		-41	Fails	0.000	Meets
3	342E	Mail Room	Offices	Telephone/data entry	0	122	9	1098	3	5.0	0.06	60	22	1	22	30		22		-22	Fails	0.000	Meets
3	342F	Storage	Storage	Warehouses	0	36	9	324	0	0.0	0.06	0	2	1	2	10		2		-2	Fails	0.000	
3	343	Faculty Lounge	Offices	Office spaces	0	536	9	4824	21	5.0	0.06	5	137	1	137	180		137		-137	Fails	0.000	Meets

Project Name	**Fairfield Public Schools RCx**	Fairfield Ludlowe High School
Project Numb	*2020102.00*	
Scope	**Ventilation Calculation by Building**	
Date	**January 24, 2024**	

VANZELM ENGINEERS

Zone Identification									IMC 2015 Ventilation Calculations													
Floor	Room#	Room Name	Occupancy Classification	Category	Infiltration 1 = Y 0 = N	Zone Area, Az, per space (sq.ft)	Ceiling Height (ft)	Volume, per space (cu.ft)	Zone Population, Pz, per space Adult	People OA Rate in Breathing Zone, Rp (cfm/ person)	Area OA Rate in Breathing Zone, Ra (cfm/sf)	Default Occupant Density (#/1000sf)	Breathing Zone OA Vbz=RpPz + RaAz (cfm)	Table 6-2 Zone Air Distribution Effectiveness Ez	Zone OA Flor, Voz (cfm)	LEED EQ c2 (30% more than 62.1-2007) Zone OA Flow, Voz (cfm)	Make-Up Air (cfm)	Min. Ventilation Airflow (cfm)	ACTUAL VENTILATION AIR FLOW (cfm)	Excess Ventilation Air (cfm)	IMC CFM/PERSON PASS/FAIL	Ventilation ACH (AC/hr)	CO2 DCV Pass Option
3	344	Computer Lab	Education	Computer lab	0	1094	9	9846	27	10.0	0.12	25	401	1	401	530		**401**		-401	**Fails**	**0.000**	**Meets**
3	345	Science Classroom	Education	Science Laboratories	0	1368	9	12312	26	10.0	0.18	25	506	1	506	660		**506**		-506	**Fails**	**0.000**	**Meets**
3	345A	Prep	Education	Science Laboratories	0	169	9	1521	2	10.0	0.18	25	50	1	50	70		**50**		-50	**Fails**	**0.000**	
3	347	Science Classroom	Education	Science Laboratories	0	12168	9	109512	26	10.0	0.18	25	2450	1	2450	3190		**2450**		-2450	**Fails**	**0.000**	**Meets**
3	348	Prep	Education	Science Laboratories	0	238	9	2142	2	10.0	0.18	25	63	1	63	90		**63**		-63	**Fails**	**0.000**	
3	349	Biology	Education	Science Laboratories	0	1324	9	11916	26	10.0	0.18	25	498	1	498	650		**498**		-498	**Fails**	**0.000**	**Meets**
3	350	Science Classroom	Education	Science Laboratories	0	1357	9	12213	26	10.0	0.18	25	504	1	504	660		**504**		-504	**Fails**	**0.000**	**Meets**
3	351	Prep	Education	Science Laboratories	0	255	10	2550	2	10.0	0.18	25	66	1	66	90		**66**		-66	**Fails**	**0.000**	
3	352	Science Classroom	Education	Science Laboratories	0	1290	10	12900	26	10.0	0.18	25	492	1	492	640		**492**		-492	**Fails**	**0.000**	**Meets**
3	353	Girls	Public Spaces	Toilet rooms - public	0			0		0.0	0.00	0	0	1	0	0		**0**		0	**Meets**		
3	354	Boys	Public Spaces	Toilet rooms - public	0			0		0.0	0.00	0	0	1	0	0		**0**		0	**Meets**		
3	355	Book St	Storage	Warehouses	0	312	7.5	2340	5	0.0	0.06	0	19	1	19	30		**19**		-19	**Fails**	**0.000**	
3	356	Office	Offices	Office spaces	0	132	9	1188	4	5.0	0.06	5	28	1	28	40		**28**		-28	**Fails**	**0.000**	**Meets**
3	356A	Office	Offices	Office spaces	0	260	9	2340	3	5.0	0.06	5	31	1	31	40		**31**		-31	**Fails**	**0.000**	**Meets**
3	357	Classroom	Education	Classroom (ages 9+)	0	568	9	5112	26	10.0	0.12	35	328	1	328	430		**328**		-328	**Fails**	**0.000**	**Meets**
3	358	Classroom	Education	Classroom (ages 9+)	0	531	9.25	4912	26	10.0	0.12	35	324	1	324	430		**324**		-324	**Fails**	**0.000**	**Meets**
3	359	Classroom	Education	Classroom (ages 9+)	0	597	9.5	5672	26	10.0	0.12	35	332	1	332	440		**332**		-332	**Fails**	**0.000**	**Meets**
3	360	Career Center	Education	Classroom (ages 9+)	0	1060	9	9540	26	10.0	0.12	35	387	1	387	510		**387**		-387	**Fails**	**0.000**	**Meets**
3	360A	Storage	Storage	Warehouses	0	40	8.5	340	1	0.0	0.06	0	2	1	2	10		**2**		-2	**Fails**	**0.000**	
3	360B	Storage	Storage	Warehouses	0	108	8.5	918	1	0.0	0.06	0	6	1	6	10		**6**		-6	**Fails**	**0.000**	
3	361	Textile Lab	Education	Classroom (ages 9+)	0	1343	8.5	11416	28	10.0	0.12	35	441	1	441	580		**441**		-441	**Fails**	**0.000**	**Meets**
3	361	Storage	Storage	Warehouses	0			0		0.0	0.06	0	0	1	0	0		**0**		0	**Meets**		
3	361B	Storage	Storage	Warehouses	0			0		0.0	0.06	0	0	1	0	0		**0**		0	**Meets**		
3	362	Men	Public Spaces	Toilet rooms - public	0			0		0.0	0.00	0	0	1	0	0		**0**		0	**Meets**		
3	364	Women	Public Spaces	Toilet rooms - public	0			0		0.0	0.00	0	0	1	0	0		**0**		0	**Meets**		
3	366	Toilet	Public Spaces	Toilet rooms - public	0			0		0.0	0.00	0	0	1	0	0		**0**		0	**Meets**		
3	367	Toilet	Public Spaces	Toilet rooms - public	0			0		0.0	0.00	0	0	1	0	0		**0**		0	**Meets**		
3	368	Classroom	Education	Classroom (ages 9+)	0	326	8.75	2853	26	10.0	0.12	35	299	1	299	390		**299**		-299	**Fails**	**0.000**	**Meets**
3	369	Classroom	Education	Classroom (ages 9+)	0	265	8.75	2319	26	10.0	0.12	35	292	1	292	380		**292**		-292	**Fails**	**0.000**	**Meets**
3	370	Classroom	Education	Classroom (ages 9+)	0	237	8.75	2074	26	10.0	0.12	35	288	1	288	380		**288**		-288	**Fails**	**0.000**	**Meets**
3	381	Chem Lab	Education	Science Laboratories	0	1323	8	10584	26	10.0	0.18	25	498	1	498	650		**498**		-498	**Fails**	**0.000**	**Meets**
3	381A	Prep	Education	Science Laboratories	0	288	8	2304	2	10.0	0.18	25	72	1	72	100		**72**		-72	**Fails**	**0.000**	

APPENDIX 3 – Roof Map


RTU-1R1
RTU-7
RTU-13
AC-4
RTU-9
RTU-10
RTU-4
RTU-5
HV-7
RTU-6
HV-2
RTU-12
AHU-16 (inside)
HV-1 (inside 003 Art)
RTU-14
HV-5 (inside)
AHU-17 (inside)
RTU-8
RTU-3
RTU-1
AHU-18 (inside)
DOA-1 (inside)
HV-4
AHU-20 & 24 2nd Floor, AHU-25 & 26 3rd Floor
RTU-11
RTU-2
HV-3
MUA-3
MUA-1
HV-6
MUA-2
Google
Imagery ©2020 Google, Imagery ©2020 Maxar Technologies, New York GIS, Map data ©2020
United States
Terms
Send feedback
50 ft
3D

APPENDIX 4 – TAB Airflow Survey Data

WING'S TESTING & BALANCING CO., INC.

Fairfield Public Schools

Ludlowe High School

* * * *

VanZelm, Heywood & Shadford, Inc.
Attn: Bill Donald
10 Talcott Notch Road
Farmington, CT 06032

October 16, 2023

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.

October 16, 2023

VanZelm, Heywood & Shadford, Inc.
Attn: Bill Donald
10 Talcott Notch Road
Farmington, CT 06032

Re: Ludlowe High School

Dear Bill,

Initial testing and balancing for the above-referenced project has been completed. A full and final balance was unable to be completed due to numerous mechanical and control issues. The following pages are a summary of individual systems' performance.

RTUs

- RTU-1: System was unable to be balanced as the fan VFD's have failed.
- RTU-1-R1: All VAVs have been calibrated and balanced as noted. Supply fan currently handles 88% of the total connected load. Supply fan was unable to exceed 51Hz.
- RTU-2: All VAVs have been calibrated and balanced as noted. Supply fan currently handles 89% of the total connected load.
- RTU-3: All VAVs have been calibrated and balanced as noted. Scaling for VAV 3 needs to be corrected. Supply fan was unable to achieve SP setpoint as fans/VFDs did not function properly (One fan running backwards and short cycling air). Testing could not be completed.
- RTU-4: System is CV and currently performing within +/-5% of design.
- AC-4: All VAVs have been calibrated and set for constant volume as fan has no SP control. The system was sped up and currently handles 81% of the total connected load.
- RTU-5: All Vavs have been calibrated and balanced except VAV 08. VAV 08 was unable to be calibrated and requires troubleshooting. The fan is currently performing to within +/-10% of design.
- RTU-6 + 7: Both systems are performing to within +/-10% of design with VAVs calibrated and balanced as noted.
- RTU-8: All VAVs have been calibrated and balanced as noted. The fan currently handles 83% of the total connected load. The supply fans were unable to exceed 50Hz before tripping.

- RTU-9: The supply fan was only handling 73% of design. The fan/motor bearings made excessive noise. The return fan did not run. No adjustments were made.
- RTU-10: The system did not run and was not tested.
- RTU-11,12,13: Systems are all constant volume and performing to within +/-10% of design with distribution balanced as noted. A damper linkage on RTU-12 was broken, and the damper for RTU-13 has no controls. Neither were able to be set.
- RTU-14: The system is constant volume and performing at 82% of design with distribution balanced as noted. The system was not sped up as only a 2% speed increase was available based on amperage.

HV Units

- HV-1: The system is direct drive and currently performing at 84% of design. ECM fan motors were unable to be adjusted at this time and require further troubleshooting. Associated EF required preventive maintenance.
- HV-2: Supply is currently handling 92% of design with distribution balanced as noted. Fan speeds were unable to be increased beyond 75%. Exhaust is currently handling 93% of design with distribution balanced as noted.
- HV-3: Supply is currently handling 97% of design with Min OA at 76% of the total. Only the orchestra space is served by return air as the lower-level shops are equipped with exhaust only.
- HV-4: The system is a recirculating unit that was operating under 100% OA condition when tested. The system sequence of operations and min OA requirements are unknown. The fan is currently handling design airflow.
- HV-5-5N/5S: Mixing dampers and actuators were never repaired due to a lack of access. Systems were not tested.
- HV-6: The unit is 100% OA and currently performing at 98% of design.
- HV-7: The system was performing at 130% of design. The unit was slowed down but not retested and balanced as ductwork required repair (Open-ended flex above ceiling).

AHUs

- AHU-16: The system is performing above design and is unable to be adjusted. Fan needs to have shaft bearings replaced.
- AHU-17: The system is performing at 105% of design. Min OA was unable to be set as the associated EF was not running and OA was being drawn in through the exhaust ductwork.

AHUs (cont.)

- AHU-18: The system was tested and found to be operating well above design. Testing and balancing was put on hold, as the area served was being expanded.
- AHU-20: System would not operate and was unable to be tested.
- AHU-25 + 26: Systems are currently performing within 10% of design but is noisy due to ductwork configuration. No adjustments were made.

UV'S

- UV-1: Unit is performing above design.
- UV-2 + 3: Units tested below design.
- UV-4: Unit did not run. Requires troubleshooting.

Wall Mounted UV +FC'S

- All UVs and FCs tested were set to high. All tested below design.
- Filters were observed to be dirty.
- Mixing damper operation was unable to be verified.

DOA'S

- DOA-1: Serves the Cafeteria area. The system was set up for the current total connected load. The additional load of the kitchen area was never added. Cafeteria distribution was unable to be proportionately balanced due to ductwork issues.
- DOA-2 +3: These are small energy recovery units that were designed to temper OA to the cassette units in the Teachers Workroom and Lounge. The units were unable to be balanced due to design issues. The distribution design for the DOA's far exceeds the capacity of the cassette units. This is evident by the low flow/high SP of the VPT's. We recommend reducting to normal diffusers and balancing.

Exhaust Systems

- No current/concise list of systems and what they serve was ever provided.
- We started by testing the kitchen hood exhaust systems serving the Kitchen Lab 142, restaurant, and main Cafeteria kitchen.
    - KX-1 serving Lab 142 tested at 90% of design. The sequence of operations for the space with respect to HV-7 should be reviewed.
    - KX-2 serving the restaurant tested above design. We do not recommend adjusting. The dishwasher exhaust did not run at the time of testing. Controls need troubleshooting.

- KEF-1 that serves the cafeteria exhaust hood was tested. Fan tested low but was unable to be adjusted.

- We proceeded to test toilet exhaust systems, lab exhaust systems, and then general exhaust systems that we were able to identify.
  - Distribution was balanced as noted in the attached data sheets.
  - Numerous systems were unable to be identified, found deficient, require maintenance and repair, or were not running.
    - Extensive troubleshooting is required to complete.
- Fume hoods in Rooms 211 and 213 tested above design. The hood in Room 214 did not operate.

MUA Systems

- MUA 1 + 2 both tested above design.
- MUA-3 serving Room 214 did not run.

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

Wing's Testing & Balancing Co., Inc.
ICB Certified Contractor for:
TABB—Commissioning—Fire/Life Safety L1&L2—Sound & Vibration

John Flanagan
Certified TABB Supervisor TB950107S
CT SM-2 License #771
MA Sheetmetal Journeyperson License #6913
TABB Sound & Vibration Supervisor SV060109S
Indoor Air Quality Technician IAQ950107T
HVAC Fire Life Safety Level 1 Tech FLS1950107T
Fume Hood Performance Testing Tech FHP950107T

SUPPLY FAN REPORT

PROJECT: Fairfield Ludlowe High School		**DATE:**	7/11/23
AREA SERVED: 2nd & 3rd Floor Science Rooms		**TECH:**	DD

FAN DATA

FAN NUMBER	AH-20 (1)		AH-24 (2)		AH-25 (3)	
LOCATION	Prep Room Ceiling		Prep Room Ceiling		Prep Room Ceiling	
AREA SERVED	Lab 237		Lab 235		Lab 333	
MANUFACTURER	Trane		Trane		Trane	
MODEL OR SIZE	MCCA003GAT0ABA		MCCA003GAT0ABA		MCCA003GAT0ABA	
	DESIGN	ACTUAL	DESIGN	ACTUAL	DESIGN	ACTUAL
TOTAL CFM	1700	0	1700	1515	1700	1833
RETURN AIR	1450	0	1450	1053	1520	1253
OUTSIDE AIR	250	0	250	462 (4)	180	580 (4)
DISCH. STATIC	---	---	---	-.02 (5)	---	-.01" (5)
SUCTION STATIC	---	---	---	-.56"	---	-.57"
TOTAL STATIC	N/D	---	N/D	---	N/D	---
FAN RPM	N/D	---	N/D	---	N/D	---
PULLEY O.D.	4 7/16" x 1 3/16"		4 7/16" x 1 3/16"		4 7/16" x 1 3/16"	
ESP	N/D		N/D		N/D	
VFD SPEED	---		---		---	
O.A.D.MIN POS	---		---		---	

MOTOR DATA

MANUFACTURER		Magnetek		Magnetek		Magnetek	
MODEL OR FR.		P145T		P145T		P145T	
HORSEPOWER		1.5	1.5	1.5	1.5	1.5	1.5
MOTOR RPM		1745	1745	1745	1745	1745	1752
VOLTAGE / PH.		200/3	N/A	200/3	200/3	200/3	200/3
AMPS	LEG 1	4.5	N/A		3.1	4.5	3.4
	LEG 2	---	N/A	---	3.2	---	3.6
	LEG 3	---	N/A	---	3.0	---	3.6
SHEAVE O.D.		1 VP 3 3/4" x 7/8"		1 VP 3 3/4" x 7/8"		3 3/4" x 7/8"	
BELTS - QUANTITY / SIZE		1/4L430		1/4L430		1/4L430	
SHEAVE POSITION		80% Closed		70% Closed		100% Closed	
C to C		15 3/4"		16 3/4"		16"	

REMARKS

(1) Will not turn on.
(2) Dampers do not stroke correctly, OA damper 10%, return 50%.
(3) O.A. damper does not close 100% when commanded. Could not reduce further.
(4) Calculated
(5) Discharge SP is unreliable

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

SUPPLY FAN REPORT

PROJECT: Fairfield Ludlowe High School	**DATE:** 7/11/23
AREA SERVED: 3rd Floor Science Room	**TECH:** DD

FAN DATA

FAN NUMBER	AH-26					
LOCATION	Prep Room Ceiling					
AREA SERVED	LAB 331					
MANUFACTURER	Trane					
MODEL OR SIZE	MCCA003GAT0ABA					
	DESIGN	**ACTUAL**	**DESIGN**	**ACTUAL**	**DESIGN**	**ACTUAL**
TOTAL CFM	1700	1374				
RETURN AIR	1520	1198				
OUTSIDE AIR	180	176				
DISCH. STATIC	---	-.06" (3)	---		---	
SUCTION STATIC	---	.96	---		---	
TOTAL STATIC	N/D	---				
FAN RPM	N/D	1530				
PULLEY O.D.	4 1/16" x 1 3/16"					
ESP	N/D					
VFD SPEED	---					
O.A.D.MIN POS	---					

MOTOR DATA

MANUFACTURER		Magnetek					
MODEL OR FR.		(1)					
HORSEPOWER			(1)				
MOTOR RPM		(1)	1744				
VOLTAGE / PH.		(1)	200/3				
AMPS	**LEG 1**		3.5				
	LEG 2	---	3.4	---		---	
	LEG 3	---	3.5	---		---	
SHEAVE O.D.		3 3/4" x 7/8"					
BELTS - QUANTITY / SIZE		1/4L430					
SHEAVE POSITION		100% Closed					
C to C		15 1/2"					

REMARKS

(1) No motor nameplate.
(2) Calculated
(3) Discharge SP is unreliable

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 7/11/23

SYSTEM / AREA: Unit Ventilator / 2nd Floor Science Rooms | **TECH:** DD

LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
AH-20 Supply										
Lab 237	1	36" x 10"	1.875	907	1700	---	0	---	0	(1)
AH-20 Return										
Lab 237	R1	20" x 20"	FH	---	N/D	---	0	---	0	
Min O.A.					250					
AH-24 Supply										
Lab 235	1	36" x 10"	FH	---	1700	---	1545	---	1515	
AH-24 Return										
Lab 235	R1	20" x 20"	FH	---	N/D	---	1014	---	1053	
Min O.A.					250		531		462	
AH-25 Supply										
Spec Ed 333	1	36" x 10"	FH	---	1700	---	1829	---	1833	
AH-25 Return										
Spec Ed 333	R1	20" x 20"	FH	---	1520	---	862	---	1253	
Min O.A.					180		967		580	
AH-26 Supply										
Marine Bio 331	1	36" x 10"	1.875	907	1700	850	1594	733	1374	
Prep 330	2	---	---	---	125	---	---	---	---	(2)
AH-26 Return										
Marine Bio 331	R1	16" x 10"	1.11	---	N/D	956	1061	1079	1198	
Min O.A.					250		533		176	

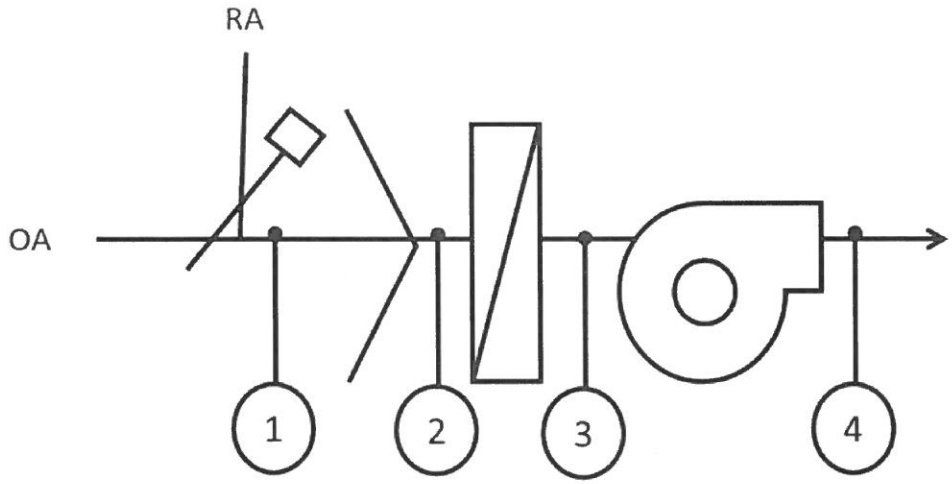
REMARKS

(1) Unit did not turn on
(2) Not installed

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

SYSTEM STATIC PRESSURE PROFILE

PROJECT: Ludlowe High School - Fairfield, CT	**DATE:**	8/25/23
SYSTEM/AREA SERV: AH-20, 24, 25 + 26	**TECH:**	DD



STATIC PRESSURE READINGS "wc

POS. (+) / NEG.(-)	1	2	3	4 (1)	5	6	7	NOTES
AH-24	-.19"	-.36"	-.56"	-.02"				
AH-25	-.15"	.28"	-.57"	.01				
AH-26	-.63"	-.79"	-.96"	-.06"				
AH-20	---	---	---	---				

REMARKS

(1) SP reading is unreliable

SUPPLY FAN REPORT

PROJECT: Fairfield Ludlowe High School		**DATE:**	8/24/223
AREA SERVED: 1st Floor		**TECH:**	JF, DD

FAN DATA

FAN NUMBER	AHU-16 (2)					
LOCATION	L.L. MER 043					
AREA SERVED	1st Floor Music					
MANUFACTURER	Trane					
MODEL OR SIZE	MCCA006GAT					
	DESIGN	**ACTUAL**	**DESIGN**	**ACTUAL**	**DESIGN**	**ACTUAL**
TOTAL CFM	1840	2633				
RETURN AIR	1440					
OUTSIDE AIR	400					
DISCH. STATIC	---					
SUCTION STATIC	---					
TOTAL STATIC	N/D					
FAN RPM	N/D	1248				
PULLEY O.D.	5 1/4" x 1"					
ESP	---					
VFD SPEED	---					
O.A.D.MIN POS	---					

MOTOR DATA

MANUFACTURER		Magnetek					
MODEL OR FR.		P145T					
HORSEPOWER		2.0	2.0				
MOTOR RPM		1745	1745				
VOLTAGE / PH.		200/3	208/3				
AMPS	**LEG 1**	5.98					
	LEG 2	---					
	LEG 3	---					
SHEAVE O.D.		1 VP 3 1/4" x 7/8"					
BELTS - QUANTITY / SIZE		1/4L490R					
SHEAVE POSITION		100% Open					
C to C		17 1/2"					

REMARKS

(1) Unit has a bad fan bearing that requires repair before balancing.

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 6/15/23

SYSTEM / AREA: AHU-16 / 1st Floor Music Rooms | **TECH:** DD

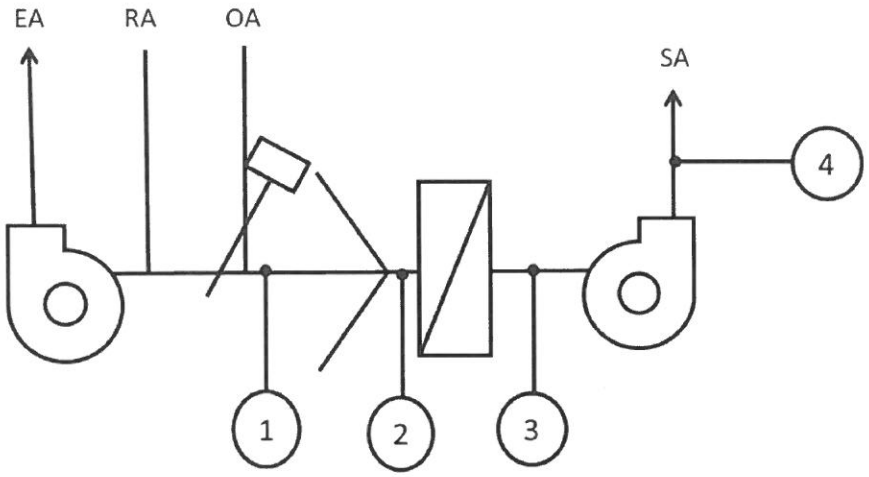
LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
AHU-16 Supply										
110 Practice	1	2408	FH	---	150	---	207	---	217	
108 Practice	2	2408	FH	---	150	---	242	---	218	
109 Resource	3	2408	FH	---	195	---	281	---	275	
109 Resource	4	2408	FH	---	195	---	282	---	286	
111 Practice	5	2408	FH	---	250	---	324	---	340	
112 Keyboard	6	2408	FH	---	175	---	256	---	247	
112 Keyboard	7	2408	FH	---	175	---	242	---	267	
112 Keyboard	8	2408	FH	---	175	---	265	---	271	
112 Keyboard	9	2408	FH	---	175	---	225	---	229	
112A Control Rm	10	2408	FH	---	200	---	284	---	283	
					1840		2608		2633	

REMARKS

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

SYSTEM STATIC PRESSURE PROFILE

PROJECT: Ludlowe High School - Fairfield, CT	**DATE:** 8/24/23
SYSTEM/AREA SERV: AHU-16	**TECH:** JF



STATIC PRESSURE READINGS "wc

POS. (+) / NEG.(-)	1	2	3	4	5	6	7	NOTES
AHU-16								

REMARKS

SUPPLY FAN REPORT

PROJECT: Fairfield Ludlowe High School		**DATE:**	8/24/223
AREA SERVED:		**TECH:**	JF, DD

FAN DATA

FAN NUMBER	AHU-17 (1)					
LOCATION	L.L. MER 043					
AREA SERVED	Band Rm 107					
MANUFACTURER	Trane					
MODEL OR SIZE	MCAA008GAT					
	DESIGN	**ACTUAL**	**DESIGN**	**ACTUAL**	**DESIGN**	**ACTUAL**
TOTAL CFM	3825	4027				
RETURN AIR	3325	3030				
OUTSIDE AIR	500	997 (2)				
DISCH. STATIC	---					
SUCTION STATIC	---					
TOTAL STATIC	N/D					
FAN RPM	N/D	967				
PULLEY O.D.	7" x 1"					
ESP						
VFD SPEED						
O.A.D.MIN POS						

MOTOR DATA

MANUFACTURER		Magnetek					
MODEL OR FR.		S182T					
HORSEPOWER		3	3				
MOTOR RPM		1745	1745				
VOLTAGE / PH.		200/3	208/3				
AMPS	**LEG 1**	9	6.4				
	LEG 2	---	6.3				
	LEG 3	---	6.6				
SHEAVE O.D.		1 VP 4 3/4" x 1 1/8"					
BELTS - QUANTITY / SIZE		1/AX53					
SHEAVE POSITION		100% Open					
C to C		18 3/4"					

REMARKS

(1) Air leakage at coil access.

(2) O.A. is being introduced into system thru exhaust ductwork as associated EF is not running. Unable to

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 6/16/23

SYSTEM / AREA: AHU-17 / Band Rooom 107 | **TECH:** DD

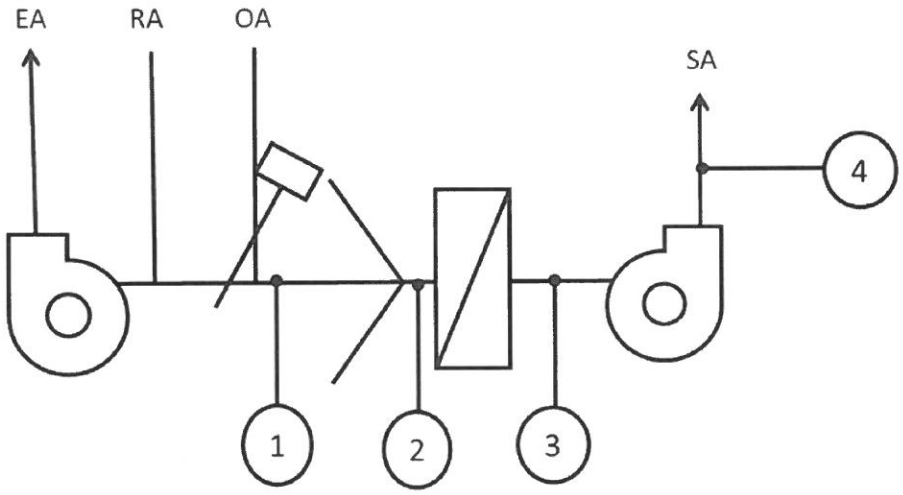
LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
AHU-17 Supply										
Band Storage	1	9" x9"	FH	---	175	---	162	---	143	(3)
Band Office	2	8" x 8"	FH	---	150	---	107	---	203	(3)
Band 107	3	24" x 10"	FH	---	750	---	1195	---	665	(4,5)
Band 107	4	24" x 10"	FH	---	750	---	1406	---	723	(1,5)
Band 107	5	24" x 10"	FH	---	750	---	1223	---	980	(2,5)
Band 107	6	24" x 10"	FH	---	750	---	617	---	797	(1,5)
Corridor	7	12" x 12"	FH	---	250	---	222	---	203	(3)
Corridor	8	12" x 12"	FH	---	250	---	244	---	313	
					3825		5176		4027	
AHU-17 Return										
Band Storage	R1	8" x 8"	FH	---	N/D	---	192			
Band Office	R2	8" x 8"	FH	---	100	---	178			
Band Room	R3	52" x8"	1.73	---	N/D	730	1263			
Band Room	R4	52" x8"	1.73	---	N/D	903	1562			
Band Room	R5	52" x8"	1.73	---	N/D	618	1069			
							4264			

REMARKS

(1) No VD throttle @ OBD.
(2) OBD is broken, could not reduce.
(3) VD open 100%.
94) OBD open 100%
(5) Diffusers are noisy.
N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

SYSTEM STATIC PRESSURE PROFILE

PROJECT: Ludlowe High School - Fairfield, CT	**DATE:** 8/24/23
SYSTEM/AREA SERV: AHU-17	**TECH:** JF



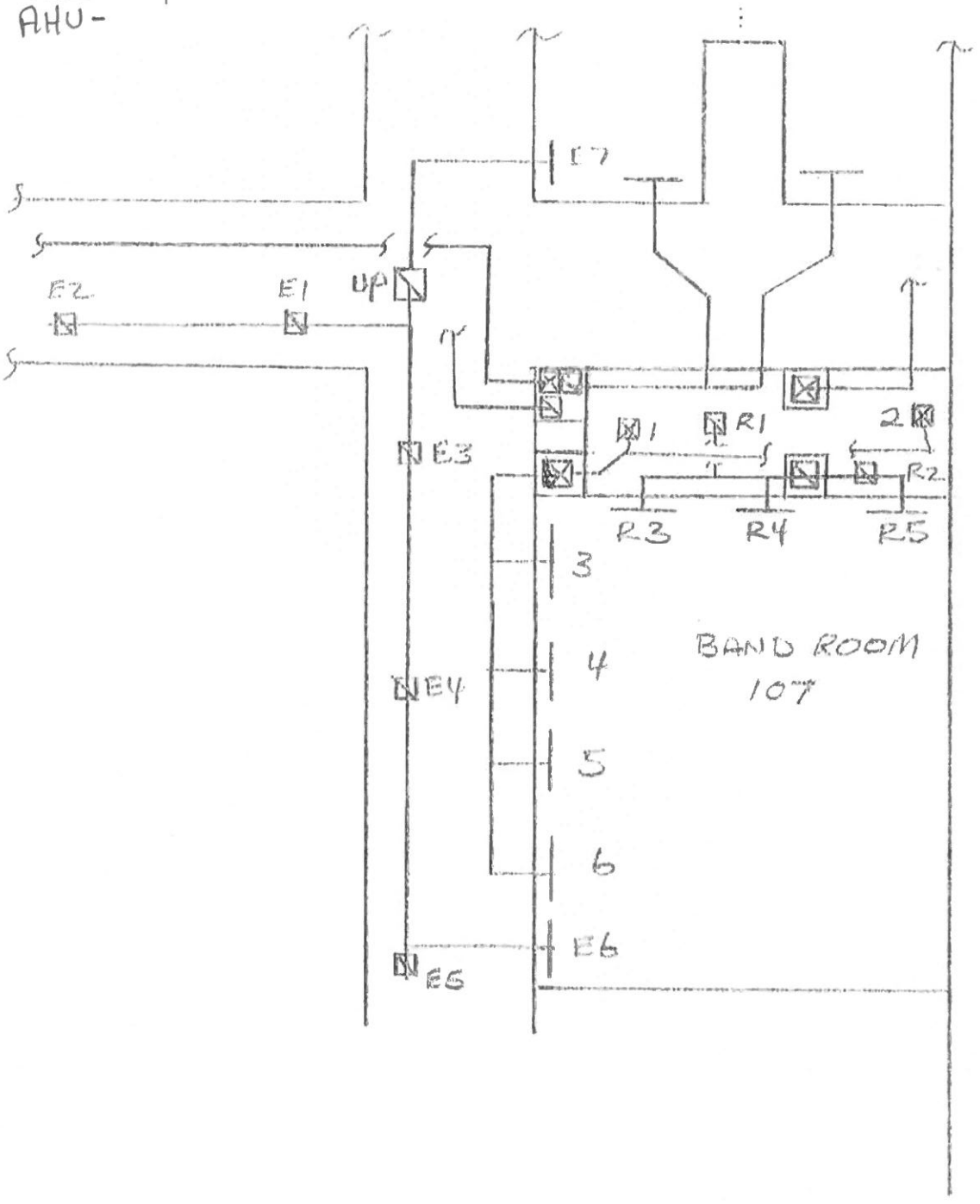
STATIC PRESSURE READINGS "wc

POS. (+) / NEG.(-)	1	2	3	4	5	6	7	NOTES
AHU-17	-.50"	-.69"	-.98"	+.17"				

REMARKS

WING'S
TESTING & BALANCING CO., INC.
94 No. Branford Rd., Branford, CT 06405
203-481-4988 Fax 203-488-5634

LUDLOWIE HIGH SCHOOL
BAND ROOM
EXG. RTU-17
AHU-



SUPPLY FAN REPORT

PROJECT: Fairfield Ludlowe High School		**DATE:**	8/24/223
AREA SERVED: 1st Floor		**TECH:**	JF, DD

FAN DATA

FAN NUMBER	AHU-18					
LOCATION	L.L. MER 043					
AREA SERVED	Choral Rm 115					
MANUFACTURER	Trane					
MODEL OR SIZE	MCCA01201AG					
	DESIGN	**ACTUAL**	**DESIGN**	**ACTUAL**	**DESIGN**	**ACTUAL**
TOTAL CFM	4150 (2)	7151				
RETURN AIR						
OUTSIDE AIR						
DISCH. STATIC	---					
SUCTION STATIC	---					
TOTAL STATIC	N/D					
FAN RPM	N/D	1176				
PULLEY O.D.	10 1/8" x 1 3/8"					
ESP	---					
VFD SPEED	---					
O.A.D.MIN POS	---					

MOTOR DATA

MANUFACTURER	Magnetek					
MODEL OR FR.	S213T					
HORSEPOWER	7.5	7.5				
MOTOR RPM	1745	1745				
VOLTAGE / PH.	200/3	208/3				
AMPS **LEG 1**	22.3					
AMPS **LEG 2**	---					
AMPS **LEG 3**	---					
SHEAVE O.D.	1 VP 7 7/8" x 1 3/8"					
BELTS - QUANTITY / SIZE	1/BX46					
SHEAVE POSITION	100% Closed					
C to C	12 1/4"					

REMARKS

(1) Area served is currently being expanded. Unable to complete.
(2) From original design (1995). Space and distribution have changed.

