IAQ Verification Report

New London High School

New London, CT

SES Project No. 24-461

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Executive Summary

Sustainable Engineering Solutions, LLC (SES) was retained by the Town of New London to provide professional engineering services to meet the indoor air quality (IAQ) verification requirements of the state legislation Public Act No. 23-167 at the New London High School facility. This effort successfully completed the required verification as outlined in the legislation. With a focus on validating and improving indoor air quality, SES systematically assessed each air handling system to measure current ventilation rates, filtration rates and distribution levels compared to current ventilation standards.

This building, which finished construction in 2023, has recently documentation available for system performance and measured airflows located in the Testing, Adjusting, and Balancing (TAB) report (Appendix C) and the final commissioning report (submitted under a separate cover). These reports were used in the assessment process.

Overall, the facility meets or exceeds current ventilation requirements, with the exception of a few small zones identified in the report. However, all air handling systems are currently equipped with MERV 11 filters.

State guidelines recommend upgrading to MERV 13 filtration or higher for improved air quality. This recommendation has been incorporated into the report.

Note that throughout this report the term “ventilation” air and “outside” are used interchangeably and are one in the same.

IAQ Verification Process

Filter Evaluation

As required by the law, the team reviewed the current level of filtration installed on each air handling system and analyzed the feasibility of increasing the filter ratings to MERV 13. A filter’s minimum efficiency reporting value, or MERV, is a rating system that measures how efficient a filter is at trapping harmful particulate matter, dust, and debris in the air. This rating system categorizes filters into a ranking from 2 to 20, with a MERV 8 being the standard. A higher MERV rating means that a filter is more efficient and MERV 13 is recommended for many commercial and industrial buildings and by state code. At its minimum, a MERV 13 filter traps less than 75% of air particles that are 0.3 to 1.0 microns in size and is at least 90% effective when the particles increase to 3 to 10 microns in size. Along with assessing the filter efficiencies, the condition of unit’s filters and proper sealing of the filter banks to eliminate bypass air was also evaluated.

Ventilation Evaluation

The amount of ventilation air delivered into interior occupied spaces is governed by the 2022 Connecticut State Building Code, which references ASHRAE Standard 62.1. This code prescribes the flow rate of ventilation air that must be supplied mechanically, or otherwise, to occupied areas based on occupancy classifications. Depending on the type of use of a space and total space area, outdoor air flow rates in cubic feet per minute (CFM) per person and square foot are defined when the parameters are 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.

As an alternative to providing outside air mechanically to occupied spaces, the building code also allows for outside air to enter occupied areas naturally through operable windows. If the area of operable windows for an occupied space is at least 4% of the space's floor area, mechanical ventilation for that space is not required by code. However, although spaces with sufficient operable window area may satisfy code requirements, this is not a realistic way of providing adequate ventilation during periods of cold or hot weather.

The amount of outside air supplied to occupied spaces is important for occupant comfort and health because contaminants generated by people and materials in the space must be removed or they will build up to unhealthy levels. Diluting interior air with outside air reduces the concentration of carbon dioxide, volatile organic compounds (VOCs) along with various airborne viral and bacterial contaminants.

Demand Control Ventilation

In certain applications, the amount of outside air delivered to a space can be reduced if occupancy and indoor air quality can be safely monitored and controlled. This is most typically accomplished through monitoring carbon dioxide (CO2) and occupancy sensors in the space, otherwise known as "Demand Control Ventilation" or DCV. As occupancy rises in a space, so does the amount of CO2 as a result of the occupant's natural respiration and exhalation of CO2. By monitoring CO2 and occupancy status, an HVAC system can reduce the amount of outside air to a zone when levels and occupancy are low. If CO2 levels rise above a certain threshold or occupancy is detected, the HVAC system can then increase the amount of fresh air until the levels fall back below an acceptable level. Having an operational demand control ventilation strategy in place will help reduce energy consumption of a facility while simultaneously ensuring all spaces are achieving the required fresh air requirements.

Project Approach

During the review of the school, SES took the following steps to complete the study:

- Develop an IAQ evaluation plan and conduct a kickoff meeting with the client to review the plan, project schedule, access, etc.
- Perform a walkthrough of the building to review the HVAC systems providing ventilation air for a condition assessment of the systems and understand any maintenance issues that may be related.
- Review available documentation for the HVAC systems that includes:
    - As-built drawings or original design drawings
    - O&M documentation for systems performance data
    - Review any previous testing adjusting and balancing reports from the HVAC systems

- Review documentation describing the chronology of known problems, system failures, complaints, and alterations.

- Develop IAQ evaluation documentation for field evaluation of equipment.
- Perform field evaluation of equipment for ventilation sequence of operation and verify calibration of CO2 sensors where used (+/- 50 PPM).
- Review the testing, adjusting and balancing report for each space for compliance with ASHRAE 62.1
- Prepare a report that summarizes the verification process, identifies any deficiencies that require correction and any recommendations to address the deficiencies found and next steps.

Participants

The participants in the IAQ verification process for this project are identified below.

Owner

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Facility Description

Building

Building:	New London High School
Location:	490 Jefferson Avenue, New London, CT 06320
Building Size (gross):	270,000 ft^2
Year Constructed:	2023
Building Use (current):	Education

Between 2020 and 2024, the 270,000 square foot New London High School building underwent a complete renovation. The construction project included additions to the existing building and installed air handling units, VRF systems and more. The building consists of classrooms, administration offices, gymnasium, cafeteria, media center and other typical educational spaces.

Occupancy

The building is occupied Monday through Friday between 7 a.m. and 3 p.m. Special events are held on the weekends and after hours as needed for school extracurricular activities. In addition, the school hosts summer school activities during the summer break.

Building Automation System Description

The HVAC system is controlled by a newly installed Allerton Compass building automation system. This system has graphics for all the HVAC equipment and is capable of trending and performing custom control algorithms.

HVAC Systems Description

Dedicated Outside Air Units (DOA-1, 2, 3, 4)

The school features heating, cooling, and ventilation systems primarily consisting of Variable Refrigerant Flow (VRF) systems and Dedicated Outdoor Air Systems (DOAS). Each zone is equipped with a VRF unit for temperature control and supply/exhaust ductwork connected to a DOAS unit for ventilation. In addition to supply ventilation air to the building, the DOAS units also provide necessary exhaust air from the classroom and bathroom spaces.

