INDOOR AIR QUALITY [IAQ] EVALUATION AND HVAC SYSTEM ASSESSMENT

Madison Neck River Elementary School

Prepared for:

Peter Anderson
Director of Facilities Madison Public Schools

Kohler Ronan Project #26065

August 19, 2026

KOHLER RONAN, LLC

93 Lake Avenue, Danbury, CT 06810 | p 203.778.1017 | f 203.778.1018

102 Madison Avenue, New York, NY 10016 | p 212.695.2422 | f 212.695.2423

www.kohlerronan.com | krce@kohlerronan.com

CONTENTS

Executive Summary 2
Building Overview 2
- Demand Control Ventilation 2
- Ventilation Systems Overview 3
- DOAS-1 3
- Terminal Box Units 3
- Ground Source Heat Pumps 3
- HVAC Equipment Assessment and Issues 4

ASHRAE 62.1 Compliance 4
Conclusions and Recommendations 5
Ventilation Equipment Schedule 6
Space-By-Space Spreadsheet 7
Appendicies 10
- Appendix A – Balancing Report 10

EXECUTIVE SUMMARY

The purpose of this report is to provide the results of the indoor air quality study performed by Kohler Ronan for Madison Neck River Elementary School which analyzed the HVAC systems operation and functionality to provide acceptable outside air ventilation rates and a healthy building environment. The report's main focus relates to occupied area's indoor ventilation and the compliance or non-compliance of this school with current ASHRAE-62.1, (2025) guidelines regarding Ventilation for Acceptable Indoor Air Quality (IAQ) for Schools. Although the building was required to follow by the 2019 ASHRAE standards at the time of design, KR observed compliance for both versions of the code as it relates to demand control ventilation and airflow rates.

Section three of the Connecticut General Statutes (CGS) 10-220 states that local or regional board of educations shall provide for a uniform inspection and evaluation of the heating, ventilation and air conditioning systems within each school building under its jurisdiction. The scope of work outlined in the statute was identified below as:

(A) Testing for maximum filter efficiency
(B) Physical measurements of outside air delivery rates
(C) Verification of the appropriate condition and operation of ventilation components
(D) Measurement of air distribution through all system inlets and outlets
(E) Verification of unit operation and that required maintenance has been performed in accordance with the most recent indoor ventilation standards promulgated by the American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE)
(F) Verification of control sequences as they affect the ventilation air supply
(G) Verification of carbon dioxide sensors and acceptable carbon dioxide concentration indoors
(H) Collection of field data for the installation of mechanical ventilation if none exist. The ventilation systems inspection and evaluation shall identify to what extent each school's current ventilation system component, including any existing central or noncentral mechanical ventilation system, are operating in such a manner as to provide appropriate ventilation to the school building in accordance with the most recent indoor ventilation standards promulgated by ASHRAE (62.1-2025)

As the building was constructed and completed within the last two years, a majority of the work outlined above has already been completed throughout the construction process. A commissioning agent functionally tested and inspected all equipment to fulfill steps A, C, and F. Commissioning signoffs including functional test scripts and the final commissioning report has been submitted to the owner and accepted. .

A testing, adjusting and balancing (TAB) contractor performed the work identified in steps B and D. The balancing report is attached at the end of this report in appendix A. The remaining work was performed by Kohler Ronan on site including a review of the current installation over the first year of operation and verification of carbon dioxide sensors and acceptable CO_2 levels

This IAQ report shall consolidate all work performed by Kohler Ronan, the balancing contractor, and the commissioning authority in compliance with section three of the CGS 10-220. The report shall also include any corrective actions necessary to be performed to the mechanical ventilation system or the heating, ventilation and air conditioning infrastructure, including installation of filters meeting the most optimal level of filtration available for a given heating, ventilation and air conditioning system, installation of carbon dioxide sensors and additional maintenance, repairs, upgrades or replacement.

BUILDING OVERVIEW

The Madison Public Elementary School is a new 87,000 square foot building that was completed at the end of 2025. The eastern portion of the building has two stories, the lower and main. The lower level includes the main entrance to the school as well as the cafeteria, kitchen, classrooms, and the two-story gymnasium. The main floor, which extends further west than the lower floor due to the sloped ground, includes administrative offices, classrooms, labs, and music rooms.

The MEP design complies with the CT High Performance Building Requirements and utilizes sustainable system elements such as a ground coupled loop geothermal system and heat pumps

Demand Control Ventilation

Demand control ventilation (DCV) occurs via terminal boxes with local CO_2 sensors. These terminal boxes are fed from DOAS-1 and ducted directly into the space when heat pumps are used for temperature control or into the return portion of the local AC unit. Each space served by a terminal box has a local CO_2 sensor that opens the terminal box from minimum to maximum airflow as the space CO_2 reading approaches the 1000 ppm setpoint. Space CO2's were routinely observed between 450ppm and 600ppm depending on the occupancy level of the room. As the study occurred in the middle of summer with a relatively low occupant count, no CO_2 levels above 600ppm were noted.

A sampling of the CO_2 sensors were tested to confirm accurate readings. The sensor readings were compared with readings to KR's Vaisala Indigo80 handheld indicator with a GMP252 CO_2 probe and generally found to be within 5%. There are certain space sensors that displayed increased readings and these instances are listed below in the HVAC Assessment section.

This study was used to confirm operation of the terminal boxes and all ventilation sequences for the building. As the building was recently constructed and commissioned there was also an existing commissioning report with the requisite functional tests and reports indicating proper operation of the ventilation equipment.

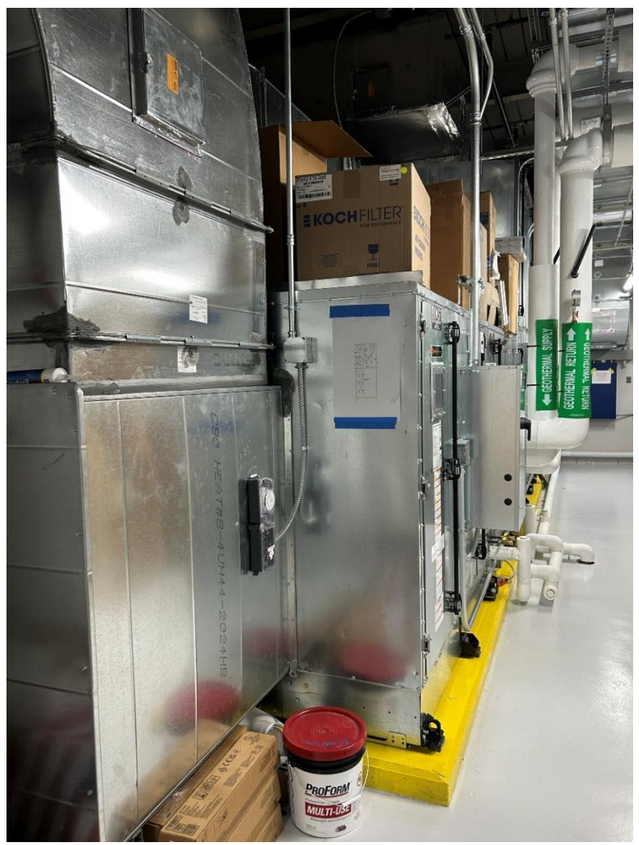
Fresh air is provided mainly via the DOAS and TB system but there are other instances of outside air being provided to the spaces. The gym is conditioned using a heat pump system with an outdoor air louver and modulating damper that reacts to space readings of the CO_2 for demand control ventilation.

Ventilation Systems Overview

DOAS-1

Building ventilation is delivered to each occupiable zone via a Trane rooftop outdoor Dedicated Outdoor Air System (DOAS). Distribution to each zone occurs via overhead ductwork and includes a Variable Air Volume (VAV) terminal box to modulate air based on space occupancy. Ventilation is tied directly into local AC unit or supplied directly to the space depending on space use and layouts. Outside air filtration occurs via a set of 4 inch MERV 13 cartridges preceded by 2 inch pleated MERV-8.

The DOAS unit includes a dual temperature heating/cooling coil, ground loop re-heat coil & energy recovery. Hot and chilled water shall be distributed from the central heating plant consisting of water-to-water heat pumps. Ground loop water shall be distributed from the central geothermal plant. The energy recovery wheel and dual temperature coil modulate to provide 72°F air year-round. Refer to DOAS unit schedule below for additional information.

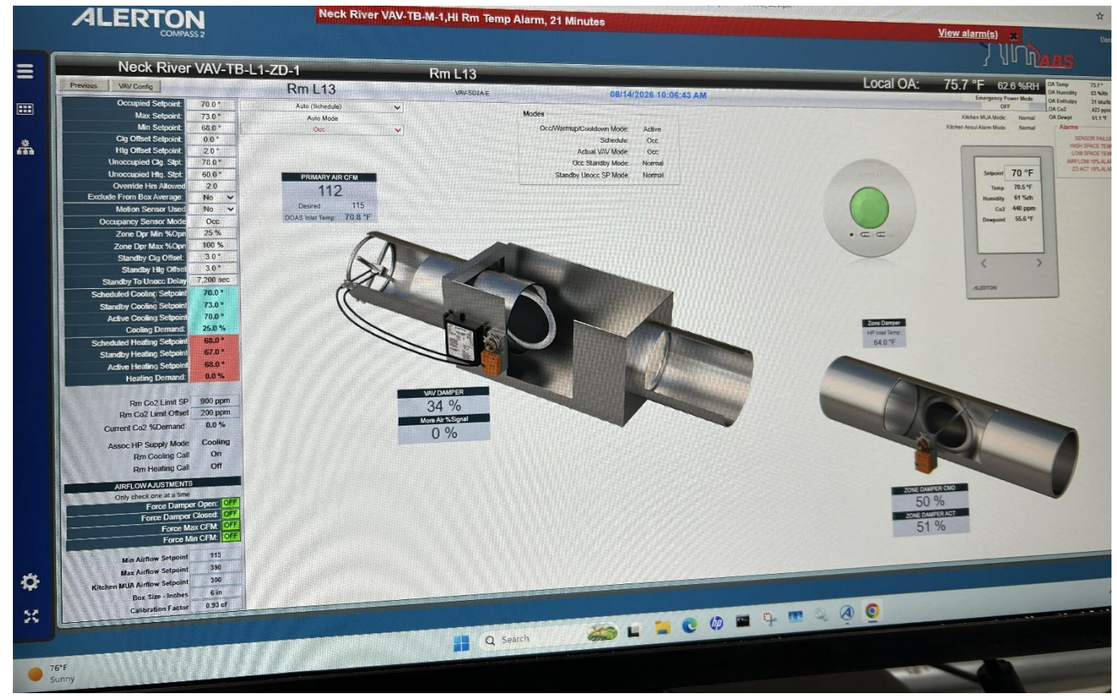


DOAS-1

Terminal Box Units

DOAS-1 provides tempered fresh air directly to a variety of classrooms, offices, and corridor spaces. The balancers report from May of 2026 indicates 16,976 CFM of air is supplied at full fan capacity. The Price terminal boxes are SDV models and were sized to modulate from minimum airflow requirements to maximum in order to comply with ASHRAE 62.1 ventilation requirements. In total there are 79 terminal boxes that feed 99 spaces.

Each terminal box zone is controlled by a space thermostat that modulates the damper based on CO_2 readings.



Terminal Box representation on the BMS. Typical for all units.

Ground Source Heat Pumps

The 6,000 square foot gymnasium is conditioned and ventilated via a set of lead/lag ground source heat pumps. Each unit is connected to an outdoor air duct with a damper that modulates based on space CO_2 readings from the thermostat. Geothermal water is distributed via the central plant and the system is configured as a heat pump system with refrigerant piping between each water-cooling condensing unit and the local AC unit to provide conditioned air to the space.

HVAC Equipment Assessment and Issues

It is Kohler Ronan's opinion that a majority of the heating, ventilation, and air conditioning equipment is in good working condition. All HVAC equipment has been installed and handed over to the building operations staff within the last two years and has been well maintained by their team. Maintenance schedules for all filters were observed to being followed and replaced at least semiannually.

The building's operations team does an excellent job at maintaining coils, filters, fans, and air and water distribution systems but there are a series of minor issues that could be addressed to improve operation. These issues include:

1. TB-L-30 does not report any airflow to its controller, resulting in the unit constantly looking for more airflow. The cause of this airflow could be a deficient airflow sensor, damper or controller and should be investigated further
2. TB-M-36 does not report any airflow to its controller, resulting in the unit constantly looking for more airflow. The cause of this airflow could be a deficient airflow sensor, damper or controller and should be investigated further
3. The space CO_2 sensors serving M54, M62, M63, and M66 were reading above 600ppm in unoccupied spaces while KR's handheld sensor was reading near 450ppm. All sensors were swapped with other devices in the area with minimal changes.
4. The Gymnasium south CO_2 sensor is reading 190 ppm. Outdoor air was measured at 430ppm, and KR's handheld device was measuring 450ppm in the space indicating an issue with the sensor.
5. Room M63 Grade 1, ventilated by TB-M-35 does not supply the required outside air to the space according to the 2026 balancing report. ASHRAE 62.1 standards and design documentation call for 360 CFM of outside but only 306 was measured. The issue appears to be setpoint related and not due to a deficient TB. Adjust the airflow setpoint for the TB to 360 CFM.
6. M74 K-5 O.T./P.T., served by TB-M-45, does not supply the required outside air to the space according to the 2026 balancing report. ASHRAE 62.1 standards and design documents call for 205 CFM of outside air but only 87 was measured. The issue appears to be setpoint related and not due to a deficient TB. Adjust the airflow setpoint for the TB to 205 CFM.

Overall, the performance of the building, with regard to ventilation, was found to be in excellent order.

ASHRAE 62.1 COMPLIANCE

ASHRAE 62.1 is used to specify minimum ventilation rates and other measures intended to provide IAQ that is acceptable to human occupants and that minimizes adverse health effects. The standard is also intended to be used to guide the improvement of IAQ in existing buildings. The most recent version of ASHRAE 62.1 is from 2025. The standard applies to spaces intended for human occupancy within buildings.

The ideal supply of outside air to interior occupied spaces should be based upon the most currently adopted 2024 International Mechanical Code which coincides with ASHRAE-62.1, (2025) guidelines. These guidelines prescribe the flow rate of outdoor air that must be supplied mechanically to occupied areas based on occupancy classifications.

Depending on the occupancy category and the space use-type, breathing zone outdoor airflows are calculated as a sum of the area related outdoor airflow portion and the people relate outdoor airflow portion. The area related portion is a product of the space size and area outdoor air rate, and the people related outdoor airflow portion is a product of the occupancy count and the people outdoor air rate. The following equation depicts how to calculate minimum outdoor air rates for a space.

$$V_{oz} = \frac{R_p P_z + R_a A_z}{E_z}$$

Where V_{oz} is the zone outdoor airflow (units: CFM), R_p is the people outdoor air rate (CFM per person), P_z is the zone population (persons), R_a is the area outdoor air rate (CFM per square foot), A_z is the space's floor area (square feet) and E_z is the air distribution effectiveness. People and area outdoor air rates are dependent upon the space's occupancy category. Each category has a minimum ventilation rate defined as CFM per person or CFM per square foot and can be found in table 6-1 in ASHRAE Standard 62.1-2025. Default zone population estimates are also provided in table 6-1 and allow for people density per square foot estimates for each space type. For the Madison Elementary School IAQ and ventilation study, zone populations were estimated using this table.