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 6/27/23

SYSTEM / AREA: AHU-18 / 1st Floor Chorus/Fitness | **TECH:** JF, DD

LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
AHU-18 Supply										
Office 114	1	12" x 12"	FH	---	250	---	181			
Corridor	2	24" x 12"	FH	---	N/D	---	1236			(1,2)
Chorus 115	3	32" x 16"	FH	---	1100	---	1603			(2)
Chorus 115	4	32" x 16"	FH	---	1100	---	1490			(2)
Corridor	5	24" x 12"	FH	---	N/D	---	609			
Fitness 116	6	32" x 16"	FH	---	600	---	1450			
Boys TLT 118	7	15" x 15"	FH	---	N/D	---	323			
Girls TLT 117	8	15" x 15"	FH	---	N/D	---	259			
					3050		7151			

REMARKS

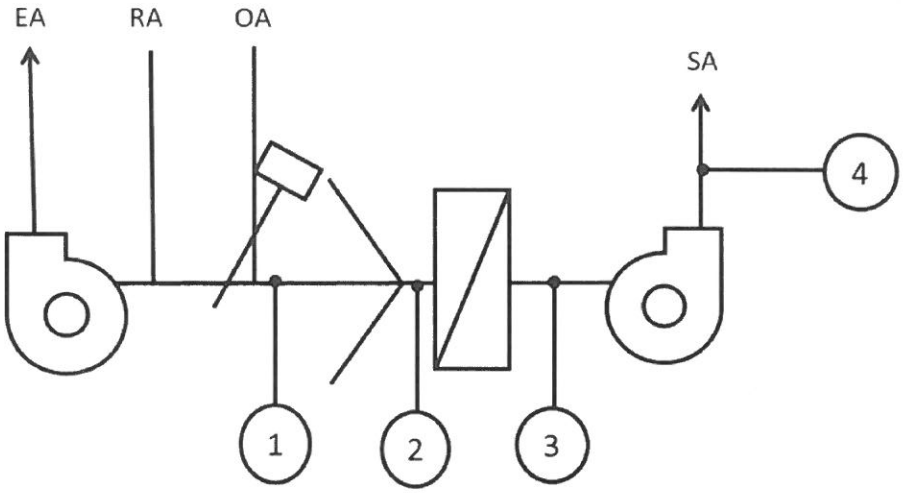
(1) Tapped off bottom of main supply, OBD only

(2) Register is noisy

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

SYSTEM STATIC PRESSURE PROFILE

PROJECT: Ludlowe High School - Fairfield, CT	**DATE:** 8/24/23
SYSTEM/AREA SERV: AHU-18	**TECH:** JF



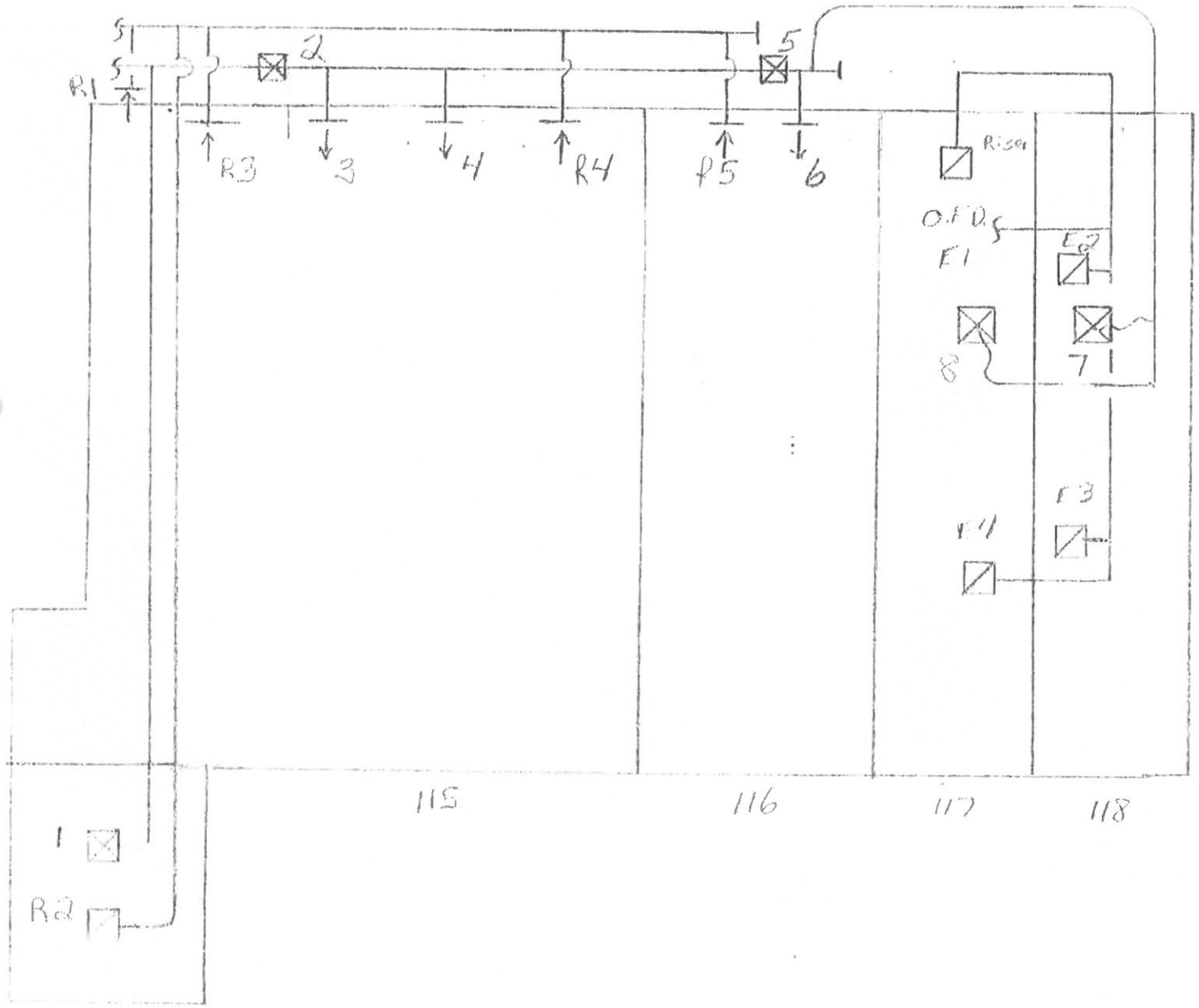
STATIC PRESSURE READINGS "wc

POS. (+) / NEG.(-)	1	2	3	4	5	6	7	NOTES
AHU-18								

REMARKS

WING'S
TESTING & BALANCING CO., INC.
94 No. Branford Rd., Branford, CT 06405
203-481-4988 Fax 203-488-5634

Fairfield Ludlowe H.S.
Exc. AHU-18



SUPPLY FAN REPORT

PROJECT: Fairfield Ludlowe High School		**DATE:**	7/28/23
AREA SERVED: Various		**TECH:**	JF, DD

FAN DATA

FAN NUMBER	DOA-1		DOA-2 (4)		DOA-3 (4)	
LOCATION	1st Floor MER		1st Floor		1st Floor	
AREA SERVED	Cafeteria		Teacher's Workroom		Teacher's Lounge	
MANUFACTURER	Daiken		Daiken		Daiken	
MODEL OR SIZE	(1)		LAH00002AVH		LAH00002AVH	
	DESIGN	**ACTUAL**	**DESIGN**	**ACTUAL**	**DESIGN**	**ACTUAL**
TOTAL CFM	5750	5800	675	285	600	272
RETURN AIR	---	---	---	---	---	---
OUTSIDE AIR	5800	5800	675	285	600	272
DISCH. STATIC	---	+.07"	---		----	
SUCTION STATIC	---	-.94"	---		---	
TOTAL STATIC		1.01"				
FAN RPM	N/D	1115				
PULLEY O.D.	5 7/8" x 2 3/16"		2 9/16" x 3/4"		2 9/16" x 3/4"	
ESP						
VFD SPEED	30 Hz		25 Hz			
O.A.D.MIN POS	100%		100%		100%	

MOTOR DATA

MANUFACTURER	Baldor		Baldor		Baldor	
MODEL OR FR.	254T		143T		143T	
HORSEPOWER	15	15	1	1	1	1
MOTOR RPM	1765	887 (2)	1760		1760	
VOLTAGE / PH.	230/3	159/3	460/3	3.1	460/3	6.6
AMPS **LEG 1**	35.4	6.2 (2)	1.5	.9	1.5	.9
AMPS **LEG 2**	---	---	---	---	---	---
AMPS **LEG 3**	---	---	---	---	---	---
SHEAVE O.D.	6 7/8" x 1 5/8"		4 1/4 " X 7/8"		4 1/4" X 7/8"	
BELTS - QUANTITY / SIZE	1/BX46		1/AZ9		1/4L300R	
SHEAVE POSITION	Fixed		Fixed		Fixed	
C to C	15"		10 1/4"		10 1/4"	
	(1)					

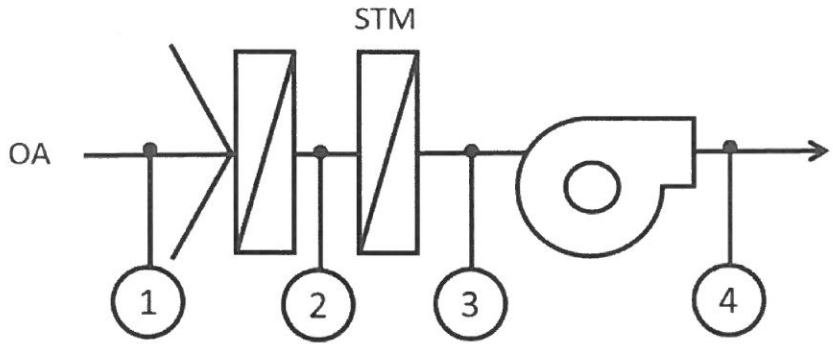
REMARKS

(1) No visible model #
(2) From VFD
(3) Dirty Filters
(4) Unable to balance

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

SYSTEM STATIC PRESSURE PROFILE

PROJECT: Ludlowe High School - Fairfield, CT	**DATE:** 7/10/23
SYSTEM/AREA SERV: DOA-1 / Cafeteria	**TECH:** JF, DD



STATIC PRESSURE READINGS "wc

POS. (+) / NEG.(-)	1	2	3	4	5	6	7	NOTES
DOA-1	-.264"	-.922"	-.937"	.07"				

REMARKS

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 6/15/23

SYSTEM / AREA: DOA-1 / Cafeteria | **TECH:** DD

LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
DOA-1 Supply										
Cafeteria	1	24" x 12"	FH	---	325	---	383	---	672	(2,3)
Cafeteria	2	24" x 12"	FH	---	325	---	650	---	341	(2,3)
Cafeteria	3	24" x 12"	FH	---	325	---	773	---	327	(2,3)
Cafeteria	4	24" x 12"	FH	---	325	---	659	---	376	(2,3)
Cafeteria	5	24" x 12"	FH	---	325	---	601	---	373	(2,3)
Cafeteria	6	24" x 12"	FH	---	325	---	800	---	827	(2,3)
Cafeteria	7	24" x 12"	FH	---	325	---	383	---	353	(2,3)
Cafeteria	8	24" x 12"	FH	---	325	---	856	---	375	(2,3)
Cafeteria	9	24" x 12"	FH	---	325	---	782	---	312	(2,3)
Cafeteria	10	24" x 12"	FH	---	325	---	384	---	343	(2,3)
Cafeteria	11	24" x 12"	FH	---	325	---	373	---	325	(2,3)
Cafeteria	12	24" x 12"	FH	---	325	---	395	---	348	(2,3)
Cafeteria	13	24" x 12"	FH	---	325	---	247	---	369	(2,3)
Storage 138 Teach Dine	14	2412	FH	---	75	---	20	---	46	
Storage 138	15	2412	FH	---	50	---	0	---	26	
Kitchen	15A	---	---	---	5000	---	---		---	(1)
					4350		7306		5413	
BR #1										
Cafeteria 138W	16	8" x 8"	.34	588	200	110	37	195	66	
Cafeteria 138W	17	8" x 8"	.34	588	200	110	37	180	61	
Cafeteria 138W	18	8" x 8"	.34	588	200	65	22	155	53	
Cafeteria 138E	19	8" x 8"	.34	588	200	60	20	150	51	
Cafeteria 138E	20	8" x 8"	.34	588	200	65	22	150	51	
Cafeteria 138E	21	8" x 8"	.34	588	200	70	24		54	
Cafeteria 138E	22	8" x 8"	.34	588	200	60	20	160	51	
					1400		182	150	387	
Total					5780		7488		5800	(1)
					8545					

REMARKS

(1) Fan intended to serve kitchen but supply ductwork and transfer ductwork never installed.

(2) No VD adusted w OBD.

(3) OBD not funtional, could not reduce.

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

VELOCITY PRESSURE READINGS

PROJECT:	Fairfield Ludlowe High School					**DATE:**		
AREA SERVED:	1st Floor Cafeteria					**TECH:**		
TRAVERSE			**DESIGN**		**CENT. STAT.**	**TEST**		
LOCATIONS	**DUCT SIZE "**	**AREA SQ.FT.**	**FPM**	**CFM**	**PRESS."**	**FPM**	**CFM**	**NOTES**
DOA-2								
FCU 3-1 138C				200				
FCU- 3-2 138 C				200				
FCU 3-3 138A				200				
FCU 3-4				75				
				675				
DOAS-3								
FCU 3-5 130				300				
FCU 3-6 130				300				
				600				

REMARKS

(1) Calculated.

(5) Damper is 100% closed. No control (Pot) visible. ALC has no control.

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

HOOD VELOCITY READINGS

PROJECT:	Fairfield Ludlowe High School	**DATE:**	8/11/23
LOCATION:	2nd Floor	**TECH:**	DD

HOOD LOCATION	SASH SIZE	AREA SQ.FT	DESIGN		TEST 1		FINAL		NOTES
			FPM	CFM	FPM	CFM	FPM	CFM	
Room 211									
Hood	39" x 18 1/2"	5.0	100	500	178	890			
Room 213	39" x 18 1/2"	5.0	100	500	159	795			
Hood									
Room 214	39" x 18 1/2"	5.0	100	500	---	---			(1)
Hood									

REMARKS

(1) Hood does not operate

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

SUPPLY FAN REPORT

PROJECT: Fairfield Ludlowe High School		**DATE:**	7/28/23
AREA SERVED: Science Labs		**TECH:**	DD

FAN DATA

FAN NUMBER	MUA-1		MUA-2		MUA-3 (2)	
LOCATION	Roof		Roof		Roof	
AREA SERVED	Rm 211		Rm 212, 213		Rm 214	
MANUFACTURER	Aaon		Aaon		Aaon	
MODEL OR SIZE	RK-02-2-00-640		RK-02-2-00-640		RK-02-2-00-640	
	DESIGN	ACTUAL	DESIGN	ACTUAL	DESIGN	ACTUAL
TOTAL CFM	645	750	860	897	745	
RETURN AIR	---	---	---	---	---	
OUTSIDE AIR	645	750	860	897	745	
DISCH. STATIC	---	+.24"	---	+.25"	---	
SUCTION STATIC	---	-.13"	---	-.21"	---	
TOTAL STATIC	N/D	.37"	N/D	.46"		
FAN RPM	N/D	1075	N/D	1075		
PULLEY O.D.	D/D		D/D		D/D	
ESP						
VFD SPEED	60 Hz		60 Hz			
O.A.D.MIN POS	100%		100%		100%	

MOTOR DATA

MANUFACTURER		Marathon		Marathon		Marathon	
MODEL OR FR.		(1)		(1)		(1)	
HORSEPOWER		(1)	(1)	(1)	(1)	(1)	(1)
MOTOR RPM		1075	1075	1075	1075	1075	1075
VOLTAGE / PH.		208/3		208/3		208/3	
AMPS	LEG 1	4.2	1.9	4.2	1.9	4.2	
	LEG 2	---	1.4	---	1.4	---	
	LEG 3	---	2.1	---	2.2	---	
SHEAVE O.D.		D/D		D/D		D/D	
BELTS - QUANTITY / SIZE		---		---		---	
SHEAVE POSITION		---		---		---	
C to C		---		---		---	

REMARKS

(1) No info on faceplate.
(2)

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 6/26/23

SYSTEM / AREA: MUA-1,2,3-LX 1,4 / Science Rooms | **TECH:** NC,DD

LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
MUA-1										
Room 211	1	2408	FH	---	215	---	244	---	244	
Room 211	2	2408	FH	---	215	---	251	---	251	
Room 211	3	2408	FH	---	215	---	255	---	255	
					645		750		750	
MUA-2										
Room 212	1	2408	FH	---	215	---	117	---	205	(2)
Room 213	2	2408	FH	---	215	---	257	---	235	(1)
Room 213	3	2408	FH	---	215	---	222	---	232	
Room 213	4	2408	FH	---	215	---	259	---	225	
					860		855		897	
MUA-3										(3)
Room 214B	1	2408	FH	---	100					
Room 214	2	2408	FH	---	215					
Room 214	3	2408	FH	---	215					
Room 214	4	2408	FH	---	215					
					745					
LX-1										
Room 214B	E1	10" x 10"	FH	---	200	---	0			
LX-4										
Room 212	E1	10" x 10"	FH	---	225	---	0			
	E2	10" x 10"	FH	---	225	---	0			
GX										
Room 211	E1	10" x 10"	FH	---	225	---	0			
Room 211	E2	10" x 10"	FH	---	225	---	0			
Room 213	E1	10" x 10"	FH	---	225	---	0			
Room 213	E2	10" x 10"	FH	---	225	---	0			
Room 214	E1	10" x 10"	FH	---	225	---	0			
Room 214	E2	10" x 10"	FH	---	225	---	0			

REMARKS

(1) No volume damper

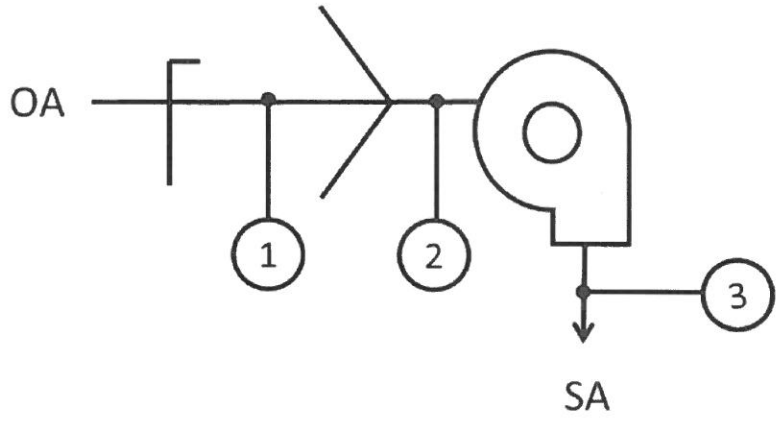
(2) VD 100% open

(3) Unit did not operate. Associated hood also did not operate.

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

SYSTEM STATIC PRESSURE PROFILE

PROJECT: Ludlowe High School - Fairfield, CT	**DATE:** 7/28/23
SYSTEM/AREA SERV: MUA-1, 2, 3 / Science 211, 212,214,214	**TECH:** DD



STATIC PRESSURE READINGS "wc

POS. (+) / NEG.(-)	1	2	3	4	5	6	7	NOTES
MUA-1	-.09"	-.13"	.24"					
MUA-2	-.19"	-.21"	.25"					
MUA-3								

REMARKS

EXHAUST FAN REPORT

PROJECT:	Fairfield Ludlowe High School		**DATE:** 8/10/23
AREA SERVED:	Various Exhaust Systems		**TECH:** JF,DD

FAN DATA

FAN NUMBER		KX-1	KX-2	KEF-1
LOCATION		Roof	Roof	Roof
AREA SERVED		Kitchen Lab Hoods	Rest. Kitchen	Main Kitchen Hoods
MANUFACTURER		Cook	Cook	Greenheck
MODEL OR SIZE		365VCRX	365VCRX	Cube300HP6
TOTAL CFM	**DESIGN**	3900 (2)	5000 (1)	7500
	ACTUAL	3444	4577	6440
FAN RPM	**DESIGN**	644 (2)	704 (1)	N/D
	ACTUAL	713	704	844
TOTAL STATIC	**DESIGN**	N/D	N/D	N/D
	ACTUAL	---	---	---
PULLEY OD		10 7/16" x 1 3/16"	11 1/4" x 1 3/16"	9 3/8" x 1"
CENTER TO CENTER				

MOTOR DATA

MANUFACTURER		Baldor	Reliable Electric	Baldor
MODEL NUMBER		FR146T	FR182T	182T
HORSEPOWER	**DESIGN**	2	3	3
	ACTUAL	2	3	3
MOTOR RPM	**DESIGN**	1725	1725	1765
	ACTUAL	1725	1725	1765
VOLTAGE	**DESIGN**	460/3	460/3	208/3
	ACTUAL	460/3	460/3	200/3
AMPERAGE	**DESIGN**	2.7	4.1	9.7
	ACT. LEG 1	2.6	2.9	9.2
	ACT. LEG 2	2.6	3.0	9,0
	ACT. LEG 3	2.4	3.0	9.2
SHEAVE OD		1 VP 4 3/4" x 7/8"	2 VP 5.6" x 1 1/8"	1 VP 4 3/4" x 1 1/8"
BELTS - QUANTITY/ SIZE		1/AX39 (1)	2/AP42	1/A43
SHEAVE POSITION		80% Open	90% Open	100% Closed
VFD FREQUENCY		---		

REMARKS

(1) From fan tag
(2) From fan tag, TCL

EXHAUST FAN REPORT

PROJECT:	Fairfield Ludlow High School		**DATE:** 8/17/23
AREA SERVED:	Various Exhaust Systems		**TECH:** JF, DD

FAN DATA				
FAN NUMBER		EF-2		
LOCATION		Roof		
AREA SERVED		2nd & 3rd Fl TLT		
MANUFACTURER		Cook		
MODEL OR SIZE		135ACF		
TOTAL CFM	**DESIGN**	1400 (4)		
	ACTUAL	1069		
FAN RPM	**DESIGN**	1420 (2)		
	ACTUAL	1537		
TOTAL STATIC	**DESIGN**	N/D		
	ACTUAL	---		
PULLEY OD		3 7/16" x 3/4"		
CENTER TO CENTER				

MOTOR DATA				
MANUFACTURER		Marathon		
MODEL NUMBER		FR484		
HORSEPOWER	**DESIGN**	1/2		
	ACTUAL	1/2		
MOTOR RPM	**DESIGN**	1725		
	ACTUAL	1725		
VOLTAGE	**DESIGN**	115/1		
	ACTUAL	115/1		
AMPERAGE	**DESIGN**	7.5		
	ACT. LEG 1	(3)		
	ACT. LEG 2	---		
	ACT. LEG 3	---		
SHEAVE OD		1 VP 3 1/8" x 1/2"		
BELTS - QUANTITY/ SIZE		1/4L220		
SHEAVE POSITION		100% Closed		
VFD FREQUENCY				

REMARKS

(2) From fan tag, TCL

(3) Unable to obtain Amp @ disconnect, switch could not be removed.

(4) T.C.L. = 1825

EXHAUST FAN REPORT

PROJECT:	Fairfield Ludlowe High School		**DATE:** 8/10/23
AREA SERVED:	Various Exhaust Systems		**TECH:** JF,DD

FAN DATA

FAN NUMBER		EF-1	EF-1 (2)	EF-5
LOCATION		Roof	Roof	Roof
AREA SERVED		Rest. Dishwasher	3rd Flr 381	Unknown
MANUFACTURER		Cook	Greenheck	Cook
MODEL OR SIZE		165VCRX	CUBF-121-3-X	210 ACF
TOTAL CFM	**DESIGN**	70 (1)	1000	3600 (2)
	ACTUAL	---	980	
FAN RPM	**DESIGN**	1383 (1)	N/D	850 (2)
	ACTUAL	1154	1160	
TOTAL STATIC	**DESIGN**	N/D	N/D	.75 (2)
	ACTUAL	---	---	---
PULLEY OD		4 1/8" x 3/4"	4 1/2" x 3/4"	6 7/16" x 3/4"
CENTER TO CENTER			5 3/8"	5 1/2"

MOTOR DATA

MANUFACTURER		Marathon	(1)	US Motors
MODEL NUMBER		FR48Z	(1)	FR143T
HORSEPOWER	**DESIGN**	1/3	N/D	N/D
	ACTUAL	1/3	(1)	(1)
MOTOR RPM	**DESIGN**	1725	(1)	1755
	ACTUAL	1725	1725	1755
VOLTAGE	**DESIGN**	115/1		460/3
	ACTUAL	115/1	115/1	460/3
AMPERAGE	**DESIGN**	6.1	N/A	1.5
	ACT. LEG 1	4.8	5.0	---
	ACT. LEG 2	---	---	---
	ACT. LEG 3	---	---	---
SHEAVE OD		1 VP 2 1/4" x 1/2"	1 VP 3 1/8" x 5/8"	1 VP 3 3/4" x 7/8"
BELTS - QUANTITY/ SIZE		1/4L220	1/4L23OR	1/AX25
SHEAVE POSITION		80% Closed	90% Closed	50% Closed.
VFD FREQUENCY				

REMARKS

(1) Name plate not accessible

(2) From fan tag

EXHAUST FAN REPORT

PROJECT:		Fairfield Ludlowe High School		**DATE:** 8/10/23
AREA SERVED:		Various Exhaust Systems		**TECH:** JF, DD
FAN DATA				
FAN NUMBER		EF-10 (1)	EF-11	EF-13
LOCATION		Art Mechanical Room	Roof	MER 043
AREA SERVED		Art Rooms	1st Flr Gym Restroom	1st Floor Music
MANUFACTURER		(1)	Greenheck	Greenheck
MODEL OR SIZE		(1)	G-098-VG-4-X	SWB-15-5-CW-TH
TOTAL CFM	**DESIGN**		480	2500
	ACTUAL	7919	487	
FAN RPM	**DESIGN**		N/D	
	ACTUAL		1725	
TOTAL STATIC	**DESIGN**		N/D	
	ACTUAL		---	
PULLEY OD		Not Accessible	D/D	4 1/6" x 1"
CENTER TO CENTER		Not Accessible	---	11"
MOTOR DATA				
MANUFACTURER		Baldor	Greenheck	Marathon
MODEL NUMBER		145T	42216B4173	56
HORSEPOWER	**DESIGN**	2	1/4	1/2
	ACTUAL	2	1/4	1/2
MOTOR RPM	**DESIGN**	1725	1725	1725
	ACTUAL	1725	1725	1725
VOLTAGE	**DESIGN**		115/1	208-230/460
	ACTUAL		115/1	
AMPERAGE	**DESIGN**		3.9	2.1-2.2/1.1
	ACT. LEG 1		---	
	ACT. LEG 2		---	
	ACT. LEG 3		---	
SHEAVE OD		26R/VP 4" x 1 3/4"	D/D	I VP3 1/8" x 5/8"
BELTS - QUANTITY/ SIZE		2/AX70	---	1/AP30
SHEAVE POSITION		50% open	---	0% Closed
VFD FREQUENCY		---	---	

REMARKS

(1) Testing not complete as fan requires PM

EXHAUST FAN REPORT

PROJECT:		Fairfield Ludlowe High School		**DATE:** 8/10/23
AREA SERVED:		Various Exhaust Systems		**TECH:** JF, DD
FAN DATA				
FAN NUMBER		EF-14	EF-15	EF 2-4
LOCATION		MER 043	MER 043	Roof
AREA SERVED		1st Floor Band	1st Floor Chorus	2nd & 3rd Fl RR
MANUFACTURER		Greenheck	Greenheck	Greenheck
MODEL OR SIZE		SWB-18-7-CW-TH	SWB-22-10-CW-TH	GB-160-3
TOTAL CFM	**DESIGN**	2500	5000	300
	ACTUAL			0
FAN RPM	**DESIGN**			N/D
	ACTUAL			
TOTAL STATIC	**DESIGN**			N/D
	ACTUAL			---
PULLEY OD		4 15/16 " x 1 1/4"	7 1/16" x 1 3/16"	5 1/4" x 3/4"
CENTER TO CENTER		14 1/2"	20"	6 1/8"
MOTOR DATA				
MANUFACTURER		Marathon	Marathon	Marathon (1)
MODEL NUMBER		56	56	FR56
HORSEPOWER	**DESIGN**	3/4	1	1/3
	ACTUAL	3/4	1	1/3
MOTOR RPM	**DESIGN**	1725	1725	1725
	ACTUAL	1725	1725	1725
VOLTAGE	**DESIGN**	208-230/460	208-230/460	115/1
	ACTUAL			115/1
AMPERAGE	**DESIGN**	2.7-2.8/1.6	3.4/4.7	5.5
	ACT. LEG 1			---
	ACT. LEG 2			---
	ACT. LEG 3			---
SHEAVE OD		1 VP 3 1/8" x 5/8"	1 VP 3 3/4" x 5/8"	1 VP 2 7/8" x 1/2"
BELTS - QUANTITY/ SIZE		1/AX40	1/AX53	1/3L250
SHEAVE POSITION		100% Closed	0% Closed	100% Closed
VFD FREQUENCY				---

REMARKS

(1) Not running

EXHAUST FAN REPORT

PROJECT:	Fairfield Ludlowe High School		**DATE:** 8/10/23
AREA SERVED:	Various Exhaust Systems		**TECH:** JF, DD
FAN DATA			
FAN NUMBER	EF 2-5	EF 2-8	EF 2-11
LOCATION	Roof	Roof	Roof
AREA SERVED	3rd Flr 301,302,303	2nd & 3rd Flr TLTs	2nd + 3rd Flr TLT
MANUFACTURER	Greenheck	Greenheck	Greenheck
MODEL OR SIZE	GB-180-5	GB-160-5	GB-200-5
TOTAL CFM **DESIGN**	2800 (1)	2245	2575
ACTUAL	2342	1393	2204
FAN RPM **DESIGN**	N/D	N/D	N/D
ACTUAL	929	1166	787
TOTAL STATIC **DESIGN**	N/D	N/D	N/D
ACTUAL	---	---	---
PULLEY OD	6 3/4" x 3/4"	5 7/8" x 3/4"	6 7/8" x 3/4"
CENTER TO CENTER	7 1/8"	6 1/4"	5 1/2"
MOTOR DATA			
MANUFACTURER	Marathon (2)	Marathon	Marathon
MODEL NUMBER	FR56	FR56	FR56
HORSEPOWER **DESIGN**	1/2	1/2	N/D
ACTUAL	1/2	1/2	1/2
MOTOR RPM **DESIGN**	1725	1725	1725
ACTUAL	1729	1725	1725
VOLTAGE **DESIGN**	208/3	208/3	208/3
ACTUAL	208/3	208/3	208/3
AMPERAGE **DESIGN**	2.1	2.1	2.1
ACT. LEG 1	2.0	2.0	2.1
ACT. LEG 2	2.0	2.0	2.0
ACT. LEG 3	1.9	1.9	2.0
SHEAVE OD	1 VP 4 1/8" x 5/8"	1 VP 4 1/8" x 5/8"	1 VP 3 3/4" x 5/8"
BELTS - QUANTITY/ SIZE	1/4L310	1/AX26	1/AX26
SHEAVE POSITION	60% Closed	80% Closed	50% Open
VFD FREQUENCY			---
REMARKS			

EXHAUST FAN REPORT

PROJECT:	Fairfield Ludlowe High School		**DATE:** 8/10/23
AREA SERVED:	1st, 2nd, 3rd floor Restrooms		**TECH:** JF, DD
FAN DATA			
FAN NUMBER	EF2-25	EF 3-8	
LOCATION	Roof	Roof	
AREA SERVED	2nd Floor Restroom	1st, 2nd & 3rd Flr TLTs	
MANUFACTURER	Greenheck	Greenheck	
MODEL OR SIZE	GB-140-3X-OD	GB-240-LMDX-QD	
TOTAL CFM **DESIGN**	1175	3450	
TOTAL CFM **ACTUAL**	0	3110	
FAN RPM **DESIGN**	N/D	N/D	
FAN RPM **ACTUAL**		706	
TOTAL STATIC **DESIGN**	N/D	N/D	
TOTAL STATIC **ACTUAL**	---	---	
PULLEY OD	4 3/16" x 3/4"	8 5/16" x 1"	
CENTER TO CENTER	5 3/8"	7 5/8"	
MOTOR DATA			
MANUFACTURER	Marathon (1)	Marathon	
MODEL NUMBER	FR56	FR56	
HORSEPOWER **DESIGN**	1/3	3/4	
HORSEPOWER **ACTUAL**	1/3	3/4	
MOTOR RPM **DESIGN**	1725	1725	
MOTOR RPM **ACTUAL**	1725	1725	
VOLTAGE **DESIGN**	115/1	115/1	
VOLTAGE **ACTUAL**	115/1	115/1	
AMPERAGE **DESIGN**	6.1	10	
AMPERAGE **ACT. LEG 1**	---	7.0	
AMPERAGE **ACT. LEG 2**	---	---	
AMPERAGE **ACT. LEG 3**	---	---	
SHEAVE OD	1 VP 2 7/8" x 1/2"	3 1/8" x 5/8"	
BELTS - QUANTITY/ SIZE	1/3L220R	1/4L34DR	
SHEAVE POSITION	100% Closed	100% Closed	
VFD FREQUENCY	---		
REMARKS			

(1) Not running

EXHAUST FAN REPORT

PROJECT:	Fairfield Ludlowe High School		**DATE:** 8/18/23
AREA SERVED:	Various Exhaust Systems		**TECH:** JF

FAN DATA

FAN NUMBER		GX (1)	GX-8	GX-9 (1)
LOCATION		Roof	Roof	Roof
AREA SERVED		2nd Floor Rm 211	Unknown	265 & 265A
MANUFACTURER		Greenheck	Cook	Cook
MODEL OR SIZE		CUE-080-D-X	100ACF1002B50	100ACE100C3B
TOTAL CFM	**DESIGN**	N/D	300 (1)	550
	ACTUAL		---	0
FAN RPM	**DESIGN**	N/D	1599 (1)	1557
	ACTUAL		1510	---
TOTAL STATIC	**DESIGN**	N/D	N/D	.62
	ACTUAL	---	---	3 1/4" x 3/4"
PULLEY OD		D/D	3 3/8" x 3/4"	4 3/4"
CENTER TO CENTER		---		

MOTOR DATA

MANUFACTURER		Fasco	US Motors	Century (1)
MODEL NUMBER		D1061	SA55GWF-5024	48
HORSEPOWER	**DESIGN**	1/20	1/6	1/4
	ACTUAL	1/20	1/6	1/4
MOTOR RPM	**DESIGN**	1550	1725	1725
	ACTUAL	1550	1725	1725
VOLTAGE	**DESIGN**	115/1	115/1	115/1
	ACTUAL	---	115/1	115/1
AMPERAGE	**DESIGN**	2.0	3.4	5.4
	ACT. LEG 1	---	3.3	---
	ACT. LEG 2	---	---	---
	ACT. LEG 3	---	---	---
SHEAVE OD		D/D	1 VP 3 1/8" x 1/2"	1 VP 3 1/4" x 1/2"
BELTS - QUANTITY/ SIZE		---	1/4L180	1/4L190
SHEAVE POSITION		---	50% Closed	20% Closed
VFD FREQUENCY		---		

REMARKS

(1) Not running

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 8/18/23

SYSTEM / AREA: KX-1 / Kitcheb Lab 142 | **TECH:** JF

LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
KX-1 Lab 142										
HD 1A										
Extractor	1	15.5" x 15.5'	1.67	150	250	125	209	164	274	
Extractor	2	15.5" x 15.5'	1.67	150	250	134	224	148	247	
Extractor	3	15.5" x 15.5'	1.67	150	250	116	194	116	194	
					750		627		715	
HD 1B										
Extractor	1	15.5" x 15.5'	1.67	150	250	128	214	151	252	
Extractor	2	15.5" x 15.5'	1.67	150	250	131	219	149	249	
Extractor	3	15.5" x 15.5'	1.67	150	250	121	202	140	234	
					750		635		735	
Hood Total					**1500**		**1262**		**1450**	
HD 2A										
Extractor	1	15.5" x 15.5'	1.67	180	300	134	224	134	224	
Extractor	2	15.5" x 15.5'	1.67	180	300	132	220	137	229	
Extractor	3	15.5" x 15.5'	1.67	180	300	148	247	151	252	
Hood Total					**900**		**691**		**705**	
HD 3A										
Extractor	1	15.5" x 15.5'	1.67	150	250	102	170	102	170	
Extractor	2	15.5" x 15.5'	1.67	150	250	103	172	107	179	
Extractor	3	15.5" x 15.5'	1.67	150	250	103	172	235	392	
					750		514		741	
HD 3B										
Extractor	1	15.5" x 15.5'	1.67	150	250	102	170	103	172	
Extractor	2	15.5" x 15.5'	1.67	150	250	113	189	116	194	
Extractor	3	15.5" x 15.5'	1.67	150	250	98	164	189	182	
					750		523		548	
Hood Total					**1500**		**1037**		**1289**	
KX-1 Total					**3900**		**2990**		**3449**	

REMARKS

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 8/17/23

SYSTEM / AREA: 1st Floor | **TECH:** JF

LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
142 A KX-2										
Hood A 8'3"										
Extractor	1	16" x 12"	1.33	---	N/D	197	262			
Extractor	2	16" x 12"	1.33	---	N/D	235	313			
Extractor	3	16" x 12"	1.33	---	N/D	250	333			
Extractor	4	16" x 12"	1.33	---	N/D	265	352			
Extractor	5	16" x 12"	1.33	---	N/D	263	350			
Extractor	6	16" x 12"	1.33	---	N/D	223	297			
Extractor	7	16" x 12"	1.33	---	N/D	238	317			
Extractor	8	16" x 12"	1.33	---	N/D	244	325			
					1238		2549			(1,2)
Hood B 8'3"										
Extractor	1	16" x 12"	1.33	---	N/D	206	274			
Extractor	2	16" x 12"	1.33	---	N/D	199	265			
Extractor	3	16" x 12"	1.33	---	N/D	194	258			
Extractor	4	16" x 12"	1.33	---	N/D	179	238			
Extractor	5	16" x 12"	1.33	---	N/D	182	242			
Extractor	6	16" x 12"	1.33	---	N/D	186	247			
Extractor	7	16" x 12"	1.33	---	N/D	188	250			
Extractor	8	16" x 12"	1.33	---	N/D	191	254			(1,2)
					1238		2028			
Total					**2476**		**4577**			(3)

REMARKS

(1) Manufacturer recommends 150 CFM/Lin Ft.