The VRF units handle all heating and cooling requirements within the zones, while the DOAS units provide ventilation to meet the spaces' air quality standards.

Each DOAS unit includes a supply fan, an exhaust fan, and MERV 11 filters for air quality improvement. The airstreams are conditioned using hot water and chilled water coils for heating and cooling. An energy recovery wheel is installed across the outside air and exhaust air streams to enhance energy efficiency. A sensible heat wheel on the supply air stream helps provide dehumidification. The DOAS fans operate with variable speed modulation to ensure adequate downstream airflow.

Unit Tag	Serves
DOA-1	A1, A2, and A3 wings
DOA-2	B1 Wing
DOA-3	B2 Wing
DOA-4	A4 Ground Level

Air Handling Units (AHU-1, 2, 3, 4)

The school consists for four large zones which are served by dedicated air handling units (AHU) as outlined below:

Unit Tag	Serves
AHU-1	Cafeteria
AHU-2	Auditorium Seating
AHU-3	Gymnasium
AHU-4	Auditorium Stage

Each AHU is sized to satisfy the total space heating, cooling and ventilation requirements. An AHU includes a supply fan, a return fan, and MERV 11 filters for air quality improvement. The airstreams are conditioned using hot water and chilled water coils for heating and cooling. The units modulate fan speeds based on the system demands.

For AHUs 1 & 3 an energy recovery wheel is installed across the outside air and exhaust air streams to enhance energy efficiency.

Heat Recovery Ventilator (HRV-1)

The one heating recovery ventilator (HRV) is located near the boy's locker room providing ventilation to spaces. Unit serves the sports/athletics rooms, girls and boys locker rooms, and training/weight rooms. Unit is equipped with a flat plate heat

recovery wheel, a chilled water coil, and a hot water coil. Unit provides constant volume ventilation to the spaces with the ability to heat & cool those spaces if required.

Recommendations

The following recommendations were made based on the review of TAB report, ventilation comparisons to the IMC Minimum Ventilation Rates (2021) and industry best practices. Additional supporting information can be found in the Appendices of the report.

Due to the limited area of focus of the required IAQ verification and this review, SES strongly recommends verifying the condition of all related HVAC equipment components and control functionality outside of the scope of this verification, prior to implementing any modifications to the HVAC systems.

Recommendation #1: Zone Rebalancing

Seven zones were identified as under-ventilated, with measured ventilation airflow rates falling more than 15% below the required levels:

Unit Tag	Room #	Category	# of Occupants	Required Ventilation Airflow	TAB Measured Airflow
DOA-1	1052	Lecture Classroom	29	285 CFM	172 CFM
DOA-1	1143	Office spaces	12	78 CFM	24 CFM
DOA-1	1054	Reception areas	13	82 CFM	42 CFM
DOA-2	1097	Lecture Classroom	24	219 CFM	36 CFM
DOA-2	3013	Lecture Classroom	24	240 CFM	181 CFM
DOA-2	1108	Daycare Sickroom	3	61 CFM	37 CFM
DOA-3	1111	Reception areas	12	81 CFM	37 CFM

These zones, although part of a newly constructed facility, are under-ventilated based on their occupancy and classification as observed during the site walkthrough. SES recommends rebalancing the supply branches in these zones to achieve the required ventilation airflow levels as specified above.

Recommendation #2: Filter Improvements

Currently all DOAs, AHUs and HRV are equipped with MERV 11 filters. SES recommends replacing and upgrading all final filters to at least MERV 13 for increased filtration efficiency, which are over 90% efficient at capturing 3 to 10 microns in size and meet modern building codes for many commercial and industrial applications.

Upgrading to MERV 13 filters will significantly improve indoor air quality by capturing finer particulate matter, reducing allergens, and ensuring compliance with current building standards, contributing to a healthier indoor environment.

Recommendation #3: Exhaust Air Rebalancing of HRV-1

Two zones were identified as under-exhausted, with measured exhaust airflow rates falling more than 15% below the required levels:

Unit Tag	Room #	Category	Required Exhaust Airflow	TAB Measured Airflow
HRV-1	1176	Sports locker rooms	160 CFM	121 CFM
HRV-1	1143	Office spaces	182 CFM	109 CFM

These zones, although part of a newly constructed facility, are under-exhausted based on their square footage and classification as observed during the site walkthrough. SES recommends rebalancing the exhaust branches in these zones to achieve the required exhaust airflow levels as specified above.

Next Steps

Review Recommendations

It is recommended that the client review this report and the proposed recommendations for further clarification, if needed and decide a course of action. SES can provide additional assistance if needed, to further analyze and develop these recommendations for future implementation, and if desired, provide commissioning of the implemented measures.

Appendix A: IAQ Evaluation Sheet

				Design		TAB Measured				
Tag	AREA SERVED	Type	CO2 Control?	Supply Airflow	Min. Outside Airflow	Supply Airflow2	Min. Outside Airflow3	% OA	Calculated Min. Outside Airflow2	Comments
DOA-1	A1 and A3 wings	Multizone CV	No	19,575	19,575	14,461	14,461	100%	8,340	
DOA-2	B1 Wing	Multizone CV	No	15,000	15,000	15,050	15,050	100%	8,620	
DOA-3	B2 Wing	Multizone CV	No	13,640	13,640	13,493	13,493	100%	5,220	
DOA-4	A4 ground level	Multizone CV	No	1,000	1,000	1,000	1,000	100%	70	
AHU-1	Cafeteria	Single Zone VAV	Yes	25,000	3,500	25,757	3,500	14%	4,850	Unit is equipped with CO2 control. Upon a call for ventilation, OA damper modulats to maximum. As minimum OA setpoint satisfies CFM/SF requirements, ventilation rates are acceptable.
AHU-2	Auditorium Seating area	Single Zone VAV	Yes	20,000	1,000	20,750	1,040	5%	5,170	Unit is equipped with CO2 control. Upon a call for ventilation, OA damper modulats to maximum. As minimum OA setpoint satisfies CFM/SF requirements, ventilation rates are acceptable.
AHU-3	Gymnasium	Single Zone VAV	Yes	25,000	3,000	25,175	3,000	12%	11,550	Unit is equipped with CO2 control. Upon a call for ventilation, OA damper modulats to maximum. As minimum OA setpoint satisfies CFM/SF requirements, ventilation rates are acceptable.
AHU-4	Auditorium Stage	Single Zone VAV	Yes	7,500	500	7,516	508	7%	3,240	Unit is equipped with CO2 control. Upon a call for ventilation, OA damper modulats to maximum. As minimum OA setpoint satisfies CFM/SF requirements, ventilation rates are acceptable.
HRV-1	Locker rooms/Sports areas	Single Zone CV	No	7,700	7,700	7,397	7,397	100%	1,450	