Zone outdoor air flows are also impacted by the supply air distribution configuration. Commonly shown as E_z, zone air distribution effectiveness is a number between 0.5 and 1.2 and is dependent upon the air distribution configuration. Distribution effectiveness is inversely related to the minimum outdoor airflow requirements meaning the worse the distribution is, the higher the zone outdoor air rate will be. Poor air distribution configurations, such as floor supply of warm air and ceiling returns, have effectiveness numbers of 0.7 and will cause the minimum breathing zone outdoor airflow to increase while successful distributions have an effectiveness number that will have no impact, or a positive impact, on the minimum outdoor airflow required. A majority of the spaces within the elementary school were assigned a distribution effectiveness of 1.0 because of the ceiling supply of warm air with sufficient air velocities that the air jet reaches within 4.5 ft of floor level. Descriptions of air distribution configurations and their effectiveness number can be found in table 6.2.2.2 in ASHRAE 62.1-2025.

Kohler Ronan calculated minimum zone outdoor airflows for each occupied space within the school and compared that number to the ventilation measured by the balancing company. A breakdown of all occupied spaces, their minimum required ventilation airflows, and the measured ventilation can be found in the Space-by-Space spreadsheet below.

As described above in the Demand Control Ventilation sections, all DCV sequences and their control devices have been functionally tested within the last two years and found to be in good working order.

The space-by-space spreadsheet below includes a column with a yes / no response of if a space meets the ventilation requirements of ASHRAE 62.1 criteria. Only two of the rooms do not meet the ventilation requirements but it is KR's observation that a simple setpoint adjustment will correct this issue. Many of the rooms are not required to meet the ventilation requirements as they are space types that are not considered to be occupied, such as storage rooms, or only exhaust is required, such as restrooms. Spaces that are not considered occupied received an N/A in the "Meets ASHRAE 62.1" column.

A common calculation used for measuring the amount of air that is exchanged through space every hour is the Air Change Rate (ACH), and for this analysis specifically we are concerned with the Outside Air Change Rate (OACH). At its core, this is a ratio of the volume of air that can theoretically completely fill the volume of each space and how many times it can do that every hour. ACH 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.

In total, there are 101 spaces evaluated throughout this study. Of those spaces, 2 do not requirement ventilation due to their unoccupied classification. Of the remaining 99 rooms, 97 passed the ASHRAE 62.1 requirements and 2 did not. 2 spaces failed because of airflow setpoints below the required ventilation rates for that space.

CONCLUSIONS AND RECOMMENDATIONS

The results from this indoor air quality evaluation and HVAC systems assessments are solely related to the building's ventilation and its system's capabilities needed to achieve the ventilation and overall performance in accordance with most recent indoor ventilation standards promulgated by the American Society of Heating, Refrigeration, and Air-Conditioning Engineers.

The table below can be used to get a complete view of the ventilation equipment serving Madison Elementary Middle School and to depict how many rooms require ventilation, how much is required, and can the current equipment provide the required ventilation to have all spaces be compliant with ASHRAE 62.1-2025.

Ventilation Equipment	Outside Air Delivered (CFM)	Minimum Outside Air for Spaces Served (CFM)	Number of Spaces That Require Ventilation	Number of Spaces Compliant With 62.1
DOAS-1	16,976	7,530	98	96
HP-M-1 & 2	1,200	1,150	1	1

In total, Madison Elementary School is comprised of 99 spaces that require ventilation. Of those spaces only 2 currently did not have a satisfactory amount of ventilation provided to be compliant with ASHRAE Standard 62.1-2025.

Based upon study findings, remedial actions to address the issues listed in this report will help to ensure continued outside ventilation air will be delivered to spaces that currently have a deficit and could improve overall building ventilation performance. These remedial actions include correcting the following issues:

- Address deficient space CO_2 sensors and perform annual reviews to confirm sensors are active and reading within reasonable bounds.
- Correct the deficient terminal box airflow readings that cause TB's L-20 and M-36 to operate at maximum airflow all the time.
- Update airflow setpoints for the terminal boxes serving M63 and M72 to get space ventilation rates above the ASHRAE 62.1 requirements.
- Continue air filtrations methods via filter replacements, coil cleanings, and duct maintenance.

VENTILATION EQUIPMENT SCHEDULE

Unit	Location	Serves	Supply Air (CFM)	Exhaust Air (CFM)	Supply Fan Total SP (in. wg)	Dual Temp Coil Total Cooling Capacity (MBH)	Dual Temp Coil Heating Capacity (MBH)	Reheat Coil Capacity (MBH)	Heat Exchanger Make/Model	Make/Model
DOAS-1	Stage Mezzanine	Building Ventilation	18,000	17,400	6.19”	557.2	658.8	290	20000 Poly S	Trane CSSA040

Unit	Area Served	Total CFM	Minimum Outside Air (CFM)	Cooling Capacity (Total MBH)	Heating Capacity (MBH)	Make/Model
HP-M-1	Gymnasium	6,300	300 / 900	78.6	159.1	Water Furnace UVV 180
HP-M-2	Gymnasium	6,300	300 / 900	78.6	159.1	Water Furnace UVV 180

Unit No.	Ventilation Air		Make/Model
	Maximum	Minimum	
TB-L-1	390	115	Price SDV5000
TB-L-2	390	115	Price SDV5000
TB-L-3	385	115	Price SDV5000
TB-L-4	390	115	Price SDV5000
TB-L-5	395	120	Price SDV5000
TB-L-6	390	150	Price SDV5000
TB-L-7	90	55	Price SDV5000
TB-L-8	255	75	Price SDV5000
TB-L-9	385	115	Price SDV5000
TB-L-10	265	80	Price SDV5000
TB-L-11	385	115	Price SDV5000
TB-L-12	255	75	Price SDV5000
TB-L-13	390	115	Price SDV5000
TB-L-14	300	90	Price SDV5000
TB-L-15	395	120	Price SDV5000
TB-L-16	390	115	Price SDV5000
TB-L-17	385	115	Price SDV5000
TB-L-18	390	115	Price SDV5000
TB-L-19	390	115	Price SDV5000
TB-L-20	345	105	Price SDV5000
TB-L-21	60	55	Price SDV5000
TB-L-22	75	55	Price SDV5000
TB-L-23	500	150	Price SDV5000
TB-L-24	500	150	Price SDV5000
TB-L-25	200	60	Price SDV5000
TB-L-26	200	60	Price SDV5000
TB-L-27	300	150	Price SDV5000

Unit No.	Ventilation Air		Make/Model
	Maximum	Minimum	
TB-L-28	75	55	Price SDV5000
TB-L-29	150	55	Price SDV5000
TB-L-30	300	55	Price SDV5000
TB-M-1	75	55	Price SDV5000
TB-M-2	90	55	Price SDV5000
TB-M-3	130	55	Price SDV5000
TB-M-4	130	55	Price SDV5000
TB-M-5	45	55	Price SDV5000
TB-M-6	50	55	Price SDV5000
TB-M-7	395	120	Price SDV5000
TB-M-8	100	55	Price SDV5000
TB-M-9	100	55	Price SDV5000
TB-M-10	75	55	Price SDV5000
TB-M-11	395	120	Price SDV5000
TB-M-12	395	120	Price SDV5000
TB-M-13	395	120	Price SDV5000
TB-M-14	395	120	Price SDV5000
TB-M-15	395	120	Price SDV5000
TB-M-16	390	115	Price SDV5000
TB-M-17	290	85	Price SDV5000
TB-M-18	290	85	Price SDV5000
TB-M-19	395	120	Price SDV5000
TB-M-20	175	55	Price SDV5000
TB-M-21	290	85	Price SDV5000
TB-M-22	285	85	Price SDV5000
TB-M-23	750	225	Price SDV5000

Unit No.	Ventilation Air		Make/Model
	Maximum	Minimum	
TB-M-24	200	60	Price SDV5000
TB-M-25	200	60	Price SDV5000
TB-M-26	500	150	Price SDV5000
TB-M-27	425	130	Price SDV5000
TB-M-28	390	115	Price SDV5000
TB-M-29	245	75	Price SDV5000
TB-M-30	365	110	Price SDV5000
TB-M-31	365	110	Price SDV5000
TB-M-32	365	110	Price SDV5000
TB-M-33	365	110	Price SDV5000
TB-M-34	360	110	Price SDV5000
TB-M-35	300	90	Price SDV5000
TB-M-36	365	110	Price SDV5000
TB-M-37	110	55	Price SDV5000
TB-M-38	250	75	Price SDV5000
TB-M-39	305	75	Price SDV5000
TB-M-40	305	90	Price SDV5000
TB-M-41	370	110	Price SDV5000
TB-M-42	365	110	Price SDV5000
TB-M-43	365	110	Price SDV5000
TB-M-44	60	55	Price SDV5000
TB-M-45	90	55	Price SDV5000
TB-M-46	70	55	Price SDV5000
TB-M-47	865	200	Price SDV5000
TB-M-48	200	75	Price SDV5000
TB-M-49	175	75	Price SDV5000

SPACE-BY-SPACE SPREADSHEET

ASHRAE 62.1, (2025) Ventilation Calculations														
Room #	Room Name	Occupancy Category	Zone Area (SQFT)	62.1 Compliance Method	Using Default Value For Zone Population?	People OA Rate in Breating Zone	Area OA Rate in Breating Zone	Zone Population	ASHRAE 62.1 CFM	Design OA CFM	OA Unit	OA Unit Service	Measured Ventilation Air Flow	Meets ASHRAE 62.1
L01	CAFETERIA	Cafeteria / fast food dining	3458	Vent	No	7.5	0.18	0	622.44	900	DOAS-1	TB-L-30	915	Yes
L03	PLATFORM	Classrooms (ages 5-8)	910	Vent	Yes	10	0.12	20	131.95	865	DOAS-1	TB-M-47	880	Yes
L07	CORRIDOR	Common corridors	1294	Vent	Yes	0	0.06	0	77.64	80	DOAS-1	TB-L-29	146	Yes
L10	GYMNASIUM	Gym, sports arena (play area)	6068	Vent	Yes	20	0.18	600	1134.716	1150	HP-M-1 / 2	HP-M-1 & 2	1200	Yes
L11	PE OFFICE	Office space	136	Vent	No	5	0.06	1	13.16	15	DOAS-1	TB-L-28	50	Yes
L12	PE STORAGE	Storage rooms	194	Vent	Yes	0	0.12	0	23.28	25	DOAS-1	TB-L-28	25	Yes
L13	GRADE 5	Classrooms (age 9 plus)	836	Vent	No	10	0.12	29	390.32	390	DOAS-1	TB-L-1	385	Yes
L15	GRADE 5	Classrooms (age 9 plus)	814	Vent	No	10	0.12	29	387.68	390	DOAS-1	TB-L-2	384	Yes
L16	GRADE 5	Classrooms (age 9 plus)	778	Vent	No	10	0.12	29	383.36	385	DOAS-1	TB-L-3	385	Yes
L18	GRADE 5	Classrooms (age 9 plus)	808	Vent	No	10	0.12	29	386.96	390	DOAS-1	TB-L-4	394	Yes
L19	GRADE 4/5	Classrooms (age 9 plus)	868	Vent	No	10	0.12	29	394.16	395	DOAS-1	TB-L-5	394	Yes
L20	GENERAL STORAGE	Storage rooms	130	Vent	Yes	0	0.12	0	15.6	20	DOAS-1	TB-L-7	17	Yes
L21	SMALL BREAK OUT	Conference / meeting	120	Vent	No	5	0.06	6	37.2	40	DOAS-1	TB-L-7	43	Yes
L22	MATH COACH	Office space	161	Vent	No	5	0.06	5	34.66	35	DOAS-1	TB-L-7	37	Yes
L24	GRADE 4	Classrooms (age 9 plus)	814	Vent	No	10	0.12	29	387.68	390	DOAS-1	TB-L-6	385	Yes
L26	S.E. RESOURCE	Classrooms (age 9 plus)	675	Vent	No	10	0.12	12	251.25	255	DOAS-1	TB-L-8	253	Yes
L27	GYM STORAGE	Storage rooms	208	Vent	Yes	0	0.12	0	24.96	25	DOAS-1	TB-L-27	49	Yes
L32-1	CORRIDOR	Common corridors	1030	Vent	Yes	0	0.06	0	61.8	65	DOAS-1	TB-L-26	62	Yes
L32-1	CORRIDOR	Common corridors	937	Vent	Yes	0	0.06	0	56.22	60	DOAS-1	TB-L-26	65	Yes
L32-2	CORRIDOR	Common corridors	1031	Vent	Yes	0	0.06	0	61.86	65	DOAS-1	TB-L-26	66	Yes
L33	GRADE 4	Classrooms (age 9 plus)	788	Vent	No	10	0.12	29	384.56	385	DOAS-1	TB-L-9	389	Yes
L34	GRADE 4	Classrooms (age 9 plus)	788	Vent	No	10	0.12	29	384.56	385	DOAS-1	TB-L-11	389	Yes
L35	S.E. RESOURCE	Classrooms (age 9 plus)	679	Vent	No	10	0.12	12	251.85	255	DOAS-1	TB-L-12	263	Yes
L36	INSTRUCTIONAL STORAGE	Storage rooms	67	Exhaust	Yes	0	0.12	0	8.04	0	N/A	N/A		N/A
L37	GRADE 4	Classrooms (age 9 plus)	806	Vent	No	10	0.12	29	386.72	390	DOAS-1	TB-L-13	397	Yes
L38	MATH INTERVENTION	Classrooms (age 9 plus)	421	Vent	No	10	0.12	19	300.65	300	DOAS-1	TB-L-14	308	Yes
L40	GRADE 3/4	Classrooms (ages 5-8)	868	Vent	No	10	0.12	29	394.16	395	DOAS-1	TB-L-15	404	Yes
L41	GRADE 3	Classrooms (ages 5-8)	808	Vent	No	10	0.12	29	386.96	390	DOAS-1	TB-L-16	393	Yes
L43	GRADE 3	Classrooms (ages 5-8)	778	Vent	No	10	0.12	29	383.36	385	DOAS-1	TB-L-17	389	Yes
L44	GRADE 3	Classrooms (ages 5-8)	814	Vent	No	10	0.12	29	387.68	390	DOAS-1	TB-L-18	399	Yes
L46	GRADE 3	Classrooms (ages 5-8)	836	Vent	No	10	0.12	29	390.32	390	DOAS-1	TB-L-19	391	Yes
L47	CORRIDOR	Common corridors	859	Vent	Yes	0	0.06	0	51.54	55	DOAS-1	TB-L-30	55	Yes
L50	FACULTY DINING	Restaurant dining rooms	588	Vent	No	7.5	0.18	32	345.84	345	DOAS-1	TB-L-20	347	Yes
L52	STORAGE	Storage rooms	479	Vent	Yes	0	0.12	0	57.48	60	DOAS-1	TB-L-21	58	Yes
M02	CORRIDOR	Common corridors	1393	Vent	Yes	0	0.06	0	83.58	85	DOAS-1	TB-M-24	368	Yes
M03	CORRIDOR	Common corridors	791	Vent	Yes	0	0.06	0	47.46	50	DOAS-1	TB-M-24	184	Yes
M04	MAIN OFFICE	Office space	536	Vent	No	5	0.06	3	47.16	50	DOAS-1	TB-M-1	55	Yes