(2) Local switch does not function

(3) Fan was designed for 5000 CFM per tag

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 8/18/23

SYSTEM / AREA: KX-3 / Cafeteria Kitchen | **TECH:** JF, DD

LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
KEF-1										
10' Hood (Left)										
Extractor	1	18" x 18"	2.25	---	N/D	227	511			
Extractor	2	18" x 18"	2.25	---	N/D	228	513			
Extractor	3	18" x 18"	2.25	---	N/D	258	581			
Extractor	4	18" x 18"	2.25	---	N/D	260	585			
Extractor	5	18" x 18"	2.25	---	N/D	238	536			
Extractor	6	18" x 18"	2.25	---	N/D	220	495			
							3221			
10' Hood (Right)										
Extractor	1	18" x 18"	2.25	---	N/D	229	515			
Extractor	2	18" x 18"	2.25	---	N/D	241	542			
Extractor	3	18" x 18"	2.25	---	N/D	233	524			
Extractor	4	18" x 18"	2.25	---	N/D	236	531			
Extractor	5	18" x 18"	2.25	---	N/D	248	558			
Extractor	6	18" x 18"	2.25	---	N/D	244	549			
							3219			
Total							**6440**			

REMARKS

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 8/17/23

SYSTEM / AREA: | **TECH:** JF

LOCATION	NO.	SIZE	A K	DESIGN FPM	DESIGN CFM	TEST FPM	TEST CFM	FINAL FPM	FINAL CFM	NOTES
EF-1										
142A Dishwasher		28.5" x 28.5"	5.64	124	700	0	0			(3)
EF-1										
Class 381	E1	14" x 14"	FH	---	500	---	461		489	
Class 381	E2	14" x 14"	FH	---	500	---	532		491	
EF-1 Total					**1000**		**993**		**980**	
EF-2 3rd Flr										
Boys 354	E1	12" x 12"	FH	---	200	---	69	---	122	
Boys 354	E2	12" x 12"	FH	---	200	---	422	---	109	
Girls 353	E3	12" x 12"	FH	---	200	---	103	---	124	
Girls 353	E4	12" x 12"	FH	---	200	---	169	---	110	
					800		763		465	
EF-2 2nd Flr										
Girls 258	E5	10" x 10"	FH	---	200	---	71	---	100	
Girls 258	E6	8" x 8"	FH	---	200	---	41	---	111	
Women 259	E7	10" x 10"	FH	---	75	---	42	---	48	
Boys 261	E8	22" x 10"	FH	---	200	---	118	---	130	
Boys 261	E9	22" x 10"	FH	---	200	---	64	---	105	
Men 260	E10	10" x 10"	FH	---	75	---	32	---	56	
Custodian 267	E11	10" x 10"	FH		75	---	104	---	52	
					1025		1472		604	
EF-2 Total					**1825**				**1069**	
EF-10										
Art Class 006		41.5" x 22"	6.34	---	N/D	1249	7919			(1,2)
EF-11										
Boys 105	E1	8" x 8"	FH	---	120	---	117	---	128	
Boys 105	E2	8" x 8"	FH	---	120	---	128	---	123	
Girsl 106	E3	8" x 8"	FH	---	120	---	109	---	116	(4)
Girsl 106	E4	8" x 8"	FH	---	120	---	111	---	120	
EF-11 Total					**480**		**465**		**487**	

REMARKS

(1) Fan needs P.M.
(2) Measured w/Velgrid.
(3) Local switch does not function.
(4) VD fully open

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 8/9/23

SYSTEM / AREA: Various Exhaust Systems | **TECH:** DD

LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
EF 2-4										
Mens 308	E1	12" x 12"	FH	---	75	---	0	---		
Womens 307	E2	6" x 6"	FH	---	75	---	0	---		
Mens 207	E3	6" x 6"	FH	---	75	---	0	---		
Womens 206G	E4	8" x 8"	FH	---	75	---	0	---		
EF 2-4 Total					**300**		0			
EF 2-5										
Comp 305	E1	12" x 12"	FH	---	200	---	246	---	173	
Comp 305	E2	12" x 12"	FH	---	200	---	325	---	170	
Storage 306	E3	12" x 12"	FH	---	600	---	---	---	---	(1)
Comp 303	E4	12" x 12"	FH	---	200	---	221	---	172	
Comp 303	E5	12" x 12"	FH	---	200	---	283	---	174	
Class 301	E6	12" x 12"	FH	---	500	---	248	---	415	
Class 301	E7	12" x 12"	FH	---	500	---	256	---	411	
Class 302	E8	12" x 12"	FH	---	500	---	236	---	417	
Class 302	E9	12" x 12"	FH	---	500	---	234	---	410	
EF 2-5 Total					**2800**		**2049**		**2342**	
EF 2-8 3rd Flr										
Storage 367	E1	12" x 8"	FH	---	75	---	376	---	136	(3)
Class 368	E2	12" x 12"	FH	---	220	---	256	---	217	
Class 369	E3	12" x 12"	FH	---	600	---	---	---	---	(1)
Class 370	E4	12" x 12"	FH	---	600	---	287	---	345	(2)
EF 2-8 2nd Flr										
Dressing Rm 292	E5	8" x 8"	FH	---	50	---	171	---	57	
Storage 293C	E6	8" x 8"	FH	---	150	---	117	---	160	
Green Rm 293	E7	12" x 12"	FH	---	375	---	186	---	295	(4)
Storage 293B	E8	8" x 8"	FH	---	75	---	81	---	77	
Dressing Rm 293A	E9	8" x 8"	FH	---	100	---	71	---	106	
EF 2-8 Total					**2245**		**1545**		**1393**	

REMARKS

(1) Not installed
(2) No branch dampers, just face dampers
(3) Fully open face damper
(4) VD fully open

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 8/9/23

SYSTEM / AREA: | **TECH:** JF

LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
EF 2-11 3rd Flr										
Men 362	E1	6" x 6"	FH	---	275	---	264	---	231	
Men 362	E2	6" x 6"	FH	---	275	---	239	---	223	
Custodial	E3	6" x 6"	FH	---	75	---	62	---	97	(1)
Women 364	E4	12" x 12"	FH	---	275	---	207	---	233	
Women 364	E5	12" x 12"	FH	---	275	---	194	---	220	
Staff 366	E6	6" x 6"	FH	---	75	---	41	---	70	
EF 2-11 2nd Flr										
Principal TLT 282D	E7	6" x 6"	FH	---	75	---	101	---	106	(1,2)
Custodial 289	E8	6" x 6"	FH	---	75	---	63	---	87	(1)
Boys TLT 288	E9	12" x 12"	FH	---	275	---	202	---	218	
Boys TLT 288	E10	12" x 12"	FH	---	275	---	179	---	212	
Girls TLT 290	E11	12" x 12"	FH	---	275	---	158	---	224	
Girls TLT 290	E12	12" x 12"	FH	---	275	---	187	---	45	
Handicap 291	E13	6" x 6"	FH	---	75	--	27		68	(3)
EF 2-11 Total					**2575**		**1924**		**2204**	
EF 2-25										
Cust 217	E1	8" x 8"	FH	---	75	---	0	---		
Girls 216	E2	12" x 12"	FH	---	250	---	0	---		
Girls 216	E3	12" x 12"	FH	---	250	---	0	---		
Handicap 218	E4	8" x 8"	FH	---	100	---	0	---		
Boys 219	E5	12" x 12"	FH	---	250	---	0	---		
Boys 219	E6	12" x 12"	FH	---	250	---	0	---		
EF 2-25 Total					**1175**		0			

REMARKS

(1) Damper inaccessible
(2) Outlet not secured
(3) VD fully open

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 8/9/23

SYSTEM / AREA: | **TECH:** JF

LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
EF 3-8 3rd Flr										
Women	E1	6" x 6"	FH	---	75	---	78	---	71	
Men	E2	12" x 12"	FH	---	75	---	109	---	72	
Girls 334	E3	22" x 22"	FH	---	500	---	457	---	458	
Boys 335	E4	22" x 22"	FH	---	500	---	712	---	465	
EF 3-8 2nd Flr										
Boys 239	E5	22" x 22"	FH	---	500	---	354	---	452	
Girls 238	E6	22" x 22"	FH	---	500	---	263	---	442	
Women	E7	6" x 6"	FH	---	75	---	0	---	77	(1,3)
Men	E8	8" x 8"	FH	---	75	---	71	---	78	
EF 3-8 1st Flr										
Boys 131	E9	22" x 22"	FH	---	500	---	318	---	444	
Girls 132	E10	22" x 22"	FH	---	500	---	263	---	440	
Women	E11	6" x 6"	FH	---	75	---	0	---	48	(1,2)
Men	E12	8" x 8"	FH	---	75	---	31	---	63	
EF 3-8 Total					**3450**		**2656**		**3110**	

REMARKS

(1) Poorly ducted.
(2) Flex does not connect to outlet.
(3) Outlet not secured.

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 7/12/23

SYSTEM / AREA: Various Exhaust Fans | **TECH:** JF

LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
EF-7										
Fuel Pump Rm 030A	E7-1	12" x 12"	.9	244	220					
EF-8										
Kiln Rm 007B	E8-1	10" x 10"	.52	337	175					
Photo CL 006A	E8-2	8" x 8"	.33	227	75					
Dark Rm 005	E8-3	18" x 14"	1.31	305	400					
Kilns	E8-4	8"Ø	.35		N/D					
EF-9										
Trans Tech 010	E9-1	48" x 12"	3.0	275	825	380	1140			
	E9-2	48" x 12"	3.0	275	825	195	585			
	E9-3	48" x 12"	3.0	275	825	300	900			
	E8-4	48" x 12"	3.0	275	825	65	195			
					3300		2820			(1)

REMARKS

(1) Fan needs P.M.

(2) Measured w/Velgrid.

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 7/12/23

SYSTEM / AREA: Various Exhaust Fans | **TECH:** JF

LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
GX-1										
Webster GE										
3rd Flr Warner										
Bookstore 355	E1-1	8" x 8"	FH	---	N/L					
Bookstore 355	E1-2	8" x 8"	FH	---	260					
GX-3										
L.L. Woodshop										
024A	E3-1	10" x 6"	.31	419	130	675	209			
024A	E3-2	10" x 6"	.31	419	130	785	243			
024	E3-3	20" x 12"	1.25	800	1000	840	1050			
024	E3-4	20" x 12"	1.25	800	1000	475	594			
024	E3-5	20" x 12"	1.25	800	1000	540	675			
024	E3-6	20" x 12"	1.25	800	1000	430	538			
024D	E3-7	10" x 6"	.31	645	200	325	101			
Total GX-3					**4460**		**3410**			(1)
GX-9										
Classroom 269	E1	---	---	---	200	---	---			(2)
Classroom 266D	E2	---	---	---	150	---	---			(2)
Classroom 265	E3	12" x 12"	100	---	100	0	0			(3)
Classroom 265A	E4	12" x 12"	100	---	100	0	0			(3)
					550					

REMARKS

(1) Fan needs P.M.
(2) Not installed
(3) Not running

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

SUPPLY FAN REPORT

PROJECT: Fairfield Ludlowe High School		**DATE:**	7/12/23
AREA SERVED: Lower Level		**TECH:**	JF, DD

FAN DATA

FAN NUMBER	HV-1					
LOCATION	Roof					
AREA SERVED	L.L. Art					
MANUFACTURER	Aaon					
MODEL OR SIZE	V3-ERB-8-0-000-41					
	DESIGN	**ACTUAL**	**DESIGN**	**ACTUAL**	**DESIGN**	**ACTUAL**
TOTAL CFM	7125	6014 (3)				
RETURN AIR	N/D	---				
OUTSIDE AIR	N/D	6014 (3)				
DISCH. STATIC	---	+.10	---			
SUCTION STATIC	---	-.90	---			
TOTAL STATIC	N/D	1.0				
FAN RPM	N/D	(2)				
PULLEY O.D.	D/D					
ESP	N/D					
VFD SPEED	---					
O.A.D.MIN POS	---					

MOTOR DATA

MANUFACTURER		EBM Pabst (1)					
MODEL OR FR.		R3G450-AQ37-11					
HORSEPOWER		3.7	3.7				
MOTOR RPM		2040	(2)				
VOLTAGE / PH.		200/3	200/3				
AMPS	**LEG 1**	8.4	3.4				
	LEG 2	---	3.4	---			
	LEG 3	---	3.6	---			
SHEAVE O.D.		D/D					
BELTS - QUANTITY / SIZE		---					
SHEAVE POSITION		---					
C to C		---					

REMARKS

(1) Two blowers
(2) Unable to tach
(3) Unit economizing. 100% OA

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 6/20/23

SYSTEM / AREA: HV-1 / Lower Level Art | **TECH:** JF, DD

LOCATION	NO.	SIZE	A K	DESIGN FPM	DESIGN CFM	TEST FPM	TEST CFM	FINAL FPM	FINAL CFM	NOTES
HV1- Supply Br #1										
Art Class 006	1	12" x 6"	.345	542	187	390	136	425	147	
Art Class 006	2	12" x 6"	.345	545	188	590	204	420	145	
Art Class 006	3	12" x 6"	.345		187	425	147	420	145	
Art Class 006	4	12" x 6"	.345		188	590	204	430	148	
Art Class 006	5	12" x 6"	.345		187	565	195	425	147	
Art Class 006	6	12" x 6"	.345		188	490	169	460	159	(5)
	7	12" x 6"	.345		187	555	191	400	138	
	8	12" x 6"	.345		188	805	278	380	131	
					1500		1524		1160	
Black Box 005A	9	2408	FH	---	75	---	123	---	84	(3,5)
Dark Room 005	10	2408	FH	---	150	---	309	---	466	(3,5)
					225		432		550	
Storage 007A	11	2406	FH	---	100	---	89	---	90	(4,5)
Corridor 2408	12	2408	FH	---	100	---	132	---	86	
Art Storage 008	13	2408	FH	---	150	---	98	---	105	
	14	2408	FH	---	150	---	78	---	113	
					500		397		394	
Art Class 007	15	14" x 6"	.41	456	187	350	144	500	205	(5)
Art Class 007	16	14" x 6"	.41	458	188	410	168	360	148	
Art Class 007	17	14" x 6"	.41	456	187	380	156	300	123	
Art Class 007	18	14" x 6"	.41	458	188	600	246	320	131	
Art Class 007	19	14" x 6"	.41	456	187	440	180	340	139	
Art Class 007	20	14" x 6"	.41	458	188	400	164	350	144	
Art Class 007	21	14" x 6"	.41	456	187	535	219	360	148	
Art Class 007	22	14" x 6"	.41	458	188	620	254	370	152	
					1500		1531		1190	
Kiln Room 007B	23	12" x 8"	.46	652	300	860	396	525	247	(1,2)
Kiln Room 007B	24	12" x 8"	.46	652	300	435	200	520	239	(1,2)
					600		596		481	

REMARKS

(1) VD closed 100%.
(2) OBD throttled.
(3) No VD.
(4) No access to VD.
(5) Could not reduce further.
N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 6/20/22

SYSTEM / AREA: HV-1 Lower Level Art | **TECH:** JF, DD

LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
Art Class 004	25	2408	FH	---	200	---	119	---	163	
Art Class 004	26	2408	FH	---	200	---	131	---	167	
Art Class 004	27	2408	FH	---	200	---	139	---	168	
Art Class 004	28	2408	FH	---	200	---	143	---	83	(3)
Art Class 004	29	2408	FH	---	200	---	137	---	163	
Art Class 004	30	2408	FH	---	200	---	176	---	240	(2)
					1200		845		984	
Black Room 005A	31	2408	FH	---	100	---	102	---	104	(2)
Dark Room 005	32	2408	FH	---	150	---	123	---	105	
	33	2408	FH	---	150	---	85	---	97	
					400		310		306	
Art Class 002	34	2408	FH	---	200	---	165	---	209	(1)
Art Class 002	35	2408	FH	---	200	---	90	---	119	(1)
Art Class 002	36	2408	FH	---	200	---	107	---	135	(1)
Art Class 002	37	2408	FH	---	200	---	109	---	145	(1)
Art Class 002	38	2408	FH	---	200	---	149	---	175	(1)
Art Class 002	39	2408	FH	---	200	---	123	---	166	(1)
					1200		741		949	
Total					**7125**		**6134**		**6014**	

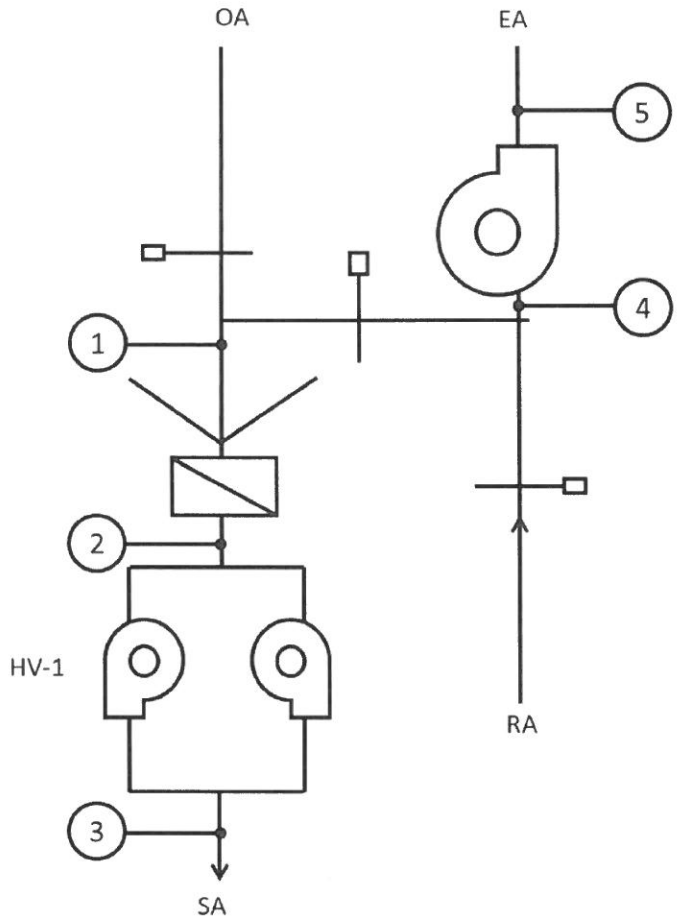
REMARKS

(1) VD 100% open.
(2) No access to VD.
(3) VD broken, unable to adjust further.

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

SYSTEM STATIC PRESSURE PROFILE

PROJECT: Ludlowe High School - Fairfield, CT	**DATE:** 7/12/23
SYSTEM/AREA SERV: HV-1 / EF-10	**TECH:** JF



STATIC PRESSURE READINGS "wc

POS. (+) / NEG.(-)	1	2	3	4	5	6	7	NOTES
	-.50"	-.94"	+.37"	-.90"	+.10"			

REMARKS

SUPPLY FAN REPORT

PROJECT: Fairfield Ludlowe High School	**DATE:** 7/12/23
AREA SERVED: Lower Level / Locker Rooms	**TECH:** JF

FAN DATA

FAN NUMBER	HV-2, SF-1		HV-2, SF-2			
LOCATION	Roof		Roof			
AREA SERVED	Lower Level Locker Rooms		Lower Level Locker Rooms			
MANUFACTURER	Aaon		Aaon			
MODEL OR SIZE	RN-026-3-0-000		RN-026-3-0-000			
	DESIGN	**ACTUAL**	**DESIGN**	**ACTUAL**	**DESIGN**	**ACTUAL**
TOTAL CFM	9200	8469	---	---		
RETURN AIR	N/D	---	---	---		
OUTSIDE AIR	9200	8469	---	---		
DISCH. STATIC	N/D	+.84"	N/D	+.85"	---	
SUCTION STATIC	N/D	-1.7"	N/D	-1.7"	---	
TOTAL STATIC	N/D	2.54"	N/D	2.55"		
FAN RPM	N/D	1147	N/D	1106		
PULLEY O.D.	D/D		D/D			
ESP	---		---			
VFD SPEED	39.1 | 75% (4)		37.77 | 75% (4)			
O.A.D.MIN POS						

MOTOR DATA

MANUFACTURER		Baldor		Baldor			
MODEL OR FR.		213T		213T			
HORSEPOWER		7 1/2	7 1/2	7 1/2	7 1/2		
MOTOR RPM		1760	1147	1760	1106		
VOLTAGE / PH.		460/3	302/3 (3)	460/3	292/3 (3)		
AMPS	**LEG 1**	10.0	9.5 (3)	10.0	9.3 (3)		
	LEG 2	---	---	---	---		
	LEG 3	---	---	---	---		
SHEAVE O.D.		D/D		D/D			
BELTS - QUANTITY / SIZE		---	---	---	---		
SHEAVE POSITION		---	---	---	---		
C to C							

REMARKS

(1) Design total for both fans.
(2) Actual total for both fans.
(3) From VD.
(4) VFDs to be replaced, could not speed up further.

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

SUPPLY FAN REPORT

PROJECT: Fairfield Ludlowe High School		**DATE:**	7/12/23
AREA SERVED: Lower Level / Locker Rooms		**TECH:**	JF

FAN DATA

FAN NUMBER	HV-2, EX-1		HV-2, Ex-2			
LOCATION	Roof		Roof			
AREA SERVED	Lower Level Locker Rooms		Lower Level Locker Rooms			
MANUFACTURER	Aaon		Aaon			
MODEL OR SIZE	RN-026-3-0-0000		RN-026-3-0-0000			
	DESIGN	**ACTUAL**	**DESIGN**	**ACTUAL**	**DESIGN**	**ACTUAL**
TOTAL CFM	10,675 (1)	9907 (2)	---	---		
RETURN AIR	N/D	---	---	---		
EXHAUST AIR	10,675	9907	---	---		
DISCH. STATIC	N/D	+.15"	N/D	+.16"	---	
SUCTION STATIC	N/D	-2.19"	N/D	-2.19"	---	
TOTAL STATIC	N/D	2.34"	N/D	2.35"		
FAN RPM	N/D	991	N/D	989		
PULLEY O.D.	9 3/4" x 1 3/16"		9 3/4" x 1 3/16"			
ESP						
VFD SPEED	---	---	---	---		
O.A.D.MIN POS	---	---	---	---		

MOTOR DATA

MANUFACTURER		A.O. Smith		A.O. Smith			
MODEL OR FR.		S213T		S213T			
HORSEPOWER		7 1/2	7 1/2	7 1/2	7 1/2		
MOTOR RPM		1760	1760	1760	1760		
VOLTAGE / PH.		460/3	460/3	460/3	460/3		
AMPS	**LEG 1**	9.6	4.8	9.6	4.7		
	LEG 2	---	4.6	---	4.8		
	LEG 3	---	4.9	---	5.1		
SHEAVE O.D.		1 VP 6 5/8" x 1 3/8"		1 VP 6 5/8" x 1 3/8"			
BELTS - QUANTITY / SIZE		1/BX68		1/BX68			
SHEAVE POSITION		80% Open		80% Open			
C to C							

REMARKS

(1) Design total for both fans.
(2) Actual total for both fans.

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 6/26/23

SYSTEM / AREA: HV-2 Supply / Lower Level Locker Room, P.E. | **TECH:** NC, DD

LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
HV-2 Supply										
Girls Team Rm 016	1	10" x 6"	.31	484	150	280	87	445	138	
Br #1										
Girls Locker 018	2	10" x 6"	.31	726	225	775	240	770	239	
Girls Locker 018	3	10" x 6"	.31	726	225	720	223	670	208	
Girls Locker 018	4	10" x 6"	.31	726	225	815	253	780	242	
Girls Locker 018	5	10" x 6"	.31	726	225	725	225	700	217	
Girls Locker 018	6	10" x 6"	.31	726	225	900	279	745	231	
Girls Locker 018	7	10" x 6"	.31	726	225	765	237	715	222	
					1350		1457		1359	
Br #2										
Girls Team Rm 016	8	10" x 6"	FH	---	150	---	182	---	136	
Girls Locker 018	9	10" x 6"	.31	726	225	815	253	785	243	
Girls Locker 018	10	10" x 6"	.31	726	225	660	205	730	226	
Girls Locker 018	11	10" x 6"	.31	726	225	920	285	715	222	
Girls Locker 018	12	10" x 6"	.31	726	225	895	277	725	225	
Girls Locker 018	13	10" x 6"	.31	726	225	640	198	730	226	
Girls Locker 018	14	10" x 6"	.31	726	225	790	245	740	229	
					1500		1645		1507	(1)
Br #3										
Girls Team Rm 016	15	10" x 6"	FH	---	150	---	150	---	138	
Girls Team Rm 017	16	10" x 6"	FH	---	150	---	347	---	158	
Girls Team Rm 017	17	10" x 6"	FH	---	150	---	292	---	140	
Girls Team Rm 017	18	10" x 6"	FH	---	150	---	190	---	165	
					600		979	---	601	(1)
Br #4										
Girls P.E. Office 019	19	2408	FH	---	200	---	80	---	165	(4)
Girls P.E. Office 019	20	2408	FH	---	200	---	66	---	198	
					400		146		363	(1,2)
Br #5										
Boys P.E. Office 021	21	2408	FH	---	200	---	67	---	154	(4)
Team Rm 020	22	10" x 6"	.31	404	125	595	184	315	98	
Team Rm 020	34	10" x 6"	.31	404	125	635	197	315	98	
Team Rm 020	24	10" x 6"	.31	404	125	680	211	325	101	
Boys P.E. Office 021	25	2408	FH	---	200	---	97	---	153	(3)
Corridor	25A	2406	FH	---	100	---	58	---	70	(5)
					875		814		674	

REMARKS

(1) No Branch dampers.
(2) Poor tap for branch.
(3) Face damper 100% open, no volume damper.
(4) VD 100% open.
(5) Added diffuser, not shown on prints, Design based on industry standard.

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 6/26/23

SYSTEM / AREA: HV-2 / Lower Level Locekr Romm, P.E. | **TECH:** NC, DD

LOCATION	NO.	SIZE	A K	DESIGN FPM	DESIGN CFM	TEST FPM	TEST CFM	FINAL FPM	FINAL CFM	NOTES
Supply Cont.										
Br # 6	26	10" x 6"	.31	968	300	880	273	825	256	
B Locker 022	27	10" x 6"	.31	968	300	245	76	820	254	(2)
B Locker 022	28	10" x 6"	.31	968	300	885	274	790	245	
B Locker 022	29	10" x 6"	.31	968	300	835	259	815	253	
B Locker 022	30	10" x 6"	.31	968	300	950	295	775	240	
B Locker 022	31	10" x 6"	.31	968	300	775	240	790	245	
B Locker 022	32	10" x 6"	.31	968	300	915	284	805	250	
B Locker 022	33	10" x 6"	.31	968	300	855	265	815	253	
					2400		1966		1996	(1)
Br #7										
Boys Team Rm 025	34	10" x 6"	.31	726	225	775	240	720	223	
Boys Team Rm 025	35	10" x 6"	.31	726	225	720	223	710	220	
Storage 023	36	10" x 6"	.31	323	100	570	177	320	99	
				---	550		640		542	(1)
Br #8										
B Team 026	37	10" x 6"	.31	726	225	695	215	510	158	
B Team 026	38	10" x 6"	.31	726	225	765	237	505	157	
Trainer Rm 027	39	2408	FH	---	250	---	145	170	178	(2)
Trainer Closet 027A	40	2406	FH	---	100	---	52	75	79	(2)
					800		649		572	
Team Rm 029	41	10" x 6"	.31	726	225	420	130	535	166	
Team Rm 029	42	10" x 6"	.31	726	225	400	124	535	166	
Team Rm 029	43	10" x 6"	.31	726	225	475	147	540	167	
					675		401		499	
Corrridor	44	2406	FH	---	100	---	47	---	79	(3)
Corrridor	45	2406	FH	---	100	---	67	---	72	
Corrridor	46	2406	FH	---	100	---	63	---	67	
					300		177		218	
Total					**9200**		**8903**		**8469**	

REMARKS

(1) No branch damper.
(2) Damper fully open.
(3) Outlets not shown on prints. Design based on industry standards.

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 6/26/23, 6/27/23

SYSTEM / AREA: HV-2 Exhaust / Lower Level Locker Rooms | **TECH:** NC

LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
HV-2 Exhaust										
Br #1										
Girls TR 017	E1	12" x 6"	.36	694	250	1755	632	640	230	
Girls TR 017	E2	12" x 6"	.36	694	250	1885	679	660	238	
Girls TR 016	E3	10" x 6"	.31	806	250	535	166	775	240	
Girls TR 016	E4	10" x 6"	.31	806	250	555	172	805	250	
Girls Locker 018	E5	10" x 6"	.31	806	250	715	222	810	251	
Girls Locker 018	E6	10" x 6"	.31	806	250	1490	462	775	240	
Girls Locker 018	E7	10" x 6"	.31	806	250	1465	454	785	243	
Girls Locker 018	E8	10" x 6"	.31	806	250	1280	397	790	245	
					2000		3184		2128	(5)
Br #2										
TLT	E9	22" x 10"	FH	---	125	---	211	---	106	(4)
TLT	E10	22" x 10"	FH	---	125	---	214	---	109	
TR 020	E11	10" x 6"	.31	968	300	870	270	870	270	
TR 020	E12	10" x 6"	.31	968	300	950	295	880	273	
TLT	E13	22" x 6"	FH	---	125	---	225	---	166	(2,3)
TLT	E14	---	---	---	125	---	N/I	---	---	(1)
Girls Locker 018	E15	10" x 6"	.31	806	250	905	281	735	228	
Girls Locker 018	E16	10" x 6"	.31	806	250	900	279	720	223	
Girls Locker 018	E17	10" x 6"	.31	806	250	745	231	710	220	
Girls Locker 018	E18	10" x 6"	.31	806	250	675	209	730	226	
T/S 029A	E19	10" x 6"	FH	---	200	---	111	---	177	(2)
T/S 029A	E20	10" x 6"	FH	---	200	---	132	---	201	(2)
T/S 029A	E21	10" x 6"	FH	---	200	---	101	---	172	(2)
T/S 029	E22	10" x 6"	FH	---	200	---	81	---	132	(2)
T/S 029A	E23	10" x 6"	FH	---	200	---	111	---	182	(2)
Boys Locker 022	E24	10" x 6"	.31	968	300	335	104	840	260	
Boys Locker 022	E25	10" x 6"	.31	968	300	945	293	820	254	
Boys Locker 022	E26	10" x 6"	.31	968	300	875	271	830	257	
T/S	E27	8" x 8"	FH	---	200	---	177	---	246	(3)
T/S	E28	8" x 8"	FH	---	200	---	170	---	258	(3)
T/S	E29	8" x 8"	FH	---	200	---	180	---	226	(3)
T/S	E30	8" x 8"	FH	---	200	---	N/I	---	---	(1)
					4800		3946		4186	

REMARKS

\(1) Not installed.
(2) Dampers 100% open.
(3) Left high to supplement missing register.
(4) VD brokern, could not reduce further.
(5) Branch damper required to reduce further.
N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 6/26/23, 6/27/23

SYSTEM / AREA: HV-2 Exhaust / Lower Level Locker Rooms | **TECH:** NC

LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
HV-2 Exhaust Cont.										
Br #3										
TLT	E31	22" x 10"	FH	---	125	---	111	---	102	
TLT	E32	22" x 10"	FH	---	125	---	130	---	110	
Boys TR 025	E33	12" x 6"	.36	694	250	1045	376	610	220	
Boys TR 025	E34	12" x 6"	.36	694	250	700	252	600	216	
Boys Locker 022	E35	10" x 6"	.31	968	300	1335	414	830	299	
Boys Locker 022	E36		.31	968	300	1060	329	850	306	
Boys Locker 022	E37		.31	968	300	825	256	825	297	
Boys TR 026	E38	12" x 6"	.36	694	250	545	196	600	216	
Boys TR 026	E39	12" x 6"	.36	694	250	990	356	610	220	
Trainer 027	E40	12" x 12"	FH	---	250	---	355	---	225	
TLT 029A	E42	8" x 8"	FH	---	200	---	85	---	165	(2,4)
TLT 029A	E43	---	---	---	---	---	---	---	---	(3)
TR 029	E44	10" x 6"	.31	726	225	355	110	850	264	(2)
TR 029A	E45	10" x 6"	.31	726	225	300	93	630	195	(2)
TR 029	E46	10" x 6"	.31	726	225	140	43	520	161	(2)
					3275		3309		2996	
Main Branch										
Girls TLT 014	E47	22" x 6"	FH	---	125	---	128	---	128	(1)
Girls TLT 014	E48	22" x 6"	FH	---	125	---	150	---	116	(1)
BoysTLT 013	E49	22" x 6"	FH	---	125	---	149	---	125	(1)
BoysTLT 013	E50	22" x 6"	FH	---	125	---	153	---	130	(1)
J.C.	E51	22" x 6"	FH	---	100	---	82	---	98	(1)
					600		662		597	
Total					**10,675**		**11,101**		**9,907**	

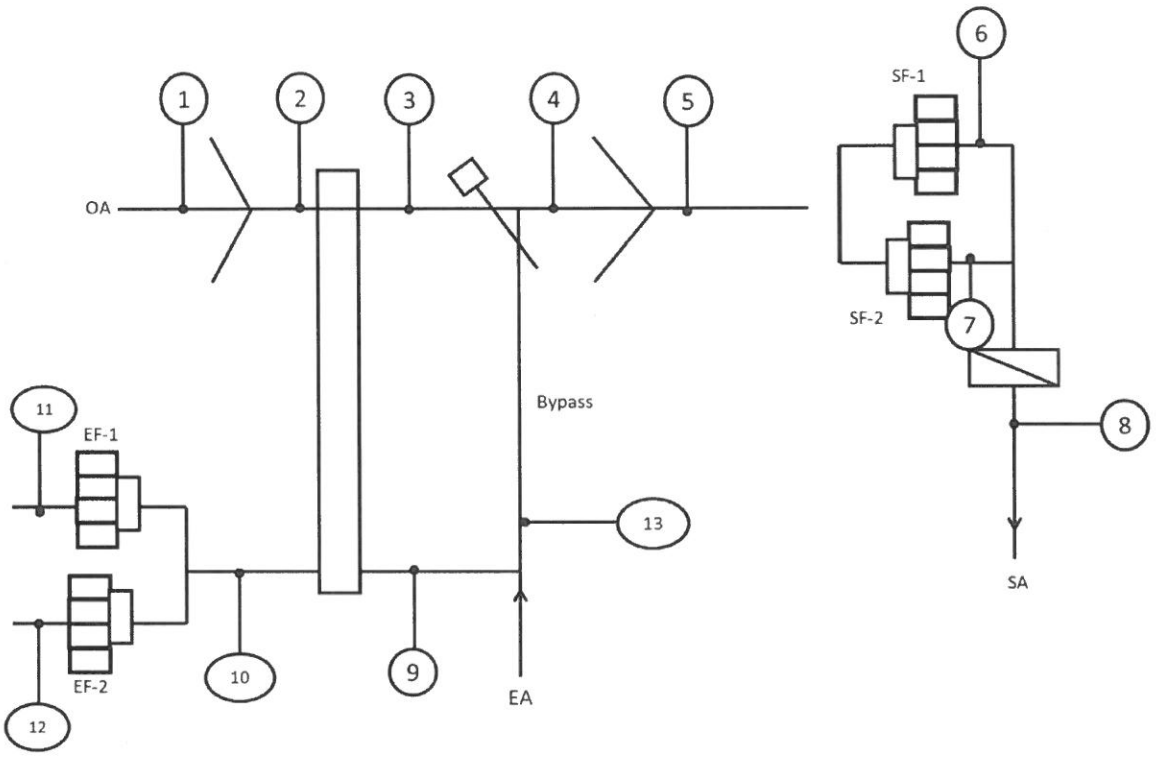
REMARKS

(1) Added diffuser not on drawings.
(2) Dampers 100% open.
(3) Not installed.
(4) Diffuser is undersized.