IMC 2021 Ventilation Assessment

Unit Tag	Room #	Construction Drawing Room #	Category	Infiltration	ZoneArea, Az, per space (SF)	Zone Population, Pz, per space	People OA Rate in Breathing Zone, Rp (CFM/person)	Area OA Rate in Breathing Zone, Ra (CFM/SF)	Default Occupant Density	Breathing Zone OA (CFM) Vbz=RpPz+RaAz	Table 6-2 Zone Air Distribution Effectiveness	Zone OA Flow, Voz	Min. Ventilation Airflow (CFM)	Actual Supply Airflow (CFM)	% OA	Actual Ventilation Airflow (CFM)	Ventilation Difference (CFM)	% Difference	Code Satisified?	Comments
DOA-1	1210	1210	Office spaces	0	636	8	5	0.06	5	78	1	78	78	109	100%	109	31	28%	Yes	
DOA-1	1206	1202	Office spaces	0	121	4	5	0.06	5	27	1	27	27	31	100%	31	4	12%	Yes	
DOA-1	1205	1201	Office spaces	0	136	3	5	0.06	5	23	1	23	23	38	100%	38	15	39%	Yes	
DOA-1	1200	1196	Office spaces	0	119	1	5	0.06	5	12	1	12	12	41	100%	41	29	70%	Yes	
DOA-1	1033	1032A	Music/theater/dance	0	226	7	10	0.06	35	84	1	84	84	99	100%	99	15	16%	Yes	
DOA-1	1032	1032	Music/theater/dance	0	202	3	10	0.06	35	42	1	42	42	40	100%	40	(2)	-5%	Yes	
DOA-1	1031	1031	Music/theater/dance	0	1030	16	10	0.06	35	222	1	222	222	215	100%	215	(7)	-3%	Yes	
DOA-1	1030	1030	Music/theater/dance	0	762	16	10	0.06	35	206	1	206	206	630	100%	630	424	67%	Yes	
DOA-1	1025	1025	Music/theater/dance	0	2050	75	10	0.06	35	873	1	873	873	896	100%	896	23	3%	Yes	
DOA-1	1018	1018	Music/theater/dance	0	1520	75	10	0.06	35	841	1	841	841	891	100%	891	50	6%	Yes	
DOA-1	1021	1021	Music/theater/dance	0	84	2	10	0.06	35	25	1	25	25	24	100%	24	(1)	-4%	Yes	
DOA-1	1020	1020	Music/theater/dance	0	79	2	10	0.06	35	25	1	25	25	24	100%	24	(1)	-3%	Yes	
DOA-1	1019	1019	Music/theater/dance	0	181	4	10	0.06	35	51	1	51	51	55	100%	55	4	8%	Yes	
DOA-1	1026	1026	Music/theater/dance	0	81	2	10	0.06	35	25	1	25	25	24	100%	24	(1)	-4%	Yes	
DOA-1	1027	1027	Music/theater/dance	0	81	2	10	0.06	35	25	1	25	25	24	100%	24	(1)	-4%	Yes	
DOA-1	1016	1016	Lecture Classroom	0	803	26	7.5	0.06	65	243	1	243	243	508	100%	508	265	52%	Yes	
DOA-1	1024	1024	Music/theater/dance	0	1338	30	10	0.06	35	380	1	380	380	569	100%	569	189	33%	Yes	
DOA-1	1014	1014	Lecture Classroom	0	791	25	7.5	0.06	65	235	1	235	235	491	100%	491	256	52%	Yes	
DOA-1	1012	1012	Lecture Classroom	0	765	24	7.5	0.06	65	226	1	226	226	496	100%	496	270	54%	Yes	
DOA-1	1011	1011	Lecture Classroom	0	788	30	7.5	0.06	65	272	1	272	272	508	100%	508	236	46%	Yes	
DOA-1	1009	1010	Lecture Classroom	0	778	28	7.5	0.06	65	257	1	257	257	493	100%	493	236	48%	Yes	
DOA-1	1007	1007	Music/theater/dance	0	1836	34	10	0.06	35	450	1	450	450	838	100%	838	388	46%	Yes	
DOA-1	1041	1040	Office spaces	0	110	4	5	0.06	5	27	1	27	27	44	100%	44	17	40%	Yes	
DOA-1	1042	1041	Office spaces	0	110	3	5	0.06	5	22	1	22	22	47	100%	47	25	54%	Yes	
DOA-1	0060	0049	Art Classroom	0	1146	30	10	0.18	20	506	1	506	506	1,000	100%	1,000	494	49%	Yes	
DOA-1	0061	0050	Art Classroom	0	325	2	10	0.18	20	78	1	78	78	230	100%	230	152	66%	Yes	
DOA-1	0064	0052	Art Classroom	0	1321	36	10	0.18	20	598	1	598	598	920	100%	920	322	35%	Yes	
DOA-1	1055	1055	Office spaces	0	165	6	5	0.06	5	40	1	40	40	39	100%	39	(1)	-2%	Yes	
DOA-1	1056	1056	Office spaces	0	134	5	5	0.06	5	33	1	33	33	40	100%	40	7	17%	Yes	
DOA-1	1057	1057	Office spaces	0	136	5	5	0.06	5	33	1	33	33	41	100%	41	8	19%	Yes	
DOA-1	1058	1058	Office spaces	0	136	4	5	0.06	5	28	1	28	28	33	100%	33	5	15%	Yes	
DOA-1	1059	1059	Office spaces	0	136	5	5	0.06	5	33	1	33	33	56	100%	56	23	41%	Yes	
DOA-1	1060	1060	Office spaces	0	175	6	5	0.06	5	40	1	40	40	47	100%	47	7	14%	Yes	
DOA-1	1048	1047	Lecture Classroom	0	1049	30	7.5	0.06	65	288	1	288	288	480	100%	480	192	40%	Yes	
DOA-1	1043	1042	Office spaces	0	461	9	5	0.06	5	73	1	73	73	155	100%	155	82	53%	Yes	
DOA-1	1199	1195	Office spaces	0	130	3	5	0.06	5	23	1	23	23	36	100%	36	13	37%	Yes	