ASHRAE 62.1, (2025) Ventilation Calculations														
Room #	Room Name	Occupancy Category	Zone Area (SQFT)	62.1 Compliance Method	Using Default Value For Zone Population?	People OA Rate in Breating Zone	Area OA Rate in Breating Zone	Zone Population	ASHRAE 62.1 CFM	Design OA CFM	OA Unit	OA Unit Service	Measured Ventilation Air Flow	Meets ASHRAE 62.1
M05	CONFERENCE	Conference / meeting	358	Vent	No	5	0.06	10	71.48	75	DOAS-1	TB-M-1	74	Yes
M06	PK S.E. SPEECH	Classrooms (ages 5-8)	260	Vent	No	10	0.12	7	126.5	130	DOAS-1	TB-M-3	136	Yes
M07	ADMIN CORRIDOR	Common corridors	349	Vent	Yes	0	0.06	0	20.94	20	DOAS-1	TB-M-4	60	Yes
M08	ASSISTANT PRINCIPAL	Office space	179	Vent	No	5	0.06	3	25.74	30	DOAS-1	TB-M-2	29	Yes
M09	PRINCIPAL	Office space	196	Vent	No	5	0.06	3	26.76	30	DOAS-1	TB-M-2	29	Yes
M10	GUIDANCE	Office space	199	Vent	No	5	0.06	3	26.94	30	DOAS-1	TB-M-2	29	Yes
M11	FILE STORAGE	Storage rooms	77	Vent	Yes	0	0.12	0	9.24	10	DOAS-1	TB-M-4	60	Yes
M12	S.E. BCBA	Office space	172	Vent	No	5	0.06	5	44.15	45	DOAS-1	TB-M-5	51	Yes
M13	HEALTH SERVICES	Office space	514	Vent	No	5	0.06	3	57.3	100	DOAS-1	TB-M-6	60	Yes
M16	PK S.E. PSYCH	Classrooms (ages 5-8)	425	Vent	No	10	0.12	14	238.75	240	DOAS-1	TB-M-7	380	Yes
M17	PK S.E. ABA	Classrooms (ages 5-8)	424	Vent	No	10	0.12	14	100	100	DOAS-1	TB-M-8	96	Yes
M18	PK S.E. OT/PT	Classrooms (ages 5-8)	450	Vent	No	10	0.12	6	100	100	DOAS-1	TB-M-9	92	Yes
M19	CORRIDOR	Common corridors	1273	Vent	Yes	0	0.06	0	76.38	80	DOAS-1	TB-M-20	172	Yes
M20	KINDERGARTEN	Classrooms (ages 5-8)	975	Vent	No	10	0.12	27	387	390	DOAS-1	TB-M-12	398	Yes
M21	KINDERGARTEN	Classrooms (ages 5-8)	985	Vent	No	10	0.12	27	388.2	390	DOAS-1	TB-M-13	386	Yes
M24	KINDERGARTEN	Classrooms (ages 5-8)	1009	Vent	No	10	0.12	27	391.08	395	DOAS-1	TB-M-14	397	Yes
M26	KINDERGARTEN	Classrooms (ages 5-8)	1007	Vent	No	10	0.12	27	390.84	390	DOAS-1	TB-M-15	387	Yes
M27	KINDERGARTEN	Classrooms (ages 5-8)	988	Vent	No	10	0.12	27	388.56	390	DOAS-1	TB-M-16	392	Yes
M28	CORRIDOR	Common corridors	520	Vent	Yes	0	0.06	0	31.2	35	DOAS-1	TB-M-25	193	Yes
M29	PRE-K	Classrooms (ages 5-8)	814	Vent	No	10	0.12	19	287.68	290	DOAS-1	TB-M-21	287	Yes
M30	PRE-K	Classrooms (ages 5-8)	829	Vent	No	10	0.12	19	289.48	290	DOAS-1	TB-M-17	290	Yes
M31	PRE-K	Classrooms (ages 5-8)	805	Vent	No	10	0.12	19	286.6	290	DOAS-1	TB-M-18	287	Yes
M32	PRE-K	Classrooms (ages 5-8)	791	Vent	No	10	0.12	19	284.92	285	DOAS-1	TB-M-22	288	Yes
M33	MUSIC	Classrooms (ages 5-8)	875	Vent	No	10	0.12	29	395	395	DOAS-1	TB-M-19	388	Yes
M33.1	MUSIC STORAGE	Storage rooms	68	Vent	Yes	0	0.12	0	8.16	10	DOAS-1	TB-M-23	10	Yes
M34	CORRIDOR	Common corridors	1413	Vent	Yes	0	0.06	0	84.78	85	DOAS-1	TB-M-24	200	Yes
M36	MEDIA CENTER	Media center	2164	Vent	No	10	0.12	44	699.68	700	DOAS-1	TB-M-23	703	Yes
M36.3	MEDIA OFFICE	Office space	186	Vent	No	5	0.06	3	26.16	30	DOAS-1	TB-M-23	33	Yes
M36.4	WORK ROOM	Office space	157	Vent	No	5	0.06	0	9.42	10	DOAS-1	TB-M-23	10	Yes
M37	VISUAL ARTS	Art classroom	1175	Vent	No	10	0.18	29	501.5	505	DOAS-1	TB-M-26	508	Yes
M38	INSTRUCTIONAL STORAGE	Storage rooms	209	Exhaust	Yes	0	0.12	0	25.08	25	N/A	N/A		N/A
M40	CUSTODIAL	Office space	399	Vent	No	5	0.06	3	38.94	40	DOAS-1	TB-M-49	41	Yes
M45	WORLD LANGUAGE	Classrooms (age 9 plus)	824	Vent	No	10	0.12	29	388.88	390	DOAS-1	TB-M-28	397	Yes
M46	F.A.S.E.	Classrooms (age 9 plus)	790	Vent	No	10	0.12	15	244.8	245	DOAS-1	TB-M-29	246	Yes
M47	GRADE 2	Classrooms (ages 5-8)	772	Vent	No	10	0.12	27	362.64	365	DOAS-1	TB-M-30	357	Yes
M48	GRADE 2	Classrooms (ages 5-8)	785	Vent	No	10	0.12	27	364.2	365	DOAS-1	TB-M-31	358	Yes
M49	GRADE 2	Classrooms (ages 5-8)	812	Vent	No	10	0.12	27	367.44	370	DOAS-1	TB-M-32	364	Yes
M50	TESOL	Office space	130	Vent	No	5	0.06	5	32.8	35	DOAS-1	TB-M-37	35	Yes
M51	SMALL BREAK OUT	Conference / meeting	120	Vent	No	5	0.06	6	37.2	40	DOAS-1	TB-M-37	40	Yes

ASHRAE 62.1, (2025) Ventilation Calculations														
Room #	Room Name	Occupancy Category	Zone Area (SQFT)	62.1 Compliance Method	Using Default Value For Zone Population?	People OA Rate in Breating Zone	Area OA Rate in Breating Zone	Zone Population	ASHRAE 62.1 CFM	Design OA CFM	OA Unit	OA Unit Service	Measured Ventilation Air Flow	Meets ASHRAE 62.1
M52	READING COACH	Office space	162	Vent	No	5	0.06	5	34.72	35	DOAS-1	TB-M-37	40	Yes
M53	CORRIDOR	Common corridors	1066	Vent	Yes	0	0.06	0	63.96	65	DOAS-1	TB-M-49	65	Yes
M54	GRADE 2	Classrooms (ages 5-8)	778	Vent	No	10	0.12	27	363.36	365	DOAS-1	TB-M-33	359	Yes
M55	S.E. RESOURCE	Classrooms (ages 5-8)	694	Vent	No	10	0.12	12	254.1	255	DOAS-1	TB-M-38	255	Yes
M60	INSTRUCTIONAL STORAGE	Storage rooms	125	Vent	Yes	0	0.12	0	15	15	DOAS-1	TB-M-39	40	Yes
M61	CORRIDOR	Common corridors	913	Vent	Yes	0	0.06	0	54.78	55	DOAS-1	TB-M-49	55	Yes
M62	GRADE 2	Classrooms (ages 5-8)	744	Vent	No	10	0.12	27	359.28	360	DOAS-1	TB-M-34	352	Yes
M63	GRADE 1	Classrooms (ages 5-8)	745	Vent	No	10	0.12	27	359.4	360	DOAS-1	TB-M-35	307	No
M64	S.E. RESOURCE	Classrooms (ages 5-8)	694	Vent	No	10	0.12	12	254.1	255	DOAS-1	TB-M-39	260	Yes
M65	READING INTERVENTION	Classrooms (ages 5-8)	424	Vent	No	10	0.12	19	301.1	305	DOAS-1	TB-M-40	312	Yes
M66	GRADE 1	Classrooms (ages 5-8)	776	Vent	No	10	0.12	27	363.12	365	DOAS-1	TB-M-36	366	Yes
M67	CORRIDOR	Common corridors	1066	Vent	Yes	0	0.06	0	63.96	65	DOAS-1	TB-M-49	65	Yes
M68	GRADE 1	Classrooms (ages 5-8)	812	Vent	No	10	0.12	27	367.44	370	DOAS-1	TB-M-41	367	Yes
M69	GRADE 1	Classrooms (ages 5-8)	785	Vent	No	10	0.12	27	364.2	365	DOAS-1	TB-M-42	357	Yes
M70	GRADE 1	Classrooms (ages 5-8)	772	Vent	No	10	0.12	27	362.64	365	DOAS-1	TB-M-43	360	Yes
M71	K-5 S.E. COMMON	Common corridors	200	Vent	Yes	0	0.06	0	12	15	DOAS-1	TB-M-44	12	Yes
M72	K-5 S.E. SPEECH	Office space	179	Vent	No	5	0.06	7	45.74	50	DOAS-1	TB-M-44	50	Yes
M73	K-5 S.E. PSYCH	Office space	140	Vent	No	5	0.06	5	33.4	35	DOAS-1	TB-M-46	33	Yes
M74	K-5 O.T./P.T.	Classrooms (age 9 plus)	507	Vent	No	10	0.12	10	201.05	205	DOAS-1	TB-M-45	87	No
M75	K-5 S.E. SOCIAL	Office space	139	Vent	No	5	0.06	5	33.34	35	DOAS-1	TB-M-46	33	Yes
M77	TEACHER WORK ROOM	Breakrooms (office buildings)	118	Vent	No	5	0.12	0	17.7	18	DOAS-1	TB-M-40	20	Yes
M77.1	STORAGE	Storage rooms	52	Vent	Yes	0	0.12	0	7.8	8	DOAS-1	TB-M-40	10	Yes
M82	CORRIDOR	Common corridors	1056	Vent	Yes	0	0.06	0	63.36	65	DOAS-1	TB-M-24	184	Yes
M83	STEAM	Classrooms (age 9 plus)	1102	Vent	No	10	0.12	29	422.24	425	DOAS-1	TB-M-27	422	Yes
M84	INSTRUCTIONAL STORAGE	Storage rooms	406	Vent	Yes	0	0.12	0	48.72	50	DOAS-1	TB-M-48	195	Yes

APPENDICIES

Appendix A – Balancing Report

The balancing data for the DOAS, terminal boxes, and HP's M-1 and 2 have been included in this appendices for proof of balancing and the data required by points B an D of section three of the Connecticut General Statutes (CGS) 10-220

Submittal #23 05 93-7.0
23 05 93 - TESTING, ADJUSTING, AND BALANCING FOR HVAC

Gilbane Building Company
208A New London Turnpike
Glastonbury, Connecticut 06033
Phone: (860) 368-5100

Project: J09867.000 - Madison New PreK-5 Elementary School
Mungertown Road
Madison, 06443

23B - TAB Air & Water Final Balancing - Report

SPEC SECTION:	23 05 93 - TESTING, ADJUSTING, AND BALANCING FOR HVAC	**SUBMITTAL MANAGER:**	Joe Holleran **(Gilbane Building Company)**
STATUS:	Open	**DATE CREATED:**	12/18/2025
ISSUE DATE:	12/18/2025	**REVISION:**	0
RESPONSIBLE CONTRACTOR:	Action Air Systems Inc	**RECEIVED FROM:**	Cecelia Petrowski
RECEIVED DATE:		**SUBMIT BY:**	
FINAL DUE DATE:	06/1/2026	**LOCATION:**	
SUB JOB:		**COST CODE:**	
LEAD TIME:		**TYPE:**	Reports

APPROVERS: Zach Federowicz **(Gilbane Building Company)**, Joe Holleran **(Gilbane Building Company)**, Emilee Auclair **(Salas O'Brien Engineers, Inc.)**, KR CA **(Kohler Ronan, LLC)**, Adam Gower **(Salas O'Brien Engineers, Inc.)**, Alex Torpey **(Salas O'Brien Engineers, Inc.)**, Alberto Benitez **(Tecton Architects, P.C.)**, Tim Mailloux **(Tecton Architects, P.C.)**

BALL IN COURT:
Emilee Auclair **(Salas O'Brien Engineers, Inc.)**, KR CA **(Kohler Ronan, LLC)**, Adam Gower **(Salas O'Brien Engineers, Inc.)**, Alex Torpey **(Salas O'Brien Engineers, Inc.)**

DISTRIBUTION:
Doug Goulet **(Colliers Project Leaders USA NE, LLC)** , Joe Holleran **(Gilbane Building Company)** , Zach Federowicz **(Gilbane Building Company)**

DESCRIPTION:

ATTACHMENTS:

KR Comments:

Many of the items have been closed pout but still some remain open Refer to comments within. Missing most of the DL report in this final report.

Update DL comments that were not addressed in previous reports.

Provide missing information for final report with a clean copy as it needs to be submitted with the State IAQ reporting.

COMMENTS
GBC: Data for main level terminal boxes included within this submission. Other comments previously made by Kohler Ronan have also been addressed. See Gilbane's comments throughout the attached file.

22081 M-112.1

☐ Reviewed ☐ Furnish As Corrected
☐ Rejected ☒ Revise and Resubmit

This review is only for general conformance with the design concept of the project and general compliance with the information given in the Contract Documents. Corrections or comments made on the shop drawings during this review do not relieve the contractor from Compliance with the requirements of the plans and specifications. Approval of a specific item shall not include approval of an assembly of which the item is a component. The contractor is responsible for: dimensions to be confirmed and correlated at the jobsite; information that pertains solely to the fabrication processes or to the means, methods, techniques, sequences and procedures of construction; coordination of his or her work with that of all other trades; and for performing all work in a safe and satisfactory manner.

Kohler Ronan, LLC

Date: 6/2/26

By: CFR/FMD

RECEIVED

May 18, 2026

Kohler Ronan, LLC
Consulting Engineers

'18/2026 11 :52 AM

Submittal #23 05 93-7.0
23 05 93 - TESTING, ADJUSTING, AND BALANCING FOR HVAC

NAME	SUBMITTER/ APPROVER	SENT DATE	DUE DATE	RETURNED DATE	RESPONSE	ATTACHMENTS	COMMENTS
KR CA	Approver	5/18/2026	5/25/2026		Pending		
Adam Gower	Approver	5/18/2026	5/25/2026		Pending		
Alex Torpey	Approver	5/18/2026	5/25/2026		Pending		
Alberto Benitez	Approver		6/1/2026		Pending		
Tim Mailloux	Approver		6/1/2026		Pending		

If the information provided in the response to this Submittal constitutes a change in contract price or time, the trade contractor shall not proceed with this work unless authorized to do so by the Construction Manager in writing. The trade contractor shall provide the Construction Manager written notice within five (5) working days from receipt of this Submittal that this Submittal constitutes a change, all in accordance with Article 8 of the Contract Agreement. Should no change be required, a no cost change will be issued to you incorporating this Submittal into your contract.