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

SYSTEM STATIC PRESSURE PROFILE

PROJECT: Ludlowe High School - Fairfield, CT	**DATE:** 7/12/23
SYSTEM/AREA SERV: HV-2 / Lower Level Locker Rooms	**TECH:** JF



STATIC PRESSURE READINGS "wc

POS. (+) / NEG.(-)	1	2	3	4	5	6	7	NOTES
	-.09"	-.41"	-1.37"	-1.39"	-1.70"	+.84"	+.85"	
	8	9	10	11	12	13		
	+.21"	-1.21"	-2.19"	+.16"	+.15"	-.99"		

REMARKS

SUPPLY FAN REPORT

PROJECT: Fairfield Ludlowe High School		**DATE:**	7/12/23
AREA SERVED: Lower Level		**TECH:**	JF, DD

FAN DATA

FAN NUMBER	HV-3 (2)					
LOCATION	Roof					
AREA SERVED	L.L. Shops / 1st Flr Orchestra					
MANUFACTURER	Aaon					
MODEL OR SIZE	RM-015-3-0-AB02-GJH					
	DESIGN	**ACTUAL**	**DESIGN**	**ACTUAL**	**DESIGN**	**ACTUAL**
TOTAL CFM	10,350	10,775				
RETURN AIR	2300	2377				
OUTSIDE AIR	8050	7698 (3)				
DISCH. STATIC	N/D	+.98"	---			
SUCTION STATIC	N/D	-1.96"	---			
TOTAL STATIC	N/D	2.94"				
FAN RPM	N/D	1760				
PULLEY O.D.	D/D					
ESP						
VFD SPEED	60 Hz					
O.A.D.MIN POS	100%					

MOTOR DATA

MANUFACTURER		Baldor (1)					
MODEL OR FR.		213T					
HORSEPOWER		7 1/2	7 1/2				
MOTOR RPM		1760	1760				
VOLTAGE / PH.		460/3	460/3				
AMPS	**LEG 1**	10.0	10.3 | 10.3				
	LEG 2	---	9.9 | 10.0	---			
	LEG 3	---	10.4 | 10.7	---			
SHEAVE O.D.		D/D					
BELTS - QUANTITY / SIZE		---					
SHEAVE POSITION		---					
C to C		---					

REMARKS

(1) Two blowers

(2) Unit has excess leakage in control comp. penetrations should be sealed.

(3) Calculated

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 6/22/23

SYSTEM / AREA: HV-3 / 1st Floor - Orchestra, Wood, Transp. | **TECH:** JF

LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
HV-3 Supply										
Orchestra	1	20" x 6"	.71	600	450	675	479	615	437	
Orchestra	2	20" x 6"	.71	600	450	530	376	485	344	
Orchestra	3	20" x 6"	.71	600	450	705	501	645	458	
Orchestra	4	20" x 6"	.71	600	450	615	437	560	398	
Orchestra	5	20" x 6"	.71	600	450	745	529	680	483	
Orchestra	6	20" x 6"	.71	600	450	760	540	695	493	
					2700		2862		2613	
Finish Rm 0240A	7	10" x 6"	.31	806	250	360	112	750	233	
Wood Shop 024	8	16" x 10"	.67	746	500	300	201	770	516	
Wood Shop 024	9	16" x 10"	.67	746	500	345	231	700	469	
Wood Shop 024	10	16" x 10"	.67	746	500	275	184	500	335	
Wood Shop 024	11	16" x 10"	.67	746	500	315	211	665	446	
Wood Shop 024	12	16" x 10"	.67	746	500	300	201	630	422	
Wood Shop 024	13	16" x 10"	.67	746	500	160	107	740	496	
Wood Shop 024	14	16" x 10"	.67	746	500	300	201	710	476	
Wood Shop 024	15	16" x 10"	.67	746	500	195	131	790	529	
Wood Storage 024C	16	10" x 6"	.31	645	200	350	109	630	195	
					4450		1688		4117	
Trans Tech 010	17	28" x 8"	1.21	485	640	575	696	605	732	
Trans Tech 010	18	28" x 8"	1.21	485	640	370	448	390	472	
Trans Tech 010	19	28" x 8"	1.21	485	640	475	575	500	605	
Trans Tech 010	20	28" x 8"	1.21	485	640	675	817	710	859	
Trans Tech 010	21	28" x 8"	1.21	485	640	440	532	460	557	
Corridor	22	2406	FH	---	N/D	---	115	---	120	
					3200		3183		3345	
Total					**10,350**		**7733**		**10,075**	(1)
Return										
Orchestra		36" x 20"	3.6	639	2300	661	2377			
Min O.A.					8050					

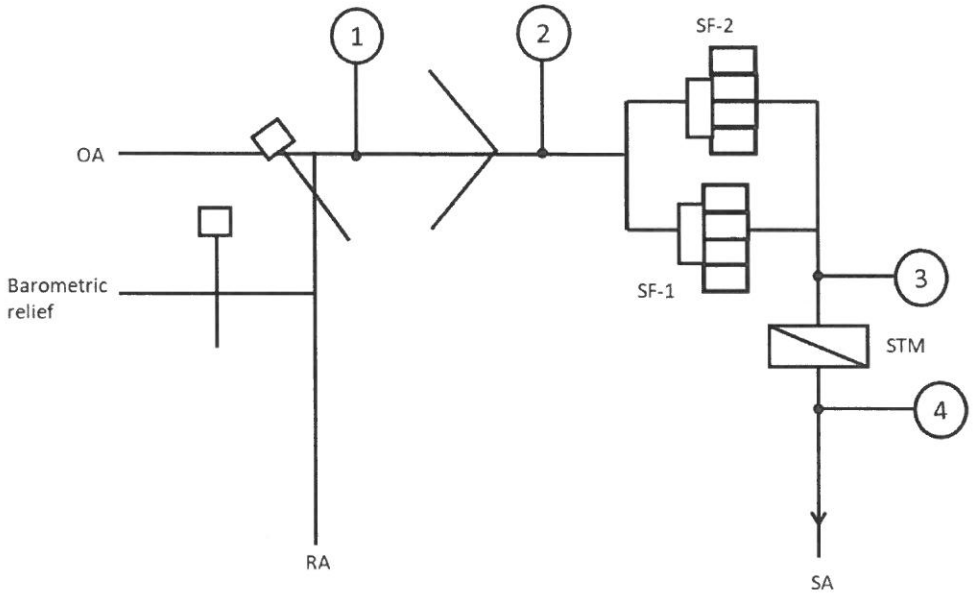
REMARKS

(1) Fan @75%, OA damper open 100%

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

SYSTEM STATIC PRESSURE PROFILE

PROJECT: Ludlowe High School - Fairfield, CT	**DATE:** 7/12/23
SYSTEM/AREA SERV: HV-3/Lower Level Wood, Auto, Music	**TECH:** JF



STATIC PRESSURE READINGS "wc

POS. (+) / NEG.(-)	1	2	3	4	5	6	7	NOTES
	-1.22"	-1.96"	+1.79"	-.98"				

REMARKS

(1) SF 1&2 at 75%

SUPPLY FAN REPORT

PROJECT: Fairfield Ludlowe High School	**DATE:** 7/26/23
AREA SERVED: Gym	**TECH:** JF, DD

FAN DATA

FAN NUMBER	HV-4					
LOCATION	Roof					
AREA SERVED	Gym					
MANUFACTURER	Temtrol					
MODEL OR SIZE	49					
	DESIGN	**ACTUAL**	**DESIGN**	**ACTUAL**	**DESIGN**	**ACTUAL**
TOTAL CFM	30,150	30,340				
RETURN AIR	---	---				
OUTSIDE AIR	30,150	30,340				
DISCH. STATIC	---	+.52"	---		---	
SUCTION STATIC	---	-1.56"	---		---	
TOTAL STATIC	N/D	2.08"				
FAN RPM	N/D	653				
PULLEY O.D.	4grv 18 5/8" x 2 7/16"					
ESP						
VFD SPEED	90%/54 Hz					
O.A.D.MIN POS						

MOTOR DATA

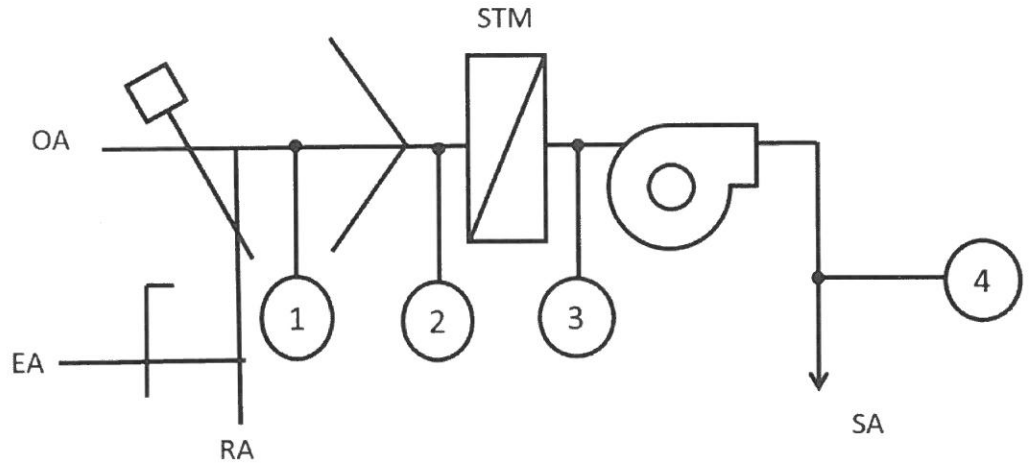
MANUFACTURER		Weg					
MODEL OR FR.		324T					
HORSEPOWER		40	40				
MOTOR RPM		1775	1603				
VOLTAGE / PH.		460/3	394/3				
AMPS	**LEG 1**	48.3	25.5				
	LEG 2	---	---	---		---	
	LEG 3	---	---	---		---	
SHEAVE O.D.		4grv 7 5/8" x 2 1/8"					
BELTS - QUANTITY / SIZE		4/BX108					
SHEAVE POSITION		Fixed					
C to C							

REMARKS

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

SYSTEM STATIC PRESSURE PROFILE

PROJECT: Ludlowe High School - Fairfield, CT	**DATE:** 7/26/23
SYSTEM/AREA SERV: HV-4	**TECH:** JF, DD



STATIC PRESSURE READINGS "wc

POS. (+) / NEG.(-)	1	2	3	4	5	6	7	NOTES
HV-4	-.51"	-1.5"	-1.56"	+.52"				

REMARKS

SUPPLY FAN REPORT

PROJECT: Fairfield Ludlowe High School	**DATE:**
AREA SERVED:	**TECH:**

FAN DATA

FAN NUMBER			HV-5N		HV-5S	
LOCATION						
AREA SERVED			AUX GYM		AUX GYM	
MANUFACTURER						
MODEL OR SIZE						
	DESIGN	**ACTUAL**	**DESIGN**	**ACTUAL**	**DESIGN**	**ACTUAL**
TOTAL CFM			15,075		15,075	
RETURN AIR			12,075		12,075	
OUTSIDE AIR			3000		3000	
DISCH. STATIC	---		---		---	
SUCTION STATIC	---		---		---	
TOTAL STATIC						
FAN RPM			2328		2328	
PULLEY O.D.						
ESP						
VFD SPEED						
O.A.D.MIN POS						

MOTOR DATA

MANUFACTURER							
MODEL OR FR.							
HORSEPOWER							
MOTOR RPM							
VOLTAGE / PH.			208/3		208/3		
AMPS	**LEG 1**						
	LEG 2	---		---		---	
	LEG 3	---		---		---	
SHEAVE O.D.							
BELTS - QUANTITY / SIZE							
SHEAVE POSITION							
C to C							

REMARKS

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

SUPPLY FAN REPORT

PROJECT: Fairfield Ludlowe High School		**DATE:**	7/12/23
AREA SERVED: 1st Floor		**TECH:**	JF, DD

FAN DATA

FAN NUMBER	HV-6					
LOCATION	Roof					
AREA SERVED	1st Flr 140, 142					
MANUFACTURER	Aaon					
MODEL OR SIZE	RM-008-3-0-A402					
	DESIGN	**ACTUAL**	**DESIGN**	**ACTUAL**	**DESIGN**	**ACTUAL**
TOTAL CFM	4500	4393				
RETURN AIR	---	---				
OUTSIDE AIR	4500	4393				
DISCH. STATIC	---	1.1"			---	
SUCTION STATIC	---	-.92"			---	
TOTAL STATIC	N/D	2.02"				
FAN RPM	N/D	(1)				
PULLEY O.D.	5 15/16" x 1 1/6"					
ESP	---					
VFD SPEED	60 Hz					
O.A.D.MIN POS						

MOTOR DATA

MANUFACTURER		Baldor					
MODEL OR FR.		213T					
HORSEPOWER		7.5	7.5				
MOTOR RPM		1760	1760				
VOLTAGE / PH.		460/3	480/3				
AMPS	**LEG 1**	10	6.1 (2)				
	LEG 2	----	----			---	
	LEG 3	---	---			---	
SHEAVE O.D.		1 VP 6 5/8" x 1 3/8"					
BELTS - QUANTITY / SIZE		1/BX68					
SHEAVE POSITION		25% Closed					
C to C		26"					

REMARKS

(1) Not accessible
(2) From VFD

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 6/23/23

SYSTEM / AREA: HV-6 / 1st Floor Restaurant | **TECH:** DD

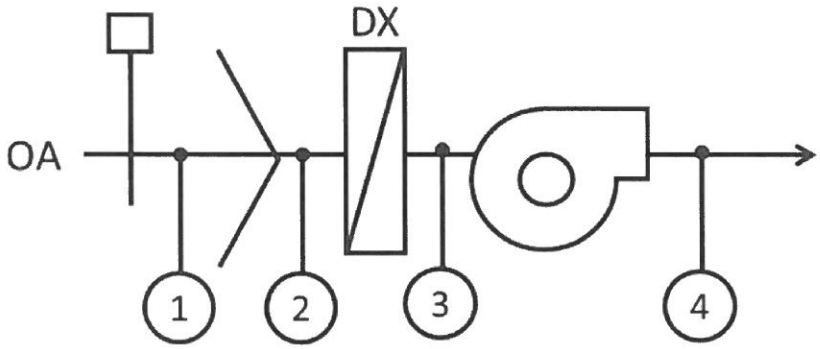
LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
HV-6 Supply										
Restaurant 142	1	2410	FH	---	360	---	260	---	337	
Restaurant 142	2	2410	FH	---	360	---	268	---	358	
Restaurant 142	3	2410	FH	---	360	---	246	---	319	
Restaurant 142	4	2410	FH	---	360	---	270	---	369	
Restaurant 142	5	2410	FH	---	360	---	261	---	354	
Restaurant 142	6	2412	FH	---	450	---	366	---	469	
Restaurant 142	7	2412	FH	---	450	---	319	---	447	
Restaurant 142	8	2412	FH	---	450	---	284	---	426	
Restaurant 142	9	2412	FH	---	450	---	277	---	418	
Restaurant 142	10	2412	FH	---	450	---	299	---	457	
Restaurant 142	11	2412	FH	---	450	---	325	---	439	
					4500		3175		4393	

REMARKS

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

SYSTEM STATIC PRESSURE PROFILE

PROJECT: Ludlowe High School - Fairfield, CT	**DATE:** 7/12/23
SYSTEM/AREA SERV: HV-6	**TECH:** JF, DD



STATIC PRESSURE READINGS "wc

POS. (+) / NEG.(-)	1	2	3	4	5	6	7	NOTES
HV-6 100% O.A.	-.44"	-.59"	-.92"	+1.1"				

REMARKS

SUPPLY FAN REPORT

PROJECT: Fairfield Ludlowe High School	**DATE:** 7/12/23
AREA SERVED: 1st Floor	**TECH:** JF, DD

FAN DATA

FAN NUMBER	HV-7					
LOCATION	Roof					
AREA SERVED	1st Flr 145					
MANUFACTURER	Aaon					
MODEL OR SIZE	RM-008-3-0-0000					
	DESIGN	**ACTUAL**	**DESIGN**	**ACTUAL**	**DESIGN**	**ACTUAL**
TOTAL CFM	4000	5236 (3)				
RETURN AIR	---	---				
OUTSIDE AIR	4000	5236				
DISCH. STATIC	---				---	
SUCTION STATIC	---				---	
TOTAL STATIC						
FAN RPM		N/A				
PULLEY O.D.	N/A					
ESP						
VFD SPEED	---					
O.A.D.MIN POS						

MOTOR DATA

MANUFACTURER		A.O. Smith					
MODEL OR FR.		518T					
HORSEPOWER		5	5				
MOTOR RPM		1760					
VOLTAGE / PH.		460/3	460/3				
AMPS	**LEG 1**	6.8	5.2				
	LEG 2	---	5.1			---	
	LEG 3	---	4.6			---	
SHEAVE O.D.		1 VP 4.4" x 1 1/8"					
BELTS - QUANTITY / SIZE		1/BX62					
SHEAVE POSITION		100% Open					
C to C							

REMARKS

(1) Not accessible
(2) From VFD
(3) Discharge ductwork flex connection has a large tear.

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 6/23/23

SYSTEM / AREA: HV-7 / 1st Floor Kitchen Lab | **TECH:** DD

LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
HV-7 Supply										
Kitchen Lab 145	1	2412	FH	---	500	---	835			
Kitchen Lab 145	2	12"Ø	.785	---	500	2158	1694			(1)
Kitchen Lab 145	3	2412	FH	---	500	---	862			
Kitchen Lab 145	4	2412	FH	---	500	---	800			
Kitchen Lab 145	5	2412	FH	---	500	---	---			(2)
Kitchen Lab 145	6	2412	FH	---	500	---	---			(2)
Kitchen Lab 145	7	2412	FH	---	500	---	810			
Storage 145A	8	2408	FH		500	---	235			(3)
					4000		5236			

REMARKS

(1) No diffuser, open pipe.
(2) Not installed.
(3) Room usage change from original design.
Note: Ductwork needs repait.

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

SUPPLY FAN REPORT

PROJECT: Fairfield Ludlowe High School		**DATE:**	7/28/23
AREA SERVED: 2nd Floor Nurse		**TECH:**	DD

FAN DATA

FAN NUMBER	RTU-1		RTU-1 Exh			
LOCATION	Roof		Roof			
AREA SERVED	LL / 1st Floor		LL / 1st Floor			
MANUFACTURER	Aaon		Aaon			
MODEL OR SIZE	RN-026-3-0-AB02-CHM		RN-026-3-0-AB02-CHM			
	DESIGN	**ACTUAL**	**DESIGN**	**ACTUAL**	**DESIGN**	**ACTUAL**
TOTAL CFM	13340					
RETURN AIR						
OUTSIDE AIR						
DISCH. STATIC	---		---			
SUCTION STATIC	---		---			
TOTAL STATIC						
FAN RPM						
PULLEY O.D.	D.D.		7 3/4" x 1 3/16"			
ESP						
VFD SPEED						
O.A.D.MIN POS	20%					
SP SPT	1.5					

MOTOR DATA

MANUFACTURER		Baldor (1)		Baldor (1,2)		
MODEL OR FR.		213T		213T		
HORSEPOWER		7 1/2	7 1/2	3	3	
MOTOR RPM		1760		1160		
VOLTAGE / PH.		460/3		460/3		
AMPS	**LEG 1**	10		4.4		
	LEG 2	---		---		
	LEG 3	---		---		
SHEAVE O.D.		D.D.		6" x 1 3/8"		
BELTS - QUANTITY / SIZE		---		1/BX64		
SHEAVE POSITION		---		100% Open		
C to C		---		23 1/2"		

REMARKS

(1) Two blowers.
(2) Not running.

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE / BOX REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:**

AREA SERVED: RTU-1 / 2nd Floor, Lower Level | **TECH:**

LOCATION	NO.	SIZE	AK	DESIGN CFM		TEST	FINAL		PRESS. DIFF.		NOTES
				MIN	MAX	CFM	MIN	MAX	MIN	MAX	
Lower Level											
VAV	**12**	16" Ø	.38		400						
Graphics 015	1	16" x 6"	.38		400						
Graphics 015	2	16" x 6"	.38		400						
Graphics 015	3	16" x 6"	.38		400						
Graphics 015	4	16" x 6"	.38		400						
Graphics 015	5	16" x 6"	.38		400						
Graphics 015	6	16" x 6"	.38		400						
					2400						
VAV	**06**	16" Ø									
Cad Lab 031	1	14" x 6	.33		350						
Cad Lab 031	2	14" x 6	.33		350						
Cad Lab 031	3	14" x 6	.33		350						
Cad Lab 031	4	14" x 6	.33		350						
Comp Lab 032	5	14" x 6	.33		350						
Comp Lab 032	6	14" x 6	.33		350						
Comp Lab 032	7	12" x 6	.29		350						
					2450						
VAV	**07**	16" Ø									
Comp Rep 030	1	16" x 6"	.38		425						
Comp Rep 030	2	16" x 6"	.38		425						
Comp Rep 030	3	16" x 6"	.38		425						
Comp Rep 030	4	16" x 6"	.38		425						
Comp Rep 030	5	16" x 6"	.38		425						
Comp Rep 030	6	16" x 6"	.38		425						
Comp Rep 030	7	16" x 6"	.38		425						
Comp Rep 030	8	16" x 6"	.38		425						
					3400						

REMARKS

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE / BOX REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:**

AREA SERVED: RTU-1 / 2nd Floor | **TECH:**

LOCATION	NO.	SIZE	AK	DESIGN CFM		TEST	FINAL		PRESS. DIFF.		NOTES
				MIN	MAX	CFM	MIN	MAX	MIN	MAX	
VAV	**18**	14" Ø									
Classroom 205	1	2408	FH	---	300						
Classroom 205	2	2408	FH	---	300						
Classroom 205	3	2408	FH	---	300						
Classroom 205	4	2408	FH	---	300						
Classroom 205	5	2408	FH	---	300						
Classroom 205	6	2408	FH	---	300						
					1800						
VAV	**19**	10" Ø									
206A	1	2408	FH	---	110						
Waiting 206	2	2408	FH	---	300						
Waiting 206	3	2408	FH	---	300						
206B	4	2408	FH	---	110						
					820						
VAV	**20**	16" Ø									
206F	1	2412	FH	---	325						
206F	2	2412	FH	---	325						
206D	3	2412	FH	---	510						
206E	4	2412	FH	---	510						
206C	5	2412	FH	---	400						
206C	6	2412	FH	---	400						
					2470						
				Total	13,340						

REMARKS

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

RTU-1 R1	Design	CFM	Damper
VAV-16 (381)	1925	890	
VAV-10 (281/282)	2700	2301	100%
VAV-9 (284/283)	2600	1959	100%
VAV-15 (181)	1925	1896	
	8159	8046	
RA	6210	6371	
MIN OA		1675	

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SUPPLY FAN REPORT

PROJECT: Fairfield Ludlowe High School		**DATE:**	8/1/23
AREA SERVED: 2nd & 1st Floor		**TECH:**	DD

FAN DATA

FAN NUMBER	RTU-1-R1		RTU-1-R1 Exh			
LOCATION	Roof		Roof			
AREA SERVED	2nd & 1st Floor		2nd & 1st Floor			
MANUFACTURER	Aaon		Aaon			
MODEL OR SIZE	RN-025-3-0-EB09-389		RN-025-3-0-EB09-389			
	DESIGN	**ACTUAL**	**DESIGN**	**ACTUAL**	**DESIGN**	**ACTUAL**
TOTAL CFM	9150	8046	N/D	6083		
RETURN AIR	6650	5568 (1)	N/D	5568		
OUTSIDE AIR	2500	2478	ND	515		
DISCH. STATIC	---	+1.7"	---	---		
SUCTION STATIC	---	-2.7"	---	1.5"		
TOTAL STATIC		4.4"		--- (3)		
FAN RPM	N/D	1500 (1)	N/D	590		
PULLEY O.D.	D/D		6 3/4" x 1"			
ESP						
VFD SPEED	51 Hz		20.4			
O.A.D.MIN POS	20%					
SP SPT	1.8					

MOTOR DATA

MANUFACTURER		Baldor		Baldor			
MODEL OR FR.		254T		213T			
HORSEPOWER		15	15	7.5	7.5		
MOTOR RPM		1765	1500 (1)	1770	590		
VOLTAGE / PH.		460/3	415/3 (1)	460/3	163/3		
AMPS	**LEG 1**	17.7	15.9 (1)	9.7	4.9		
	LEG 2	---	---	---	---		
	LEG 3	---	---	---	---		
SHEAVE O.D.		D/D		1 VP 7 5/8" x 1 3/8"			
BELTS - QUANTITY / SIZE		---		1/4L640			
SHEAVE POSITION		---		50% Closed			
C to C		---					

REMARKS

(1) From VFD
(2) Calculated
(3) Unable to calculate

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE / BOX REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 8/3/23

AREA SERVED: RTU-1-R1 / 1st ,2nd, 3rd Floor Science | **TECH:** JF

LOCATION	NO.	SIZE	AK	DESIGN CFM		TEST	FINAL		PRESS. DIFF.		NOTES
				MIN	MAX	CFM	MIN	MAX	MIN	MAX	
VAV	**16**	14" Ø									
Prep 381A	1	2412	FH	---	425	519	---	453			
Classroom 381	2	2408	FH	---	250	306	---	249			
Classroom 381	3	2408	FH	---	250	313	---	270			
Classroom 381	4	2408	FH	---	250	300	---	258			
Classroom 381	5	2408	FH	---	250	280	---	231			
Classroom 381	6	2408	FH	---	250	328	---	264			
Classroom 381	7	2408	FH	---	250	333	---	279			
				770	1925	2379	772	2004	25.2	70.1	
VAV	**10**	16" Ø									
Classroom 281	1	2412	FH	---	325	468	---	293			
Classroom 281	2	2412	FH	---	325	438	---	334			
Classroom 281	3	2412	FH	---	325	477	---	336			
Classroom 281	4	2412	FH	---	325	489	---	314			
Classroom 282	5	2412	FH	---	350	599	---	362			
Classroom 282	6	2412	FH	---	350	594	---	374			
Classroom 282	7	2412	FH	---	350	500	---	324			
Classroom 282	8	2412	FH	---	350	626	---	368			
				1080	2700	4191	1108	2705	34.1	78.0	
VAV	**09**	16" Ø									
Classroom 284	1	2412	FH	---	325	337	---	304			
Classroom 284	2	2412	FH	---	325	247	---	330			
Classroom 284	3	2412	FH	---	325	393	---	359			
Classroom 284	4	2412	FH	---	325	381	---	346			
Classroom 283	5	2412	FH	---	325	382	---	357			
Classroom 283	6	2412	FH	---	325	411	---	372			
Classroom 283	7	2412	FH	---	325	409	---	363			
Classroom 283	8	2412	FH	---	325	482	---	332			
				1040	2600	3042	1084	2763	30.0	77.01	

REMARKS

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE / BOX REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 8/4/23

AREA SERVED: RTU-1-R1 | **TECH:** JF

LOCATION	NO.	SIZE	AK	DESIGN CFM		TEST	FINAL		PRESS. DIFF.		NOTES
				MIN	MAX	CFM	MIN	MAX	MIN	MAX	
VAV	**15**	14" Ø									
Prep 181A	1	2412	FH	---	425	647	---	464			
Classroom 181	2	2408	FH	---	250	331	---	261			
Classroom 181	3	2408	FH	---	250	327	---	254			
Classroom 181	4	2408	FH	---	250	336	---	273			
Classroom 181	5	2408	FH	---	250	325	---	244			
Classroom 181	6	2408	FH	---	250	298	---	225			
Classroom 181	7	2408	FH	---	250	328	---	244			
				770	1925	2592	753	1965	27.2	70.95	

REMARKS

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 8/4/23

SYSTEM / AREA: RTU-1-R1 | **TECH:** JF, DD

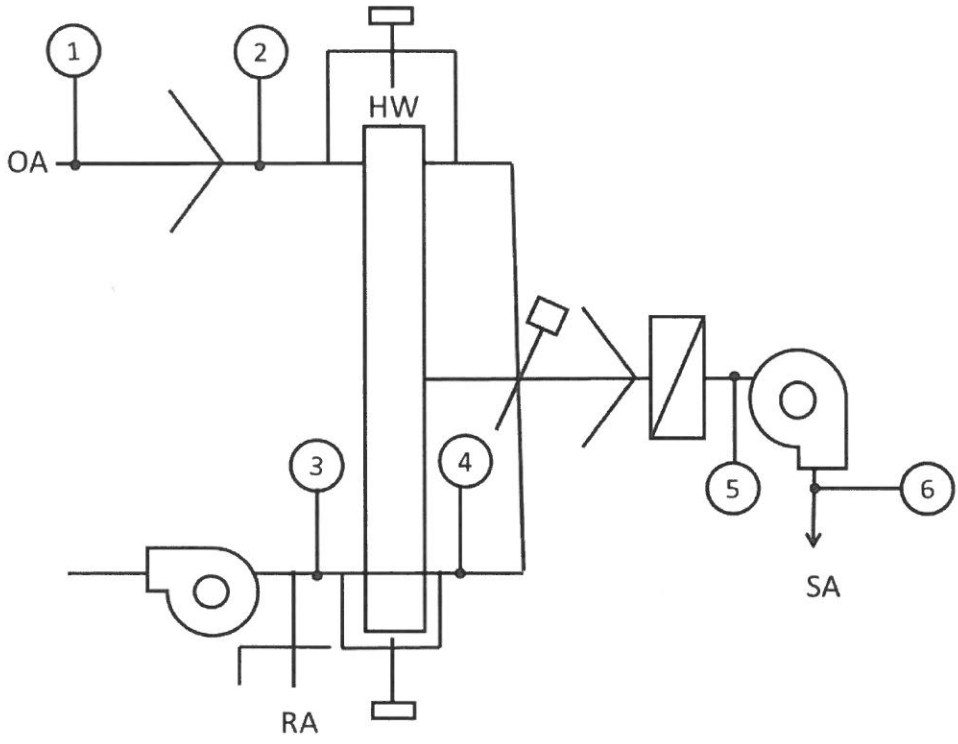
LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
Returns 2nd Floor										
Classroom 281	R1	14" x 14"	FH	---	575	---	552	---	549	
Classroom 281	R2	14" x 14"	FH	---	575	---	602	---	607	
Classroom 282	R3	14" x 14"	FH	---	420	---	500	---	394	
Classroom 282	R4	14" x 14"	FH	---	420	---	513	---	421	
Classroom 282	R5	14" x 14"	FH	---	420	---	528	---	440	
Classroom 284	R6	14" x 14"	FH	---	575	---	594	---	556	
Classroom 284	R7	14" x 14"	FH	---	575	---	598	---	515	
Classroom 283	R8	14" x 14"	FH	---	575	---	524	---	530	
Classroom 283	R9	14" x 14"	FH	---	575	---	498	---	524	
					4710		4909		4566	
1st Floor										
Prep 181A	R10	14" x 14"	FH	---	100	---	126	---	109	
Classroom 181	R11	14" x 14"	FH	---	700	---	929	---	712	
Classroom 181	R12	14" x 14"	FH	---	700	---	935	---	696	
					1500		1990		1517	
				Total	6210		6899		6083	

REMARKS

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

SYSTEM STATIC PRESSURE PROFILE

PROJECT: Ludlowe High School - Fairfield, CT	**DATE:** 8/1/23
SYSTEM/AREA SERV: RTU-1-R1	**TECH:** DD



STATIC PRESSURE READINGS "wc								
POS. (+) / NEG.(-)	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**NOTES**
RTU-1-R1	-.07"	-.23"	-1.5"	-1.6"	-2.7"	+1.7"		

REMARKS

RTU-2	Design	CFM	Damper
VAV-05 (Fitness 121)	2700	2600	100%
VAV-19 (Group Exercise)	1740	1590	100%
	4440	4190	
VAV-121 (Fitness)	2700	2450	100%
VAV-19 (Group Exercise)	1740	1518	100%
	4440	3968	

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SUPPLY FAN REPORT

PROJECT: Fairfield Ludlowe High School		**DATE:**	8/9/23, 8/11/23, 8/21/23
AREA SERVED: 1st Floor + Lower Level		**TECH:**	JF, DD

FAN DATA

FAN NUMBER	RTU-2		RTU-2 Exh			
LOCATION	Roof		Roof			
AREA SERVED	Rms 001, 121		Rms 001, 121			
MANUFACTURER	Aaon		Aaon			
MODEL OR SIZE	RN-015-3-0-ABO2-C7H		RN-015-3-0-ABO2-C7H			
	DESIGN	**ACTUAL**	**DESIGN**	**ACTUAL**	**DESIGN**	**ACTUAL**
TOTAL CFM	4440	3968				
RETURN AIR	3940	3432				
OUTSIDE AIR	500	536				
DISCH. STATIC	---	1.25"	---	---		
SUCTION STATIC	---	-1.72"	---	---		
TOTAL STATIC	N/D	2.97"				
FAN RPM	N/D	1936				
PULLEY O.D.	4 7/8" x 1"		9 1/8" x 1"			
ESP						
VFD SPEED	60 Hz					
O.A.D.MIN POS	15%					
SP SPT	1.5					

MOTOR DATA

MANUFACTURER		Century (1)		Century (1)			
MODEL OR FR.		S184T		S182T			
HORSEPOWER		5	5	3	3		
MOTOR RPM		1760	1760	1765			
VOLTAGE / PH.		460/3	453/3 (2)	460/3			
AMPS	**LEG 1**	6.8	6.4 (2)	4.3			
	LEG 2	---	---	---	---		
	LEG 3	---	---	---	---		
SHEAVE O.D.		1 VP 5 3/8" x 1 1/8" (1)		N/A			
BELTS - QUANTITY / SIZE		1/BX63		1/BP41			
SHEAVE POSITION		70% Closed		N/A			
C to C		25 1/2"		N/A			

REMARKS

(1) Unable to speed up further.
(2) From VFD

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE / BOX REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 8/8/23

AREA SERVED: RTU-2 / 1st Floor 121, Lower Level 001 | **TECH:** JF

LOCATION	NO.	SIZE	AK	DESIGN CFM		TEST	FINAL		PRESS. DIFF.		NOTES
				MIN	MAX	CFM	MIN	MAX	MIN	MAX	
1st Floor											
VAV	**05**	16"Ø									
121 Fitness	1	2408	FH	---	270	120	---	278			
121 Fitness	2	2408	FH	---	270	104	---	244			
121 Fitness	3	2408	FH	---	270	109	---	265			
121 Fitness	4	2408	FH	---	270	113	---	259			
121 Fitness	5	2408	FH	---	270	118	---	265			
121 Fitness	6	2408	FH	---	270	109	---	228			
121 Fitness	7	2408	FH	---	270	115	---	286			
121 Fitness	8	2408	FH	---	270	115	---	246			
121 Fitness	9	2408	FH	---	270	130	---	248			
121 Fitness	10	2408	FH	---	270	128	---	291			
				1080	2700	1161	1053	2609	25.0	62.3	
Lower Level											
VAV	**19**	16"Ø									
Group Exercise 001	1	2408	FH	---	290	313	---	307			
Group Exercise 001	2	2408	FH	---	290	317	---	301			
Group Exercise 001	3	2408	FH	---	290	328	---	310			
Group Exercise 001	4	2408	FH	---	290	323	---	303			
Group Exercise 001	5	2408	FH	---	290	301	---	284			
Group Exercise 001	6	2408	FH	---	290	290	---	376			
				700	1740	1872	715	1781	17.9	48.12	
				Total	4440						

REMARKS

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 8/22/23

SYSTEM / AREA: RTU-2 / Return | **TECH:** JF

LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
RTU-2 Return										
Fitness	R1	36" x 12"	2.4	917	2200	950	2280			(1)
Group Exercise	R2	22" x 16"	1.96	939	1840	684	1341			
					4040		3621			

REMARKS

Ductwork is 24" x 12". Calls for 34" x 10" with 36" x 20" register

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

RTU-3	Design	CFM	Damper
VAV 06 (Rm 150)	1500	1067	1005
VAV-05 (Rm 149)	4050	2928	100%
VAV-04 (Rm 151)	1230	969	100%
VAV-03 (Rm 146)	3300	1500	100%
VAV-02 (Corr)	600	477	100%
VAV-01 (Rm 153)	1435	1000	100%
	12115	7941	

Setpoint	1.5
Act	0.43

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SUPPLY FAN REPORT

PROJECT: Fairfield Ludlowe High School		**DATE:**	8/8/23, 8/22/23
AREA SERVED: 1st Floor Rm 146-151		**TECH:**	JF