DOA-1	1049	1048	Lecture Classroom	0	1213	30	7.5	0.06	65	298	1	298	298	519	100%	519	221	43%	Yes	
DOA-1	1052	1051	Lecture Classroom	0	1124	29	7.5	0.06	65	285	1	285	285	172	100%	172	(113)	-66%	No	
DOA-1	1143	1138	Office spaces	0	298	12	5	0.06	5	78	1	78	78	24	100%	24	(54)	-225%	No	
DOA-1	1212	1208	Conference rooms	0	123	6	5	0.06	50	37	1	37	37	43	100%	43	6	13%	Yes	
DOA-1	1208	1204	Conference rooms	0	132	6	5	0.06	50	38	1	38	38	41	100%	41	3	7%	Yes	
DOA-1	1207	1203	Conference rooms	0	223	10	5	0.06	50	63	1	63	63	78	100%	78	15	19%	Yes	
DOA-1	1210	1206	Conference rooms	0	146	7	5	0.06	50	44	1	44	44	44	100%	44	0	1%	Yes	
DOA-1	0056	0046	Computer Lab	0	1501	35	10	0.12	25	530	1	530	530	920	100%	920	390	42%	Yes	
DOA-1	0068	0057	Restaurant dining rooms	0	724	26	7.5	0.18	70	325	1	325	325	345	100%	345	20	6%	Yes	
DOA-1	1054	1054	Reception areas	0	285	13	5	0.06	30	82	1	82	82	42	100%	42	(40)	-95%	No	
DOA-1		1061	Conference rooms	0	304	11	5	0.06	50	73	1	73	73	72	100%	72	(1)	-2%	Yes	
DOA-1	1146	1142	Reception areas	0	355	4	5	0.06	30	41	1	41	41	39	100%	39	(2)	-6%	Yes	
DOA-2	0015	0004c	Conference rooms	0	150	5	5	0.06	50	34	1	34	34	35	100%	35	1	3%	Yes	
DOA-2	1107	1104A	Office spaces	0	59	2	5	0.06	5	14	1	14	14	36	100%	36	22	62%	Yes	
DOA-2	0040	0096	Lecture Classroom	0	929	31	7.5	0.06	65	288	1	288	288	423	100%	423	135	32%	Yes	
DOA-2	1112	1109	Office spaces	0	145	5	5	0.06	5	34	1	34	34	35	100%	35	1	4%	Yes	
DOA-2	1113	1110	Office spaces	0	139	4	5	0.06	5	28	1	28	28	35	100%	35	7	19%	Yes	
DOA-2	1098	1097	Lecture Classroom	0	648	19	7.5	0.06	65	181	1	181	181	360	100%	360	179	50%	Yes	
DOA-2	1097	1096	Lecture Classroom	0	658	24	7.5	0.06	65	219	1	219	219	36	100%	36	(183)	-510%	No	
DOA-2	1110	1107	Office spaces	0	147	5	5	0.06	5	34	1	34	34	34	100%	34	0	1%	Yes	
DOA-2	1106	1104	Office spaces	0	60	2	5	0.06	5	14	1	14	14	35	100%	35	21	61%	Yes	
DOA-2	1101	1100	Office spaces	0	129	3	5	0.06	5	23	1	23	23	35	100%	35	12	35%	Yes	
DOA-2	1096	1095	Lecture Classroom	0	660	28	7.5	0.06	65	250	1	250	250	433	100%	433	183	42%	Yes	
DOA-2	1095	1094	Lecture Classroom	0	663	27	7.5	0.06	65	242	1	242	242	428	100%	428	186	43%	Yes	
DOA-4	1087	1086	Office spaces	0	170	6	5	0.06	5	40	1	40	40	109	32%	35	(5)	-15%	Yes	
DOA-2	1086	1085	Office spaces	0	157	5	5	0.06	5	34	1	34	34	35	100%	35	1	2%	Yes	
DOA-2	1094	1093	Office spaces	0	328	8	5	0.06	5	60	1	60	60	67	100%	67	7	11%	Yes	
DOA-2	1092	1090	Lecture Classroom	0	654	18	7.5	0.06	65	174	1	174	174	356	100%	356	182	51%	Yes	
DOA-2	2015	2005	Lecture Classroom	0	643	30	7.5	0.06	65	264	1	264	264	432	100%	432	168	39%	Yes	
DOA-2	2014	2004	Lecture Classroom	0	660	29	7.5	0.06	65	257	1	257	257	417	100%	417	160	38%	Yes	
DOA-2	2013	2003	Lecture Classroom	0	648	25	7.5	0.06	65	226	1	226	226	411	100%	411	185	45%	Yes	
DOA-2	2012	2002	Lecture Classroom	0	1004	24	7.5	0.06	65	240	1	240	240	623	100%	623	383	61%	Yes	
DOA-2	2010	2032	Lecture Classroom	0	964	28	7.5	0.06	65	268	1	268	268	595	100%	595	327	55%	Yes	
DOA-2	2009	2031	Lecture Classroom	0	648	25	7.5	0.06	65	226	1	226	226	471	100%	471	245	52%	Yes	
DOA-2	2006	2028	Lecture Classroom	0	643	29	7.5	0.06	65	256	1	256	256	481	100%	481	225	47%	Yes	
DOA-2	2005	2027	Lecture Classroom	0	979	29	7.5	0.06	65	276	1	276	276	609	100%	609	333	55%	Yes	
DOA-2	2001	2023	Lecture Classroom	0	1275	30	7.5	0.06	65	302	1	302	302	625	100%	625	323	52%	Yes	
DOA-2	3016	3005	Lecture Classroom	0	648	29	7.5	0.06	65	256	1	256	256	376	100%	376	120	32%	Yes	
DOA-2	3015	3004	Lecture Classroom	0	648	27	7.5	0.06	65	241	1	241	241	382	100%	382	141	37%	Yes	
DOA-2	3014	3003	Lecture Classroom	0	648	29	7.5	0.06	65	256	1	256	256	384	100%	384	128	33%	Yes	
DOA-2	3013	3002	Lecture Classroom	0	1004	24	7.5	0.06	65	240	1	240	240	181	100%	181	(59)	-33%	No	
DOA-2	3011	3034	Lecture Classroom	0	861	29	7.5	0.06	65	269	1	269	269	415	100%	415	146	35%	Yes	