BY **DATE** **COPIES TO**

Submittal Coversheet

Project Name	Madison New PreK-5 Elementary School
Project Number	J09867.000
Project Location	180 Mungertown Road, Madison, CT 06443

Submittal Description	23B - TAB Air & Water Final Balancing - Report				
Spec Section Title	TESTING, ADJUSTING, AND BALANCING FOR HVAC				
Spec Section No.	23 05 93	Submittal No.	007	Revision No.	00
Date Submitted	05/18/2026	Submittal Due Date	06/01/2026		

☑ Critical Submittal ☐ Submittal Party Required

Copy To

Submittal Stamp

Project Name	Madison New PreK-5 Elementary School
Project #	J09867.000
Reviewed	
Submittal No	23 05 93 - 007 - Rev 0
Reviewed By	Zach Federowicz
Date	05/18/2026

This submittal has been reviewed, checked and approved for compliance with the Contract Documents unless otherwise noted herein. This review does not constitute, nor does it assure design responsibility, nor does it relieve the Trade Contractor/supplier from complying with the contract requirements, coordinating their work with other trade contractors and verifying field dimensions.

TRANSMITTAL LETTER

Action Air Inc.

131 Adams Street
Manchester, CT 06040

Transmittal # **240010-137**

Date: 05/05/2026
Phone: (860) 645-8838
Fax: (860) -645

Project Name: 240010 Madison ES

Project #: 240010

To: Gilbane Building Company
Attn: Nick Conti
208A New London Tpke

Glastonbury, CT 06033

SUBJECT: Submittal 240010-057, Rev #4 230593-3.14B TAB Report Final Revised For RECORD

Phone: (860) 368-5100 **Fax:** (860) 368-5101

Items listed are being sent

- ☑ Enclosed
- ☐ Under Separate Cover
- ☑ Via Email

We are transmitting the following to you:

- ☐ Product Data
- ☐ Samples
- ☑ Submittals: Submittal 240010-057, Rev #4 230593-3.14B TAB Rpt
- ☐ Shop Drawings
- ☐ O & M Manuals
- ☐ Plans
- ☐ Architectural Drawings
- ☐ Letters
- ☐ Specifications
- ☐ Prints
- ☐ Addenda
- ☐ Engineering Drawings
- ☐ Change Order Requests
- ☐

Submittal: **230593-3.14B TAB Status Report-Air Balancing - Rev#0**

Code/Spec	Copies	For	Product #	Summary Item
230593-3.14B	0	For Record	Testing & Balancing	TAB Report- Final Report 05.1.2026

Item No.	Item Date	Copies	For	Description
230593-3.14B	05/01/2026	1	For Record	230593-3.14B TAB Final Balancing-Revised Report & Comments

Remarks: Please see the attached Final Balancing report, dated 05/01/2026 with comments.

COPIES TO:

By: Cecelia Petrowski

Received by: Date:

Submittal Cover Letter

05/05/2026

Submittal #	Submittal #240010-057 Rev.#4
Project	240010 Madison ES
Project #	240010
Submittal Content	230593-3.14B TAB Balacning-Final Report
Issued for	
Date Submitted	05/05/2026

Nick Conti
Gilbane Building Company
208A New London Tpke

Glastonbury CT, 06033

Dear Sir/Madam,

Please evaluate the following items submitted for the above project.

Notes: This report is a Final Balancing Report and reflects the entire building completed
Comments are included

Submittal Item	Item Code	Reason	# Copies	Sent	Due
TAB Balancing Building Final Report 05.01.2026	230593-3.14B	For Record	1	05/05/2026	

Sincerely,
Action Air Inc.

Cecelia Petrowski

131 Adams Street
Manchester, CT 06040
Phone: (860) 645-8838

REVISION NOTICE

PROJECT: MADISON PK-5
NEW ELEMENTARY SCHOOL

COMMENTS:

This report has been revised to include new readings taken comment issued by the engineer.

SUBMITTED BY: AIR BALANCING SERVICE CO.
REVISION DATE: 05-01-26
CODE: 24070R

PROJECT: MADISON PK-5
NEW ELEMENTARY SCHOOL

PROJECT DESCRIPTION: Balance air & water systems as requested

COMMENT:

DL Flowtech:

- Reply to questions for flows on various HP systems, the readings are diffuser totals.

Air Balancing Service Co.

DOAS-1 Supply Air

- TB-M # boxes were tested by DL Flowtech.

DOAS-1 Exhaust Air

- System is proportionally balanced.

Date: 6/10/2025

Sheet: VAV Summary

Unit ID	Required CFM	Operating Max CFM	*Operating Min CFM*	Remarks
TB-M-1	75	74	*54*	
TB-M-2	90	87	*53*	
TB-M-3	130	136	*58*	
TB-M-4	130	128	*54*	
TB-M-5	55	51	*51*	
TB-M-6	55	50	*50*	
TB-M-7	395	380	*115*	
TB-M-8	100	95	*52*	
TB-M-9	100	92	*51*	
TB-M-10	255	261	*77*	
TB-M-11	150	156	*68*	
TB-M-12	395	398	*65*	
TB-M-13	395	386	*117*	
TB-M-14	395	397	*121*	
TB-M-15	390	387	*119*	
TB-M-16	390	392	*116*	
TB-M-17	290	282	*83*	
TB-M-18	290	287	*84*	
TB-M-19	395	388	*118*	
TB-M-20	175	172	*54*	
TB-M-21	290	287	*84*	
TB-M-22	285	288	*86*	
TB-M-23	750	736	*221*	
TB-M-24	200	200	*60*	
TB-M-25	200	193	*58*	
TB-M-26	500	508	*152*	
TB-M-27	425	422	*129*	
TB-M-28	390	397	*117*	
TB-M-29	245	246	*75*	
TB-M-30	365	357	*108*	
TB-M-31	365	358	*108*	
TB-M-32	365	364	*110*	
TB-M-33	365	359	*108*	
TB-M-34	360	352	*108*	
TB-M-35	300	307	*92*	
TB-M-36	365	366	*110*	
TB-M-37	110	115	*58*	

flow tech

Date: 6/10/2025

Sheet: VAV Summary

Unit ID	Required CFM	Operating Max CFM	*Operating Min CFM*	Remarks
TB-M-38	250	251	*75*	
TB-M-39	305	304	*75*	
TB-M-40	305	312	*92*	
TB-M-41	370	367	*109*	
TB-M-42	365	356	*107*	
TB-M-43	365	370	*112*	
TB-M-44	60	62	*57*	
TB-M-45	90	87	*53*	
TB-M-46	70	66	*52*	
TB-M-47	865	880	*203*	
TB-M-48	200	195	*73*	
TB-M-49	175	182	*78*	

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-1	**System**	DOAS-1	**Box Size**	4	**Box Fan**	N/A
Design Max CFM	75	**Actual Max CFM**	74	**Address**	30101		
Design Min. CFM	55	**Actual Min. CFM**	54	**Cal. Factor**	0.86		
Min	73%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	Conference M05	2406	CD	1		75		74	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-2	System	DOAS-1	Box Size	4	Box Fan	N/A
Design Max CFM	90	Actual Max CFM	87	Address	301012		
Design Min. CFM	55	Actual Min. CFM	53	Cal. Factor	1.27		
Min	61%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	Guidance M10	2406	CD	1		30		31	
2	Principal M09	2406	CD	1		30		27	
3	Assist Principal M08	2406	CD	1		30		29	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-3	**System**	DOAS-1	**Box Size**	4	**Box Fan**	N/A
Design Max CFM	130	**Actual Max CFM**	136	**Address**	30103		
Design Min. CFM	55	**Actual Min. CFM**	58	**Cal. Factor**	1.01		
Min	42%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	PK-S.E. Speech 03		OA	1		130		136	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-4	System	DOAS-1	Box Size	4	Box Fan	N/A
Design Max CFM	130	Actual Max CFM	128	Address	30104		
Design Min. CFM	55	Actual Min. CFM	54	Cal. Factor	0.73		
Min	42%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	Admin Corr M07	2406	CD	1		80		79	
2	File Stor M11	2406	CD	1		50		49	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box TB-M-5	**System** DOAS-1	**Box Size** 4	**Box Fan** N/A
Design Max CFM 55	**Actual Max CFM** 51	**Address** 30105	
Design Min. CFM 55	**Actual Min. CFM** 51	**Cal. Factor** 0.99	
Min 100%			

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	SE BCBA 05		OA	1		55		51	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-6	System	DOAS-1	Box Size	4	Box Fan	N/A
Design Max CFM	55	Actual Max CFM	50	Address	30106		
Design Min. CFM	55	Actual Min. CFM	50	Cal. Factor	0.94		
Min	100%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	Health Services M13		OA	1		55		50	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-7	System	DOAS-1	Box Size	6	Box Fan	N/A
Design Max CFM	395	Actual Max CFM	380	Address	30107		
Design Min. CFM	120	Actual Min. CFM	115	Cal. Factor	0.95		
Min	30%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	PK-SE Psych 02 M16		OA	1		395		380	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-8	System	DOAS-1	Box Size	4	Box Fan	N/A
Design Max CFM	100	Actual Max CFM	95	Address	30108		
Design Min. CFM	55	Actual Min. CFM	52	Cal. Factor	0.99		
Min	55%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	PK-SE ABA 14 M17		OA	1		100		95	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-9	System	DOAS-1	Box Size	4	Box Fan	N/A
Design Max CFM	100	Actual Max CFM	92	Address	30109		
Design Min. CFM	55	Actual Min. CFM	51	Cal. Factor	0.99		
Min	55%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	PK- SE OT/PT 06 M18	14x6	OA	1		100		92	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-10	System	DOAS-1	Box Size	5	Box Fan	N/A
Design Max CFM	255	Actual Max CFM	261	Address	30201		
Design Min. CFM	75	Actual Min. CFM	77	Cal. Factor	1.03		
Min	29%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	SE Resource 26 M55	12x8	OA	1		255		261	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-11	System	DOAS-1	Box Size	4	Box Fan	N/A
Design Max CFM	150	Actual Max CFM	156	Address	30202		
Design Min. CFM	65	Actual Min. CFM	68	Cal. Factor	0.90		
Min	43%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	Teacher Workroom M77	8x6	OA	1		150		156	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-12	System	DOAS-1	Box Size	6	Box Fan	N/A
Design Max CFM	395	Actual Max CFM	398	Address	30116		
Design Min. CFM	65	Actual Min. CFM	65	Cal. Factor	0.94		
Min	16%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	Kindergarten 07 M20	2412	CD	1		395		398	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-13	**System**	DOAS-1	**Box Size**	6	**Box Fan**	N/A
Design Max CFM	395	**Actual Max CFM**	386	**Address**	30117		
Design Min. CFM	120	**Actual Min. CFM**	117	**Cal. Factor**	0.95		
Min	30%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	Kindergarten 08 M21	2412	CD	1		395		386	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box TB-M-14	**System** DOAS-1	**Box Size** 6	**Box Fan** N/A
Design Max CFM 395	**Actual Max CFM** 397	**Address** 30118	
Design Min. CFM 120	**Actual Min. CFM** 121	**Cal. Factor** 0.94	
Min 30%			

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	Kindergarten 09 M24	2412	CD	1		395		397	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-15	**System**	DOAS-1	**Box Size**	6	**Box Fan**	N/A
Design Max CFM	390	**Actual Max CFM**	387	**Address**	30119		
Design Min. CFM	120	**Actual Min. CFM**	119	**Cal. Factor**	0.95		
Min	31%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	Kindergarten 10 M26	2412	CD	1		390		387	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-16	System	DOAS-1	Box Size	6	Box Fan	N/A
Design Max CFM	390	Actual Max CFM	392	Address	30120		
Design Min. CFM	115	Actual Min. CFM	116	Cal. Factor	0.96		
Min	29%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	Kindergarten 11 M27	2412	CD	1		390		392	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-17	System	DOAS-1	Box Size	5	Box Fan	N/A
Design Max CFM	290	Actual Max CFM	282	Address	30121		
Design Min. CFM	85	Actual Min. CFM	83	Cal. Factor	0.85		
Min	29%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	Pre-K 12 M30	2410	CD	1		290		282	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-18	System	DOAS-1	Box Size	5	Box Fan	N/A
Design Max CFM	290	Actual Max CFM	287	Address	30122		
Design Min. CFM	85	Actual Min. CFM	84	Cal. Factor	0.86		
Min	29%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	Pre-K 14 M31	2410	CD	1		290		287	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-19	System	DOAS-1	Box Size	6	Box Fan	N/A
Design Max CFM	395	Actual Max CFM	388	Address	30110		
Design Min. CFM	120	Actual Min. CFM	118	Cal. Factor	0.97		
Min	30%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	Music 16 M33	2412	CD	1		395		388	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	T8-M-20	System	DOAS-1	Box Size	4	Box Fan	N/A
Design Max CFM	175	Actual Max CFM	172	Address	30111		
Design Min. CFM	55	Actual Min. CFM	54	Cal. Factor	0.99		
Min	31%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	Corridor M19	2408	CD	1		175		172	Diffuser not yet installed. DT

Work should be complete if this is the final balance report

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-21	System	DOAS-1	Box Size	5	Box Fan	N/A
Design Max CFM	290	Actual Max CFM	287	Address	30123		
Design Min. CFM	85	Actual Min. CFM	84	Cal. Factor	0.86		
Min	29%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	Pre-K 13 M29	2410	CD	1		290		287	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-22	**System**	DOAS-1	**Box Size**	5	**Box Fan**	N/A
Design Max CFM	285	**Actual Max CFM**	288	**Address**	30124		
Design Min. CFM	85	**Actual Min. CFM**	86	**Cal. Factor**	0.86		
Min	30%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	Pre-K 15 M32	2410	CD	1		285		288	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-23	System	DOAS-1	Box Size	8	Box Fan	N/A
Design Max CFM	750	Actual Max CFM	736	Address	30112		
Design Min. CFM	225	Actual Min. CFM	221	Cal. Factor	1.04		
Min	30%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	MER M36.1	2406	CD	1		10		11	
2	Media M36	2412	CD	1		370		357	
3	Media M36	2412	CD	1		370		368	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-24	**System**	DOAS-1	**Box Size**	5	**Box Fan**	N/A
Design Max CFM	200	**Actual Max CFM**	200	**Address**	30113		
Design Min. CFM	60	**Actual Min. CFM**	60	**Cal. Factor**	0.94		
Min	30%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	Corridor M02	10x6	OA	1		200		200	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-25	System	DOAS-1	Box Size	5	Box Fan	N/A
Design Max CFM	200	Actual Max CFM	193	Address	30114		
Design Min. CFM	60	Actual Min. CFM	58	Cal. Factor	0.99		
Min	30%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	Corridor M02	10x6	OA	1		200		193	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-26	System	DOAS-1	Box Size	7	Box Fan	N/A
Design Max CFM	500	Actual Max CFM	508	Address	30115		
Design Min. CFM	150	Actual Min. CFM	152	Cal. Factor	0.89		
Min	30%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	Visual Arts 17 M37	2412	CD	1		500		508	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-27	**System**	DOAS-1	**Box Size**	6	**Box Fan**	N/A
Design Max CFM	425	**Actual Max CFM**	422	**Address**	30203		
Design Min. CFM	130	**Actual Min. CFM**	129	**Cal. Factor**	0.90		
Min	31%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	Steam 01 M83	2412	CD	1		425		422	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-28	System	DOAS-1	Box Size	6	Box Fan	N/A
Design Max CFM	390	Actual Max CFM	397	Address	30214		
Design Min. CFM	115	Actual Min. CFM	117	Cal. Factor	0.89		
Min	29%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	World Language 18 M45	2412	CD	1		390		397	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-29	**System**	DOAS-1	**Box Size**	5	**Box Fan**	N/A
Design Max CFM	245	**Actual Max CFM**	246	**Address**	30215		
Design Min. CFM	75	**Actual Min. CFM**	75	**Cal. Factor**	0.86		
Min	31%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	F.A.S.E 19 M46	2410	CD	1		245		246	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-30	System	DOAS-1	Box Size	6	Box Fan	N/A
Design Max CFM	365	Actual Max CFM	357	Address	30216		
Design Min. CFM	110	Actual Min. CFM	108	Cal. Factor	0.91		
Min	30%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	Grade Two M47	2412	CD	1		365		357	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-31	System	DOAS-1	Box Size	6	Box Fan	N/A
Design Max CFM	365	Actual Max CFM	358	Address	30217		
Design Min. CFM	110	Actual Min. CFM	108	Cal. Factor	0.91		
Min	30%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	Grade Two 21 M48	2412	CD	1		365		358	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-32	**System**	DOAS-1	**Box Size**	6	**Box Fan**	N/A
Design Max CFM	365	**Actual Max CFM**	364	**Address**	30218		
Design Min. CFM	110	**Actual Min. CFM**	110	**Cal. Factor**	0.96		
Min	30%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	Grade Two 22 M49	2412	CD	1		365		364	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-33	System	DOAS-1	Box Size	6	Box Fan	N/A
Design Max CFM	365	Actual Max CFM	359	Address	30219		
Design Min. CFM	110	Actual Min. CFM	108	Cal. Factor	0.95		
Min	30%						