FAN DATA

FAN NUMBER	RTU-3 Supply		RTU-3 Exh			
LOCATION	Roof		Roof			
AREA SERVED	1st Floor Rm 146-151		1st Floor Rm 146-151			
MANUFACTURER	Aaon		Aaon			
MODEL OR SIZE	RN-040-3-0-AA02		RN-040-3-0-AA02			
	DESIGN	**ACTUAL**	**DESIGN**	**ACTUAL**	**DESIGN**	**ACTUAL**
TOTAL CFM	12,115	7941				
RETURN AIR	9415	(3)				
OUTSIDE AIR	2700					
DISCH. STATIC	---		---			
SUCTION STATIC	---		---			
TOTAL STATIC						
FAN RPM						
PULLEY O.D.	D/D		7 3/4" x 1 3/16"			
ESP						
VFD SPEED	45 Hz (4)					
O.A.D.MIN POS						
SP SETPOINT	1.5"					

MOTOR DATA

MANUFACTURER		Baldor (1)		Baldor (1,2)			
MODEL OR FR.		213T		215T			
HORSEPOWER		7 1/2	7 1/2	5	5		
MOTOR RPM		1760		1760			
VOLTAGE / PH.		460/3		460/3			
AMPS	**LEG 1**	10.0	10.0 (1)	7.5			
	LEG 2	---		---			
	LEG 3	---		---			
SHEAVE O.D.		D/D		1 VP 6" x 1 3/8"			
BELTS - QUANTITY / SIZE		---		1/BX64			
SHEAVE POSITION		---		80% Open			
C to C		---					

REMARKS

(1) Two blowers
(2) Not running
(3) Plenum return
(4) Max speed

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE / BOX REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 8/8/23

AREA SERVED: RTU-3 / 1st Floor " Webster" | **TECH:** JF

LOCATION	NO.	SIZE	AK	DESIGN CFM		TEST	FINAL		PRESS. DIFF.		NOTES
				MIN	MAX	CFM	MIN	MAX	MIN	MAX	
VAV	**06**										
Comp Lab 150	1	2408	FH	---	250	220	---	220			
Comp Lab 150	2	2408	FH	---	250	234	---	234			
Comp Lab 150	3	2408	FH	---	250	236	---	236			
Comp Lab 150	4	2408	FH	---	250	273	---	273			
Comp Lab 150	5	2408	FH	---	250	266	---	266			
Comp Lab 150	6	2408	FH	---	250	262	---	262			
				600	1500	1491	592	1491	20.04	62.17	
VAV	**05**	24" x 16"									
Classroom 148	1	2410	FH	---	325	294	---	343			
Classroom 148	2	2410	FH	---	325	313	---	338			
Classroom 148	3	2410	FH	---	325	301	---	329			
Classroom 148	4	2410	FH	---	325	313	---	338			
Classroom 148	5	2410	FH	---	325	303	---	327			
Classroom 148	6	2410	FH	---	325	337	---	364			
Classroom 149	7	2410	FH	---	350	309	---	334			
Classroom 149	8	2410	FH	---	350	350	---	350			
Classroom 149	9	2410	FH	---	350	323	---	349			
Classroom 149	10	2410	FH	---	350	315	---	340			
Classroom 149	11	2410	FH	---	350	327	---	353			
Classroom 149	12	2410	FH	---	350	323	---	349			
				1620	4050	3807	1576	4114	17.3	50.77	
VAV	**04**	12" Ø									
Physics 151	1	2408	FH	---	205	229	---	211			
Physics 151	2	2408	FH	---	205	231	---	203			
Physics 151	3	2408	FH	---	205	210	---	196			
Physics 151	4	2408	FH	---	205	246	---	236			
Physics 151	5	2408	FH	---	205	246	---	224			
Physics 151	6	2408	FH	---	205	206	---	188			
				490	1230	1367	510	1258	22.4	59.8	
VAV	**02**										
Corridor	1	2408	FH	---	200	238	---	206			
Corridor	2	2408	FH	---	200	253	---	219			
Corridor	3	2408	FH	---	200	212	---	183			
				240	600	703	239	608	22.4	70.97	

REMARKS

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE / BOX REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 8/8/23

AREA SERVED: RTU-3 / 1st Floor " Webster" | **TECH:** JF

LOCATION	NO.	SIZE	AK	DESIGN CFM		TEST	FINAL		PRESS. DIFF.		NOTES
				MIN	MAX	CFM	MIN	MAX	MIN	MAX	
VAV	**03**	24" x 16"									
Classroom 146	1	2408	FH	---	275	274	---	274			
Classroom 146	2	2408	FH	---	275	263	---	263			
Classroom 146	3	2408	FH	---	275	267	---	267			
Classroom 146	4	2408	FH	---	275	290	---	290			
Classroom 146	5	2408	FH	---	275	268	---	268			
Classroom 146	6	2408	FH	---	275	249	---	249			
Classroom 147	7	2408	FH	---	275	260	---	260			
Classroom 147	8	2408	FH	---	275	247	---	247			
Classroom 147	9	2408	FH	---	275	246	---	246			
Classroom 147	10	2408	FH	---	275	259	---	259			
Classroom 147	11	2408	FH	---	275	270	---	270			
Classroom 147	12	2408	FH	---	275	268	---	268			
				1320	3300	3162	1496	3162	9.0	33.46	(1)
VAV	**01**	12"									
Physics 153	1	2408	FH	---	205	231	---	219			
Physics 153	2	2408	FH	---	205	236	---	224			
Physics 153	3	2408	FH	---	205	262	---	247			
Physics 153	4	2408	FH	---	205	225	---	206			
Physics 153	5	2408	FH	---	205	194	---	180			
Physics 153	6	2408	FH	---	205	207	---	196			
Prep 152	7	2408	FH	---	205	193	---	190			
				575	1435	1548	601	1460	30.0	72.72	
				Total	12,115						
Returns											
Classroom 147	R1	22" x 22"	FH	---	N/D						
Classroom 146	R2	22" x 22"	FH	---	N/D						
Physics 153	R3	22" x 22"	FH	---	N/D						
Comp Lab 150	R4	22" x 22"	FH	---	N/D						
Comp Lab 150	R5	22" x 22"	FH	---	N/D						
Physics 151	R6	22" x 22"	FH	---	N/D						
Classroom 149	R7	22" x 22"	FH	---	N/D						
Classroom 148	R8	22" x 22"	FH	---	N/D						

REMARKS

(1) Damper is not scaled correctly, damper is closed 50%.

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

SUPPLY FAN REPORT

PROJECT: Fairfield Ludlowe High School		**DATE:**	8/21/23
AREA SERVED: 2nd Floor		**TECH:**	JF, DD

FAN DATA

FAN NUMBER	RTU-4		RTU-4 Exh			
LOCATION	Roof		Roof			
AREA SERVED	2nd Floor Blackbox		2nd Floor Blackbox			
MANUFACTURER	Aaon		Aaon			
MODEL OR SIZE	RN-007-3-0-ARU		RN-007-3-0-ARU			
	DESIGN	**ACTUAL**	**DESIGN**	**ACTUAL**	**DESIGN**	**ACTUAL**
TOTAL CFM	2400	2524	2400	1870		
RETURN AIR	2025	2156 (1)	2400	1870		
OUTSIDE AIR	375	368	375	0		
DISCH. STATIC	---	+.43"	---			
SUCTION STATIC	---	-.98"	---			
TOTAL STATIC	N/D	1.41"				
FAN RPM	N/D	(2)				
PULLEY O.D.	4 1/4" x 1"		9 1/8" x 1"			
ESP	N/D					
VFD SPEED	60 Hz					
O.A.D.MIN POS	30%					

MOTOR DATA

MANUFACTURER		Century		Century (1)			
MODEL OR FR.		S182T		S182T			
HORSEPOWER		3.0	3.0	3.0	3.0		
MOTOR RPM		1765	1765	1765			
VOLTAGE / PH.		460/3	460/3	460/3			
AMPS	**LEG 1**	4.3	2.5	4.3			
	LEG 2	---	2.6	---			
	LEG 3	---	2.7	---			
SHEAVE O.D.		1 VP 5 3/8" x 1 1/8"		N/A			
BELTS - QUANTITY / SIZE		1/AX48		1/AX38			
SHEAVE POSITION		80% Closed		N/A			
C to C		18"		N/A			

REMARKS

(1) Calculated.

(1) Unable to tach.

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 6/15/23

SYSTEM / AREA: RTU-4 / 2nd Floor - Black Box Theatre | **TECH:** DD

LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
RTU-4 Supply										
Black Box 201	1	16" x 10"	.8	333	266	417	334	366	293	
Black Box 201	2	16" x 10"	.8	334	267	303	242	334	267	
Black Box 201	3	16" x 10"	.8	333	266	458	366	350	280	
Black Box 201	4	16" x 10"	.8	334	267	425	340	330	264	
Black Box 201	5	16" x 10"	.8	333	266	267	214	356	285	
Black Box 201	6	16" x 10"	.8	334	267	439	351	342	274	
Black Box 201	7	16" x 10"	.8	333	266	490	392	340	272	
Black Box 201	8	16" x 10"	.8	334	267	395	316	366	293	
Black Box 201	9	16" x 10"	.8	333	266	364	291	370	296	
					2400		2656		2524	
RTU-4 Return										
Black Box 201	1	18" x 12"	1.08	741	800	530	572	550	594	(1)
Black Box 201	2	18" x 10"	FH	---	800	---	591	---	593	
Black Box 201	3	18" x 10"	FH	---	800	---	704	---	713	
					2400		1867		1870	

REMARKS

(1) Dampers open 100%.

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

AC-4	Design	CFM	Damper
VAV-06 (Rm 275)	1240	946	100%
VAV-01 (Rm 276)	1920	1449	
VAV-05 (Rm 274)	800	818	100%
	3960	3213	

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SUPPLY FAN REPORT

PROJECT: Fairfield Ludlowe High School	**DATE:** 7/11/23
AREA SERVED: 2nd Floor	**TECH:** JF, DD

FAN DATA

FAN NUMBER	AC-4 Supply		AC-4 Power Exhaust			
LOCATION	Roof		Roof			
AREA SERVED	2nd Floor 274, 275, 276		2nd Floor 274, 275, 276			
MANUFACTURER	Trane		Trane			
MODEL OR SIZE	TSD150G3ROAOR		TSD150G3ROAOR			
	DESIGN	**ACTUAL**	**DESIGN**	**ACTUAL**	**DESIGN**	**ACTUAL**
TOTAL CFM	3960	3213				
RETURN AIR	3660	2883				
OUTSIDE AIR	300	330				
DISCH. STATIC	---	+.55"	---	---		
SUCTION STATIC	---	-.62"	---	---		
TOTAL STATIC		1.17"				
FAN RPM		962				
PULLEY O.D.	8 3/4 " x 1 1/16"					
ESP						
VFD SPEED	---					
O.A.D.MIN POS						

MOTOR DATA

MANUFACTURER		Marathon		(1)			
MODEL OR FR.		56 Hz					
HORSEPOWER		3	3				
MOTOR RPM		1725	1725				
VOLTAGE / PH.		208/3	208/3				
AMPS	**LEG 1**	9.4	8.6				
	LEG 2	---	8.6	---			
	LEG 3	---	9.2	---			
SHEAVE O.D.		1 VP 4 1/8" x 7/8"					
BELTS - QUANTITY / SIZE		1/BX62					
SHEAVE POSITION		100% Closed					
C to C		Tensioner Pulley					

REMARKS

(1) Motor tag not accessible.

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE / BOX REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 8/1/23

AREA SERVED: AC-4 / 2nd Floor | **TECH:** JF, DD

LOCATION	NO.	SIZE	AK	DESIGN CFM		TEST	FINAL		PRESS. DIFF.		NOTES
				MIN	MAX	CFM	MIN	MAX	MIN	MAX	
VAV	**06**	14"Ø									
Prod 275	1	10" x 4"	.17	1000	170	815|139	---	830|141			
Prod 275	2	10" x 4"	.17	1000	170	740|126	---	765|130			
Prod 275	3	10" x 4"	.17	1000	170	770|131	---	790|134			
Vestibule	4	2410	FH	---	N/L	77	---	83			
Prod 275	5	10" x 4"	.17	1000	170	500|85	---	525|89			
Prod 275	6	10" x 4"	.17	1000	170	550|94	---	570|97			
Prod 275	7	10" x 4"	.17	1000	170	375|64	---	400|68			
Control 275A	8	12" x 8"	.41	537	220	505|207	---	400|164			
				500	1240	923	906	906	21.0	36.4	(1,2,3,4)
VAV	**01**	12"Ø									
Dist Learning 276	1	2412	FH	---	480	318	---	321			
Dist Learning 276	2	2412	FH	---	480	320	---	323			
Dist Learning 276	3	2412	FH	---	480	333	---	336			
Dist Learning 276	4	2412	FH	---	480	322	---	324			
				768	1920	1293	1304	1304	33.00	56.88	(1,2,3)
VAV		14"Ø									
Classroom 274	1	2410	FH	---	200	173	---	173			
Classroom 274	2	2410	FH	---	200	159	---	159			
Classroom 274	3	2410	FH	---	200	164	---	164			
Classroom 274	4	2410	FH	---	200	174	---	174			
				320	800	670	670	670	22.0	43.40	(1,2,3)
				Total	3960						

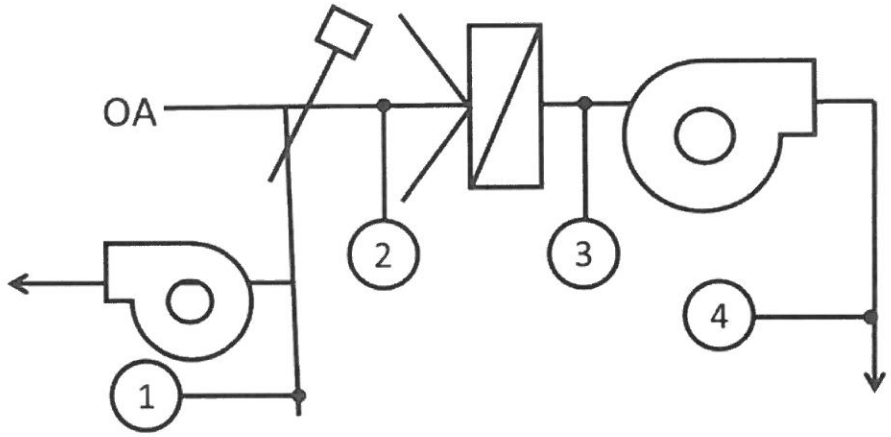
REMARKS

(1) Fan has no SP sensor.
(2) Tested with reduce flow at other boxes to increase SP for calibration.
(3) Box is 100% open @ max.
(4) See VPT sheet.

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

SYSTEM STATIC PRESSURE PROFILE

PROJECT: Ludlowe High School - Fairfield, CT	**DATE:** 8/23/23
SYSTEM/AREA SERV: AC-4 (Trane)	**TECH:** JF



STATIC PRESSURE READINGS "wc

POS. (+) / NEG.(-)	1	2	3	4	5	6	7	NOTES
AC-4	-.23"	-.38"	-.62"	+.55"				

REMARKS

SUPPLY FAN REPORT

PROJECT: Fairfield Ludlowe High School		**DATE:**	8/1/23
AREA SERVED: 2nd Floor		**TECH:**	DD

FAN DATA

FAN NUMBER	RTU-5		RTU-5 Exh			
LOCATION	Roof		Roof			
AREA SERVED	2nd Floor Class		2nd Floor Class			
MANUFACTURER	Aaon		Aaon			
MODEL OR SIZE	51749 RL-095-3-0-0B04		51749 RL-095-3-0-0B04			
	DESIGN	**ACTUAL**	**DESIGN**	**ACTUAL**	**DESIGN**	**ACTUAL**
TOTAL CFM	33,490	30,860				
RETURN AIR	28,790	26,524 (2)				
OUTSIDE AIR	4700	4336				
DISCH. STATIC	---	2.6"	---			
SUCTION STATIC	---	-2.4"	---			
TOTAL STATIC	N/D	5.0"				
FAN RPM	N/D	1735				
PULLEY O.D.	D/D		D/D			
ESP						
VFD SPEED	59 Hz					
O.A.D.MIN POS	15%					
SP SPT	1.5					

MOTOR DATA

MANUFACTURER		Century (1)		Baldor			
MODEL OR FR.		S256T		215T			
HORSEPOWER		20	20	5			
MOTOR RPM		1765	1735	1160			
VOLTAGE / PH.		460/3	432/3	460/3			
AMPS	**LEG 1**	24.5	28.0	7.5			
	LEG 2		---	---			
	LEG 3	---	---	---			
SHEAVE O.D.		D/D		D/D			
BELTS - QUANTITY / SIZE		---	---	---			
SHEAVE POSITION		---	---	---			
C to C							

REMARKS

(1) Typical 3 blowers
(2) Calculated

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE / BOX REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 8/14/23

AREA SERVED: RTU-5 / 2nd Floor Classrooms | **TECH:** JF

LOCATION	NO.	SIZE	AK	DESIGN CFM		TEST	FINAL		PRESS. DIFF.		NOTES
				MIN	MAX	CFM	MIN	MAX	MIN	MAX	
VAV	**08**	24" x 16"									
Classroom 257	1	2408	FH	---	200	219	327				
Classroom 257	2	2408	FH	---	200	224	325				
Classroom 257	3	2408	FH	---	200	241	345				
Classroom 257	4	2408	FH	---	200	240	334				
Classroom 256	5	2408	FH	---	300	226	318				
Classroom 256	6	2408	FH	---	300	241	352				
Classroom 256	7	2408	FH	---	300	225	304				
Classroom 256	8	2408	FH	---	300	215	302				
Classroom 256	9	2408	FH	---	300	236	312				
Classroom 256	10	2408	FH	---	300	204	295				
Classroom 255	11	2408	FH	---	315	345	527				
Classroom 255	12	2408	FH	---	315	381	590				
Classroom 255	13	2408	FH	---	315	164	493				
Classroom 255	14	2408	FH	---	315	169	246				
Classroom 255	15	2408	FH	---	315	315	438				
Classroom 255	16	2408	FH	---	315	153	241				
				1796	4490	3797	5749		25.00	60.97	(1,2,3)
VAV	**14**	24" x 16"									
Classroom 249	1	2410	FH	---	315	275	---	275			
Classroom 249	2	2410	FH	---	315	277	---	277			
Classroom 249	3	2410	FH	---	315	266	---	266			
Classroom 249	4	2410	FH	---	315	306	---	306			
Classroom 249	5	2410	FH	---	315	270	---	270			
Classroom 249	6	2410	FH	---	315	261	---	261			
Classroom 250	7	2410	FH	---	315	255	---	255			
Classroom 250	8	2410	FH	---	315	287	---	287			
Classroom 250	9	2410	FH	---	315	270	---	270			
Classroom 250	10	2410	FH	---	315	291	---	291			
Classroom 250	11	2410	FH	---	315	331	---	331			
Classroom 250	12	2410	FH	---	315	291	---	291			
Classroom 251	13	2410	FH	---	315	266	---	266			
Classroom 251	14	2410	FH	---	315	309	---	309			
Classroom 251	15	2410	FH	---	315	290	---	290			
Classroom 251	16	2410	FH	---	315	320	---	320			
Classroom 251	17	2410	FH	---	315	280	---	280			
Classroom 251	18	2410	FH	---	315	294	---	294			
				2268	5670	5139	2202	5139	22.85	53.12	(1,2)

REMARKS

(1) SP = 1.3" fan @ 100%

(2) Box is 100% open

(3) Unable to calibrate or balance due to fluctuations in airflow. Requires further troubleshooting.

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE / BOX REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 8/15/23

AREA SERVED: RTU-5 / 2nd Floor Classrooms | **TECH:** JF

LOCATION	NO.	SIZE	AK	DESIGN CFM		TEST	FINAL		PRESS. DIFF.		NOTES
				MIN	MAX	CFM	MIN	MAX	MIN	MAX	
VAV	**11**	14" Ø									
Corridor	1	2410	FH	---	300	333	---	316			
Corridor	2	2410	FH	---	300	345	---	300			
Corridor	3	2410	FH	---	300	386	---	343			
Corridor	4	2410	FH	---	300	369	---	341			
Corridor	5	2410	FH	---	300	329	---	297			
Corridor	6	2410	FH	---	300	315	---	287			
Corridor	7	2410	FH	---	300	220	---	242			
Corridor	8	2410	FH	---	300	332	---	312			
					2400	2630	1006	2428	32.25	92.35	
VAV	**12**	24" x 16"									
Classroom 252	1	2410	FH	---	315	303	---	306			
Classroom 252	2	2410	FH	---	315	260	---	263			(1)
Classroom 252	3	2410	FH	---	315	308	---	312			
Classroom 252	4	2410	FH	---	315	296	---	309			
Classroom 252	5	2410	FH	---	315	332	---	331			
Classroom 252	6	2410	FH	---	315	327	---	346			
Classroom 253	7	2410	FH	---	315	330	---	310			
Classroom 253	8	2410	FH	---	315	342	---	302			
Classroom 253	9	2410	FH	---	315	372	---	335			
Classroom 253	10	2410	FH	---	315	309	---	291			
Classroom 253	11	2410	FH	---	315	302	---	285			
Classroom 253	12	2410	FH	---	315	324	---	306			
Classroom 254	13	2410	FH	---	315	332	---	318			
Classroom 254	14	2410	FH	---	315	247	---	321			
Classroom 254	15	2410	FH	---	315	59	---	225			
Classroom 254	16	2410	FH	---	315	303	---	315			
Classroom 254	17	2410	FH	---	315	297	---	291			
Classroom 254	18	2410	FH	---	315	255	---	339			
				2268	5670	5299	2290	5506	16.8	59.2	

REMARKS

(1) VD is 100% open.

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE / BOX REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 8/15/23

AREA SERVED: RTU-5 / 2nd Floor Classrooms | **TECH:** JF

LOCATION	NO.	SIZE	AK	DESIGN CFM		TEST	FINAL		PRESS. DIFF.		NOTES
				MIN	MAX	CFM	MIN	MAX	MIN	MAX	
VAV	**13**	14" Ø									
Classroom 262	1	2408	FH	---	130	294	---	125			
Classroom 262	2	2408	FH	---	130	274	---	113			
Classroom 262	3	2408	FH	---	130	340	---	138			
Classroom 262	4	2408	FH	---	130	325	---	134			
Classroom 262	5	2408	FH	---	130	344	---	148			
Classroom 262	6	2408	FH	---	130	342	---	140			
Storage 263	7	2408	FH	---	130	329	---	128			
Storage 263	8	2408	FH	---	130	307	---	115			
				415	1040	2555	394	1042	12.00	32.56	
VAV	**15**	24" x 16"									
Tele 247 A	1	2408	FH	---	N/D	151	---	49			
Reception 247	2	2408	FH	---	275	214	---	230			
Reception 247	3	2408	FH	---	275	200	---	219			
Tele/Data 248	4	2408	FH	---	260	176	---	189			
Tele/Data 248	5	2408	FH	---	260	229	---	258			
Storage 247 B	6	2408	FH	---	260	201	---	224			
Storage 247 B	7	2408	FH	---	260	228	---	256			
Dean 247 C	8	2408	FH	---	285	267	---	248			
Dean 247 C	9	2408	FH	---	285	212	---	236			
Housemaster 247 D	10	2408	FH	---	255	213	---	224			
Housemaster 247 D	11	2408	FH	---	255	210	---	221			
Housemaster 247 D	12	2408	FH	---	255	220	---	220			
Housemaster 247 D	13	2408	FH	---	255	223	---	218			
				1272	3180	2743	1265	2792	11.68	38.18	(1)
VAV	**16**	16" Ø									
Faculty Lounge 242	1	2410	FH	---	385	523	---	361			
Faculty Lounge 242	2	2410	FH	---	385	433	---	340			
Faculty Lounge 242	3	2410	FH	---	385	545	---	383			
Faculty Lounge 242	4	2410	FH	---	385	578	---	407			
				616	1540	2079	659	1491	16.92	41.47	

REMARKS

(1) VAV is 100% open, SP = .4

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE / BOX REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 8/16/23

AREA SERVED: RTU-5 / 2nd Floor Classrooms | **TECH:** JF

LOCATION	NO.	SIZE	AK	DESIGN CFM		TEST	FINAL		PRESS. DIFF.		NOTES
				MIN	MAX	CFM	MIN	MAX	MIN	MAX	
VAV	**17**	14" Ø									
Conference 246	1	2408	FH	---	230	355	---	255			
Conference 246	2	2408	FH	---	230	323	---	242			
Conference 246	3	2408	FH	---	230	298	---	216			
Reception 245	4	2408	FH	---	140	198	---	148			
Reception 245	5	2408	FH	---	140	221	---	146			
Office 245 A	6	2408	FH	---	130	194	---	136			
Office 245 B	7	2408	FH	---	300	376	---	279			
Office 245 C	8	2408	FH	---	300	472	---	303			(1)
				680	1700	2437	727	1725	22.0	54.24	
VAV	**18**	24" x 16"									
Classroom 243	1	2410	FH	---	390	477	---	367			
Classroom 243	2	2410	FH	---	390	523	---	411			
Classroom 243	3	2410	FH	---	390	582	---	419			
Classroom 243	4	2410	FH	---	390	482	---	366			
Classroom 243	5	2410	FH	---	390	478	---	369			
Classroom 243	6	2410	FH	---	390	548	---	387			
Classroom 244	7	2410	FH	---	360	442	---	326			
Classroom 244	8	2410	FH	---	360	501	---	373			
Classroom 244	9	2410	FH	---	360	439	---	340			
Classroom 244	10	2410	FH	---	360	455	---	363			
Classroom 244	11	2410	FH	---	360	446	---	347			
Classroom 244	12	2410	FH	---	360	471	---	333			
				1800	4500	5844	1884	4400	21.6	52.40	

REMARKS

(1) Design reduced from 600 CFM as diffuser is undersized.

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE / BOX REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 8/16/23

AREA SERVED: RTU-5 / 2nd Floor Classrooms | **TECH:** JF

LOCATION	NO.	SIZE	AK	DESIGN CFM		TEST	FINAL		PRESS. DIFF.		NOTES
				MIN	MAX	CFM	MIN	MAX	MIN	MAX	
VAV	**19**	24" x 16"									
PC Lab 234	1	2410	FH	---	330	380	---	342			
PC Lab 234	2	2410	FH	---	330	355	---	303			
PC Lab 234	3	2410	FH	---	330	376	---	334			
PC Lab 234	4	2410	FH	---	330	355	---	299			
PC Lab 234	5	2410	FH	---	330	50	---	316			
PC Lab 234	6	2410	FH	---	330	336	---	288			
PC Lab 234	7	2410	FH	---	330	405	---	335			
PC Lab 234	8	2410	FH	---	330	408	---	369			
PC Lab 234	9	2410	FH	---	330	348	---	339			
PC Lab 234	10	2410	FH	---	330	468	---	360			
				1320	3300	3011	1397	3284	18.0	44.35	

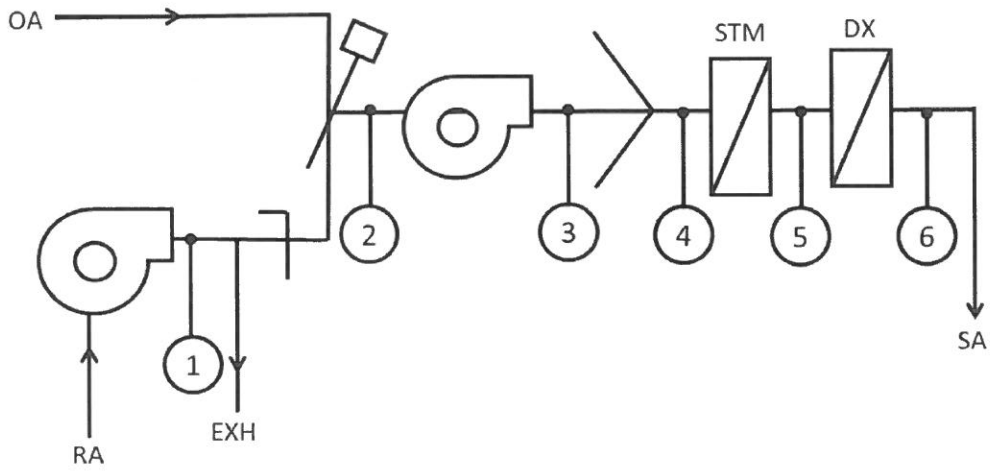
REMARKS

(1) Design reduced from 600 CFM as diffuser is undersized.

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

SYSTEM STATIC PRESSURE PROFILE

PROJECT: Ludlowe High School - Fairfield, CT	**DATE:** 8/1/23
SYSTEM/AREA SERV: RTU-5	**TECH:** DD



STATIC PRESSURE READINGS "wc

POS. (+) / NEG.(-)	1	2	3	4	5	6	7	NOTES
RTU-5	-1.6"	-2.4"	+4.4"	+4.3"	+2.9"	+2.6"		

REMARKS

RTU-6	Design	CFM	Damper
VAV-18 (Rm 269)	1950	1991	100%
VAV-03 (Rm 266)	1440	1295	100%
VAV-02 (Rm 266A/B)	1000	1038	77%
	4390	4324	

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SUPPLY FAN REPORT

PROJECT: Fairfield Ludlowe High School		**DATE:**	8/11/23, 8/22/23
AREA SERVED: 2nd Floor		**TECH:**	JF

FAN DATA

FAN NUMBER	RTU-6 Supply		RTU-6 Return			
LOCATION	Roof		Roof			
AREA SERVED	2nd Floor		2nd Floor			
MANUFACTURER	Aaon		Aaon			
MODEL OR SIZE	RN-013-3-0-AA02		RN-013-3-0-AA02			
	DESIGN	**ACTUAL**	**DESIGN**	**ACTUAL**	**DESIGN**	**ACTUAL**
TOTAL CFM	4390 (1)	4324				
RETURN AIR	3790	3701 (3)				
OUTSIDE AIR	600	623				
DISCH. STATIC	---	1.2" (2)	---		---	
SUCTION STATIC	---	-1.16"	---		---	
TOTAL STATIC	N/D	2.36"				
FAN RPM	N/D	N/A				
PULLEY O.D.	4 7/8" x 1"		9 3/16" x 1 1/16"			
ESP						
VFD SPEED	60 Hz					
O.A.D.MIN POS	20%					
SP SPT	1.5					

MOTOR DATA

MANUFACTURER		Century		Century			
MODEL OR FR.		S184T		S182T			
HORSEPOWER		5.0	5.0	3.0	3.0		
MOTOR RPM		1760	1760	1765			
VOLTAGE / PH.		460/3	460/3	460/3			
AMPS	**LEG 1**	6.8	5.7	4.9			
	LEG 2	---	---	---		---	
	LEG 3	---	---	---		---	
SHEAVE O.D.		1 VP 5 1/4" x 1 1/8"		1 VP N/A			
BELTS - QUANTITY / SIZE		1/BX63		1/BX41			
SHEAVE POSITION		50% Closed		N/A			
C to C		25"		N/A			

REMARKS

(1) Total connected load
(2) From SP sensor
(3) Calculated

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE / BOX REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 7/28/23

AREA SERVED: RTU-6 / 2nd Floor | **TECH:** JF

LOCATION	NO.	SIZE	AK	DESIGN CFM		TEST	FINAL		PRESS. DIFF.		NOTES
				MIN	MAX	CFM	MIN	MAX	MIN	MAX	
VAV	**18**	14" Ø									
Classroom 269	1	2408	FH	---	300	198	---	268			
Classroom 269	2	2408	FH	---	300	213	---	296			
Classroom 269	3	2408	FH	---	300	213	---	312			
Classroom 269	4	2408	FH	---	300	105	---	319			
Classroom 269	5	2408	FH	---	300	221	---	264			
Classroom 269	6	2408	FH	---	300	258	---	273			
Classroom 269	7	2408	FH	---	150	241	---	141			
				780	1950	1448	801	1874	24.5	72.84	(1)
VAV	**03**	14" Ø									
266	1	2408	FH	---	250	194	---	222			
266	2	2408	FH	---	250	183	---	198			
266	3	2408	FH	---	N/L	195	---	233			
266 C	4	2410	FH	---	N/L	86	---	97			
266 C	5	2410	FH	---	N/L	67	---	81			
266 C	6	2410	FH	---	N/L	78	---	84			
266 C	7	2410	FH	---	N/L	67	---	77			
266 D	8	2408	FH	---	N/L	194	---	218			
266 E	9	2408	FH	---	N/L	208	---	242			
				700	1440	1273	733	1452	34.0	74.9	(2)
VAV	**02**	14" Ø									
Office 266 A	1	2410	FH	---	250	348	---	281			
Office 266 A	2	2410	FH	---	250	318	---	253			
Office 266 A	3	---	---	---	---	---	---	---			(3)
Office 266 A	4	---	---	---	---	---	---	---			(3)
Office 266 A	5	2410	FH	---	250	350	---	278			
Office 266 B	6	2408	FH	---	250	302	---	263			
Office 266 B	7	---	---	---	---	---	---	---			(3)
Office 266 B	8	---	---	---	---	---	---	---			(3)
				400	1000	1318	406	1076	24.7	75.95	
				Total	4390						

REMARKS

(1) VAV damper open 100%
(2) Sp SPT = 1.5"
(3) Not installed

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

RTU-7	Design	CFM	Damper
VAV-12 (Rm 271 BCDE)	1750	1518	100%
VAV-11 (Rm 277W)	840	828	42%
VAV-09 (Rm 277E)	840	848	51%
	3430	3194	

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SUPPLY FAN REPORT

PROJECT: Fairfield Ludlowe High School		**DATE:**	8/1/23
AREA SERVED: 2nd Floor		**TECH:**	JF

FAN DATA

FAN NUMBER	RTU-7 Supply		RTU-7 Power Exhaust			
LOCATION	Roof		Roof			
AREA SERVED	2nd Floor 271, 277		2nd Floor 271, 277			
MANUFACTURER	Aaon		Aaon			
MODEL OR SIZE	RN-013-3-0-AA020		RN-013-3-0-AA020			
	DESIGN	**ACTUAL**	**DESIGN**	**ACTUAL**	**DESIGN**	**ACTUAL**
TOTAL CFM	3430	3194				
RETURN AIR	3030	2761				
OUTSIDE AIR	400	433				
DISCH. STATIC	---	+1.25"	---		---	
SUCTION STATIC	---	-.55"	---		---	
TOTAL STATIC	N/D	1.80"				
FAN RPM	N/D	1630				
PULLEY O.D.	4 7/8" x 1"		8 7/16" x 1"			
ESP						
VFD SPEED	55.6					
O.A.D.MIN POS	15%					
SP SPT	.75"					

MOTOR DATA

MANUFACTURER		Century		Century			
MODEL OR FR.		5184T		P145T			
HORSEPOWER		5	5	2	2		
MOTOR RPM		1760	1630	1745			
VOLTAGE / PH.		560/3	428/3	200/3			
AMPS	**LEG 1**	6.8	4.9	6			
	LEG 2	---	---	---			
	LEG 3	---	---	---			
SHEAVE O.D.		1 VP 4 3/4" x 1 1/8"		1 VP 4 7/8" x 7/8"			
BELTS - QUANTITY / SIZE		1/BX62		1/BX38			
SHEAVE POSITION		80% Open		80% Open			
C to C							

REMARKS

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE / BOX REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 8/1/23

AREA SERVED: RTU-7 / 2nd Floor | **TECH:** JF

LOCATION	NO.	SIZE	AK	DESIGN CFM		TEST	FINAL		PRESS. DIFF.		NOTES
				MIN	MAX	CFM	MIN	MAX	MIN	MAX	
VAV											(1)
Corridor	1				70						(2)
Corridor	2				70						(2)
Head End 278	3				N/L						(2)
Corridor	4				70						(2)
Corridor	5				70						(2)
VAV	**12**	14"Ø									
271 G	1	---	---	---	---	---	---	---			(2)
271 G	2	---	---	---	---	---	---	---			(2)
271 E	3	12' LD	FH	---	400	366	---	390			
271 D	4	12' LD	FH	---	400	374	---	398			
271 C	5	12' LD	FH	---	400	364	---	388			
271 B	6	9' LD	FH	---	550	449	---	478			
				700	1750	1553	744	1654	28.00	65.31	
VAV- West	**11**	14"Ø									
Lecture 277	1	2410	FH	---	210	260	---	197			
Lecture 277	2	2410	FH	---	210	257	---	195			
Lecture 277	3	2410	FH	---	210	291	---	220			
Lecture 277	4	2410	FH	---	210	325	---	246			
				420	840	1132	430	858	14.3	29.6	
VAV East	**09**	14"Ø									
Lecture 277	1	2410	FH	---	210	213	---	168			
Lecture 277	2	2410	FH	---	210	213	---	167			
Lecture 277	3	2410	FH	---	210	333	---	263			
Lecture 277	4	2410	FH	---	210	305	---	240			
				420	840	1064	407	838	13.5	26.0	
				Total	3980	3430					
Lecture 277	R1				N/D						(3)
Lecture 277	R2				N/D						(3)
Lecture 271B	R3				N/D						(3)

REMARKS

(1) No VAV installed.