DOA-2	3010	3033	Lecture Classroom	0	650	29	7.5	0.06	65	257	1	257	257	392	100%	392	135	35%	Yes	
DOA-2	3008	3031	Office spaces	0	236	6	5	0.06	5	44	1	44	44	34	100%	34	(10)	-30%	Yes	Only 10 CFM off, considered acceptable
DOA-2	3007	3030	Lecture Classroom	0	628	30	7.5	0.06	65	263	1	263	263	384	100%	384	121	32%	Yes	
DOA-2	3006	3029	Lecture Classroom	0	960	30	7.5	0.06	65	283	1	283	283	433	100%	433	150	35%	Yes	
DOA-2	3003	3026	Lecture Classroom	0	638	25	7.5	0.06	65	226	1	226	226	387	100%	387	161	42%	Yes	
DOA-2	0043	0034	Lecture Classroom	0	397	11	7.5	0.06	65	106	1	106	106	85	100%	85	(21)	-25%	Yes	Only 20 CFM off, considered acceptable
DOA-2	0042	0029	Lecture Classroom	0	347	11	7.5	0.06	65	103	1	103	103	87	100%	87	(16)	-19%	Yes	Only 15 CFM off, considered acceptable
DOA-2	0011	0003	Lecture Classroom	0	474	15	7.5	0.06	65	141	1	141	141	210	100%	210	69	33%	Yes	
DOA-2	0012	0031	Lecture Classroom	0	477	14	7.5	0.06	65	134	1	134	134	217	100%	217	83	38%	Yes	
DOA-2	0014	0004	Media Center	0	1323	29	10	0.12	25	449	1	449	449	597	100%	597	148	25%	Yes	
DOA-2	0036	0026	Conference rooms	0	301	10	5	0.06	50	68	1	68	68	67	100%	67	(1)	-2%	Yes	
DOA-2	0034	0021	Media Center	0	2762	44	10	0.12	25	771	1	771	771	745	100%	745	(26)	-4%	Yes	
DOA-2	0014	0005	Lecture Classroom	0	643	23	7.5	0.06	65	211	1	211	211	384	100%	384	173	45%	Yes	
DOA-2	1100	1104	Reception areas	0	334	8	5	0.06	30	60	1	60	60	70	100%	70	10	14%	Yes	
DOA-2	1108	1105	Daycare Sickroom	0	174	3	10	0.18	25	61	1	61	61	37	100%	37	(24)	-66%	No	
DOA-2	1103	1102	Daycare Sickroom	0	153	2	10	0.18	25	48	1	48	48	37	100%	37	(11)	-28%	Yes	Only 15 CFM off, considered acceptable
DOA-2	2008	2030	Conference rooms	0	239	10	5	0.06	50	64	1	64	64	67	100%	67	3	4%	Yes	
DOA-2	2007	2029	Conference rooms	0	247	9	5	0.06	50	60	1	60	60	161	100%	161	101	63%	Yes	
DOA-2	3009	3032	Conference rooms	0	230	10	5	0.06	50	64	1	64	64	65	100%	65	1	2%	Yes	
DOA-3		0023	Lecture Classroom	0	666	30	7.5	0.06	65	265	1	265	265	370	100%	370	105	28%	Yes	
DOA-3	0019	0009	Office spaces	0	1344	4	5	0.06	5	101	1	101	101	270	100%	270	169	63%	Yes	
DOA-3	1122	1119	Lecture Classroom	0	650	23	7.5	0.06	65	212	1	212	212	333	100%	333	121	36%	Yes	
DOA-3	1118	1117	Office spaces	0	145	3	5	0.06	5	24	1	24	24	33	100%	33	9	28%	Yes	
DOA-3	1119	1116	Office spaces	0	144	3	5	0.06	5	24	1	24	24	37	100%	37	13	36%	Yes	
DOA-3	1120	1115	Office spaces	0	144	3	5	0.06	5	24	1	24	24	34	100%	34	10	31%	Yes	
DOA-3	1114	1112	Office spaces	0	134	4	5	0.06	5	28	1	28	28	33	100%	33	5	15%	Yes	
DOA-3	1116	1114	Office spaces	0	119	3	5	0.06	5	22	1	22	22	34	100%	34	12	35%	Yes	
DOA-3	2031	2021	Lecture Classroom	0	1270	31	7.5	0.06	65	309	1	309	309	1,224	100%	1,224	915	75%	Yes	
DOA-3	2026	2016	Lecture Classroom	0	638	25	7.5	0.06	65	226	1	226	226	365	100%	365	139	38%	Yes	
DOA-3	2025	2015	Lecture Classroom	0	638	29	7.5	0.06	65	256	1	256	256	376	100%	376	120	32%	Yes	
DOA-3	2021	2011	Lecture Classroom	0	648	29	7.5	0.06	65	256	1	256	256	367	100%	367	111	30%	Yes	
DOA-3	2020	2010	Lecture Classroom	0	640	28	7.5	0.06	65	248	1	248	248	394	100%	394	146	37%	Yes	
DOA-3	2017	2007	Lecture Classroom	0	653	30	7.5	0.06	65	264	1	264	264	412	100%	412	148	36%	Yes	
DOA-3	3002	3025	Lecture Classroom	0	638	27	7.5	0.06	65	241	1	241	241	380	100%	380	139	37%	Yes	
DOA-3	3032	3022	Lecture Classroom	0	134	28	7.5	0.06	65	218	1	218	218	374	100%	374	156	42%	Yes	
DOA-3	3031	3021	Lecture Classroom	0	635	27	7.5	0.06	65	241	1	241	241	384	100%	384	143	37%	Yes	
DOA-3	3026	3015	Lecture Classroom	0	638	29	7.5	0.06	65	256	1	256	256	362	100%	362	106	29%	Yes	
DOA-3	3025	3014	Lecture Classroom	0	638	31	7.5	0.06	65	271	1	271	271	369	100%	369	98	27%	Yes	
DOA-3	3022	3011	Lecture Classroom	0	663	25	7.5	0.06	65	227	1	227	227	366	100%	366	139	38%	Yes	