#	Location - RM#	Size	Type	AK	Design		Maximum		Remarks
					FPM	CFM	FPM	CFM	
1	Grade Two 27 M54	2412	CD	1		365		359	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-34	System	DOAS-1	Box Size	6	Box Fan	N/A
Design Max CFM	360	Actual Max CFM	352	Address	30220		
Design Min. CFM	110	Actual Min. CFM	108	Cal. Factor	0.90		
Min	31%						

#	Location - RM#	Size	Type	AK	Design		Maximum		Remarks
					FPM	CFM	FPM	CFM	
1	Grade Two 28 M62	2412	CD	1		360		352	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-35	**System**	DOAS-1	**Box Size**	5	**Box Fan**	N/A
Design Max CFM	300	**Actual Max CFM**	307	**Address**	30221		
Design Min. CFM	90	**Actual Min. CFM**	92	**Cal. Factor**	0.83		
Min	30%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	Grade One 29 M63	2410	CD	1		300		307	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-36	**System**	DOAS-1	**Box Size**	6	**Box Fan**	N/A
Design Max CFM	365	**Actual Max CFM**	366	**Address**	30222		
Design Min. CFM	110	**Actual Min. CFM**	110	**Cal. Factor**	0.93		
Min	30%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	Grade One 30 M66	2412	CD	1		365		366	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-37	System	DOAS-1	Box Size	4	Box Fan	N/A
Design Max CFM	110	Actual Max CFM	115	Address	30204		
Design Min. CFM	55	Actual Min. CFM	58	Cal. Factor	0.88		
Min	50%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	TESOL 23 M50	2406	CD	1		35		36	
2	Break Out 24 M51	2406	CD	1		40		47	
3	Read Coach 25 M52	2406	CD	1		35		32	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-38	**System**	DOAS-1	**Box Size**	5	**Box Fan**	N/A
Design Max CFM	250	**Actual Max CFM**	251	**Address**	30205		
Design Min. CFM	75	**Actual Min. CFM**	75	**Cal. Factor**	0.88		
Min	30%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	Corridor M61	2410	CD	1		250		251	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-39	System	DOAS-1	Box Size	5	Box Fan	N/A
Design Max CFM	305	Actual Max CFM	304	Address	30206		
Design Min. CFM	75	Actual Min. CFM	75	Cal. Factor	0.89		
Min	25%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	Instructional Storage M60		CD	1		50		46	
2	SE Resource 31 M64		OA	1		255		258	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-40	**System**	DOAS-1	**Box Size**	5	**Box Fan**	N/A
Design Max CFM	305	**Actual Max CFM**	312	**Address**	30207		
Design Min. CFM	90	**Actual Min. CFM**	92	**Cal. Factor**	0.87		
Min	30%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	Reading Intervention 32 M65		OA	1		305		312	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-41	**System**	DOAS-1	**Box Size**	6	**Box Fan**	N/A
Design Max CFM	370	**Actual Max CFM**	367	**Address**	30223		
Design Min. CFM	110	**Actual Min. CFM**	109	**Cal. Factor**	0.90		
Min	30%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	Grade One 33 M68	2412	CD	1		370		367	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-42	**System**	DOAS-1	**Box Size**	6	**Box Fan**	N/A
Design Max CFM	365	**Actual Max CFM**	356	**Address**	30224		
Design Min. CFM	110	**Actual Min. CFM**	107	**Cal. Factor**	1.04		
Min	30%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	Grade One 34 M69	2412	CD	1		365		356	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-43	**System**	DOAS-1	**Box Size**	6	**Box Fan**	N/A
Design Max CFM	365	**Actual Max CFM**	370	**Address**	30225		
Design Min. CFM	110	**Actual Min. CFM**	112	**Cal. Factor**	1.05		
Min	30%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	Grade One 35 M70	2412	CD	1		365		370	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-44	System	DOAS-1	Box Size	4	Box Fan	N/A
Design Max CFM	60	Actual Max CFM	62	Address	30208		
Design Min. CFM	55	Actual Min. CFM	57	Cal. Factor	0.99		
Min	92%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	K-5 SE Common M71	2406	CD	1		15		16	
2	K-5 SE Speech 36 M72	2406	CD	1		45		46	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-45	**System**	DOAS-1	**Box Size**	4	**Box Fan**	N/A
Design Max CFM	90	**Actual Max CFM**	87	**Address**	30209		
Design Min. CFM	55	**Actual Min. CFM**	53	**Cal. Factor**	0.99		
Min	61%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	K-5 O.T. /P.T. 37 M74	10x6	OA	1		90		87	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-46	**System**	DOAS-1	**Box Size**	4	**Box Fan**	N/A
Design Max CFM	70	**Actual Max CFM**	66	**Address**	30210		
Design Min. CFM	55	**Actual Min. CFM**	52	**Cal. Factor**	0.82		
Min	79%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	K-5 SE Social M75	2406	CD	1		35		33	
2	K-5 SE Psych 38 M73	2406	CD	1		35		33	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-47	**System**	DOAS-1	**Box Size**	8	**Box Fan**	N/A
Design Max CFM	865	**Actual Max CFM**	880	**Address**	30211		
Design Min. CFM	200	**Actual Min. CFM**	203	**Cal. Factor**	1.08		
Min	23%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	MER Mezzanine M85		OA	1		865		880	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	TB-M-48	**System**	DOAS-1	**Box Size**	5	**Box Fan**	N/A
Design Max CFM	200	**Actual Max CFM**	195	**Address**	30212		
Design Min. CFM	75	**Actual Min. CFM**	73	**Cal. Factor**	0.89		
Min	38%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	Instructional Storage M84	2408	CD	1		200		195	

Remarks:

flow tech

Date: 6/10/2025

Sheet: VAV AK

Terminal Box Performance Data

Terminal Box	T8-M-49	**System**	DOAS-1	**Box Size**	5	**Box Fan**	N/A
Design Max CFM	175	**Actual Max CFM**	182	**Address**	30213		
Design Min. CFM	75	**Actual Min. CFM**	78	**Cal. Factor**	1.01		
Min	43%						

#	Location - RM#	Size	Type	AK	Design FPM	Design CFM	Maximum FPM	Maximum CFM	Remarks
1	Custodial M40	10x6	SR	1		175		182	

Remarks:

flow tech

Date: 6/10/2025

Sheet: DT

Zone	Internal Duct Size		Eff Area	Design FPM	Actual FPM	Design CFM	Actual CFM	SP	Remarks
TB-M-10 Max	5	rd	0.14	1871	1913	255	261	0.64	
TB-M-10 Min	5	rd	0.14	550	509	75	69	0.91	
TB-M-39 Max	5	rd	0.14	2238	2232	305	304	0.77	
TB-M-39 Min	5	rd	0.14	550	602	75	82	1.04	
TB-M-40 Max	5	rd	0.14	2238	2287	305	312	0.79	
TB-M-40 Min	5	rd	0.14	660	702	90	96	1.12	
TB-M-45 Max	4	rd	0.09	1032	997	90	87	1.33	
TB-M-45 Min	4	rd	0.09	631	654	55	57	1.36	
TB-M-11 Max	4	rd	0.09	1720	1788	150	156	1.23	
TB-M-11 Min	4	rd	0.09	745	823	65	72	1.35	
TB-M-49 Max	5	rd	0.14	1284	1334	175	182	1.36	
TB-M-49 Min	5	rd	0.14	550	583	75	79	1.14	
TB-M-47 Max	8	rd	0.35	2479	2521	865	880	1.40	
TB-M-47 Min	8	rd	0.35	573	599	200	209		
TB-M-9 Max	4	rd	0.09	1146	1054	100	92	1.34	
TB-M-9 Min	4	rd	0.09	631	656	55	57	1.39	

flow tech

Date: 6/10/2025

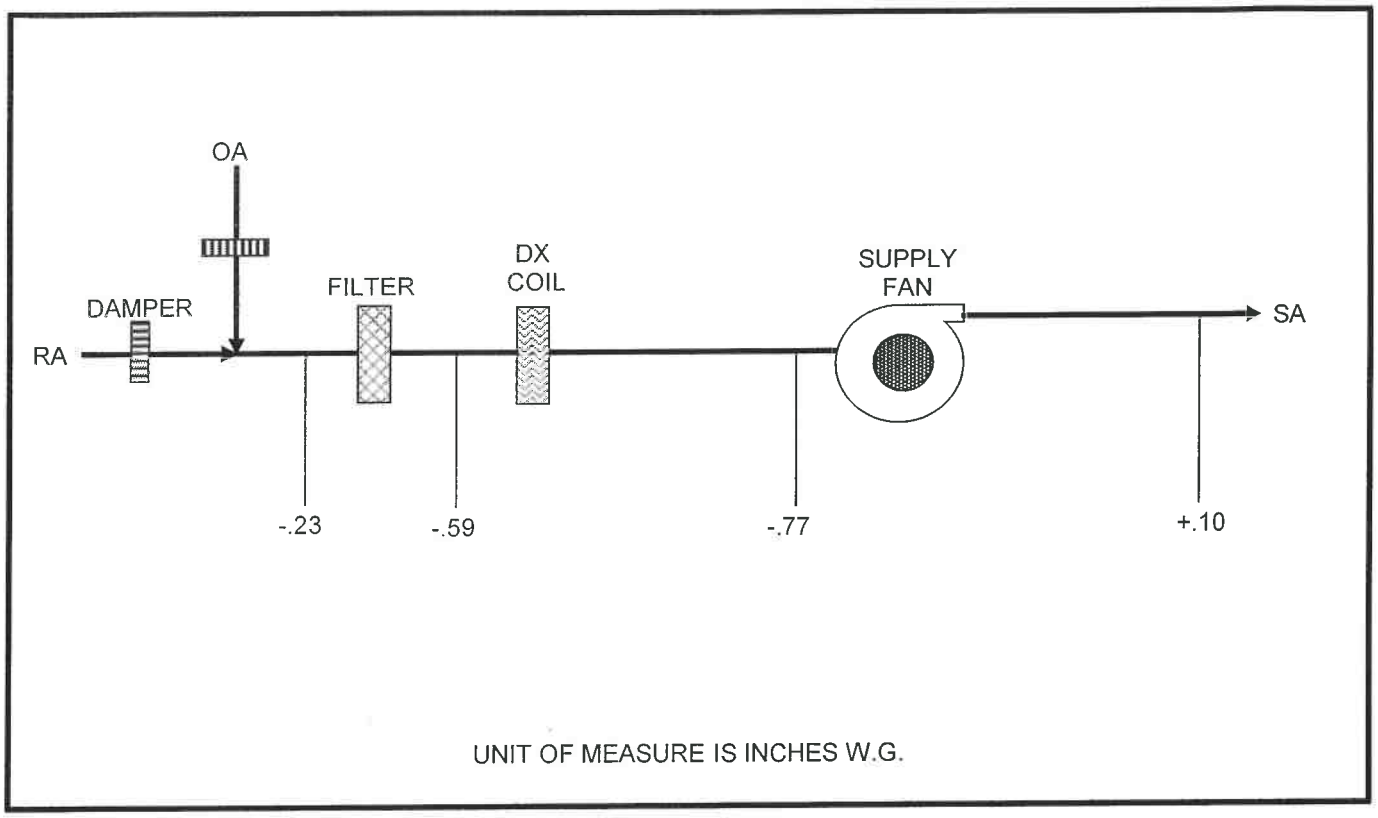
Sheet: DT

Zone	Internal Duct Size		Eff Area	Design FPM	Actual FPM	Design CFM	Actual CFM	SP	Remarks
TB-M-8 Max	4	rd	0.09	1146	1089	100	95	1.27	
TB-M-8 Min	4	rd	0.09	631	650	55	57	0.95	
TB-M-7 Max	6	rd	0.20	2013	1935	395	380	0.85	
TB-M-7 Min	6	rd	0.20	611	661	120	130	1.00	
TB-M-6 Max	4	rd	0.09	631	571	55	50	0.97	
TB-M-6 Min	4	rd	0.09	631	571	55	50	0.97	
TB-M-5 Max	4	rd	0.09	631	588	55	51	0.92	
TB-M-5 Min	4	rd	0.09	631	588	55	51	0.92	
TB-M-3 Max	4	rd	0.09	1490	1559	130	136	0.95	
TB-M-3 Min	4	rd	0.09	631	680	55	59	0.99	
TB-M-25 Max	5	rd	0.14	1468	1414	200	193	0.90	
TB-M-25 Min	5	rd	0.14	440	456	60	62	1.03	
TB-M-24 Max	5	rd	0.14	1468	1465	200	200	1.33	
TB-M-24 Min	5	rd	0.14	440	466	60	64	1.42	
TB-M-20 Max	4	rd	0.09	2006	1968	175	172	1.21	
TB-M-20 Min	4	rd	0.09	631	715	55	62	1.38	
ZD-M6-3 Corridor M28	6	rd	0.20	357	361	70	71	0.05	

KR: Missing remaining pages of the DL report.