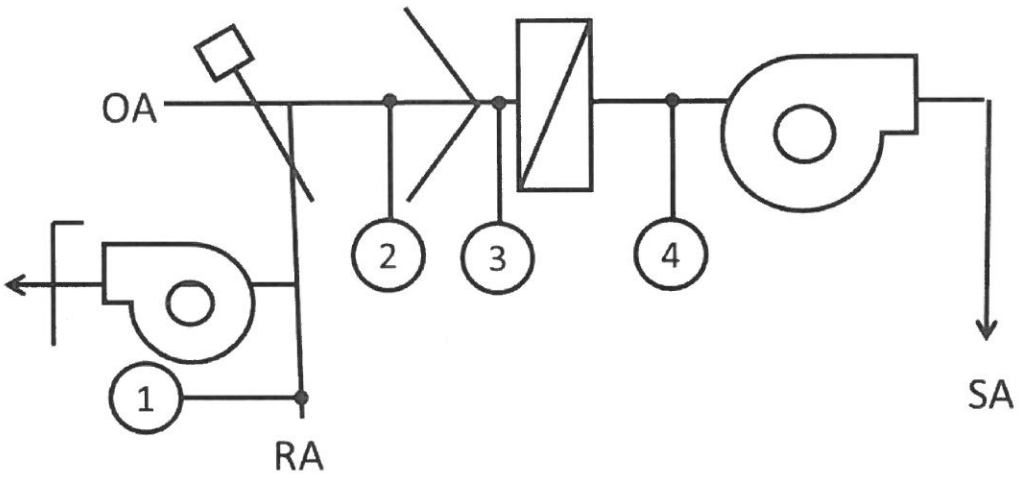
(2) Ducted to RTU-13 serving Media Center.

(3) Located above ceiling for plenum return.

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

SYSTEM STATIC PRESSURE PROFILE

PROJECT: Ludlowe High School - Fairfield, CT	**DATE:** 8/23/23
SYSTEM/AREA SERV: RTU-7	**TECH:** JF, DD



STATIC PRESSURE READINGS "wc

POS. (+) / NEG.(-)	1	2	3	4	5	6	7	NOTES
RTU-7	-.30"	-.35"	-.39"	-.55"	+1.25"			

REMARKS

RTU-8	Design	CFM	Damper
VAV-14 (Rm 347)	3030	2963	51%
VAV-15 (Rm 349)	2510	1849	100%
VAV-13 (Rm 350/352)	4490	4264	100%
VAV-09 (Rm 338 ABC)	1250	920	100%
VAV-03 (Rm 342C)	1300	1136	100%
VAV-05 (Rm 342B)	930	506	100%
VAV-06 (Rm 342A)	720	558	100%
VAV-07 (Rm 342D)	820	688	100%
VAV-08 (Rm 343,342 EF)	960	842	100%
VAV-10 (Rm 344)	2400	2140	100%
VAV-11 (Corr/Rm 355)	2520	1260	100%
VAV-31 (Rm 345)	2350	2140	100%
	23,280	19266	

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SUPPLY FAN REPORT

PROJECT: Fairfield Ludlowe High School		**DATE:**	8/11/23
AREA SERVED: RTU-8 / 3rd Floor		**TECH:**	DD

FAN DATA

FAN NUMBER	RTU-8 Supply		RTU-8 Power Exhaust			
LOCATION	Roof		Roof			
AREA SERVED	3rd Floor		3rd Floor			
MANUFACTURER	Aaon		Aaon			
MODEL OR SIZE	RN-070-3-0-AA04		RN-070-3-0-AA04			
	DESIGN	**ACTUAL**	**DESIGN**	**ACTUAL**	**DESIGN**	**ACTUAL**
TOTAL CFM	23,280	19,266				
RETURN AIR	19,780	15,691				
OUTSIDE AIR	3500	3575				
DISCH. STATIC	---	3.43"	---			
SUCTION STATIC	---	-2.44"	---			
TOTAL STATIC	N/D	5.87"				
FAN RPM	N/D	1560				
PULLEY O.D.	D/D		9 3/4" x 1 3/16"			
ESP						
VFD SPEED	50 Hz		50 Hz			
O.A.D.MIN POS	15%					
SP SPT	1.5"					

MOTOR DATA

MANUFACTURER		Century (1)		Century (1)			
MODEL OR FR.		S255T		S215T			
HORSEPOWER		20	20	10			
MOTOR RPM		1765	1560	1755			
VOLTAGE / PH.		460/3	384/3	460/3			
AMPS	LEG 1	24.5	22.4/22.7	12.6			
	LEG 2	---	---	---			
	LEG 3	---	---	---			
SHEAVE O.D.		D/D		1 VP 8 1/8" x 1 3/8"			
BELTS - QUANTITY / SIZE		---	---	1/BX68			
SHEAVE POSITION		---	---	80% Open			
C to C		---	---	23"			

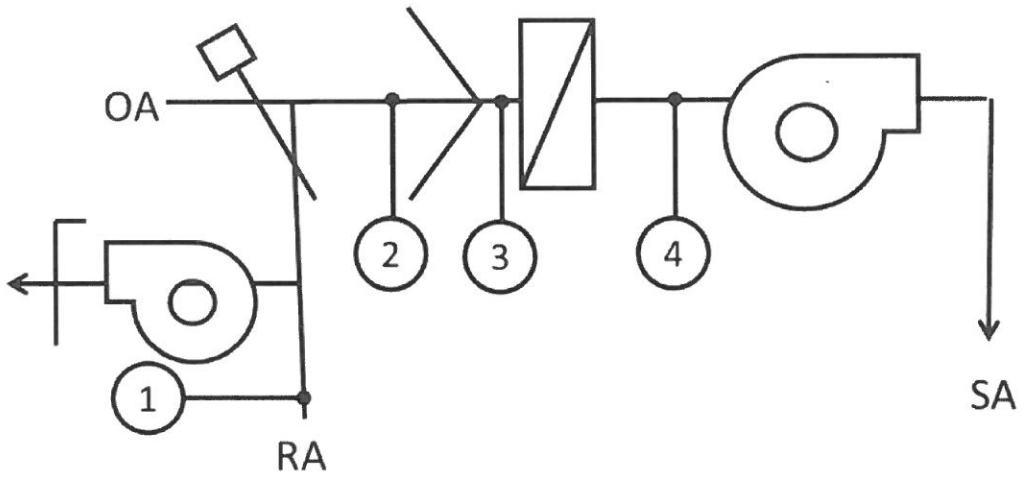
REMARKS

(1) Unit could not be sped up further. Trips on thermal overload.

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

SYSTEM STATIC PRESSURE PROFILE

PROJECT: Ludlowe High School - Fairfield, CT	**DATE:** 8/23/23
SYSTEM/AREA SERV: RTU-8	**TECH:** JF, DD



STATIC PRESSURE READINGS "wc

POS. (+) / NEG.(-)	1	2	3	4	5	6	7	NOTES
RTU-8	-.27"	-1.41"	-1.89"	-2.44"	+3.43"			

REMARKS

AIR DEVICE / BOX REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 8/3/23

AREA SERVED: RTU-8 / 3rd Floor | **TECH:** JF

LOCATION	NO.	SIZE	AK	DESIGN CFM		TEST	FINAL		PRESS. DIFF.		NOTES
				MIN	MAX	CFM	MIN	MAX	MIN	MAX	
VAV	**14**	24" x 16"									
Prep 348	1	2408	FH	---	170	325	---	172			
Classroom 347	2	2410	FH	---	360	570	---	379			
Classroom 347	3	2410	FH	---	360	552	---	354			
Classroom 347	4	2410	FH	---	360	603	---	388			
Classroom 347	5	2410	FH	---	360	561	---	361			
Classroom 347	6	2410	FH	---	360	546	---	392			
Classroom 347	7	2410	FH	---	360	611	---	379			
Classroom 347	8	10' LD	FH	---	350	555	---	364			
Classroom 347	9	10' LD	FH	---	350	407	---	307			
				1215	3030	4730	1281	3096	19.00	44.9	
VAV	**15**	16" Ø									
Classroom 349	1	2410	FH	---	360	233	---	361			
Classroom 349	2	2410	FH	---	360	221	---	335			
Classroom 349	3	2410	FH	---	360	246	---	345			
Classroom 349	4	2410	FH	---	360	208	---	311			
Classroom 349	5	2410	FH	---	360	239	---	351			
Classroom 349	6	2410	FH	---	360	235	---	341			
Classroom 349	7	10' LD	FH	---	360	205	---	303			
				1000	2510	1587	1035	2347	22.0	47.6	(1,2)
VAV	**13**	24" x 16"									
Classroom 350	1	2410	FH	---	360	305	---	346			
Classroom 350	2	2410	FH	---	360	317	---	360			
Classroom 350	3	2410	FH	---	360	307	---	349			
Classroom 350	4	2410	FH	---	360	354	---	402			
Classroom 350	5	2410	FH	---	360	315	---	358			
Classroom 350	6	2410	FH	---	360	346	---	393			
Prep 351	7	2408	FH	---	170	164	---	186			
Classroom 352	8	2410	FH	---	360	313	---	355			
Classroom 352	9	2410	FH	---	360	319	---	362			
Classroom 352	10	2410	FH	---	360	354	---	402			
Classroom 352	11	2410	FH	---	360	321	---	364			
Classroom 352	12	2410	FH	---	360	293	---	333			
Classroom 352	13	2410	FH	---	360	305	---	346			
				1800	4490	4013	1819	4556	17.00	42.12	

REMARKS

(1) Sp SPT = 1.5"

(2) VAV is 100% open.

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE / BOX REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 8/2/23

AREA SERVED: RTU-8 / 3rd Floor | **TECH:** JF

LOCATION	NO.	SIZE	AK	DESIGN CFM		TEST	FINAL		PRESS. DIFF.		NOTES
				MIN	MAX	CFM	MIN	MAX	MIN	MAX	
VAV	**09**	12"Ø									
Counsel 338	1	2408	FH	---	200	292	---	204			
Counsel 338	2	2408	FH	---	200	281	---	204			
Counsel 338 A	3	2412	FH	---	450	562	---	458			
Counsel 338 B	4	2408	FH	---	200	312	---	210			
Counsel 338 C	5	2408	FH	---	200	266	---	210			
				500	1250	1713	517	1286	13.0	32.6	
VAV	**03**	12"Ø									
Office 342 C	1	2410	FH	---	325	486	---	297			
Office 342 C	2	2410	FH	---	325	494	---	321			
Office 342 C	3	2410	FH	---	325	371	---	289			
Office 342 C	4	2410	FH	---	325	473	---	333			
				520	1300	1824	533	1241	22.22	66.11	
VAV	**05**	10"Ø									
342	1	2408	FH	---	250	304	---	240			
342	2	2408	FH	---	250	241	---	241			
342	3	2408	FH	---	250	219	---	236			
342 B	4	2408	FH	---	180	194	---	192			
				370	930	957	383	908	26.00	65.07	
VAV	**06**	8"Ø									
342 A	1	2408	FH	---	360	459	---	352			
342 A	2	2408	FH	---	360	561	---	367			
				290	720	1020	317	719	32.8	88.5	
VAV	**07**	10"Ø									
342 D	1	2412	FH	---	410	680	---	424			
342 D	2	2412	FH	---	410	593	---	405			
				330	820	1273	328	829	21.3	55.6	
VAV	**08**	10"Ø									
343	1	2410	FH	---	370	528	---	374			
343	2	2410	FH	---	370	545	---	336			
342 F	3	2406	FH	---	100	136	---	90			
342 E	4	2406	FH	---	120	177	---	120			
				385	960	1386	400	921	25.5	68.95	

REMARKS

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE / BOX REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 8/2/23

AREA SERVED: RTU-8 / 3rd Floor | **TECH:** JF

LOCATION	NO.	SIZE	AK	DESIGN CFM		TEST	FINAL		PRESS. DIFF.		NOTES
				MIN	MAX	CFM	MIN	MAX	MIN	MAX	
VAV	**10**	16"Ø									
Classroom 344	1	2412	FH	---	400	514	---	419			
Classroom 344	2	2412	FH	---	400	506	---	396			
Classroom 344	3	2412	FH	---	400	469	---	405			
Classroom 344	4	2412	FH	---	400	515	---	411			
Classroom 344	5	2412	FH	---	400	527	---	381			
Classroom 344	6	2412	FH	---	400	507	---	412			
				960	2400	3038	979	2425	27.01	73.17	
VAV	**11**	16"Ø									
Corridor	1	2408	FH	---	300	330	---	296			
Corridor	2	2408	FH	---	300	330	---	296			
Corridor	3	2408	FH	---	300	333	---	298			
Corridor	4	2408	FH	---	300	320	---	287			
Corridor	5	2408	FH	---	300	323	---	289			
Corridor	6	2408	FH	---	300	323	---	289			
Corridor	7	2408	FH	---	300	327	---	293			
Rm 355	8	2408	FH	---	260	279	---	248			(1)
Rm 355	9	2408	FH	---	160	279	---	248			(1)
				1000	2520	2780	1005	2544	31.00	78.83	
VAV	**31**	16"Ø									
Classroom 345	1	2410	FH	---	325	336	---	307			
Classroom 345	2	2410	FH	---	325	346	---	304			
Classroom 345	3	2410	FH	---	325	360	---	326			
Classroom 345	4	2410	FH	---	325	388	---	347			
Classroom 345	5	2410	FH	---	325	456	---	478			(2)
Classroom 345	6	2410	FH	---	325	625	---	333			
Prep 345 A	7	2408	FH	---	400	326	---	292			
				940	2350	2837	979	2387	25.00	57.8	

REMARKS

(1) See VPT sheet.

(2) No VD installed, could not reduce.

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

SUPPLY FAN REPORT

PROJECT: Fairfield Ludlowe High School	**DATE:** 7/26/23
AREA SERVED: Auditorium	**TECH:** JF, DD

FAN DATA

FAN NUMBER	RTU-9 Supply		RTU-9 Return			
LOCATION	Roof		Roof			
AREA SERVED	Auditorium		Auditorium			
MANUFACTURER	McQuay		McQuay			
MODEL OR SIZE	RPS-040-0L5		RPS-040-0L5			
	DESIGN	**ACTUAL**	**DESIGN**	**ACTUAL**	**DESIGN**	**ACTUAL**
TOTAL CFM	14,000 (1)	10,229	11,200			
RETURN AIR	11,200	6212	11,200			
OUTSIDE AIR	2800	4017	0			
DISCH. STATIC	---	+.19"	---			
SUCTION STATIC	---	-.12"	---			
TOTAL STATIC		.31"				
FAN RPM		1155				
PULLEY O.D.	9 1/8" x 1 5/16"					
ESP						
VFD SPEED	60 Hz					
O.A.D.MIN POS	10%					

MOTOR DATA

MANUFACTURER		Baldor (2)		Baldor			
MODEL OR FR.		213T		184T			
HORSEPOWER		7 1/2"	7 1/2"	5	5		
MOTOR RPM		1770	1773	1750			
VOLTAGE / PH.		460/3	446	460/3	460/3		
AMPS	**LEG 1**	9.4	7.4	6.5			
	LEG 2	---	---	---	---		
	LEG 3	---	---	---	---		
SHEAVE O.D.		6 1/4" x 1 3/8"		5" x 1 1/8"			
BELTS - QUANTITY / SIZE		1/BX62		1/A71			
SHEAVE POSITION		Fixed		Fixed			
C to C							

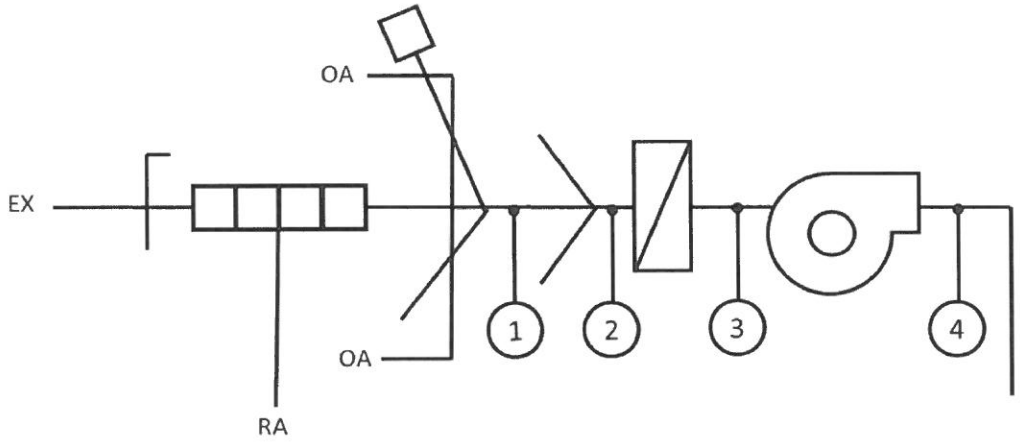
REMARKS

(1) TCL = 17,000 from 95 design space is different
(2) Fan and motor bearings make noise
(3) Fan not running
Note: No adjustment to total flow recommended, may affect space noise and airflow patterns.

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

SYSTEM STATIC PRESSURE PROFILE

PROJECT: Ludlowe High School - Fairfield, CT	**DATE:** 7/26/23
SYSTEM/AREA SERV: RTU-9 / Auditorium	**TECH:** JF, DD



STATIC PRESSURE READINGS "wc								
POS. (+) / NEG.(-)	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**NOTES**
RTU-9	-.12"	-.34"	-.45"	+.19"				

REMARKS

SUPPLY FAN REPORT

PROJECT: Fairfield Ludlowe High School		**DATE:**	7/26/23
AREA SERVED: Auditorium		**TECH:**	JF

FAN DATA

	RTU-10 Supply (1)		RTU-10 Return (1)			
FAN NUMBER						
LOCATION	Roof		Roof			
AREA SERVED	Auditorium		Auditorium			
MANUFACTURER	McQuay		McQuay			
MODEL OR SIZE	BPS018CSS		BPS018CSS			
	DESIGN	**ACTUAL**	**DESIGN**	**ACTUAL**	**DESIGN**	**ACTUAL**
TOTAL CFM	14,025					
RETURN AIR	11,225					
OUTSIDE AIR	2800					
DISCH. STATIC	---		---		---	
SUCTION STATIC	---		---		---	
TOTAL STATIC						
FAN RPM						
PULLEY O.D.	7 5/8" x 1 7/16"		10" x 1 7/16"			
ESP						
VFD SPEED						
O.A.D.MIN POS						

MOTOR DATA

MANUFACTURER		Baldor		Baldor			
MODEL OR FR.		184T		145T			
HORSEPOWER		5	5	2	2		
MOTOR RPM		1750		1725			
VOLTAGE / PH.		230/3		208/3			
AMPS	**LEG 1**	13.0		5.7			
	LEG 2	---		---		---	
	LEG 3	---		---		---	
SHEAVE O.D.		5 1/4" x 1 1/8"		3 1/4" x 7/8"			
BELTS - QUANTITY / SIZE		1/AP60		1/A67			
SHEAVE POSITION		Fixed		Fixed			
C to C		21 1/4"					

REMARKS

(1) VFDs are no good.

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

SUPPLY FAN REPORT

PROJECT: Fairfield Ludlowe High School		**DATE:**	7/18/23
AREA SERVED: 2nd Floor		**TECH:**	JF, MS

FAN DATA

FAN NUMBER	RTU-11					
LOCATION	Roof					
AREA SERVED	Off, Security					
MANUFACTURER	Trane					
MODEL OR SIZE	TCDZ11C300AA					
	DESIGN	**ACTUAL**	**DESIGN**	**ACTUAL**	**DESIGN**	**ACTUAL**
TOTAL CFM	6225	6154				
RETURN AIR	5625	5504 (1)				
OUTSIDE AIR	600	650				
DISCH. STATIC	---					
SUCTION STATIC	---	-1.2"				
TOTAL STATIC	N/D					
FAN RPM	N/D	952				
PULLEY O.D.	15 7/8" x 1 3/8"					
ESP						
VFD SPEED						
O.A.D.MIN POS						

MOTOR DATA

MANUFACTURER	Marathon					
MODEL OR FR.	56-HZ-95					
HORSEPOWER	5	5				
MOTOR RPM	3450	3450				
VOLTAGE / PH.	208/3	208/3				
AMPS **LEG 1**	13.4	12.5				
LEG 2	---	12.8				
LEG 3	---	12.9				
SHEAVE O.D.	1 VP 5.01" x 7/8"					
BELTS - QUANTITY / SIZE	1/BX75					
SHEAVE POSITION	Closed					
C to C	50%					
	-.92", -1.2"					

REMARKS

(1) Calculated.

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 7/25/23

SYSTEM / AREA: RTU-11 / 2nd Floor Guidance | **TECH:** JF

LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
RTU-11 Supply										
Conference 286 F	1	9" x 9"	FH	---	225	---	78	---	224	
Office 285 B	1A	6" x 6"	FH	---	N/D	---	94	---	45	(2) (3)
Conference 286 F	2	9" x 9"	FH	---	225	---	37	---	223	
Secretary 286	3	9" x 9"	FH	---	175	---	230	---	180	
Secretary 286	4	9" x 9"	FH	---	175	---	233	---	187	
Office 286 A	5	9" x 9"	FH	---	300	---	272	---	309	
Security 287 A	6	9" x 9"	FH	---	300	---	196	---	312	
Security 287	7	9" x 9"	FH	---	175	---	206	---	183	
Boys TLT 288	8	18" x 18"	FH	---	500	---	534	---	501	
Girls TLT 290	9	18" x 18"	FH	---	500	---	650	---	524	
Office 286 B	10	9" x 9"	FH	---	300	---	162	---	299	
Office 286 C	11	9" x 9"	FH	---	300	---	196	---	302	
Office 286 D	12	12" x 12"	FH	---	300	---	161	---	303	
Office 286 E	13	12" x 12"	FH	---	350	---	282	---	348	
Corridor	14	9" x 9"	FH	---	300	---	178	---	282	
Corridor	15	9" x 9"	FH	---	300	---	173	---	263	
Corridor	16	9" x 9"	FH	---	300	---	166	---	272	
Corridor	17	9" x 9"	FH	---	300	---	153	---	270	
Corridor	18	9" x 9"	FH	---	300	---	165	---	270	
Secretary 222	19	2410	FH	---	150	---	139	---	138	(1)
Secretary 222	20	2410	FH	---	150	---	151	---	149	(1)
Office 222 A	21	2410	FH	---	200	---	139	---	188	(1)
Office 222 B	22	2410	FH	---	200	---	177	---	192	(1)
Office 222 C	23	2410	FH	---	200	---	162	---	190	(1)
					6225		4934		6154	

REMARKS

(1) No original design info. Design calculated based on " Rule of Thumb" / industry standards.

(2) Room served by RTU-14.

(3) VD closed 100%.

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 7/10/23

SYSTEM / AREA: RTU-11 / Return | **TECH:** DD

LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
RTU-11 Return										
Corridor	R1	22" x 22"	2.69	595	1600	770	2071	950	2556	(1,2)
Office 286 C	R2	12" x 12"	FH	---	300	---	290	---	350	
Conference 286 F	R3	12" x 12"	FH	---	300	---	221	---	347	
Office 286 D	R4	12" x 12"	FH	---	350	---	281	---	347	
Office 286 E	R5	12" x 12"	FH	---	350	---	257	---	315	
Office 286 B	R6	12" x 12"	FH	---	300	---	287	---	351	
Secretary 286	R7	12" x 12"	FH	---	350	---	184	---	215	
Office 286 A	R8	12" x 12"	FH	---	300	---	174	---	222	
Security	R9	12" x 12"	FH	---	350	---	244	---	239	
Security	R10	8" x 8"	FH	---	140	---	113	---	140	
					4340		4122		5082	

REMARKS

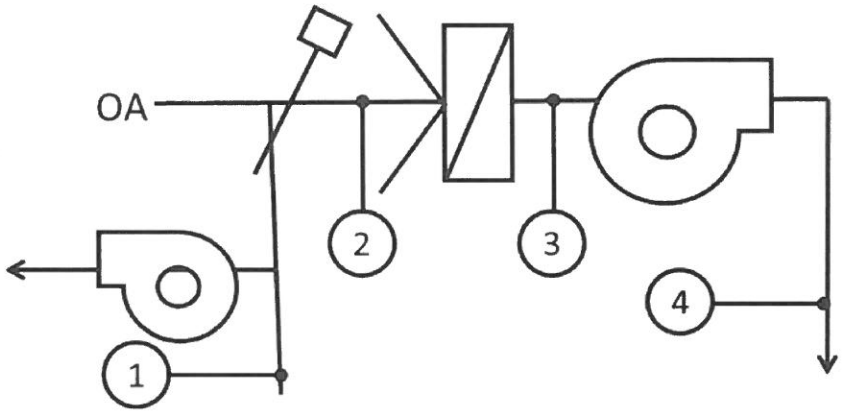
(1) No VD.

(2) Register is dirty and noisy.

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

SYSTEM STATIC PRESSURE PROFILE

PROJECT: Ludlowe High School - Fairfield, CT	**DATE:** 8/23/23
SYSTEM/AREA SERV: RTU-11	**TECH:** JF



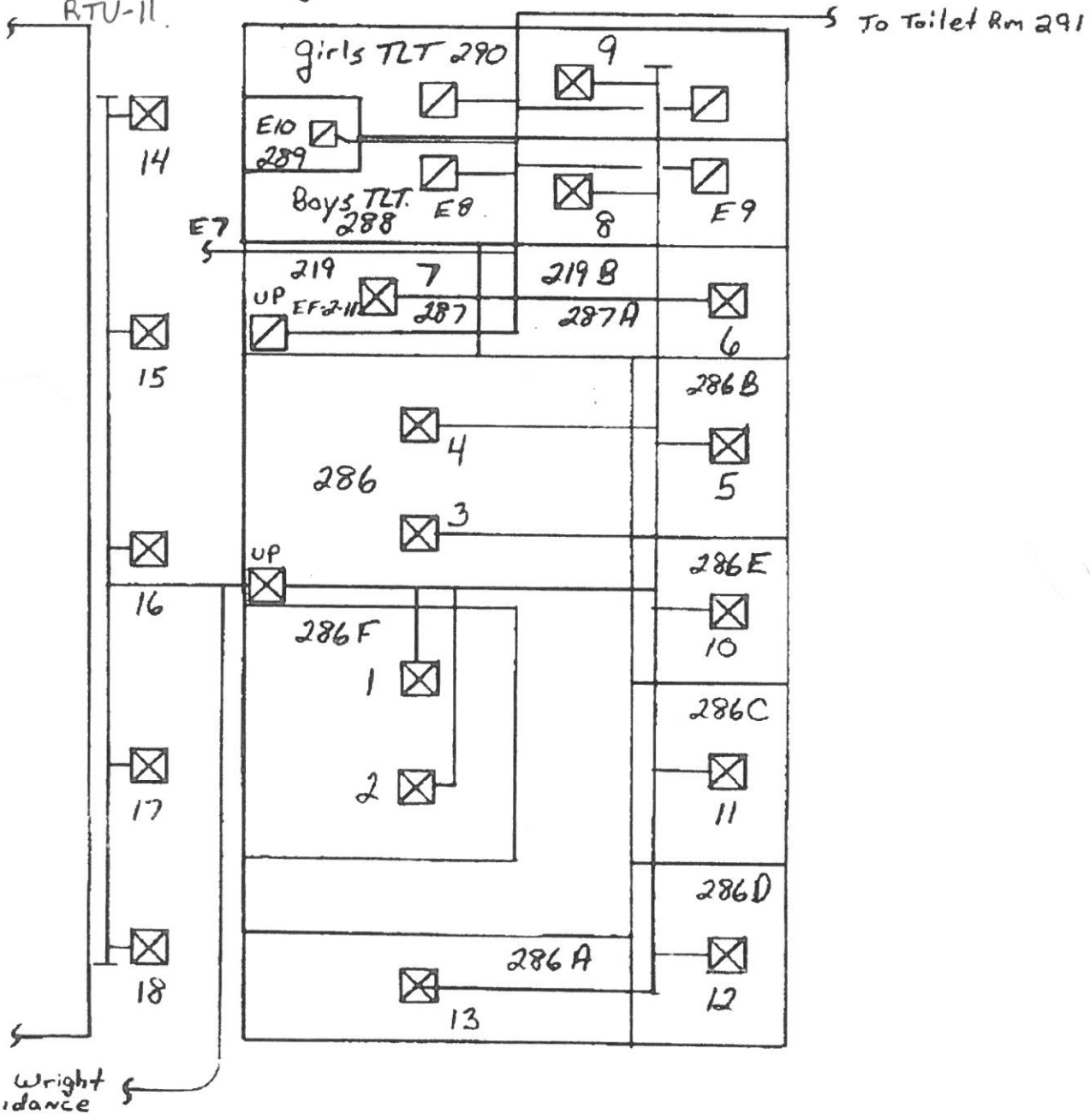
STATIC PRESSURE READINGS "wc

POS. (+) / NEG.(-)	1	2	3	4	5	6	7	NOTES
RTU-11	-.37"	-.92"	-1.2"	+.21"				

REMARKS

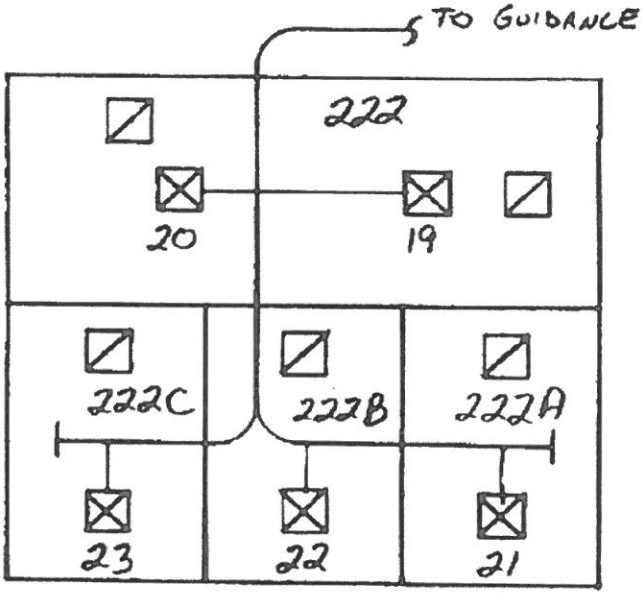
WING'S TESTING & BALANCING CO., INC.
94 No. Branford Rd., Branford, CT 06405
203-481-4988 Fax 203-488-5634

11/27/06
Fairfield Ludlowe H.S.
RTU-1 (Existing)
RTU-11



WING'S TESTING & BALANCING CO., INC.
94 No. Branford Rd., Branford, CT 06405
203-481-4988 Fax 203-488-5634

11/27/06
Fairfield Ludlowe H.S.
RTU-11 (Existing)
WRIGHT GUIDANCE AREA



SUPPLY FAN REPORT

PROJECT: Fairfield Ludlowe High School		**DATE:**	7/18/23
AREA SERVED: 3rd Floor		**TECH:**	JF, MS

FAN DATA

FAN NUMBER	RTU-12					
LOCATION	Roof					
AREA SERVED	Comp Lab					
MANUFACTURER	Trane					
MODEL OR SIZE	TCD151C300AA					
	DESIGN	**ACTUAL**	**DESIGN**	**ACTUAL**	**DESIGN**	**ACTUAL**
TOTAL CFM	4590	4650				
RETURN AIR	3790	4499 (1)				
OUTSIDE AIR	800	151 (2)				
DISCH. STATIC	N/D	+.88"				
SUCTION STATIC	N/D	-.72"				
TOTAL STATIC	N/D	1.60"				
FAN RPM	N/D	993				
PULLEY O.D.	8 5/8" x 1"					
ESP						
VFD SPEED						
O.A.D.MIN POS						

MOTOR DATA

MANUFACTURER		Marathon					
MODEL OR FR.		sQA145YT1DR5559BH					
HORSEPOWER		3	3				
MOTOR RPM		1725	1725				
VOLTAGE / PH.		208/3	208/3				
AMPS	**LEG 1**	9.4	8.8				
	LEG 2	---	8.6				
	LEG 3	---	9.2				
SHEAVE O.D.		1 VP 5.0" x 7/8"					
BELTS - QUANTITY / SIZE		1/BX62					
SHEAVE POSITION		Closed					
C to C		100%					

REMARKS

(1) Calculated

(2) OA damper is broken, unable to set

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 6/27/23, 7/25/23

SYSTEM / AREA: RTU-12 / 3rd Floor Computer Labs | **TECH:** DD

LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
RTU-12 Supply										
Computer Lab 303	1	12" x 12"	FH	---	240	---	150	---	234	
Computer Lab 303	2	12" x 12"	FH	---	240	---	151	---	229	
Computer Lab 303	3	12" x 12"	FH	---	240	---	160	---	244	
Computer Lab 303	4	12" x 12"	FH	---	240	---	162	---	256	
Computer Lab 303	5	12" x 12"	FH	---	240	---	158	---	238	
Computer Lab 303	6	12" x 12"	FH	---	240	---	170	---	263	
Computer Lab 303	7	12" x 12"	FH	---	240	---	171	---	252	
Computer Lab 303	8	12" x 12"	FH	---	240	---	170	---	260	
Computer Lab 303	9	12" x 12"	FH	---	240	---	161	---	234	
Prep 304	10	2408	FH	---	N/D	---	75	---	114	
Prep 304	11	6" x 6"	FH	---	140	---	54	---	83	
Prep 304	12	6" x 6"	FH	---	130	---	50	---	65	
Computer Lab 305	13	12" x 12"	FH	---	240	---	177	---	263	
Computer Lab 305	14	12" x 12"	FH	---	240	---	152	---	228	
Computer Lab 305	15	12" x 12"	FH	---	240	---	127	---	188	
Computer Lab 305	16	12" x 12"	FH	---	240	---	173	---	266	
Computer Lab 305	17	12" x 12"	FH	---	240	---	171	---	250	
Computer Lab 305	18	12" x 12"	FH	---	240	---	171	---	259	
Computer Lab 305	19	12" x 12"	FH	---	240	---	154	---	228	
Computer Lab 305	20	12" x 12"	FH	---	240	---	183	---	273	
Computer Lab 305	21	12" x 12"	FH	---	240	---	153	---	223	
					4590		3093		4650	

REMARKS

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 7/6/23, 7/25/23

SYSTEM / AREA: RTU-12 Return / 3rd Floor Computer Labs | **TECH:** DD

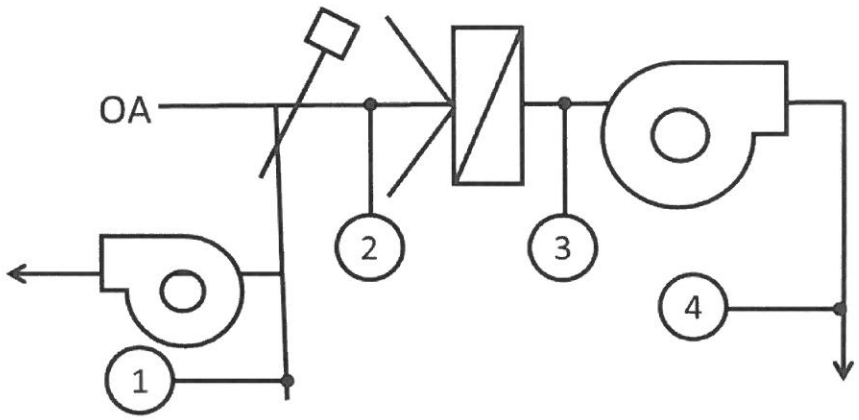
LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
RTU-12 Return										
Prep 304	R1	8" x 8"	FH	---	100	---	75	---	84	
Comp Lab 303	R2	16" x 16"	FH	---	960	---	700	---	891	
Comp Lab 303	R3	16" x 16"	FH	---	960	---	774	---	959	
Prep 304	R4	8" x 8"	FH	---	100	---	43	---	48	
Comp Lab 305	R5	16" x 16"	FH	---	960	---	643	---	801	
Comp Lab 305	R6	16" x 16"	FH	---	960	---	647	---	834	
					4040		2807		3617	

REMARKS

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

SYSTEM STATIC PRESSURE PROFILE

PROJECT: Ludlowe High School - Fairfield, CT	**DATE:** 8/23/23
SYSTEM/AREA SERV: RTU-12	**TECH:** JF



STATIC PRESSURE READINGS "wc

POS. (+) / NEG.(-)	1	2	3	4	5	6	7	NOTES
RTU-12	-.41"	-.35"	-.72"	+.88"				(1)

REMARKS

(1) OA damper closed (broken quadrant), unable to set

SUPPLY FAN REPORT

PROJECT: Fairfield Ludlowe High School		**DATE:**	7/11/23
AREA SERVED: 2nd Floor		**TECH:**	JF, MS, DD

FAN DATA

FAN NUMBER	RTU-13					
LOCATION	Roof					
AREA SERVED	Media Center					
MANUFACTURER	Trane					
MODEL OR SIZE	TCD330AEOC2A1					
	DESIGN	**ACTUAL**	**DESIGN**	**ACTUAL**	**DESIGN**	**ACTUAL**
TOTAL CFM	9100	9124				
RETURN AIR	7100	8826 (2)				
OUTSIDE AIR	2000	298 (1)				
DISCH. STATIC	---	+.99"			---	
SUCTION STATIC	---	-1.16"			---	
TOTAL STATIC	N/D	2.15"				
FAN RPM	N/D	723				
PULLEY O.D.	16" x 1 7/16"					
ESP	---					
VFD SPEED	---					
O.A.D.MIN POS	(1)					

MOTOR DATA

MANUFACTURER		Baldor					
MODEL OR FR.		213T					
HORSEPOWER		7 1/2	7 1/2				
MOTOR RPM		1725	1725				
VOLTAGE / PH.		200/3	208/3				
AMPS	**LEG 1**	25.0	24.3				
	LEG 2	---	23.6			---	
	LEG 3	---	22.7			---	
SHEAVE O.D.		6.8" x 1 3/8"					
BELTS - QUANTITY / SIZE		1/BX103					
SHEAVE POSITION		80% Closed					
C to C		---					

REMARKS

(1) ALC has no control of damper, no local control either. Damper closed 100%.
(2) Calculated.