IMC 2021 Ventilation Assessment																				
Unit Tag	**Room #**	**Construction Drawing Room #**	**Category**	**Infiltration**	**ZoneArea, Az, per space (SF)**	**Zone Population, Pz, per space**	**People OA Rate in Breathing Zone, Rp (CFM/person)**	**Area OA Rate in Breathing Zone, Ra (CFM/SF)**	**Default Occupant Density**	**Breathing Zone OA (CFM) Vbz=RpPz+RaAz**	**Table 6-2 Zone Air Distribution Effectiveness**	**Zone OA Flow, Voz**	**Min. Ventilation Airflow (CFM)**	**Actual Supply Airflow (CFM)**	**% OA**	**Actual Ventilation Airflow (CFM)**	**Ventilation Difference (CFM)**	**% Difference**	**Code Satisified?**	**Comments**
DOA-3	3021	3010	Lecture Classroom	0	*635*	28	7.5	0.06	65	248	1	248	248	381	100%	381	133	35%	Yes	
DOA-3	3018	3007	Lecture Classroom	0	*640*	29	7.5	0.06	65	256	1	256	256	318	100%	318	62	20%	Yes	
DOA-3	1126	1123	Lecture Classroom	0	*645*	11	7.5	0.06	65	121	1	121	121	274	100%	274	153	56%	Yes	
DOA-3	1128	1125	Lecture Classroom	0	*939*	14	7.5	0.06	65	161	1	161	161	264	100%	264	103	39%	Yes	
DOA-3	1125	1122	Lecture Classroom	0	*648*	14	7.5	0.06	65	144	1	144	144	280	100%	280	136	49%	Yes	
DOA-3	1139	1136	Lecture Classroom	0	*972*	17	7.5	0.06	65	186	1	186	186	234	100%	234	48	21%	Yes	
DOA-3	1137	1134	Lecture Classroom	0	*524*	8	7.5	0.06	65	91	1	91	91	137	100%	137	46	33%	Yes	
DOA-3	1111	1108	Reception areas	0	*347*	12	5	0.06	30	81	1	81	81	37	100%	37	(44)	-118%	No	
DOA-3	2002	2024	Lecture Classroom	0	*225*	2	7.5	0.06	65	29	1	29	29	194	100%	194	166	85%	Yes	
DOA-3	2032	2022	Lecture Classroom	0	*226*	4	7.5	0.06	65	44	1	44	44	194	100%	194	150	78%	Yes	
DOA-3	3001	3024	Conference rooms	0	*260*	10	5	0.06	50	66	1	66	66	128	100%	128	62	49%	Yes	
DOA-3	3033	3023	Conference rooms	0	*234*	13	5	0.06	50	79	1	79	79	124	100%	124	45	36%	Yes	
DOA-4	0089	0086	Office spaces	0	*92*	3	5	0.06	5	21	1	21	21	35	100%	35	14	41%	Yes	
AHU-1	0096	0093	Cafeteria/fast-food dining	0	*7931*	368	7.5	0.18	100	4,188	1	4,188	4,188	24,121	14%	3,278	(910)	-28%	Yes*	*Unit is equipped with CO2 control. Upon a call for ventilation, OA damper modulats to maximum. As minimum OA setpoint satisfies CFM/SF requirements, ventilation rates are acceptable.
AHU-1		0090	Cafeteria/fast-food dining	0	*2415*	30	7.5	0.18	100	660	1	660	660	818	14%	111	(549)	-493%	Yes*	*Unit is equipped with CO2 control. Upon a call for ventilation, OA damper modulats to maximum. As minimum OA setpoint satisfies CFM/SF requirements, ventilation rates are acceptable.
AHU-2	1069	1068	Auditorium seating area	0	*8693*	929	5	0.06	150	5,167	1	5,167	5,167	20,750	5%	20,676	15,509	75%	Yes*	*Unit is equipped with CO2 control. Upon a call for ventilation, OA damper modulats to maximum. As minimum OA setpoint satisfies CFM/SF requirements, ventilation rates are acceptable.
AHU-3	1197	1193	Spectator areas	0	*14528*	1,423	7.5	0.06	150	11,544	1	11,544	11,544	25,175	12%	3,000	(8,544)	-285%	Yes*	*Unit is equipped with CO2 control. Upon a call for ventilation, OA damper modulats to maximum. As minimum OA setpoint satisfies CFM/SF requirements, ventilation rates are acceptable.
AHU-4		1071	Music/theater/dance	0	*3268*	304	10	0.06	35	3,236	1	3,236	3,236	7,516	7%	508	(2,728)	-537%	Yes*	*Unit is equipped with CO2 control. Upon a call for ventilation, OA damper modulats to maximum. As minimum OA setpoint satisfies CFM/SF requirements, ventilation rates are acceptable.
HRV-1		1171	Office spaces	0	*237*	5	5	0.06	5	39	1	39	39	42	100%	42	3	7%	Yes	
HRV-1	1190	1186	Office spaces	0	*229*	5	5	0.06	5	39	1	39	39	40	100%	40	1	3%	Yes	
HRV-1	1167	1163	Office spaces	0	*346*	5	5	0.06	5	46	1	46	46	177	100%	177	131	74%	Yes	
HRV-1		1151	Office spaces	0	*240*	7	5	0.06	5	49	1	49	49	28	100%	28	(21)	-76%	Yes	
HRV-1	1149	1145	Health club/weight room	0	*1402*	30	20	0.06	10	684	1	684	684	864	100%	864	180	21%	Yes	
HRV-1		1139	Health club/weight room	0	*1526*	25	20	0.06	10	592	1	592	592	1,110	100%	1,110	518	47%	Yes	