HP-M-1

** STATIC PRESSURE PROFILE **



PROJECT: MADISON PK-5 NEW ELEMENTARY SCHOOL
REVISION DATE: 05-01-26
SUBMITTED BY: AIR BALANCING SERVICE CO.
CODE: 24070-47R

NEBB CERTIFIED #2453

SHEET NO. 47R

HP-M-1

** RECTANGULAR TRAVERSE REPORT **

DESIGNATION: TOTAL AIR DELIVERED BY FAN TO GYM (VP-1)
CONDITION: HP-M-1 @ 100%
TEMPERATURE (°F): 70
DUCT SP (" WG): +.10

DUCT WIDTH ("): 46
DUCT HEIGHT ("): 16
DUCT AREA (SQ FT): 5.111
INTERNAL DUCT LINING ("): 1.5
TOTAL FPM: 38064
NUMBER OF POINTS: 32

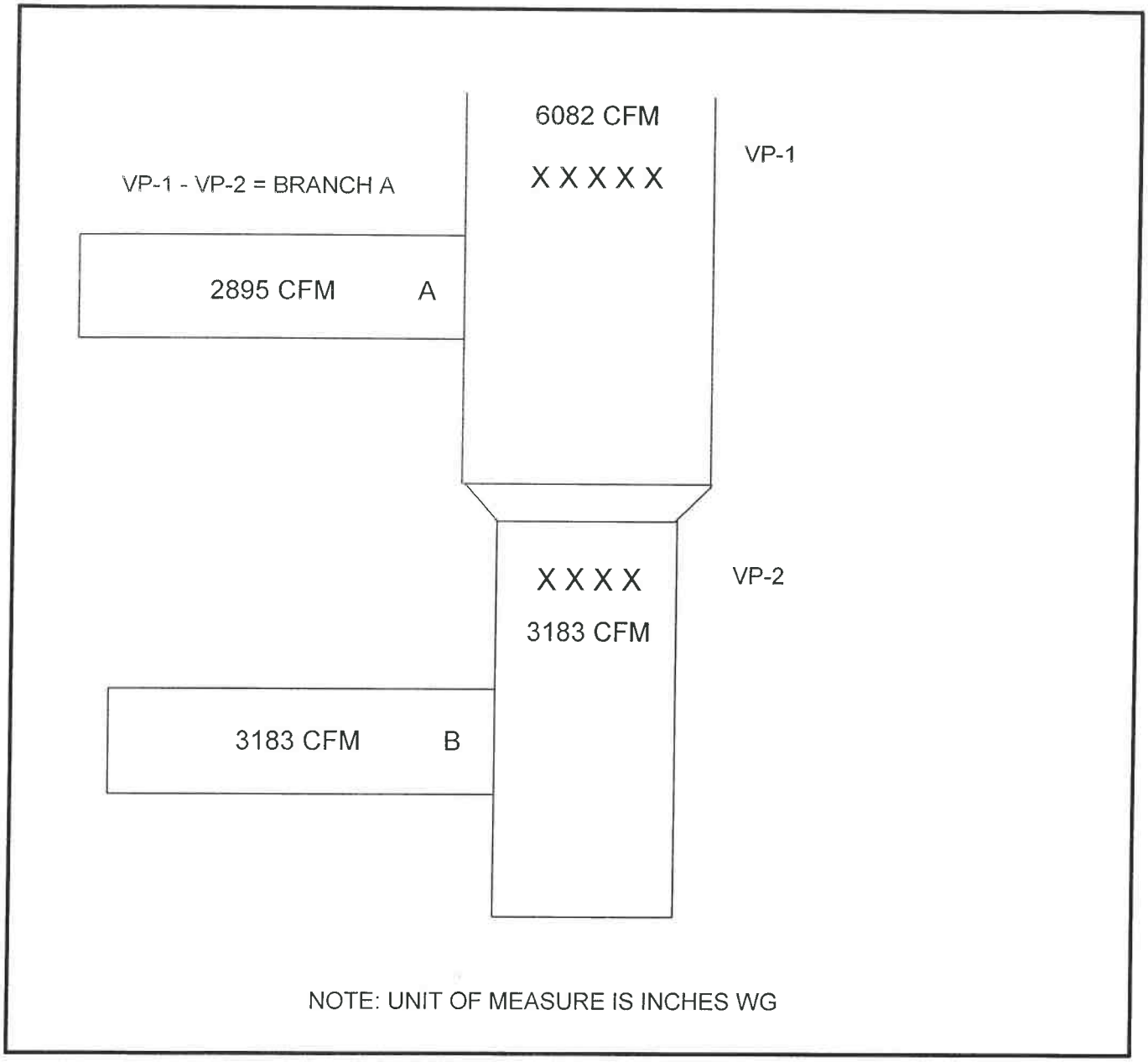
	DESIGN		ACTUAL
CFM:	6300		6082
FPM:	1233		1190

POSITION	1	2	3	4	5	6	7	8
1	976	1303	1181	901	1025	917	1271	1314
2	1162	1174	1166	970	1104	1277	1258	1405
3	1000	1411	1395	1133	1093	1124	1068	1391
4	1178	1405	1379	1082	995	1217	1415	1374
SUBTOTALS FPM:	4316	5293	5121	4086	4217	4535	5012	5484

NOTE: ACTUAL FPM IS AVERAGE OF VELOCITY PROFILE READINGS

NOTE: TOTAL AIR DELIVERED BY FAN EQUALS VP-1 CFM - VP-2 CFM =
6082 CFM - 3187 CFM = 2895 CFM

** ROOM PRESSURE PROFILE **



PROJECT: MADISON PK-5 NEW ELEMENTARY SCHOOL
SUBMITTED BY: AIR BALANCING SERVICE CO.
CODE: 24070-48A

NEBB CERTIFIED #2453

SHEET NO. 48A

HP-M-1

** RECTANGULAR TRAVERSE REPORT **

DESIGNATION: TOTAL AIR DELIVERED BY FAN TO GYM (VP-2)
CONDITION: HP-M-1 @ 100%
TEMPERATURE (°F): 70
DUCT SP (" WG): +.16

DUCT WIDTH ("): 42
DUCT HEIGHT ("): 16
DUCT AREA (SQ FT): 4.666
INTERNAL DUCT LINING ("): 1.5
TOTAL FPM: 19132
NUMBER OF POINTS: 28

	DESIGN		ACTUAL
CFM:	6300		3187
FPM:	1350		683

POSITION	1	2	3	4	5	6	7
1	686	704	615	631	542	746	561
2	807	817	570	652	665	636	608
3	826	824	755	789	701	692	652
4	686	722	850	557	628	658	552
SUBTOTALS FPM:	3005	3067	2790	2629	2536	2732	2373

NOTE: ACTUAL FPM IS AVERAGE OF VELOCITY PROFILE READINGS

NOTE: TOTAL AIR DELIVERED BY FAN EQUALS VP-1 CFM - VP-2 CFM =
6082 CFM - 3187 CFM = 2895 CFM

PROJECT: MADISON PK-5 NEW ELEMENTARY SCHOOL
SUBMITTED BY: AIR BALANCING SERVICE CO.
CODE: 24070-49

NEBB CERTIFIED #2453

SHEET NO. 49

HP-M-1

** AIR OUTLET REPORT **

ROOM NO.	DESIGNATION		NO.	SIZE	AK	DESIGN CFM	DESIGN VEL	ACTUAL VEL	ACTUAL CFM	NOTES
	GYM		1	18X6	.385	398	1034	981	378	
	GYM		2	18X6	.385	398	1034	1069	412	
	GYM		3	18X6	.385	398	1034	1054	406	
	GYM		4	18X6	.385	398	1034	1078	415	
	GYM		5	18X6	.385	398	1034	1059	408	
	GYM		6	18X6	.385	398	1034	1024	394	
	GYM		7	18X6	.385	398	1034	1029	396	
	GYM		8	18X6	.385	398	1034	971	374	
	GYM		9	18X6	.385	322	836	859	331	
	GYM		10	18X6	.385	322	836	872	336	
	GYM		11	18X6	.385	322	836	843	325	
	GYM		12	18X6	.385	322	836	846	326	
	GYM		13	18X6	.385	322	836	832	320	
	GYM		14	18X6	.385	322	836	837	322	
	GYM		15	18X6	.385	322	836	821	316	
	GYM		16	18X6	.385	322	836	759	292	
	GYM		17	18X6	.385	322	836	760	293	
	TOTAL CFM					6082			6044	

PROJECT: MADISON PK-5 NEW ELEMENTARY SCHOOL
SUBMITTED BY: AIR BALANCING SERVICE CO.
CODE: 24070-50

NEBB CERTIFIED #2453

SHEET NO. 50

HP-M-2

** SUPPLY FAN REPORT **

AREA SERVED: GYM
FAN LOCATION: MECHANICAL ROOM

FAN PERFORMANCE DATA		
	DESIGN	ACTUAL
CFM:	6300	6133
OA CFM:	300 / 900 (NOTE 1)	320
TOTAL SP (" WG):	N/A	.86
EXT SP (" WG):	1.0	.40
FAN SPEED:	N/A	LOW: 486 / HIGH: 1054
VOLTS/PHASE/CYCLE:	4603/60	N/A
T1-T2/T2-T3/T1-T3:	N/A	485/485/484
AMPS T1/T2/T3:	6.6	6.1/5.8/5.5

UNIT / MOTOR DATA	
FAN MANUFACTURER:	TRANE
FAN MODEL NO:	GEVE18048J22
MOTOR MANUFACTURER:	BALDOR
MOTOR HP:	5
MOTOR RPM:	1725
MOTOR SF:	1.15
MOTOR FRAME:	184T
MOTOR SHEAVE BORE X OD:	1 1/8 X VP50
FAN SHEAVE BORE X OD:	1 X BK77
BELT NO/SIZE:	1 / BX59
FINAL SHEAVE POSITION:	100% CLOSED

OUTSIDE AIR DATA										
ROOM NO.	DESIGNATION		NO.	SIZE	AK	DESIGN CFM	DESIGN VEL	ACTUAL VEL	ACTUAL CFM	NOTES
	RETURN		1	48X36	9.77			595	5813	
	SA-RA = OA		2			300			320	2

NOTE 1: NORMAL / MAKE UP MODE

NOTE 2: OA COMMAND 15%

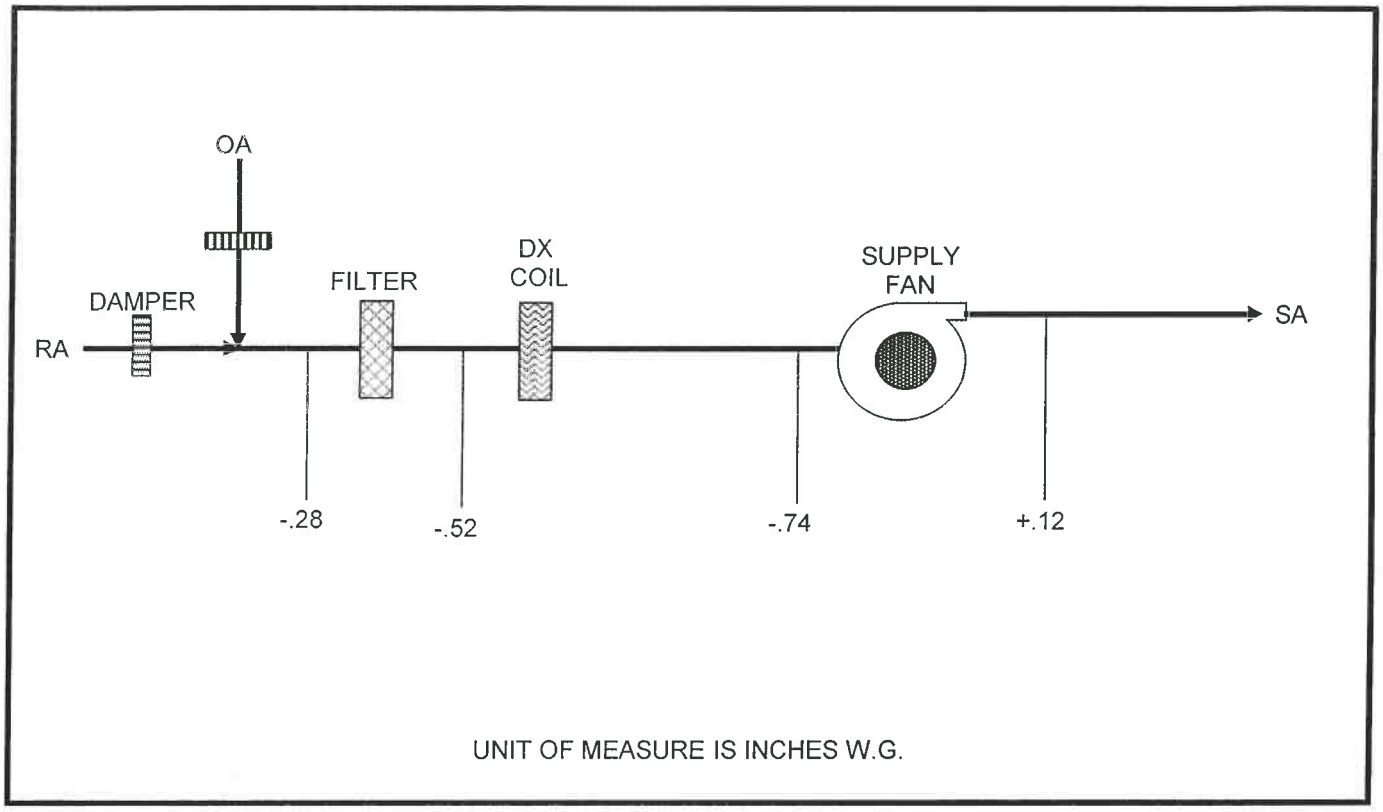
PROJECT: MADISON PK-5 NEW ELEMENTARY SCHOOL
REVISION DATE: 05-01-26
SUBMITTED BY: AIR BALANCING SERVICE CO.
CODE: 24070-51R

NEBB CERTIFIED #2453

SHEET NO. 51R

HP-M-2

** STATIC PRESSURE PROFILE **



GBC: Update values per findings recorded during April 2026 visit

PROJECT: MADISON PK-5 NEW ELEMENTARY SCHOOL
REVISION DATE: 05-01-26
SUBMITTED BY: AIR BALANCING SERVICE CO.
CODE: 24070-52R

NEBB CERTIFIED #2453

SHEET NO. 52

GBC: Sheave replaced in April 2026

HP-M-2

** RECTANGULAR TRAVERSE REPORT **

DESIGNATION:	TOTAL AIR DELIVERED BY FAN TO GYM (VP-1)
CONDITION:	HP-M-2 @ 100%
TEMPERATURE (°F):	70
DUCT SP (" WG):	+.12
DUCT WIDTH (''):	46
DUCT HEIGHT (''):	16
DUCT AREA (SQ FT):	5.111
INTERNAL DUCT LINING (''):	1.5
TOTAL FPM:	43204
NUMBER OF POINTS:	36

	DESIGN		ACTUAL
CFM:	6300		6133
FPM:	1233		1200

GBC: Updated April 2026 readings are notably closer to design values.