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 6/27/23, 7/25/23

SYSTEM / AREA: RTU-13 Return / 1st Floor Media Center | **TECH:** JF, DD

				DESIGN		TEST		FINAL		
LOCATION	NO.	SIZE	A K	FPM	CFM	FPM	CFM	FPM	CFM	NOTES
RTU-13 Supply										
RH										(2)
Media 271	1	2410	FH	---	220	---	202	---	158	
Media 271	2	9" x 9"	FH	---	220	---	89	---	159	
Media 271	3	12" x 12"	FH	---	220	---	155	---	163	
Media 271	4	2410	FH	---	220	---	265	---	394	(1)
					760		711		874	
RH										(2)
Corridor	5	12" x 12"	FH	---	190	---	188	---	135	
Corridor	6	12" x 12"	FH	---	190	---	193	---	140	
Corridor	7	12" x 12"	FH	---	190	---	220	---	151	
Corridor	8	12" x 12"	FH	---	190	---	204	---	151	
Corridor	9	12" x 12"	FH	---	190	---	191	---	152	
Corridor	10	12" x 12"	FH	---	190	---	202	---	151	
					1140		1198		880	
RH										(2)
Media Center 271	11	2410	FH	---	200	---	232	---	176	
Media Center 271	12	2410	FH	---	200	---	230	---	152	
					400		462		333	
RH										(2)
Media Center 271	13	12" x 12"	FH	---	360	---	343	---	389	
Media Center 271	14	12" x 12"	FH	---	360	---	352	---	396	
Media Center 271	15	12" x 12"	FH	---	360	---	299	---	377	
Media Center 271	16	12" x 12"	FH	---	360	---	295	---	378	
Media Center 271	17	12" x 12"	FH	---	360	---	290	---	376	
Media Center 271	18	12" x 12"	FH	---	360	---	276	---	370	
Media Center 271	19	12" x 12"	FH	---	360	---	276	---	368	
Media Center 271	20	12" x 12"	FH	---	360	---	287	---	389	
Media Center 271	21	12" x 12"	FH	---	360	---	291	---	381	
Media Center 271	22	12" x 12"	FH	---	360	---	320	---	372	
Media Center 271	23	12" x 12"	FH	---	360	---	288	---	361	
Media Center 271	24	12" x 12"	FH	---	360	---	298	---	392	
Media Center 271	25	12" x 12"	FH	---	360	---	290	---	385	

REMARKS

(1) VD is brokern, could not reduce

(2) No branch damper

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 6/27/23, 7/25,23

SYSTEM / AREA: RTU-13 / 1st Floor Media Center | **TECH:** JF, DD

LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
RTU-13 Supply Cont.										
Media Center 271	26	12" x 12"	FH	---	360	---	288	---	368	
Media Center 271	27	12" x 12"	FH	---	360	---	291	---	379	
					5400		4484		5681	
RH										(2,3)
Periodical 271C	28	2408	FH	---	160	---	75	---	84	(1)
Periodical 271C	29	2408	FH	---	160	---	79	---	151	(1)
Corridor	29A	2406	FH	---	70	---	37	---	52	(1)
Corridor	29B	2406	FH	---	70	---	35	---	47	(1)
Tech H E. 278	29C	2408	FH	---	N/D	---	57	---	109	(1)
Corridor	29D	2408	FH	---	70	---	62	---	52	(1)
Corridor	29E	2406	FH	---	70	---	59	---	49	(1)
					600		404		544	
RH										(3)
Multi Media 273	30	12" x 12"	FH	---	200	---	250	---	191	
Multi Media 273	31	12" x 12"	FH	---	200	---	256	---	219	
Multi Media 273	32	12" x 12"	FH	---	200	---	261	---	197	
Multi Media 273	33	12" x 12"	FH	---	200	---	249	---	205	
					800	---	1016	---	812	
				Total	9100		8275		9124	

REMARKS

(1) Was supposed to be ducted to VAV served by RTU-7.
(2) RH = 12" x 12".
(3) No branch damper.

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 7/25/23

SYSTEM / AREA: RTU-13 Return / 1st Floor Media Center Media Center | **TECH:** DD

LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
RTU-13 Return										
Multi Media 273	R1	16" x 16"			640					(2)
271 F	R2	8" x 8"	FH	---	N/D	---	355	---	178	(1)
Media 271	R3	12" x 12"	FH	---	320	---	615	---	151	(1)
Media 271	R4	12" x 12"	FH	---	320	---	767	---	525	
Media 271	R5	22" x 22"	FH	---	N/D	---	1077	---	1180	
Media 271	R6	22" x 22"	FH	---	N/D	---	615	---	1087	
Media 271	R7	22" x 22"	FH	---	N/D	---	660	---	654	(3,4)
Media 271	R8	22" x 22"	FH	---	N/D	---	620	---	1008	
Media 271	R9	22" x 22"	FH	---	N/D	---	954	---	701	(3,4)
Media 271	R10	22" x 22"	FH	---	N/D	---	875	---	680	
Media 271	R11	22" x 22"	FH	---	N/D	---	---	---	689	
Media 271	R12	22" x 22"	FH	---	N/D	---	---	---	743	
					5600		6538		7071	

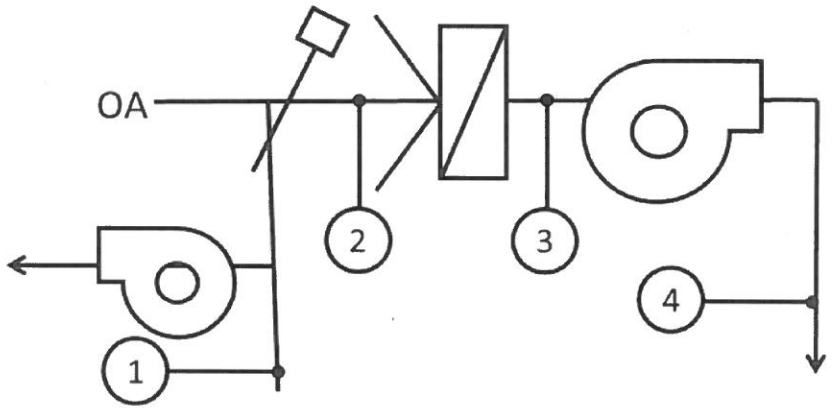
REMARKS

(1) No damper.
(2) Register not installed. Ceiling plenum equipped with transfer duct. No transfer register installed in
(3) Register is served by 14"x10" duct and register is restrictive and noisy
(4) VD is 100% open.

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

SYSTEM STATIC PRESSURE PROFILE

PROJECT: Ludlowe High School - Fairfield, CT	**DATE:** 8/23/23
SYSTEM/AREA SERV: RTU-13	**TECH:** JF



STATIC PRESSURE READINGS "wc								
POS. (+) / NEG.(-)	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**NOTES**
RTU-13	-.79"	-.93"	-1.16"	+.99"				(1)

REMARKS

(1) OA damper closed, no control

SUPPLY FAN REPORT

PROJECT: Fairfield Ludlowe High School		**DATE:**	7/11/23
AREA SERVED: 2nd Floor		**TECH:**	JF, MS, DD

FAN DATA

FAN NUMBER	RTU-14					
LOCATION	Roof					
AREA SERVED	Administration					
MANUFACTURER	Trane					
MODEL OR SIZE	TCD211C300AA					
	DESIGN	**ACTUAL**	**DESIGN**	**ACTUAL**	**DESIGN**	**ACTUAL**
TOTAL CFM	6600	5388				
RETURN AIR	6100	4712				
OUTSIDE AIR	500	558				
DISCH. STATIC	---	+.78"			---	
SUCTION STATIC	---	-1.19"			---	
TOTAL STATIC	N/D	1.97"				
FAN RPM	N/D	953				
PULLEY O.D.	15 7/8" x 1 3/16"					
ESP	---					
VFD SPEED	---					
O.A.D.MIN POS	10%					

MOTOR DATA

MANUFACTURER		Baldor					
MODEL OR FR.		56HZ-95					
HORSEPOWER		5	5				
MOTOR RPM		3450	3450				
VOLTAGE / PH.		208/3	208/3				
AMPS	**LEG 1**	13.4	12.9				
	LEG 2	---	12.7			---	
	LEG 3	---	12.5			---	
SHEAVE O.D.		1 VP 5.0" x 7/8"					
BELTS - QUANTITY / SIZE		1/BX75					
SHEAVE POSITION		50% Closed					
C to C		---					

REMARKS

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 6/27/23

SYSTEM / AREA: RTU-14 / 2nd Floor Administration | **TECH:** DD

LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
RTU-14 Supply										
282 D	1	15" x 15"	FH	---	450	---	197	---	295	(1,2)
282 D	1A	15" x 15"	FH	---	275	---	223	---	325	(6)
282 C	2	15" x 15"	FH	---	400	---	297	---	310	
282 B	3	12" x 12"	FH	---	400	---	213	---	324	
282 A	4	12" x 12"	FH	---	300	---	202	---	241	
282	5	15" x 15"	FH	---	250	---	265	---	209	
282	6	15" x 15"	FH	---	250	---	236	---	202	
282	7	15" x 15"	FH	---	250	---	235	---	200	
282	8	15" x 15"	FH	---	250	---	224	---	206	
281	9	15" x 15"	FH	---	325	---	247	---	260	
281	10	15" x 15"	FH	---	300	---	234	---	237	
283	11	15" x 15"	FH	---	450	---	263	---	355	
283	12	15" x 15"	FH	---	450	---	262	---	347	
285 D	13	12" x 12"	FH	---	325	---	216	---	267	(4)
285 D	14	12" x 12"	FH	---	325	---	197	---	262	
285	15	12" x 12"	FH	---	300	---	234	---	317	(4,5)
285 E	16	12" x 12"	FH	---	300	---	250	---	244	
Conference 285 D	17	12" x 12"	FH	---	350	---	287	---	270	(3)
285 B	18	9" x9"	FH	---	150	---	89	---	122	
285 B	19	15" x 15"	FH	---	500	---	269	---	395	
					6600		4640		5388	

REMARKS

(1) Outlet is poorly ducted.
(2) VD is 100% open.
(3) VD open.
(4) No VD.
(5) No face damper.
(6) Left high to compensate for outlet #1 being low.

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 7/25/23

SYSTEM / AREA: RTU- 14 Return / 2nd Floor Administration | **TECH:** DD

LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
RTU-14 Return										
285 D	R1	14" x 14"	FH	---	650	---	528	---	639	(1)
285 E	R2	14" x 14"	FH	---	600	---	431	---	513	(2,3)
285	R3	14" x 14"	FH	---	500	---	423	---	516	(1,3)
284	R4	12" x 12"	FH	---	350	---	397	---	414	(1)
283	R5	12" x 12"	FH	---	450	---	424	---	491	(1)
282 D	R6	12" x 12"	FH	---	450	---	433	---	511	(1)
282 C	R7	12" x 12"	FH	---	400	---	291	---	347	(2)
282 A	R8	12" x 12"	FH	---	300	---	150	---	177	(1)
282	R9	22" x 10"	FH	---	500	---	409	---	532	(2)
282	R10	12" x 12"	FH	---	500	---	166	---	198	(1)
282	R11	22" x 10"	FH	---	625	---	310	---	374	(2)
					5325		3962		4712	

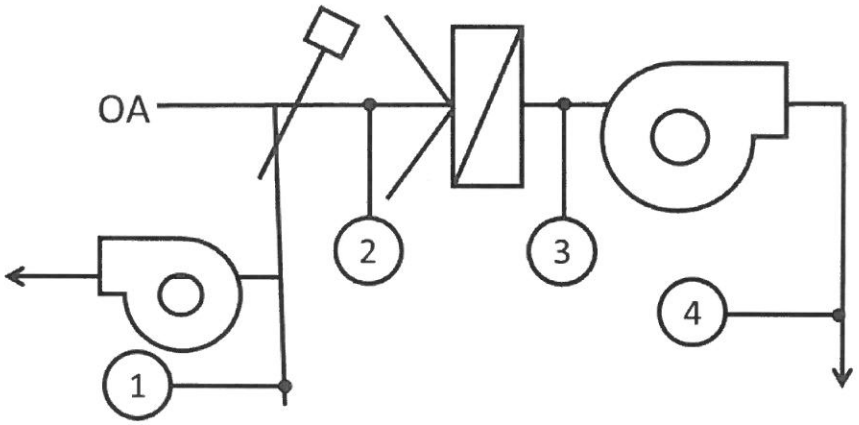
REMARKS

(1) VD is 100% open.
(2) Damper missing.
(3) Outlet dirty.

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

SYSTEM STATIC PRESSURE PROFILE

PROJECT: Ludlowe High School - Fairfield, CT	**DATE:** 8/23/23
SYSTEM/AREA SERV: RTU-14 (Trane)	**TECH:** JF



STATIC PRESSURE READINGS "wc

POS. (+) / NEG.(-)	1	2	3	4	5	6	7	NOTES
RTU-14	-.89"	-.96"	-1.19"	+.78"				

REMARKS

SUPPLY FAN REPORT

PROJECT: Fairfield Ludlowe High School		**DATE:**	7/26/23
AREA SERVED: Various		**TECH:**	DD

FAN DATA

FAN NUMBER	UV-1		UV-2		UV-3	
LOCATION	Ceiling		Ceiling		Ceiling	
AREA SERVED	123 & 124		125 & 126		126 & 127	
MANUFACTURER	Trane		Trane		Trane	
MODEL OR SIZE	HUVC0751BKOK		HUVB15011FOK		HUVB10011FOK	
	DESIGN	**ACTUAL**	**DESIGN**	**ACTUAL**	**DESIGN**	**ACTUAL**
TOTAL CFM	500	566	1200	780	1000	778
RETURN AIR	N/D	496 (1)	N/D	452 (1)	N/D	621 (1)
OUTSIDE AIR	N/D	70	N/D	328	N/D	157
DISCH. STATIC	N/D	---	N/D	---	N/D	---
SUCTION STATIC	N/D	---	N/D	---	N/D	---
TOTAL STATIC	N/D	---	N/D	---	N/D	---
FAN RPM	N/D	(2)	N/D	(2)	N/D	(2)
PULLEY O.D.	D/D		D/D		D/D	
ESP	---		---		---	
VFD SPEED	---		---		---	
O.A.D.MIN POS						

MOTOR DATA

MANUFACTURER	GE		GE		GE	
MODEL OR FR.	5KCP39M6C159AS		5KP39MGB434AS		N/A	
HORSEPOWER	1/3	1/3	1/4		1/6	1/6
MOTOR RPM	1260	Low Speed	1075	Low Speed	1075	High Speed
VOLTAGE / PH.	115/1	115/1	115/1	115/1	115/1	115/1
AMPS **LEG 1**	4.8	3.1	2.6	2.6	2.2	1.9
AMPS **LEG 2**	---	---	---	---	---	---
AMPS **LEG 3**	---	---	---	---	---	---
SHEAVE O.D.	D/D		D/D		D/D	
BELTS - QUANTITY / SIZE	---	---	---	---	---	---
SHEAVE POSITION	---	---	---	---	---	---
C to C	---	---	---	---	---	---

REMARKS

(1) Calculated

(2) Unable to tach

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

SUPPLY FAN REPORT

PROJECT: Fairfield Ludlowe High School		**DATE:**	7/27/23
AREA SERVED: Various		**TECH:**	DD

FAN DATA

FAN NUMBER	UV-4 (1)					
LOCATION	Ceiling					
AREA SERVED	129					
MANUFACTURER	Trane					
MODEL OR SIZE	HUVC20020ADK					
	DESIGN	**ACTUAL**				
TOTAL CFM	1500					
RETURN AIR	N/D					
OUTSIDE AIR	N/D					
DISCH. STATIC	N/D					
SUCTION STATIC	N/D					
TOTAL STATIC	N/D					
FAN RPM	N/D					
PULLEY O.D.	D/D					
ESP						
VFD SPEED						
O.A.D.MIN POS						

MOTOR DATA

MANUFACTURER		Trane					
MODEL OR FR.		X70660682010					
HORSEPOWER		1	1				
MOTOR RPM		1725					
VOLTAGE / PH.		208					
AMPS	**LEG 1**	6.95					
	LEG 2	---					
	LEG 3	---					
SHEAVE O.D.		D/D					
BELTS - QUANTITY / SIZE		---					
SHEAVE POSITION		---					
C to C							

REMARKS

(1) Unit did not run

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 7/28/23

SYSTEM / AREA: Various | **TECH:** DD

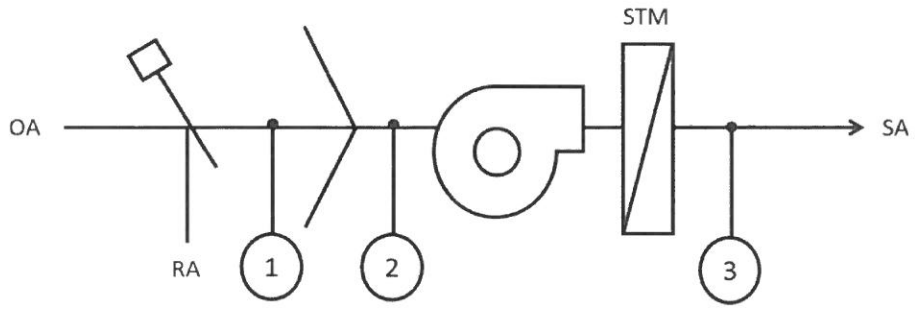
LOCATION	NO.	SIZE	A K	DESIGN FPM	DESIGN CFM	TEST FPM	TEST CFM	FINAL FPM	FINAL CFM	NOTES
UV-1										
Secretary 124	1	2408	FH	---	200	---	253			
A.D. 123	2	2408	FH	---	300	---	313			
					500		566			
UV-2										
Nursery Class 125	1	2408	FH	---	150	---	91			
Nursery Class 125	2	2408	FH	---	150	---	87			
Nursery Class 125	3	2408	FH	---	150	---	104			
Nursery Class 125	4	2408	FH	---	150	---	93			
Nursery Class 126	5	2408	FH	---	150	---	87			
Nursery Class 126	6	2408	FH	---	150	---	96			
Nursery Class 126	7	2408	FH	---	150	---	105			
Nursery Class 126	8	2408	FH	---	150	---	117			
					1200		780			
UV-3										
Nursery 126	1	2408	FH	---	150	---	149			
Nursery 126	2	2408	FH	---	150	---	89			
Group 127B	3	2408	FH	---	150	---	95			
OT/PT 127	4	2408	FH	---	150	---	116			
OT/PT 127	5	2408	FH	---	150	---	117			
OT/PT 127	6	2408	FH	---	150	---	112			
OT/PT 127	7	2408	FH	---	150	---	99			
					1000		778			
UV-4										
ALC 129	1	2408	FH	---	250	---	0			
ALC 129	2	2408	FH	---	250	---	0			
ALC 129	3	2408	FH	---	250	---	0			
ALC 129	4	2408	FH	---	250	---	0			
ALC 129	5	2408	FH	---	300	---	0			
ALC 129	6	2408	FH	---	200	---	0			
					1500		0			

REMARKS

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

SYSTEM STATIC PRESSURE PROFILE

PROJECT: Ludlowe High School - Fairfield, CT	**DATE:** 7/27/23
SYSTEM/AREA SERV: UV 1-4	**TECH:** DD



STATIC PRESSURE READINGS "wc								
POS. (+) / NEG.(-)	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**NOTES**
UV								

REMARKS

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 7/17/23

SYSTEM / AREA: Existing UVs / 2nd Floor | **TECH:** MS

LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
202 UVB		54" x 8"	FH	---	1250	---	752			
Min OA					250					
203 UVA		54" x 8"	FH	---	1000	---	786			
Min OA					200					
204UVA		54" x 8"	FH	---	1000	---				(3)
Min OA					200					
211 UVC		66" x 8"	FH	---	1500	---	1100			
Min OA					300					
213 UVB		54" x 8"	FH	---	1250	---	---			(2)
Min OA					250					
214 UVB		54" x 8"	FH	---	1250	---	784			(1)
Min OA					250					
220 UVB		54" x 8"	FH	---	1250	---	667			(1)
Min OA					250					
221 UVB		54" x 8"	FH	---	1250	---	714			(1)
Min OA					250					
223 UVA		54" x 8"	FH	---	1000	---	761			(1)
Min OA					200					
224 UVA		54" x 8"	FH	---	1000	---	740			(1)
Min OA					200					
225 UVA		66" x 8"	FH	---	1000	---	---			(1,2)
Min OA					200					
226 UVA		54" x 8"	FH	---	1000	---	737			(1)
Min OA					200					
227 UVA		54" x 8"	FH	---	1000	---	686			(1)
Min OA					200					
228 UVA		54" x 8"	FH	---	1000	---	690			(1)
Min OA					200					

REMARKS

(1) On high speed
(2) Unit did not run
(3) N/A to unit

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 7/17/23

SYSTEM / AREA: UV, FC / 2nd Floor | **TECH:** DD

LOCATION	NO.	SIZE	A K	DESIGN FPM	DESIGN CFM	TEST FPM	TEST CFM	FINAL FPM	FINAL CFM	NOTES
230 EUVB		54" x 8"	FH	---	1250	---	1006			(1)
Min OA					500					
230 WUVB		54" x 8"	FH	---	1250	---	---			(1,2)
Min OA					500					
232 UVB		54" x 8"	FH	---	1250	---	708			(1)
Min OA					500					
233 UVB		54" x 8"	FH	---	1250	---	804			(1)
Min OA					500					
234 WUVB		54" x 8"	FH	---	1250	---	---			(1,2)
Min OA					500					
234 EUVB		54" x 8"	FH	---	1250	---	690			(1)
Min OA					500					
242 UVA		54" x 8"	FH	---	1250	---	786			(1)
Min OA					500					
215 UVB		54" x 8"	FH	---	1250	---	750			(1)
Min OA					500					

REMARKS

(1) High Speed

(2) Unit did not run

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 7/17/23

SYSTEM / AREA: Existing ECUs, Uvs / 3rd Floor | **TECH:** DD

LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
Rm 301 FC-3		54" x 8"	FH	---	1300	---	728			(1)
Min OA					N/D					
Rm 302 FC-3		54" x 8"	FH	---	1300	---	701			(1)
Min OA					N/D					
Rm 306 UVA		54" x 8"	FH	---	1000	---	736			(1)
Min OA					200					
Rm 312 EFC-3		54" x 8"	FH	---	1300	---	704			(1)
Min OA					N/D					
Rm 312 WFC-3		54" x 8"	FH	---	1300	---	594			(1)
Min OA					N/D					
Rm 313 EFC-3		54" x 8"	FH	---	1300	---	709			(1)
Min OA					N/D					
Rm 313 WFC-3		54" x 8"	FH	---	1300	---	689			(1)
Min OA					N/D					
Rm 314 FC-3		54" x 8"	FH	---	1300	---	751			(1)
Min OA					N/D					
Rm 315 UVB		54" x 8"		---	1250	---	691			(1)
Min OA					250					
Rm 316 UVB		54" x 8"	FH	---	1250	---	715			(1)
Min OA					250					
Rm 317 UVB		54" x 8"	FH	---	1250	---	667			(1)
Min OA					250					
Rm 318 UVB		54" x 8"	FH	---	1250	---	701			(1)
Min OA					250					
Rm 319 UVB		54" x 8"	FH	---	1250	---	1169			(1)
Min OA					250					
Rm 320 UVB		54" x 8"	FH	---	1250	---	700			(1)
Min OA					250					
Rm 321 UVB		54" x 8"	FH	---	1250	---	739			(1)
Min OA					250					
Rm 322 UVB		54" x 8"	FH	---	1250	---	681			(1)
Min OA					250					
Rm 324 UVC		54" x 8"	FH	---	1500	---	684			(1)
Min OA					300					

REMARKS

(1) High speed

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

AIR DEVICE REPORT

PROJECT: Fairfield Ludlowe High School | **DATE:** 7/17/23

SYSTEM / AREA: Existing Uvs / 3rd Floor | **TECH:** DD

LOCATION	NO.	SIZE	A K	DESIGN		TEST		FINAL		NOTES
				FPM	CFM	FPM	CFM	FPM	CFM	
Rm 325 UVC		54" x 8"	FH	---	1500		664			(1)
Min OA					300					
Rm 326 UVC		54" x 8"	FH	---	1500		714			(1)
Min OA					300					
Rm 327 UVC		66" x 8"	FH	---	1500	---	1006			(1)
Min OA					300					
Rm 328 UVC		54" x 8"	FH	---	1500	---	646			
Min OA					300					
Rm 329 UVC		54" x 8"	FH	---	1500	---	682			(1)
Min OA					300					
Rm 338 UVC		54" x 8"	FH	---	1500	---	720			(1)
Min OA					300					
Rm 357 UVB		54" x 8"	FH	---	1250	---	737			(1)
Min OA					250					
Rm 356 UV		54" x 8"	FH	---	1000	---	---			(1,2)
Min OA					200					
Rm 358 UVB		54" x 8"	FH	---	1250	---	---			(1,2)
Min OA					250					
Rm 359 UVB		54" x 8"	FH	---	1250	---	743			(1)
Min OA					250					
Rm 360 UVB		54" x 8"	FH	---	1250	---	632			(1)
Min OA					250					
Rm 361 W UVB		66" x 8"	FH	---	1250	---	976			(1)
Min OA					250					
Rm 361 E UVB		66" x 8"	FH	---	1000	---	900			(1)
Min OA					200					
Rm 369 UVA		54" x 8"	FH	---	1000	---	665			(1)
Min OA					200					
Rm 370 UVA		54" x 8"	FH	---	1000	---	645			(1)
Min OA					200					

REMARKS

(1) High speed.

(2) Unit did not run

N/A Not Available | N/D No Design | **D/D** Direct Drive | **N/R** No Requirement

VELOCITY PRESSURE READINGS

PROJECT:	Fairfield Ludlowe High School					**DATE:**	8/21/23	
AREA SERVED:	Various					**TECH:**	JF, DD	
TRAVERSE LOCATIONS	**DUCT SIZE "**	**AREA SQ.FT.**	**DESIGN**		**CENT. STAT. PRESS."**	**TEST**		**NOTES**
			FPM	**CFM**		**FPM**	**CFM**	
RTU-1								
Min OA	90" x 33.5"	20.94	---	2900	w/Velgrid	---	---	(3)
RTU-2								
Min OA	39" x 19"	5.15	97	500	w/Velgrid	104	536	
RTU-6								
Min OA	39" x 19"	5.15	117	600	w/Velgrid	121	623	
RTU-4								
Min OA	35" x 12"	2.92	128	375	w/Velgrid	126	368	
RTU-14								
Min OA	59" x 17"	6.97	72	500	w/Velgrid	80	558	
RTU-13								
Min OA	67 1/4" x 35 1/2"	16.58	121	2000	w/Velgrid	18	298	(2,5)
RTU-12								
Min OA	47" x 14 1/2"	4.73	169	800	w/Velgrid	32	151	(1,4) Pot
RTU-1-R1								
Min OA	49" x 26"	8.85	282	2500	w/Velgrid	280	2478	
AC-4								
Min OA	48" x 15"	5.0	60	300	w/Velgrid	66	330	(4) Pot
RTU-11								
Min OA	58" x 17"	6.84	88	600	w/Velgrid	95	650	(4) Pot

REMARKS

(1) Hinge for OA damper is broken. Unable to set.
(2) Intake screen missing, 2 others damaged.
(3) Unable to test
(4) O.A. filter is no good
(5) Damper is 100% closed. No control (Pot) visible. ALC has no control.

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

VELOCITY PRESSURE READINGS

PROJECT:	Fairfield Ludlowe High School					DATE:	8/21/23	
AREA SERVED:						TECH:	JF, DD	
TRAVERSE LOCATIONS	DUCT SIZE "	AREA SQ.FT.	DESIGN FPM	DESIGN CFM	CENT. STAT. PRESS."	TEST FPM	TEST CFM	NOTES
RTU-3								
Dx Coil	89" x 51 1/2"	31.8	381	12,115	w/Velgrid	---	---	(1)
O.A.	92 1/2 " x 31 1/2"	20.3	133	2700	w/Velgrid	---	---	(1)
RTU-5								
H.W.Coil	66 1/2" x 75 1/2"	34.87	960	33,490	w/Velgrid	885	30,860	
O.A.	40 1/2 " x 78"	21.9	215	4700	w/Velgrid	198	4336	
RTU-7								
Min OA	39" x 19"	5.15	78	400	w/Velgrid	84	433	
RTU-8								
O.A.	31 1/2" x 92 1/2"	20.2	173	3500	w/Velgrid	177	3575	

REMARKS

(1) Unable to test, fans have issues

(5) Damper is 100% closed. No control (Pot) visible. ALC has no control.

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

VELOCITY PRESSURE READINGS

PROJECT:	Fairfield Ludlowe High School					**DATE:**	8/3/23	
AREA SERVED:	Various					**TECH:**	DD	
TRAVERSE LOCATIONS	**DUCT SIZE "**	**AREA SQ.FT.**	**DESIGN**		**CENT. STAT. PRESS."**	**497**		**496**
			FPM	**CFM**		**FPM**	**CFM**	
RTU-8								
Outlet 8+9	14" x 8"	.78	---	N/D	+.24"	715	558	(1)
Outlet 8+9	14" x 8"	.78	538	420	+.19"	636	496	(2)
Outlet 8+9	14" x 8"	.78	215	168	+.04"	292	228	(3)
AC-4								
VAV-6 Rm 275	16" Ø	1.4	886	1240	+.20"	648	907	(1,2)
VAV-6 Rm 275	16" Ø	1.4	357	500	+.06"	355	497	(3)

REMARKS

(1) 100% open
(2) Cool maximum.
(3) Minimum.

(5) Damper is 100% closed. No control (Pot) visible. ALC has no control.
N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

VELOCITY PRESSURE READINGS

PROJECT:	Fairfield Ludlowe High School					**DATE:**	8/1/23	
AREA SERVED:	1st Floor Faculty Dining and Workroom					**TECH:**	DD	
TRAVERSE LOCATIONS	**DUCT SIZE "**	**AREA SQ.FT.**	**DESIGN**		**CENT. STAT. PRESS."**	**TEST**		**NOTES**
			FPM	**CFM**		**FPM**	**CFM**	
DOA-2								
FCU 3-3	4"Ø	.09	2222	200	+.54"	606	54	
FCU 3-4	4"Ø	.09	2222	200	+.44"	714	64	
FCU-3-2	4"Ø	.09	2222	75			168	(1)
FCU 3-1	4"Ø	.09	2222	200	+.53"	437	39	
Total				675			325	
FCU-3 1+2	13" x 9"	.81	340	275	+.53"	255	207	
DOA-3								
FCU 3-5	13" x 9"	.81	370	300	+1.0"	138	112	
FCU 3-6	13" x 9"	.81	370	300	+.82"	197	160	
				600			272	

REMARKS

(1) Calculated.

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

VELOCITY PRESSURE READINGS

PROJECT:	Fairfield Ludlowe High School					**DATE:**	6/15/23	
AREA SERVED:	Various					**TECH:**	NC, DD	
TRAVERSE LOCATIONS	**DUCT SIZE "**	**AREA SQ.FT.**	**DESIGN**		**CENT. STAT. PRESS."**	**TEST**		**NOTES**
			FPM	**CFM**		**FPM**	**CFM**	
DOA-1 Br #1	14" Ø	1.07	1308	1400	+.0025"	244	388	
Total	50" x 24"	8.33	690	5750	-.108"	728	6064	(3)
HV-1								
BR #1	26" Ø	3.69	1172	4325	+.21"	1144	4221	(1)
BR #2	24" x 16"	2.67	1049	2800	+.29"	849	2267	
Total				7125			6488	
HV-2								
Supply Total	58" x 16"	6.44	1429	9200	+.158"	1307	8417	(2)
Exhaust Main	50" x 20"	6.94	1250	8675	-.97"	1132	7856	
Exhaust Branch 1	24" x 12"	2.0	1000	2000	-.97"	810	1628	
				10675			9484	
HV-3								
Orchestra	22" Ø	2.64	1023	2700	+.090"	1009	2664	
Woodshop	45" x 18"	5.625	791	4450	+.114"	756	4254	
Trans Tech	20" Ø	2.18	1468	3200	+.099"	1476	3218	
				10350			10,136	
HV-4 Supply								
Steam Coil	2 (103" x 42")	60.08	502	30,150	w/ Velgrid	505	30,340	
RTU-9								
Dx Coil	82" x 46 1/2"	26.5	52.83	14,000	w/ Velgrid	386	10,229	
O.A.								
Intake 1	7 (39 1/2" x 4")	7.68	182	1400	w/ Velgrid	263	2020	
Intake 2	7 (39 1/2" x 4")	7.68	182	1400	w/ Velgrid	260	1997	
				2800			4017	(4)
RTU-10								
Steam Coil	74" x 38 1/2"	19.8						
O.A.								
Intake 1								
Intake 2								

REMARKS

(1) Unable to locate branch damper
(2) 2 SF @ 75% max based on amp
(3) Fan @ 30 Hz
(4) Mixing dampers have issues. Not all banks open + close correctly.

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

VELOCITY PRESSURE READINGS

PROJECT:	Fairfield Ludlowe High School					**DATE:**	6/21/23	
AREA SERVED:	Lower Level					**TECH:**	DD	
TRAVERSE LOCATIONS	**DUCT SIZE "**	**AREA SQ.FT.**	**DESIGN**		**CENT. STAT. PRESS."**	**TEST**		**NOTES**
			FPM	**CFM**		**FPM**	**CFM**	
EF-9								
Trans Tech	22" Ø	2.64	---	N/D	-.18"	1042	2751	(1)

REMARKS

(1) Belt slipping, fan needs PM

(5) Damper is 100% closed. No control (Pot) visible. ALC has no control.