Unit Tag	Room #	Construction Drawing Room #	Category	ZoneArea, Az, per space (SF)	TAB Exhaust CFM	# of Toilets	# of Shower Heads	Calc'd Exhaust CFM	Ventilation Difference (CFM)	Code Satisified?
DOA-1	1039	1038	Toilet rooms - public	*486*	508	7	-	350	158	Yes
DOA-1	1037	1036	Toilet rooms - public	*486*	514	7	-	350	164	Yes
DOA-1	0047	0038	Toilet rooms - private	*218*	300	4	-	100	200	Yes
DOA-1	0048	0039	Toilet rooms - private	*221*	300	4	-	100	200	Yes
DOA-1	0071	0062	Toilet rooms - public	*229*	300	4	-	200	100	Yes
DOA-1	0070	0061	Toilet rooms - public	*218*	300	4	-	200	100	Yes
DOA-1	1065	1060	Toilet rooms - private	*59*	52	1	-	25	27	Yes
DOA-1	1064	1064	Toilet rooms - public	*343*	423	6	-	300	123	Yes
DOA-1	1063	1063	Toilet rooms - public	*388*	434	6	-	300	134	Yes
DOA-1	1053	1052	Toilet rooms - private	*68*	77	1	-	25	52	Yes
DOA-1	1036	1035	Toilet rooms - public	*495*	548	9	-	450	98	Yes
DOA-1	1034	1033	Toilet rooms - public	*443*	555	8	-	400	155	Yes
DOA-1	1050	1050	Toilet rooms - private	*84*	144	1	1	25	119	Yes
DOA-2	1202	1198	Toilet rooms - private	*60*	74	1	-	25	49	Yes
DOA-2	1201	1197	Toilet rooms - private	*61*	67	1	-	25	42	Yes
DOA-2	1109	1106	Toilet rooms - private	*69*	35	1	-	25	10	Yes
DOA-2	1102	1101	Toilet rooms - private	*58*	70	1	-	25	45	Yes
DOA-3	1132	1129	Toilet rooms - private	*74*	54	1	-	25	29	Yes
DOA-3	1133	1130	Toilet rooms - private	*83*	55	1	-	25	30	Yes
DOA-3	1124	1121	Toilet rooms - public	*301*	295	5	-	250	45	Yes
DOA-3	1123	1120	Toilet rooms - public	*266*	289	5	-	250	39	Yes
DOA-3	1140	1136A	Toilet rooms - private	*129*	61	1	-	25	36	Yes
DOA-3	2029	2019	Toilet rooms - private	*80*	63	1	63	25	38	Yes
DOA-3	2028	2018	Toilet rooms - private	*77*	61	1	61	25	36	Yes
DOA-3	2019	2009	Toilet rooms - public	*300*	293	5	1,465	250	43	Yes
DOA-3	2018	2008	Toilet rooms - public	*289*	303	5	1,515	250	53	Yes
DOA-3	3030	3019	Toilet rooms - private	*102*	63	1	63	25	38	Yes
DOA-3	3028	3018	Toilet rooms - private	*76*	61	1	61	25	36	Yes
DOA-3	3020	3009	Toilet rooms - public	*298*	313	5	1,565	250	63	Yes
DOA-3	3019	3008	Toilet rooms - public	*288*	309	5	1,545	250	59	Yes
DOA-4	0084	0078	Toilet rooms - public	*52*	35		-	-	35	Yes
DOA-4	0081	0076	Toilet rooms - public	*60*	35		-	-	35	Yes
DOA-4	0082	0077	Toilet rooms - private	*53*	70	1	70	25	45	Yes
DOA-4	0083	0079	Toilet rooms - private	*52*	70	1	70	25	45	Yes
HRV-1	1173	1173	Sports locker rooms	*166*	288		-	83	205	Yes
HRV-1	1174	1174	Toilet rooms - public	*178*	283	4	1,132	200	83	Yes
HRV-1	1172	1172	Toilet rooms - private	*80*	145	1	145	25	120	Yes
HRV-1	1177	1177	Toilet rooms - private	*56*	68	1	68	25	43	Yes
HRV-1	1185	1185	Sports locker rooms	*156*	286		-	78	208	Yes
HRV-1	1184	1184	Toilet rooms - public	*176*	283	4	1,132	200	83	Yes
HRV-1	1183	1183	Toilet rooms - private	*56*	77	1	77	25	52	Yes
HRV-1	1187	1187	Toilet rooms - private	*80*	137	1	137	25	112	Yes
HRV-1	1155	1155	Sports locker rooms	*174*	286		-	87	199	Yes
HRV-1	1176	1176	Sports locker rooms	*320*	121		-	160	(39)	No
HRV-1	1192	1188	Sports locker rooms	*1250*	652		-	625	27	Yes
HRV-1	1182	1182	Sports locker rooms	*364*	109		-	182	(73)	No
HRV-1	1165	1161	Sports locker rooms	*1369*	707		-	684	23	Yes
HRV-1	1154	1154	Toilet rooms - public	*171*	292	4	-	200	92	Yes
HRV-1	1152	1152	Toilet rooms - private	*61*	144	1	144	25	119	Yes