POSITION	1	2	3	4	5	6	7	8	9
1	1275	1284	1225	1321	1069	1113	1097	1160	1347
2	1163	1318	1485	1183	945	1069	1221	1322	1270
3	1165	1407	1304	1296	1047	975	1156	1190	1135
4	1085	1301	1242	1138	1131	1082	1194	1268	1221
SUBTOTALS FPM:	4688	5310	5256	4938	4192	4239	4668	4940	4973

NOTE: ACTUAL FPM IS AVERAGE OF VELOCITY PROFILE READINGS

NOTE: TOTAL AIR DELIVERED BY FAN EQUALS VP-1 CFM - VP-2 CFM =
6133 CFM - 2963 CFM = 3170 CFM

KR: No further action required

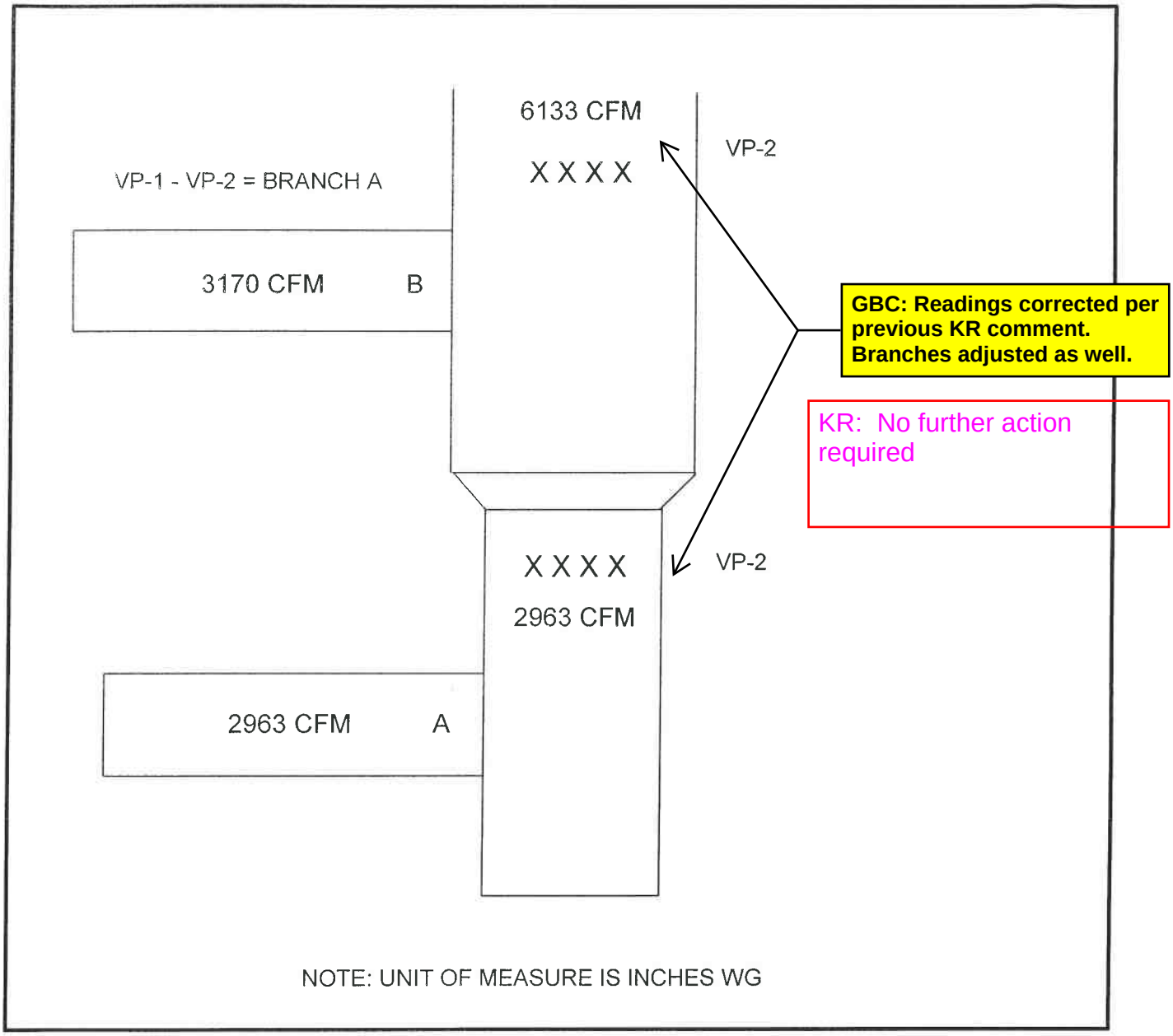
GBC: Updated readings taken in April 2026 align with HP-M-1.

PROJECT: MADISON PK-5 NEW ELEMENTARY SCHOOL
REVISION DATE: 05-01-26
SUBMITTED BY: AIR BALANCING SERVICE CO.
CODE: 24070-53R

NEBB CERTIFIED #2453

SHEET NO. 53R

** ROOM PRESSURE PROFILE **



GBC: Readings corrected per previous KR comment. Branches adjusted as well.

KR: No further action required

PROJECT: MADISON PK-5 NEW ELEMENTARY SCHOOL
REVISION DATE: 05-01-26
SUBMITTED BY: AIR BALANCING SERVICE CO.
CODE: 24070-53AR

NEBB CERTIFIED #2453

SHEET NO. 53AR

HP-M-2

** RECTANGULAR TRAVERSE REPORT **

DESIGNATION: TOTAL AIR DELIVERED BY FAN TO GYM (VP-2)
CONDITION: HP-M-2 @ 100%
TEMPERATURE (°F): 70
DUCT SP (" WG): +.13

DUCT WIDTH ("): 38
DUCT HEIGHT ("): 12
DUCT AREA (SQ FT): 3.166
INTERNAL DUCT LINING ("): 1.5
TOTAL FPM: 22474
NUMBER OF POINTS: 24

	DESIGN		ACTUAL
CFM:	N/A		2963
FPM:	N/A		936

POSITION	1	2	3	4	5	6
1	882	862	873	925	975	862
2	937	871	860	951	1015	938
3	1006	919	914	1079	1040	1010
4	842	910	927	956	1030	890
SUBTOTALS FPM:	3667	3562	3574	3911	4060	3700

NOTE: ACTUAL FPM IS AVERAGE OF VELOCITY PROFILE READINGS

NOTE: TOTAL AIR DELIVERED BY FAN EQUALS VP-1 CFM - VP-2 CFM =
6133 CFM - 2963 CFM = 3170 CFM

PROJECT: MADISON PK-5 NEW ELEMENTARY SCHOOL
REVISION DATE: 05-01-26
SUBMITTED BY: AIR BALANCING SERVICE CO.
CODE: 24070-54R

NEBB CERTIFIED #2453

SHEET NO. 54R

HP-M-2

** AIR OUTLET REPORT **

ROOM NO.	DESIGNATION		NO.	SIZE	AK	DESIGN CFM	DESIGN VEL	ACTUAL VEL	ACTUAL CFM	NOTES
	GYM		1	18X6	.385	398	1034	1000	385	
	GYM		2	18X6	.385	398	1034	966	372	
	GYM		3	18X6	.385	398	1034	974	375	
	GYM		4	18X6	.385	398	1034	953	367	
	GYM		5	18X6	.385	398	1034	958	369	
	GYM		6	18X6	.385	398	1034	974	375	
	GYM		7	18X6	.385	398	1034	968	373	
	GYM		8	18X6	.385	398	1034	940	362	
	GYM		9	18X6	.385	322	836	938	361	
	GYM		10	18X6	.385	322	836	927	357	
	GYM		11	18X6	.385	322	836	904	348	
	GYM		12	18X6	.385	322	836	925	356	
	GYM		13	18X6	.385	322	836	878	338	
	GYM		14	18X6	.385	322	836	906	349	
	GYM		15	18X6	.385	322	836	896	345	
	GYM		16	18X6	.385	322	836	904	348	
	GYM		17	18X6	.385	322	836	878	338	
	TOTAL CFM					6082			6118	

PROJECT: MADISON PK-5 NEW ELEMENTARY SCHOOL
REVISION DATE: 05-01-26
SUBMITTED BY: AIR BALANCING SERVICE CO.
CODE: 24070-55R

NEBB CERTIFIED #2453

SHEET NO. 55R

DOAS - 1

** DIRECT DRIVE SUPPLY FAN REPORT **

AREA SERVED: CLASSROOM / TOILETS
FAN LOCATION: MECHANICAL ROOM

FAN PERFORMANCE DATA		
	DESIGN	ACTUAL
CFM:	18000 / 21765 (NOTE 2)	21690
TOTAL SP (" WG):	6.19	4.37
EXT SP (" WG):	1.65	1.37
FAN SPEED:	2105	60 HZ
VOLTS/PHASE/CYCLE:	460/3/60	N/A
T1-T-2/T2-T3/T1-T3:	N/A	484/482/484 I 482/484/484
AMPS:	18.2 EACH	12.3/12.1/12.3 I 12.3/12.3/12.1

UNIT / MOTOR DATA	
FAN MANUFACTURER:	TRANE
FAN MODEL NO:	CSAA040UAM00
MOTOR MANUFACTURER:	BALDOR
MOTOR HP:	15
MOTOR SF:	1.15
MOTOR FRAME:	254T
VFD SETTING:	60 HZ

NOTE 1: UNIT HAS 2 MOTORS

NOTE 2: SCHEDULE CFM / OUTLET TOTAL

GBC: 18,000 CFM accounts for diversity in system.

PROJECT: MADISON PK-5 NEW ELEMENTARY SCHOOL
REVISION DATE: 05-01-26
SUBMITTED BY: AIR BALANCING SERVICE CO.
CODE: 24070-60R

NEBB CERTIFIED #2453

SHEET NO. 60R

DOAS-1

** VAV BOX DATA **

VAV NUMBER	VAV ADDRESS	VAV MODEL NO.	BOX SIZE	CFM CALIBRATION MULTIPLIER	NOTES
TB-L-1	30012	D3-101	6	.93	
TB-L-2	30013	D3-101	6	.91	
TB-L-3	30014	D3-101	6	.93	
TB-L-4	30015	D3-101	6	.93	
TB-L-5	30016	D3-101	6	.98	
TB-L-6	30017	D3-101	6	.92	
TB-L-7	30001	D3-101	4	.53	
TB-L-8	30002	D3-101	5	.90	
TB-L-9	30018	D3-101	6	.96	
TB-L-11	30019	D3-101	6	.98	
TB-L-12	30003	D3-101	5	.90	
TB-L-13	30020	D3-101	6	.98	
TB-L-14	30004	D3-101	5	.83	
TB-L-15	30021	D3-101	6	.97	
TB-L-16	30022	D3-101	6	.97	
TB-L-17	30023	D3-101	6	.97	
TB-L-18	30024	D3-101	6	.99	
TB-L-19	30025	D3-101	6	.99	
TB-L-20	30005	D3-101	6	.90	
TB-L-21	30006	D3-101	4	.99	
TB-L-26	30007	D3-101	5	.87	
TB-L-27	30008	D3-101	5	1.15	
TB-L-28	30009	D3-101	4	.63	
TB-L-29	30010	D3-101	4	.86	
TB-L-30	30011	D3-101	5	.90	

NOTE 1: VAV MANUFACTURER: NAILOR

NOTE 2: CONTROLS MANUFACTURER: ALTERTON

NOTE 3: MINIMUM CFM SET AT VARIOUS % OF MAXIMUM CFM

PROJECT: MADISON PK-5 NEW ELEMENTARY SCHOOL
SUBMITTED BY: AIR BALANCING SERVICE CO. **NEBB CERTIFIED #2453**
CODE: 24070-61

KR: PROVIODE MISSING THE TB-M-# TERMINAL BOXES. NONE ARE INCLUDED

DOAS-1

** VAV AIR OUTLET REPORT **

ROOM NO.	DESIGNATION		NO.	SIZE	DESIGN CFM	ACTUAL MAXIMUM CFM	ACTUAL MINIMUM CFM	NOTES
	TB-L-1							
L13	GRADE 5 58		1	2412	390	385	124	
	TB-L-2							
L15	GRADE 5 57		2	2412	390	384	126	
	TB-L-3							
L16	GRADE 5 56		3	2412	385	385	123	
	TB-L-4							
L18	GRADE 5 55		4	2412	390	394	131	
	TB-L-5							
L19	GRADE 4 / 5 54		5	2412	395	394	129	
	TB-L-6							
L24	GRADE 4 49		6	2412	390	385	121	
	TB-L-7							
L22	MATH COACH 51		7	2406	35	37	22	
L21	BREAK OUT 52		8	2406	40	43	25	
L20	INSTRUCT STORE 53		9	2406	15	17	10	
	TOTAL CFM				90	97	57	
	TB-L-8							
L26	AC-L-3		10	6" DIA	255	253	79	
	TB-L-9							
L33	GRADE 4 48		11	2412	385	389	124	
	TB-L-11							
L34	GRADE 4 47		12	2412	385	389	117	
	TB-L-12							
L35	AC-L-4		13	6" DIA	255	263	83	
	TB-L-13							
L37	GRADE 4 46		14	2412	390	397	122	
	TB-L-14							
L38	AC-L-5		15	6" DIA	300	304	96	
	TB-L-15							
L40	GRADE 3 44		16	2412	395	393	124	
	TB-L-16							
L41	GRADE 3 43		17	2412	390	391	126	
	TB-L-17							
L43	GRADE 3 42		18	2412	385	389	121	

PROJECT: MADISON PK-5 NEW ELEMENTARY SCHOOL
SUBMITTED BY: AIR BALANCING SERVICE CO.
CODE: 24070-62

NEBB CERTIFIED #2453

SHEET NO. 62

DOAS-1

** VAV AIR OUTLET REPORT **

ROOM NO.	DESIGNATION		NO.	SIZE	DESIGN CFM	ACTUAL MAXIMUM CFM	ACTUAL MINIMUM CFM	NOTES
	TB-L-18							
L44	GRADE 3 41		19	2412	390	399	121	
	TB-L-19							
L46	GRADE 3 40		20	2412	390	391	119	
	TB-L-20							
L50	HP-L-13		21	6" DIA	345	347	111	
	TB-L-21							
L51	STORAGE		22	6" DIA	60	58	58	
	TB-L-26							
L32	CORRIDOR		23	2408	200	197	70	
	TB-L-27							
L26	GIRLS TOILET		24	2408	125	126	68	
L28	BOYS TOILET		25	2408	125	123	66	
L27	GYM STORAGE		26	2408	50	49	26	
	TOTAL CFM				300	298	160	
	TB-L-28							
L09	HP-L-18		27	6X4	75	77	62	
	TB-L-29							
L07	HP-L-15		28	6" DIA	150	146	61	
	TB-L-30							
L01	CAFETERIA		29	6" DIA	300	295	64	

PROJECT: MADISON PK-5 NEW ELEMENTARY SCHOOL
SUBMITTED BY: AIR BALANCING SERVICE CO.
CODE: 24070-63

NEBB CERTIFIED #2453

SHEET NO. 63

DOAS-1

** DIRECT DRIVE EXHAUST FAN REPORT **

AREA SERVED: CLASSROOMS / TOILETS
FAN LOCATION: MECHANICAL ROOM

FAN PERFORMANCE DATA		
	DESIGN	ACTUAL
CFM:	17400	16976
SUCTION SP (" WG):	N/A	-1.82
DISCHARGE SP (" WG):	N/A	+1.06
TOTAL SP (" WG):	3.03	2.88
FAN RPM:	1776	59 HZ
VOLTS/PHASE/CYCLE:	460/3/60	N/A
T1-T2/T2-T3/T1-T3:	N/A	493/484/484 I 484/482/484
AMPS T1/T2/T3:	9.8 EACH	9.6/9.7/9.7 I 9.7/9.7/9.6

UNIT / MOTOR DATA	
FAN MANUFACTURER:	TRANE
FAN MODEL NO:	CSAA040UAM00
MOTOR MANUFACTURER:	BALDOR
MOTOR HP:	7 1/2
MOTOR SF:	1.15
MOTOR FRAME:	213T

PROJECT: MADISON PK-5 NEW ELEMENTARY SCHOOL
REVISION DATE: 05-01-26
SUBMITTED BY: AIR BALANCING SERVICE CO.
CODE: 24070-64R