N/A Not Available | **N/D** No Design | **D/D** Direct Drive | **N/R** No Requirement

APPENDIX 5 – RCx Unit and Room Take-Off Data

Project Name:	**Fairfield Public Schools RCx**
Project Number:	*2020102.00*
Scope	**Room Take-Off Data**
Date	**March 1, 2022**

Zone Identification

Room#	Room Name	Area (SF)	Ceiling Height (FT)	Volume	People	Notes	Identified Defficiencies	Pictures
								Y /N
Fairfield Ludlowe High School								
Lower Level								
001	Group Exercise	1525	9.6	14640				
002	Art Classroom	1216	9.6	11673.6				
002A	Storage			0				
003	Storage			0				
004	Art Classroom	1216	9.6	11673.6				
005	Dark Room	430	9.6	4128				
006	Art Classroom	1132	12	13584		Slope ceiling avg.		
006A	Storage			0				
007	Art Classroom	1050	16	16800		Slope ceiling avg.		
007A	Storage			0				
008	Art Storage			0				
07B	Kiln	260	12.75	3315		Exhaust		
010	Auto Shop	2241	14.33	32113.53				
010A	Storage	369	14.33	5287.77				
011	Elec Mech			0				
012	Mech			0				
13	Boys			0				
14	Girls			0				
015	Graphics Lab	2311	11.33	26183.63				
015A	Elec			0				
016	Girls Team Room	1500	12	18000				
017	Girls Team Room	358	12.33	4414.14				
018	Girls Locker Room	1727	12.33	21293.91				
019	Office	287	8	2296				

Project Name:	**Fairfield Public Schools RCx**
Project Number:	*2020102.00*
Scope	**Room Take-Off Data**
Date	**March 1, 2022**

Zone Identification

Room#	Room Name	Area (SF)	Ceiling Height (FT)	Volume	People	Notes	Identified Defficiencies	Pictures
								Y /N
020	Team Room	320	12.33	3945.6				
021	Office			0				
022	Boys Locker Room	1620	12.33	19974.6				
022B	Not Labeled			0				
023	Storage			0				
024	Wood Shop	1867	12.33	23020.11	16	Shop dust exhaust	Space Pressurized	
024A	Finish Room	142	12.33	1750.86				
024B	Office	155		0				
024C	Wood Storage	445	12.33	5486.85				

Project Name:	**Fairfield Public Schools RCx**
Project Number:	*2020102.00*
Scope	**Room Take-Off Data**
Date	**March 1, 2022**

Zone Identification

Room#	Room Name	Area (SF)	Ceiling Height (FT)	Volume	People	Notes	Identified Defficiencies	Pictures
								Y /N
025	Boys Team Room	326	12.33	4019.58	15			
026	Boys Team Room	328	12.33	4044.24				
027	Trainer	242	8.4	2032.8				
027A	Office	54	8.4	453.6				
027B	Office	62	8.4	520.8				
029	Team Room	468	12	5616		Renew Air HX no heat		
029A	Toilet	145	12	1740				
030	Computer Repair	1837	12	22044				
030B	Fuel Pump	163	12	1956				
030B	Storage	109	12	1308				
030C	Tele/Data			0				
031	Computer Lab	931	12	11172				
032	Computer Lab	913	12.3	11229.9	4	Multiple Supplies, split system	Room gets very warm.. Fan used to blow out to hallway	
033	Mechanical			0				
034	Storage			0				
1st Floor				0				
101	Gymnasium	11723	26	304798				
102	Gym Storage			0				
103	Gym Storage			0				
104	Girls			0				
105	Boys			0				
106	Auxiliary Gymnasium	8035	26	208910				
107	Band Reshersal	1564	10.25	16031	40			
107A	Storage	91	8.6	782.6				
107B	Storage	317	8.5	2694.5				
108	Practice	115	8.5	977.5	2	1-Diffuser		

Project Name:	**Fairfield Public Schools RCx**
Project Number:	*2020102.00*
Scope	**Room Take-Off Data**
Date	**March 1, 2022**

Zone Identification

Room#	Room Name	Area (SF)	Ceiling Height (FT)	Volume	People	Notes	Identified Defficiencies	Pictures
								Y /N
109	Resource Center	342	8.5	2907	3			
110	Practice	108	9.5	1026	2			
111	Practice	182	8.75	1592.5				
112	Keyboard	488	8	3904	8			
112A	Not Labeled	95	8	760	2			
113	Pump Room/Gen. Storage			0				
113	Not Labeled			0				
114	Office	239	8	1912				
115	Choral Room	1488	11	16368		Droopy tiles		
116	Storage-Fitness	597	11.4	6805.8		Sidewall grills Droopy tile		
117	Girls			0				
118	Boys			0				
121	Orchestra Room	2326	10.33	24027.58		Lots of supply, very litte return Positive to corridor		
122	Fitness Center	2439	9.5	23170.5		FTR 10 Supplies EXH, AHU Disconnects		
123	Office	163	8.1	1320.3		Window A/C		
124	Reception	213	8.1	1725.3				
125	Classroom	624	8.75	5460	25			
126	Nursery	859	8.75	7516.25				
126A	Toilet			0				
127	OT/PT	713	8.5	6060.5	6			
127A	Toilet			0				
127B	Small Group	131		0		1 supply, Room Cold, Exterior Door		
128	Work Room	385	12	4620		No windows, A/C no Air		
128A	Mech	311	12	3732				
129	Classroom	710	8.3	5893	23	FCU with 4-Supplies low FTR		
130	Faculty Room	910	8.12	7389.2	6	FTR 2 LG		

Project Name:	**Fairfield Public Schools RCx**
Project Number:	*2020102.00*
Scope	**Room Take-Off Data**
Date	**March 1, 2022**

Zone Identification

Room#	Room Name	Area (SF)	Ceiling Height (FT)	Volume	People	Notes	Identified Defficiencies	Pictures
								Y /N
130A	Activity Room	359	8.1	2907.9		FTR BB 1 LG		
131	Elev Mech			0				
131	Boys			0				
132	Girls			0				
138	Cafeteria	4952	11	54472	352	DOAS Daikin MAU in Hall Closet	Look for Max Occupancy	
138A	Storage	410	8	3280		Electrical anel HX in closet 2-Supplies		
138B	Storage	169	8	1352		FTR one supply Hot. 1 Ductless Split		
138C	Senior Commons	752	7.666	5764.832	40	2 VRF		
138D	Kitchen	3333	9.66	32196.78		Areas broken out		
138E	Wedge Left	2000	12	24000	50	2 VRF Consoles	Look for Max Occupancy	
138F	Office			0				
138G	Toilet			0				
138W	Wedge Right	1084	9.5	10298	115	2 VRF Consoles	Look for Max Occupancy	
139	Student Store	???		#VALUE!				
142	Falcons Nest Restaurant	1470	9.5	13965	30		Look for Max Occupancy	
142A	Commercial Kitchen	611	9.5	5804.5				
143	Storage			0				
144	Elev Mech			0				
145	Kitchen Lab	1255	9	11295	26	Kitchen hoods (4) not operative, little space exhaust, 6 Supplies	Food odors Hallway, no FTR. Rm cold	
145A	Storage	69	9	621		1 supply		
146	Classroom	590	9	5310	29	6 Supplies		
147	Classroom	615	9	5535	26	6 Supplies		
148	Classroom	634	9	5706	27	6 Supplies		
149	Classroom	611	9	5499	27	6 Supplies		
150	Computer Lab	1054	9	9486	29	6 Supplies	Space Pessurized	
151	Physics	1147	9	10323	26	6 Supplies		

Project Name:	**Fairfield Public Schools RCx**
Project Number:	*2020102.00*
Scope	**Room Take-Off Data**
Date	**March 1, 2022**

Zone Identification

Room#	Room Name	Area (SF)	Ceiling Height (FT)	Volume	People	Notes	Identified Defficiencies	Pictures
								Y /N
152	Prep	190	9	1710	2	1 Supply		
152A	Storage	89	9	801		1 Supply		
153	Science Classroom	1149	9	10341	25	6 Supplies		
154	Storage	234	9.5	2223				
155	Custodian	355	9.5	3372.5		1 desk no vents		
156	Boiler Room			0				
181	Science Classroom	1212	9	10908	27	6 Supplies		
181A	Prep	270	9	2430	2	1 Supply	Sump in Rm with Little Ventilation	
2nd Floor				0				
201	Black Box Theater	1548	11.5	17802	28	Dedicated System		
201A	Storage			0				
202	Classroom	690	9	6210	25	UV & FTR		
203	Classroom	868	9	7812	26	UV & FTR		
203A	Scene Shop	838	9	7542	4	Stage Door Upper Entrance in Room		
205	Classroom	1122	9	10098	26	2 Supplies and FTR		
206	Health Suite	388	9	3492	2	3 Supplies		
206A	Office	94	9	846	2	1 Supply		
206B	Isolation Room	93	9	837	2	1 Supply, No dedicated DOAS or Hepa filtration		
206C	Treatment	287	9	2583	2	1 Supply Air and 2 Cots		
206D	Office	125	9	1125	2	1 Supply		
206E	Med Room	115	9	1035	1	1 Supply		
206F	Cot Room	217	9	1953	5	1 Supply		
206G	Toilet	47	9	423				
209	Mechanical			0				
211	Science Classroom	1417	8.5	12044.5	26	3 Supplies, UV, FTR		
211A	Storage	74	8.5	629				

Project Name:	**Fairfield Public Schools RCx**
Project Number:	*2020102.00*
Scope	**Room Take-Off Data**
Date	**March 1, 2022**

Zone Identification

Room#	Room Name	Area (SF)	Ceiling Height (FT)	Volume	People	Notes	Identified Defficiencies	Pictures
								Y /N
212	Prep	371	8.5	3153.5	1	Exhaust		
213	Science Classroom	1387	8.5	11789.5	26	3 Supplies, UV, FTR		
214	Science Classroom	1235	8.5	10497.5	26	3 Supplies, UV, FTR		
214A	Storage	40	8.5	340		JCI Controller for MAU 1, 2, 3, EF 1 & EF4 in Room		
214B	Prep	230	8.5	1955	2			
214C	Storage	40	8.5	340		Chemical Sump in Room with limited Exhaust		
215	Classroom	649	9.5	6165.5	28	UV, FTR		
216	Girl	255	9.5	2422.5				
217	Custodian	39	9.5	370.5	2			
218	Toilet	39	9.5	370.5	1	Exhaust		
219	Boys	255	9.5	2422.5				
220	Classroom	615	9.5	5842.5	25	1 UV.		
221	Faculty Lounge	688	9.5	6536	26	1 UV.		
222	Guidance	275	9	2475	2	2 Supllies		
222A	Office	102	9	918	2	1 Supply		
222B	Office	147	9	1323	2	1 Supply		
222C	Office	132	9	1188	2	1 Supply		
223	Classroom	614	9.5	5833	25	1 UV		
224	Classroom	638	9.5	6061	25	FTR, 2 Ret operable windows		
225	Classroom	694	9.5	6593	25	UV FTR		
226	Classroom	621	9.5	5899.5	25	UV FTR		
227	Classroom	633	9.5	6013.5	25	UV FTR		
228	Classroom	625	9.5	5937.5	25	UV FTR		
230	Special Education	1250	9.5	11875	25	2-UV		
230A	Office			0				
232	Classroom	621	9.5	5899.5	25	UV FTR		

Project Name:	**Fairfield Public Schools RCx**
Project Number:	*2020102.00*
Scope	**Room Take-Off Data**
Date	**March 1, 2022**

Zone Identification

Room#	Room Name	Area (SF)	Ceiling Height (FT)	Volume	People	Notes	Identified Defficiencies	Pictures
								Y /N
233	Classroom	772	9.5	7334	25	UV FTR		
234	Computer Lab	1285	10	12850	26	2-UV, FTR, 10 Supplies		
235	Science Classroom	1051	10	10510	25	FTR		
236	Prep	250	7.5	1875	2			
237	Science Classroom	1025	10	10250	25	FTR		
238	Girls			0				
239	Boys			0				
242	Faculty Lounge Class room	675	10	6750	25	Unit Vent, 4 supplies		
243	Classroom			0	25			
244	Classroom	644	8.5	5474	25	4 supplies		
245	Reception	265	8.5	2252.5	4	1 Supply?		
245A	Office	108	8.5	918	2	2-Supplies		
245B	Office	108	8.5	918	2	1-Supply		
245C	Office	91	8.5	773.5	2			
246	Conference	380	8.5	3230	12	2-Supplies		
247	House Office	219	9	1971	4	2-Supplies		
247A	Tele/Data			0				
247B	Work Room Mail Room	200	12	2400	2	2 supply		
247C	Dean	236	9	2124	4	2 supply 1 Return		
247D	Housemaster	352	9	3168	4			
247E	Server	60	9.75	585				
248	Tele/Data	149	8.5	1266.5				
249	Classroom	645	8.5	5482.5	26	5 Supplies		
250	Classroom	638	8.5	5423	26	5 Supplies		
251	Classroom	637	8.5	5414.5	26	6 Supplies		
252	Classroom	637	8.5	5414.5	26	6 Supplies		

Project Name:	**Fairfield Public Schools RCx**
Project Number:	*2020102.00*
Scope	**Room Take-Off Data**
Date	**March 1, 2022**

Zone Identification

Room#	Room Name	Area (SF)	Ceiling Height (FT)	Volume	People	Notes	Identified Defficiencies	Pictures
								Y /N
253	Classroom	637	8.5	5414.5	26	6 Supplies		
254	Classroom	637	8.5	5414.5	26	6 Supplies		
255	Classroom	663	9.3	6165.9	26	6 Supplies		
256	Classroom	655	9.3	6091.5	26	6 Supplies		
257	Classroom	784	9.3	7291.2	26	4Supplies		
258	Girls			0				
259	Women			0				
260	Men			0				
261	Boys	288	8.5	2448				
262	Classroom	598	8.5	5083				
263	storage	288	8.5	2448		2 supplies I return 1 exh.		
265	Storage	66	13	858		no diffusers		
265A	Acid Tank	89	13	1157		Effluent tank		
266	Pupil Services	363	9	3267	6	3 Supplies		
266A	Office	204	9	1836	6	2 Supplies, FTR		
266B	Office	166	9	1494	2	2 Supplies, FTR		
266C	Conference	190	9	1710	10	3 Supplies		
266D	Office	170	9	1530	5	1 Supply		
266E	Storage	111	9	999		FTR Rad		
267	Custodian	110	7.5	825				
269	Classroom	1067	9	9603	26			
271	Media Center	6241	10	62410		10 average ceiling hieght		
271B	Group Study	236	9	2124				
271C	Group Study	236	9	2124				
271D	Group Study	236	9	2124				
271E	Group Study	236	9	2124				

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Zone Identification

Room#	Room Name	Area (SF)	Ceiling Height (FT)	Volume	People	Notes	Identified Defficiencies	Pictures
								Y /N
271F	Periodical Storage	345	9.5	3277.5				
271G	Office/Work Room	236	9	2124				
272	A/V Storage			0				
273	Multi Media Lab	830	9.5	7885	6	4 Supplies + 2 Mitsubishi Splits		
274	Classroom	608	9.5	5776	26			
275	TV Producation	964	12	11568	4			
275A	Control Room	114	12	1368	3			
276	Distance Learning	602	9.5	5719				
277	Lecture Hall	1472	11	16192	32	12 Supplies (Hallway 329 sf, 8.5' High)	Dawn missed 28 Book Rm 372 sf 9.5' H	
278	Book Room	372	9.5	3534	2			
280	Auditorium	8221	23	189083	500	Stage 24X71, Aud 79X76 Avg H 23		
280B	Elevator Lift	99	8.6	851.4		Storage and Lift		
280C	Storage	118	8.6	1014.8				
280E	Storage	606	7	4242		Sloped ceiling 8' - 4' down length		
281	Classroom	607	9.5	5766.5	28	4 Supplies. Note: Duct Chase in corner of Room		
282	Classroom	868	9.5	8246	27			
283	Classroom	684	9	6156				
284	Classroom	700	8.5	5950	25	4 supplies 2 exh		
282	Main Office	1004	9.25	9287	8	6 Supplies, FTR		
282A	Office	129	9.25	1193.25	2	1 Supply		
282B	File Storage/ Meeting	170	9.25	1572.5	8	1 Supply, FTR		
282C	Office	198	9.25	1831.5	3	1 Supply, FTR		
282D	Principal	272	9.25	2516	3	2 Supplies, FTR		
283	Conference	336	9.25	3108	10	2 Supplies, FTR		
284	Conference	173	9.25	1600.25	8	1 Supply, FTR		
285	House Office	417	9.25	3857.25	5	3 Supplies		

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Room#	Room Name	Area (SF)	Ceiling Height (FT)	Volume	People	Notes	Identified Defficiencies	Pictures
								Y /N
285A	Toilet	47	9.25	434.75		Exhaust		
285D	Housemaster	286	9.25	2645.5	8	2 Supplies, FTR		
285E	Dean	177	9.25	1637.25	4	1 Supply, FTR		
286	Counceling	289	9.25	2673.25	4	2 Supplies		
286A	Office	120	9.25	1110	4	1 Supply, FTR		
286B	Office	124	9.25	1147	4	1 Supply, FTR, Sanyo Split AC		
286C	Office	129	9.25	1193.25	2	1 Supply,		
286D	Office	133	9.25	1230.25	2	1 Supply, FTR		
286E	Office	159	9.25	1470.75	3	1 Supply, FTR, Sanyo Split AC		
286 F	Conference	193	9.25	1785.25	10	2 Supplies		
287	Reception	90	9.25	832.5	1	1 Supply		
287A	Security	198	9.25	1831.5	2	1 Supply, 1 Mitsubishi Split		
288	Men	125	8.5	1062.5	1	1 Supply		
289	Women	125	8.5	1062.5	1	1 Supply		
291	Toilet			0				
292	Transition Office	172	8.5	1462	4	1 Supply, FTR		
293	Green Room	401	8.5	3408.5	4	2 Supplies, FTR		
283A	Dressing	115	8.5	977.5	2	1 Supply, FTR		
293B	Storage	58	8.5	493		Exhaust with T'stat		
293C	Storage	63	8.5	535.5		Exhaust with T'stat		
3rd Floor				0				
280D	Control Room			0		Above Auditorium		
301	Classroom	778	8.5	6613	26	UV & FTR		
302	Classroom	756	8.5	6426	26	UV & FTR		
303	Computer Lab	1260	8.5	10710	28	9 Supplies, 3 UV's & Toe Kick FTR		
304	Prep/Server	25	8	200	2	Split Heat Pump		

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								Y /N
305	Computer Lab	893	8	7144	25	8 Supply Air		
306	Speech	208	8.5	1768	4	1 UV		
307	Women			0				
308	Men			0				
309	Custodian			0				
310	Storage	42	8.6	361.2	1			
311	Storage	185	8.6	1591	1			
312	Science Classroom	1797	8.6	15454.2	26	2 UV & FTR		
313	Science Classroom	1300	8.6	11180	26	2 UV & FTR		
314	Classroom	657	8.6	5650.2	26	UV & FTR		
315	Classroom	722	8.6	6209.2	25	UV & FTR		
316	Classroom	754	8.6	6484.4	26	UV & FTR		
317	Classroom	630	8.6	5418	26	UV & FTR		
318	Classroom	654	8.6	5624.4	26	UV & FTR		
319	Classroom	639	8.6	5495.4	26	UV & FTR		
320	Classroom	616	8.25	5082	26	UV & FTR		
321	Classroom	618	8.25	5098.5	26	UV & FTR		
322	Classroom	662	8.6	5693.2	26	UV & FTR		
323	Classroom	651	8.6	5598.6	26	UV & FTR		
324	Classroom	539	8.6	4635.4	26	UV & FTR		
325	Classroom	632	8.6	5435.2	26	UV & FTR		
326	Classroom	623	8.6	5357.8	26	UV & FTR		
327	Classroom	810	8.6	6966	26	UV & FTR		
328	Classroom	618	8.6	5314.8	26	UV & FTR		
329	Classroom	665	8.6	5719	26	UV & FTR Room very Cold		
330	Elec/Server	284	8.5	2414	1	Exhaust with Starters and JCI DX9100		Y

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Room#	Room Name	Area (SF)	Ceiling Height (FT)	Volume	People	Notes	Identified Defficiencies	Pictures
								Y /N
331	Marine Biology	1010	8.5	8585	26			
331A	Prep	166	8.5	1411	2	Exhaust and Duct Chase in Room		
333	Classroom	1035	8.25	8538.75	26	FTR		
334	Girls			0				
334	Boys			0				
338	Guidance	272	7.6	2067.2	4			
338A	Office	106	7.6	805.6	3			
338B	Office	121	8.25	998.25	3			
338C	Office	130	8.25	1072.5	3			
339	Custodian			0				
340	Toilet			0				
341	Storage			0				
342	House Office	636	8	5088	2	2 Supplies		
342A	Conference	255	8	2040	10	2 Supplies		
342B	Storage	159	8	1272	3	1 Supply		
342C	Housemaster	300	8	2400	3	2 Supplies		
342D	Dean	354	9	3186	4	2 Supplies		
342E	Mail Room	122	9	1098	3			
342F	Storage	36	9	324	0	1 Supply		
343	Faculty Lounge	536	9	4824	21	6 Supplies, 3 Returns	Very cold AM	
344	Computer Lab	1094	9	9846	27	6 Supplies, 3 Returns		
345	Science Classroom	1368	9	12312	26	6 Supplies, 3 Returns		
345A	Prep	169	9	1521	2	1SVD		
347	Science Classroom	12168	9	109512	26	6 Supplies, 3 Returns		
348	Prep	238	9	2142	2			
349	Biology	1324	9	11916	26	6 Supplies, 3 Returns		

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								Y /N
350	Science Classroom	1357	9	12213	26	6 Supplies, 3 Returns		
351	Prep	255	10	2550	2			
352	Science Classroom	1290	10	12900	26	6 Supplies + Hood		
353	Girls			0				
354	Boys			0				
355	Book St	312	7.5	2340	5			
356	Office	132	9	1188	4	Lennox HP 9000 BTU		
356A	Office	260	9	2340	3	Lennox HP 9000 BTU	Added to Dawns List	
357	Classroom	568	9	5112	26	UV		
358	Classroom	531	9.25	4911.75	26	UV, FTR		
359	Classroom	597	9.5	5671.5	26	UV, FTR & Exhaust		
360	Career Center	1060	9	9540	26	UV, FTR		
360A	Storage	40	8.5	340	1	Exhaust Register		
360B	Storage	108	8.5	918	1	Exhaust Register		
361	Textile Lab	1343	8.5	11415.5	28	2 UV & FTR		
361	Storage			0				
361B	Storage			0				
362	Men			0				
364	Women			0				
366	Toilet			0				
367	Toilet			0				
368	Classroom	326	8.75	2852.5	26	FTR		
369	Classroom	265	8.75	2318.75	26	24 000 BTU Mitsubishi, UV & FTR		
370	Classroom	237	8.75	2073.75	26	24 000 BTU Mitsubishi, UV & FTR		
381	Chem Lab	1323	8	10584	26	UV & FTR		
381A	Prep	288	8	2304	2	FTR, Passthrough Hood		

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Zone Identification								
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								Y /N

FLHS:

Unit Tag: MAU-1,2, & 3, Aaon model numbers RK-02-2-00-640 serving Biology labs were visually inspected. Fans were not operating during the date of inspection. Filters are clean, coils are clean, See Fig 1 below.

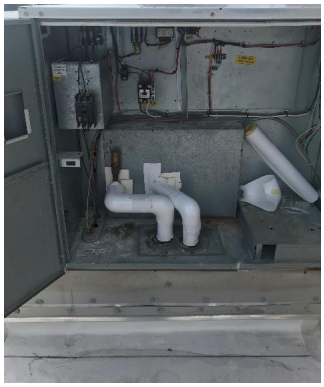

Figure 1
MAU-1,2,3

Unit Tag HV-3 Aaon model numbers RN-026-3-0-0000-CHH serving Auto/Wood/ Orchestra was visually inspected. Fans were operating during the date of inspection. Filters are due for change, coils are clean, See Fig 2.

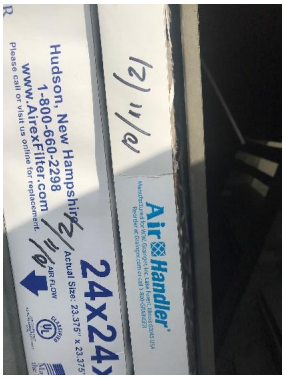

Figure 2
HV-3

FLHS:

Unit Tag RTU-2 Aaon model numbers RM-015-3-0-AB02-CJH Group Exercise was visually inspected. Filter changes are due. Capillary tubing appears to be rubbing against fan shroud and should be corrected before leak develops. See Fig 3.

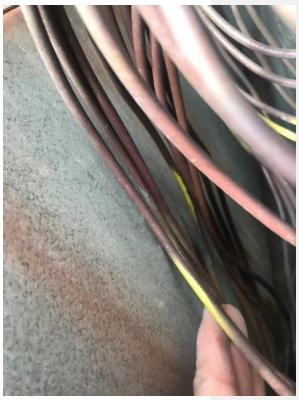

Figure 3
RTU-2

FLHS:

Unit Tag HV-4: Temtrol model numbers ITF-RHV61 Main Gym was visually inspected. Filter changes are due, no issues noted. See Fig 4

Figure 4
HV-4

Unit Tag HV-2 Aaon model numbers RN-026-3-0-0000-CHH serving Physical Education was visually inspected. Fans were operating during the date of inspection. Filters are due for change, coils are OK, energy recovery wheel was off and dirty. It is unclear why wheel was off, Controls review required. See figure 5 below

FLHS:

Figure 5
HV-2

Unit Tag RTU-4 Aaon model numbers RM-007-3-0-AB01-CJH serving Black Box TV Production was visually inspected. Fans were operating during the date of inspection. Filters are due for change, coils are OK, compressor running in the cooling mode. It is unclear why economizer was not operational due to cooler O.A. O.A. damper only at minimum position, no exhaust Controls review required. See Fig 6.

FLHS:

Figure 6
RTU-4

Unit Tag RTU-10 McQuay model numbers RPS018CSS serving Main Office was visually inspected. Fans were off, VFD drives in heating coil cabinet, temperature way above 100 degrees. Filters are due for change, coils are OK, compressor off. Unit appears to have been off for a while, disconnect is open. It is unclear why, Controls review required. See Fig 6.

FLHS:

Figure 6
RTU-10

Unit Tag RTU-11 Trane model numbers TCD211C300AA serving Science Lab was visually inspected. Power exhaust was off during visit. Fans were off, filters are due for change, coils are OK, compressor off. It is unclear why, Controls review required. See Fig 7.

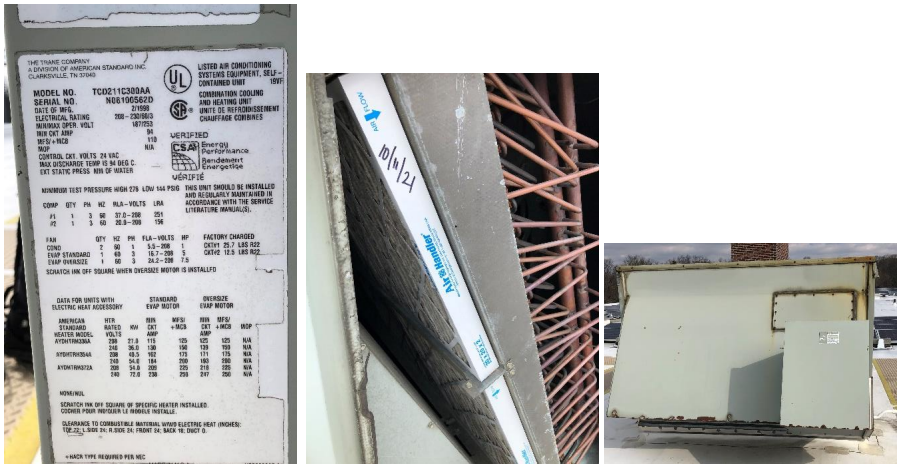

Figure 7
RTU-11

Unit Tag RTU-1R1 Trane Model RN-025-3-0-EB09-389 serves Science labs. Unit has DX cooling as well as gas heat. Unit appears to be newer but there were several issues found for example, ERW was off, fan motor for wheel was unplugged, wires crimped, ERW wheel belt found broken, filters in need of change out. Air Monitoring was also not functional, no tubing connected, damper seals conditions not great. Exhaust Running with 0% ODA and no Gravity dampers open See figure 8.

FLHS:

Figure 8
RTU-1R1

Unit Tag HV-6 Aaon Model RM-008-3-0-A402-CJH serves Kitchen. Unit provides air to kitchen via a unit mounted hot water coil. Filters are due for replacement, unit was off during the site visit, operation is unknown. Damper gear alignment might be an issue. See figure 8. Strange little unit as it has a DX cooling coil but no condensing fans or compressors?

FLHS:

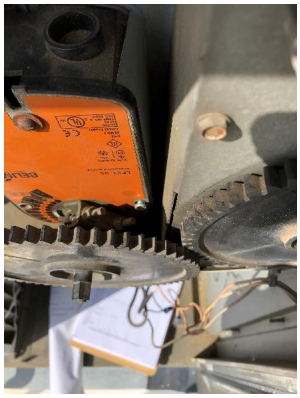

Figure 9
HV-6

Unit Tag RTU-5 located high on dunnage steel; Aaon Model RL-095-3-0-0B04-CAH serves Webster Hall wing. Unit provides Steam Heating and DX cooling with ventilation. Filters are due for replacement; unit was on during site. Interior of unit shows dampers are not in proper working condition and require repair. Heating appears to be working, cooling operation was not witnessed due to O.A. conditions. Drain pans appear to be in good condition. Some attention to the insulation should be reviewed. Several damper blades not secure, dirty, seals shot, condensate release upon shutdown.
See figure 10 below.

Figure 10
RTU-5

Unit Tag HV-7 and RTU-3 located high Roof; HV-7 (Left) Aaon Model RM-008-3-0-0000-CJM serves Food Lab. Unit provides Steam Heating and ventilation. Filters are due for replacement; unit was running during site. Some attention to the exterior insulation should be reviewed. ODA damper Opened with

FLHS:

unit off. RTU-3 (Right) Aaon Model RN-040-3-0-AA02-CHM serves Classrooms. Unit provides DX cooling as well as Steam Heating. Filters are due for replacement; unit was on during site. Drain pan dirty. See figure 11 below.

HV-7, insulation failure

Figure 11
HV-7, RTU-3

Unit Tag RTU-8 located high Roof; Aaon Model Unit Aaon Model RN-070-3-0-AA04-CHH serves Webster Hall. Unit provides DX cooling as well as Steam Heating. Filters are due for replacement; unit was on during site. 2 ODA actuators and damper sections. One section not operational fixed at 100% ODA. See figure 12

Figure 12
RTU-8

Unit Tag RTU-13 located on Roof; Trane Model Unit TCD330AE0C2A1CD1D provides DX cooling as well as Steam Heating to the Media Center. Filters are due for replacement; unit was on during site. Coils appear dirty and should be cleaned. Cooling was not verified. See figures 13 below.

FLHS:

Figure 13
RTU-13

Unit Tag RTU-9 located on Roof; McQuay Model Unit RPS040CLS provides DX cooling as well as Steam Heating to the Auditorium. Filters are due for replacement; unit was on during site visit. Coils are dirty and should be cleaned at a minimum. Fan bearings are noisy and in poor condition overall. Unit is older and should be considered for replacement. See figures 14 below.

Figure 14
RTU-9

Unit Tag RTU-7 located on Roof; Aaon Model Unit RM-013-3-0-AA02-CJH provides DX cooling as well as Steam Heating to the Lecture Hall. Filters are new however unit was off and questionable if it runs. Coils are dirty and should be cleaned at a minimum. O.A. damper remained open when shut down. Extension cord running to disconnect from what appears to be RTU-13, non-compliant. See figures 15 below.

FLHS:


Figure 15
RTU-7

Unit Tag RTU-6 located on Roof; Aaon Model Unit RM-013-3-0-AA02-CJH provides DX cooling as well as Steam Heating to the Admin/Faculty. Filters need changing, unit was running but belts or pulleys are bad as there is a lot of noise coming from fan section. Damper partial open with unit off. Actuator gears not aligning. See figure 16 below.

Figure 16
RTU-6

Unit Tag AC-4 located on roof Trane model TSD 150G3ROA0R0000 DX cooling steam heat serves Reading Rooms. DX cooling with steam heat and powered exhaust. Filters need change; dampers require adjustments and cleaning. Drain pans looks OK. See figure 17 below.

FLHS:

Figure 17
AC-4

Unit Tag RTU-11 located on Middle Roof Trane model TCD211C300AA serves Science Computer Lab 305. Filters need changing, drain pan looks ok, power exhaust was off. See figure 18 below.

Commented [ARE1]:

Figure 18
RTU-11

Unit Tag RTU-14 located on Middle Roof Trane model TCD211C300AA serves Career center. Filters need changing, drain pan looks ok, power exhaust was off. See figure 19 below.

Commented [ARE2]:

FLHS:

Figure 19
RTU-14

Unit Tag RTU-12 located on East Upper Roof Trane model TCD151C300AA serves Computer Lab. Filters need changing, drain pan could use a good cleaning, coils are OK. Power exhaust off. See figure 20 below. Note RTU-1 behind.

Commented [ARE3]:

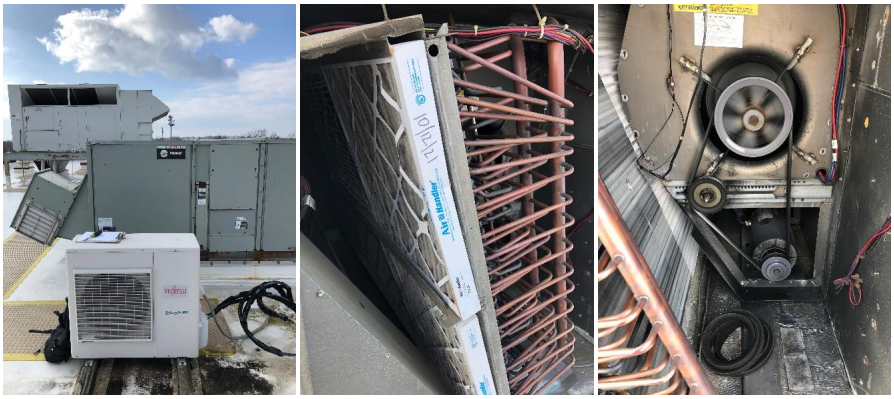

Figure 20
RTU-12

Unit Tag RTU-1 located on East Upper Roof Aaon Model Rn-026-3-0-AB02-CHM serves Graphics. Filters need changing, drain pan is not too bad, coils are OK. Cooling was not witnessed. Dampers are out of adjustment. See figure 21 below.

Commented [ARE4]:

FLHS:

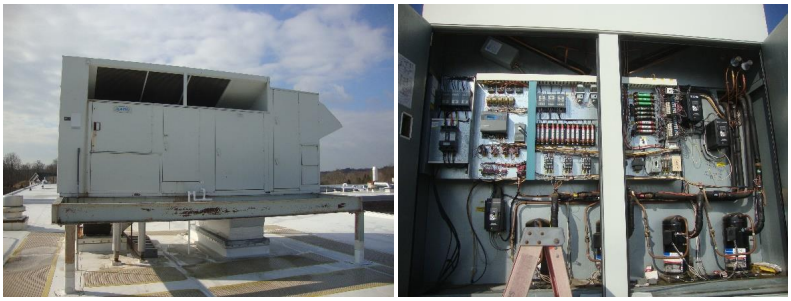

Figure 21
RTU-1

Unit Tag AHU-16-18 located in 003 Mechanical Room were reviewed. There are no working lights in the area and pictures of the equipment is not easy. All units are Trane, smaller module units. Model (2) GAT0AAA000C0CCA00B0A0000AE000B000000A0 and MAG0B0B0A00AA000000. Typical dirty filters, poor accessibility, steam heating and no cooling? See figure 22 below.

Commented [ARE5]:

FLHS:

Figure 22
AHU-16

Unit Tag HV-5A&B are the small gym H&V units, nomenclature is inconsistent. These two units hang from structural steel 30 feet in the air. No lift available so very limited information here. See figure 23 below.

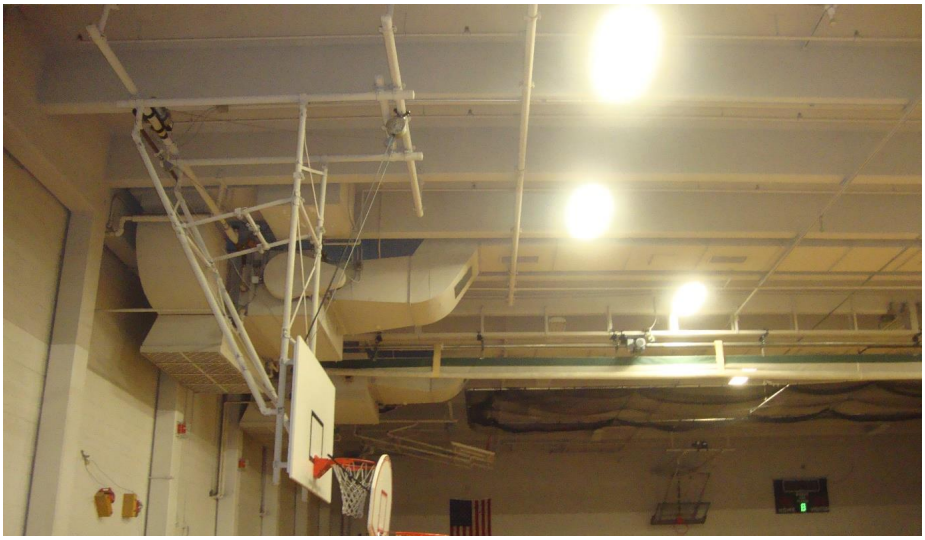

Figure 23
Auxiliary
Gym H&V-5

FLHS:

Unit Tag DOA-1 Daikin Serial Number FBOU150602296 serves Cafeterias. Heating and ventilation only. A newer unit in good condition. Filters are due for changing, heating coil looks good. Supply fan is on an ABB VFD drive which is for balancing purposes as no VAV boxes on supply side. See figure 24 below.

Figure 24
DOA-1

Unit Tag UV-1, Classroom Unit Ventilators were reviewed. These older Trane Model (VUVB100) have Outdoor air intakes, control dampers, fans, and heating coils. Not one of these systems were operational and the condition is fair at best. We found O.A. dampers (Room 321) allowing cold air inside with no fan operations. Several Teachers said they are unreliable but sometimes the fans do operate. Filters were in place, coils were dirty. Damper seals were in place but damper operation is in question. See figure 25 below.

FLHS:

Figure 25 Classroom Unit Ventilators

Unit Tag HV-1 serves Art room located in MER 003. Aaon Model V2-D2-2-00-100. Interior unit is in good condition, steam heating only. Filters are due to be changed. See figure 26 below.