NEBB CERTIFIED #2453

SHEET NO. 64R

DOAS-1

** AIR INLET REPORT **

ROOM NO.	DESIGNATION		NO.	SIZE	AK	DESIGN CFM	DESIGN VEL	ACTUAL VEL	ACTUAL CFM	NOTES
M24.1	KIND 09 TOILRY		1	2406	N/A	100	N/A	N/A	71	
M26	KIND 10		2	22X22	N/A	290	N/A	N/A	329	1
M26.1	KIND 10 TOILET		3	2406	N/A	100	N/A	N/A	74	
M27.1	KIND 11 TOILET		4	2406	N/A	100	N/A	N/A	77	
M27.1	KIND 11		5	22X22	N/A	290	N/A	N/A	245	
M29	PRE-K 13		6	22X22	N/A	190	N/A	N/A	165	
M29.1	PRE-K 13 TOILET		7	2406	N/A	100	N/A	N/A	74	
M30	PRE-12		8	22X22	N/A	155	N/A	N/A	163	1
M30.1	PRE-12 TOILET		9	2406	N/A	100	N/A	N/A	75	
M32	PRE-K 15		10	22X22	N/A	185	N/A	N/A	190	1
M32.1	PRE-K 15 TOILET		11	2406	N/A	100	N/A	N/A	70	
M31	PRE-K 14		12	22X22	N/A	155	N/A	N/A	179	1
M31.1	PRE-K 14 TOILET		13	2406	N/A	100	N/A	N/A	70	
M33.1	MUSIC STORAGE		14	22X22	N/A	10	N/A	N/A	41	1
M33	MUSIC 16		15	22X22	N/A	395	N/A	N/A	346	
M37	VISUAL ARTS		16	22X22	N/A	450	N/A	N/A	356	
M38	INSTRUCT STORAGE		17	22X22	N/A	50	N/A	N/A	29	
M42	JANITOR		18	22X22	N/A	50	N/A	N/A	44	
M40	CUSTODIAL		19	10X6	.271	175	646	479	130	
M41	TOILET		20	22X22	N/A	100	N/A	N/A	73	
M45	WORLD LANGUAGE		21	22X22	N/A	290	N/A	N/A	253	1
M45.1	WORLD LANGUAGE TOILET		22	2406	N/A	100	N/A	N/A	76	
M46	F.A.S.E. (PAL) 19		23	22X22	N/A	145	N/A	N/A	132	1
M46.1	F.A.S.E. (PAL) 19 TOILET		24	2406	N/A	100	N/A	N/A	76	
M47	GRADE 2 20		25	22X22	N/A	265	N/A	N/A	261	1
M47.1	GRADE 2 20 TOILET		26	2406	N/A	100	N/A	N/A	78	
M50	ESOL 23		27	22X22	N/A	35	N/A	N/A	26	1
M51	BREAK OUT 24		28	22X22	N/A	40	N/A	N/A	66	1
M52	READ COACH 25		29	22X22	N/A	35	N/A	N/A	81	1
M48	GRADE 2 21		30	22X22	N/A	265	N/A	N/A	229	
	TOTAL CFM					4570			4079	

NOTE 1: 100% CLOSED

PROJECT: MADISON PK-5 NEW ELEMENTARY SCHOOL
SUBMITTED BY: AIR BALANCING SERVICE CO.
CODE: 24070-65

NEBB CERTIFIED #2453

SHEET NO. 65

DOAS-1

** AIR INLET REPORT **

ROOM NO.	DESIGNATION		NO.	SIZE	AK	DESIGN CFM	DESIGN VEL	ACTUAL VEL	ACTUAL CFM	NOTES
M48.1	GRADE 2 21 TOILET		31	2406	N/A	100	N/A	N/A	72	
M49	GRADE 2 22		32	22X22	N/A	265	N/A	N/A	218	
M49.1	GRADE 2 22 TOILET		33	2406	N/A	100	N/A	N/A	72	
M54	GRADE 2 27		34	22X22	N/A	110	N/A	N/A	163	1
M54.1	GRADE 2 27 TOILET		35	2406	N/A	100	N/A	N/A	76	
M55	S.E. RESOURCE 26		36	12X6	.50	250	500	334	167	
M58	JANITOR		37	2406	N/A	50	N/A	N/A	41	
M62	GRADE 2 28		38	22X22	N/A	110	N/A	N/A	146	1
M62.1	GRADE 2 28 TOILET		39	2406	N/A	100	N/A	N/A	76	
M59	TOILET		40	2406	N/A	100	N/A	N/A	72	2
M60	INSTRUCT STORAGE		41	2406	N/A	65	N/A	N/A	57	
M63	GRADE 1 29		42	22X22	N/A	55	N/A	N/A	48	
M63.1	GRADE 1 29 TOILET		43	2406	N/A	100	N/A	N/A	76	2
M64	S.E. RESOURCE 31		44	14X6	.583	290	497	372	217	2
M66	GRADE 1 30		45	22X22	N/A	190	N/A	N/A	110	
M66.1	GRADE 1 30 TOILET		46	2406	N/A	100	N/A	N/A	77	
M65	READING INTERVETION 32		47	16X6	.667	290	435	373	249	
M68	GRADE 1 33		48	22X22	N/A	270	N/A	N/A	233	
M68.1	GRADE 1 33 TOILET		49	2406	N/A	100	N/A	N/A	79	
M69	GRADE 1 34		50	22X22	N/A	265	N/A	N/A	232	
M69.1	GRADE 1 34 TOILET		51	2406	N/A	100	N/A	N/A	76	
M70	GRADE 1 35		52	22X22	N/A	265	N/A	N/A	210	
M70.1	GRADE 1 35 TOILET		53	2406	N/A	100	N/A	N/A	76	
M72	K-5 S.E. SPEECH 36		54	22X22	N/A	45	N/A	N/A	39	
M74	K-5 OT / PT 37		55	10X6	.417	90	216	177	74	1
M71	K-5 S.E. COMMON		56	22X22	N/A	15	N/A	N/A	28	1
M73	K-5 S.E. PSYCH 38		57	22X22	N/A	35	N/A	N/A	26	1
M75	K-5 S.E. SOCIAL 39		58	22X22	N/A	35	N/A	N/A	25	1
M76	TOILET		59	2406	N/A	100	N/A	N/A	79	
M77	TEACHER WORK ROOM		60	8" DIA	.349	150	430	293	102	1
M80	BOYS TOILET		61	22X22	N/A	400	N/A	N/A	290	
M81	GIRLS TOILET		62	22X22	N/A	400	N/A	N/A	287	
	TOTAL CFM					3945			3793	

NOTE 1: 100% CLOSED

NOTE 2: 100% OPEN

PROJECT: MADISON PK-5 NEW ELEMENTARY SCHOOL
REVISION DATE: 05-01-26
SUBMITTED BY: AIR BALANCING SERVICE CO.
CODE: 24070-66R

NEBB CERTIFIED #2453

SHEET NO. 66R

DOAS-1

** AIR INLET REPORT **

ROOM NO.	DESIGNATION		NO.	SIZE	AK	DESIGN CFM	DESIGN VEL	ACTUAL VEL	ACTUAL CFM	NOTES
M83	STEAM 01		63	22X22	N/A	350	N/A	N/A	275	1
M04	MAIN OFFICE		64	8X4	.222	65	293	257	57	1
M36	MEDIA		65	22X22	N/A	370	N/A	N/A	310	
M36	MEDIA		66	22X22	N/A	370	N/A	N/A	324	
M14	TOILET		67	2406	N/A	100	N/A	N/A	75	
M15	JANITOR		68	2406	N/A	55	N/A	N/A	52	
M05	CONFERENCE		69	22X22	N/A	75	N/A	N/A	90	1
M08	ASSITANT PRINCIPAL		70	22X22	N/A	30	N/A	N/A	46	1
M09	PRINCIPAL		71	22X22	N/A	30	N/A	N/A	39	1
M06	PK-S.E. SPEECH 03		72	8X4	.222	120	541	387	86	
M10	GUIDANCE		73	8X8	N/A	30	N/A	N/A	35	1
M13.2	TOILET		74	2406	N/A	75	N/A	N/A	65	
M13.1	TOILET		75	2406	N/A	75	N/A	N/A	72	
M12	S.E/ BCBA 05		76	8X8	.444	45	101	120	53	
M16	PK S.E. PSYCH 02		77	10X4	.278	100	360	476	132	1
M17	PK S.E. ABA 04		78	10X4	N/A	100	N/A	N/A	81	1
M18	PK S.E. OT/PT 06		79	10X4	N/A	100	N/A	N/A	98	1
M18.1	TOILET		80	2406	N/A	100	N/A	N/A	77	1
M22	TOILET		81	2406	N/A	100	N/A	N/A	82	
M20	KINDERGARTEN 07		82	22X22	N/A	295	N/A	N/A	245	
M20.1	KINDERGARTEN 07 TOILET		83	2406	N/A	100	N/A	N/A	74	2
M21	KINDERGARTEN 08		84	22X22	N/A	295	N/A	N/A	.262	
M21.1	KINDERGARTEN 08 TOILET		85	2406	N/A	100	N/A	N/A	81	
M24	KINDERGARTEN 09		86	22X22	N/A	295	N/A	N/A	259	
L04	TOILET		87	22X22	N/A	100	N/A	N/A	70	
L13	GRADE 5 58		88	22X22	N/A	395	N/A	N/A	296	
L15	GRADE 5 57		89	22X22	N/A	390	N/A	N/A	275	
L16	GRADE 5 56		90	22X22	N/A	385	N/A	N/A	295	
L18	GRADE 5 55		91	22X22	N/A	390	N/A	N/A	298	
L19	GRADE 5 54		92	22X22	N/A	315	N/A	N/A	291	
L20	INSTRUCT STORAGE		93	22X22	N/A	15	N/A	N/A	39	1
L21	BREAK OUT 52		94	22X22	N/A	40	N/A	N/A	32	1
	TOTAL CFM					5405			4566	

NOTE 1: 100% CLOSED

NOTE 2: 100% OPEN

PROJECT: MADISON PK-5 NEW ELEMENTARY SCHOOL
SUBMITTED BY: AIR BALANCING SERVICE CO.
CODE: 24070-67

NEBB CERTIFIED #2453

SHEET NO. 67

DOAS-1

** AIR INLET REPORT **

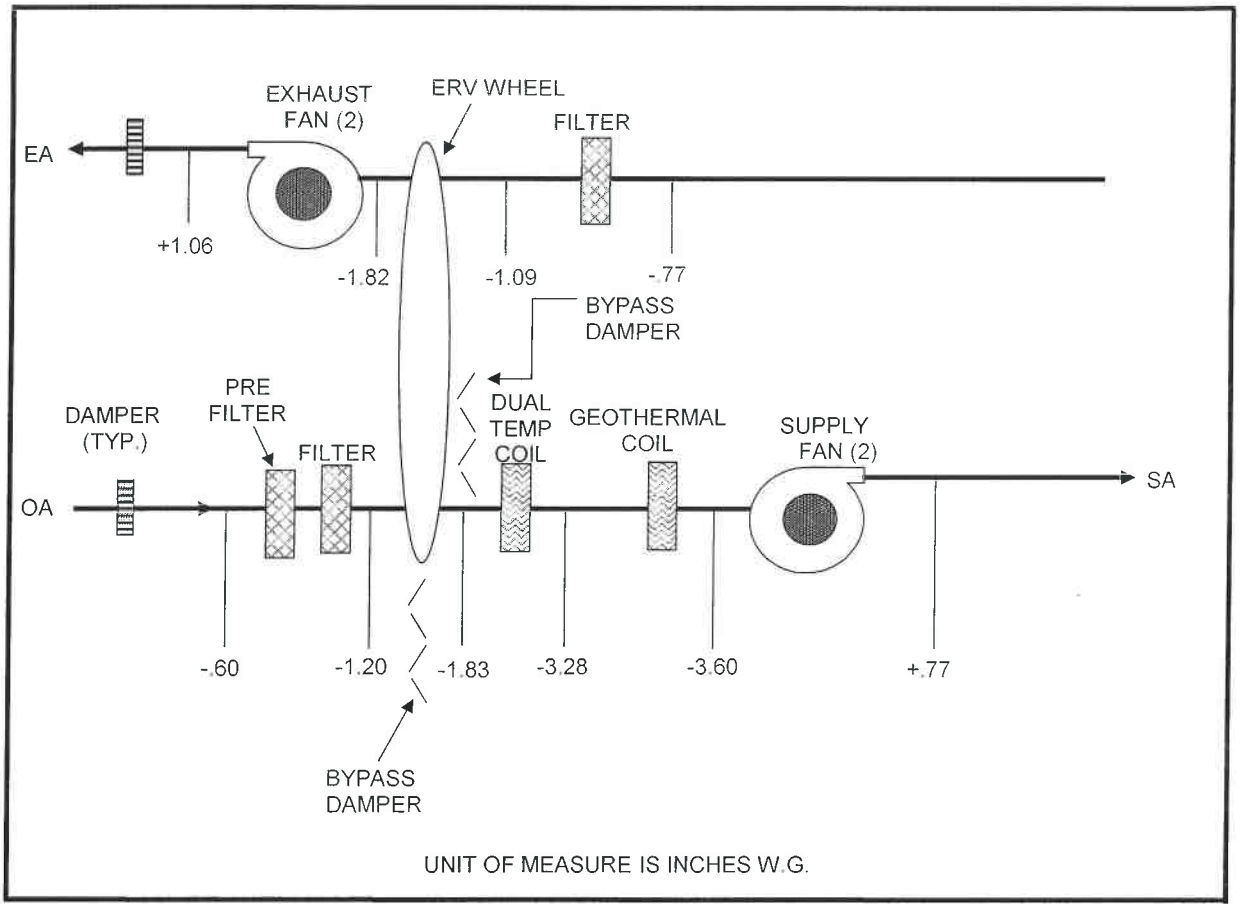
ROOM NO.	DESIGNATION		NO.	SIZE	AK	DESIGN CFM	DESIGN VEL	ACTUAL VEL	ACTUAL CFM	NOTES
L22	MATH COACH 51		95	22X22	N/A	35	N/A	N/A	29	1
L24	GRADE 4 49		96	22X22	N/A	295	N/A	N/A	210	
L26	S.E. RESOURCE 50		97	12X6	.500	250	500	476	238	1
L33	GRADE 4 48		98	22X22	N/A	295	N/A	N/A	203	
L28	BOYS TOILET		99	2412	N/A	400	N/A	N/A	248	2
L30	JANITOR		100	10X4	.200	30	150	175	35	1
L31	TOILET		101	2406	N/A	100	N/A	N/A	65	
L29	GIRLS TOILET		102	22X22	N/A	400	N/A	N/A	242	2
L34	GRADE 4 47		103	22X22	N/A	300	N/A	N/A	218	
L35	S.E. RESOURCE 45B		104	10X6	.417	250	600	447	186	1
L38	MATH INTERVENT 45A		105	10X8	.555	290	523	410	228	
L37	GRADE 4 46		106	22X22	N/A	300	N/A	N/A	221	
L40	GRADE 3 / 4 44		107	22X22	N/A	395	N/A	N/A	301	
L41	GRADE 3 43		108	22X22	N/A	390	N/A	N/A	293	
L43	GRADE 3 42		109	22X22	N/A	385	N/A	N/A	282	
L44	GRADE 3 41		110	22X22	N/A	390	N/A	N/A	288	
L46	GRADE 3 40		111	22X22	N/A	390	N/A	N/A	288	
L48	BOYS TOILET		112	22X22	N/A	400	N/A	N/A	285	
L49	GIRLS TOILET		113	22X22	N/A	400	N/A	N/A	283	
L50	FACULTY DINING		114	22X22	N/A	345	N/A	N/A	255	
L51	STORAGE		115	22X22	N/A	60	N/A	N/A	47	1
L12	PE STORAGE		116	22X22	N/A	125	N/A	N/A	93	
	TOTAL CFM					6225			4538	

NOTE 1: 100% CLOSED

NOTE 2: 100% OPEN

DOAS-1

** STATIC PRESSURE PROFILE **



PROJECT: MADISON PK-5 NEW ELEMENTARY SCHOOL
SUBMITTED BY: AIR BALANCING SERVICE CO.
CODE: 24070-69

NEBB CERTIFIED #2453

SHEET NO. 69