Notes

No fresh air requirements for public bathrooms, only exhaust. Exhaust is 50 CFM or 70 CFM per water closet or urinal. If exhaust fan is intermittent than the higher value is used.

No fresh air requirements for private bathrooms, only exhaust. Exhaust is 25 CFM or 50 CFM per water closet or urinal. If exhaust fan is intermittent than the higher value is used.

No fresh air requirements for shower rooms, only exhaust. Exhaust is 20 CFM or 50 CFM per shower head. If exhaust fan is intermittent than the higher value is used.

Corridors are .06 CFM/sf only

Locker rooms are exhasut only at 0.5 CFM/sf

Corridors are .06 CFM/sf only

Appendix B: International Mechanical Code Minimum Ventilation Rates (2021) per ASHRAE 62.1

Minimum Ventilation Rates in Breathing Zone		People Outdoor Air Rate *Rp*	Area Outdoor Air Rate *Ra*	Default Values (Occupant Density)	Air Class	OS (6.2.6.1.4)	Comments
Occupancy Classification	**Category**	**cfm/person**	**cfm/sf**	**#/1000sf**			
Educational Facilities	Art Classroom	10	0.18	20	2	No	
Educational Facilities	Classrooms (ages 5 to 8)	10	0.12	25	1	No	
Educational Facilities	Classrooms (ages 9 plus)	10	0.12	35	1	No	
Educational Facilities	Computer Lab	10	0.12	25	1	No	
Educational Facilities	Daycare Sickroom	10	0.18	25	3	No	
Educational Facilities	Daycare (through age 4)	10	0.18	25	2	No	
Educational Facilities	Auditoriums	5	0.06	150	0		
Educational Facilities	Lecture Classroom	7.5	0.06	65	1	Yes	*Per ASHRAE, lecture classrooms are spaces with low space generated emissions and hard surfaces. Little off gassing so reduced levels. Most standard classrooms will be lecture classroom type.*
Educational Facilities	Lecture hall (fixed seats)	7.5	0.06	150	1	Yes	*University style (see occupant density)*
Educational Facilities	Libraries	5	0.12	10	n/a	No	
Educational Facilities	Media Center	10	0.12	25	1	No	
Educational Facilities	Multiuse assembly	7.5	0.06	100	1	Yes	
Educational Facilities	Music/theater/dance	10	0.06	35	1	Yes	
Educational Facilities	Science laboratories	10	0.18	25	2	No	
Educational Facilities	University/college laboratories	10	0.18	25	2	No	
Educational Facilities	Sports locker rooms	0	-0.7	0	0	No	
Educational Facilities	Wood/metal shop	10	0.18	20	2	No	
Food and Beverage	Bars, cocktail lounges	7.5	0.18	100	2	No	
Food and Beverage	Cafeteria/fast-food dining	7.5	0.18	100	2	No	
Food and Beverage	Kitchen (cooking)	7.5	0.18	20	2	No	
Food and Beverage	Restaurant dining rooms	7.5	0.18	70	2	No	
Private Dwellings	Toilet rooms - private	0	0	0	0		
Offices	Conference rooms	5	0.06	50	1	Yes	
Offices	Main entry lobbies	5	0.06	10	1	Yes	
Offices	Office spaces	5	0.06	5	1	Yes	
Offices	Reception areas	5	0.06	30	1	Yes	
Offices	Telephone/data entry	5	0.06	60	1	Yes	
Public spaces	Corridors	0	0.06	0			
Public spaces	Shower room	0	0	0			
Public spaces	Toilet rooms - public	0	0	0			
Public Assembly Spaces	Auditorium seating area	5	0.06	150	1	Yes	
Public Assembly Spaces	Libraries	5	0.12	10	1	No	
Public Assembly Spaces	Toilet rooms - public	0	0	0			
Sports and Entertainment	Bowling alley (seating)	10	0.12	40	1	No	
Sports and Entertainment	Disco/dance floors	20	0.06	100	2	Yes	
Sports and Entertainment	Gambling casinos	7.5	0.18	120	1	No	
Sports and Entertainment	Game arcades	7.5	0.18	20	1	No	
Sports and Entertainment	Gym, sports arena (play area)	20	0.18	7	2	No	
Sports and Entertainment	Health club/aerobics room	20	0.06	40	2	No	
Sports and Entertainment	Health club/weight room	20	0.06	10	2	No	
Sports and Entertainment	Spectator areas	7.5	0.06	150	1	Yes	
Sports and Entertainment	Stages, studios	10	0.06	70	1	Yes	
Sports and Entertainment	Swimming (pool and deck)	0	0.48	0	2	No	

Minimum Exhaust Rates				
Occupancy Classification	**Category**	**CFM/fixture**	**CFM/SF**	**Comments**
Educational Facilities	Toilet rooms - public	50	0	20
Educational Facilities	Toilet rooms - private	25	0	
Educational Facilities	Shower rooms	20	0	
Educational Facilities	Sports locker rooms	0	0.5	

Appendix C: Testing, Adjusting and Balancing Report

Newfield Construction
225 Newfield Avenue
Hartford, Connecticut 06106
P: (860) 953-1477
F: (860) 953-1712

Project: 828 - State Project #095-0090
RNV/MAG/EA New London High School
490 Jefferson Ave.
New London , Connecticut 06320

Submittal #23 05 93-1.1 - HVAC Testing & Balancing Report For Phases C1 to C6 23 05 93 - Testing, Adjusting, and Balancing for HVAC

Revision	1	**Submittal Manager**	Andrew Klawitter (Newfield + Downes)
Status	Open	**Date Created**	Sep 11, 2023
Issue Date	Sep 11, 2023	**Spec Section**	23 05 93 - Testing, Adjusting, and Balancing for HVAC
Responsible Contractor	B-G Mechanical Contractors, Inc	**Received From**	Michael Philpott (B-G Mechanical Contractors, Inc)
Received Date		**Submit By**	
Final Due Date	Sep 30, 2023	**Lead Time**	
Sub Job	Phase 3 Construction	**Cost Code**	
Location		**Type**	Testing Data
State Project # 095-0090 RNV/MAG/EA			

Approvers Andrew Klawitter (Newfield + Downes), CES ADMIN (Consulting Engineering Services, Inc.), Eric Gebrian (Consulting Engineering Services, Inc.), David Ferris (Antinozzi Associates), Leo Gutierrez (Antinozzi Associates)

Ball in Court CES ADMIN (Consulting Engineering Services, Inc.), Eric Gebrian (Consulting Engineering Services, Inc.)

Distribution Zachary Wasielak (Newfield Construction Group, LLC), Chris Archer (Newfield + Downes), Brian Messerschmidt (Sustainable Engineering Solutions, LLC)

Description HVAC Testing & Balancing Procedure Submittal

Submittal Workflow

Name	Sent Date	Due Date	Returned Date	Response	Attachments
General Information Attachments					New London High School Additions & Renovations August 28 2023.pdf
Andrew Klawitter		Sep 18, 2023	Sep 11, 2023	Reviewed	
Comment	Newfield & Downes review is for general conformance with the contract documents. Markings and/or comments shall not be construed as relieving the trade contractor from compliance with the contract documents.				
CES ADMIN		Sep 22, 2023		Pending	
Eric Gebrian	Sep 11, 2023	Sep 22, 2023		Pending	
David Ferris		Sep 30, 2023		Pending	
Leo Gutierrez		Sep 30, 2023		Pending	

828 - State Project #095-0090 RNV/MAG/EA - New London High School

490 Jefferson Ave.
New London , Connecticut 06320
United States

Newfield Construction
225 Newfield Avenue
Hartford, Connecticut 06106
United States
(860) 953-1477

Title
HVAC Testing & Balancing Report For Phases C1 to C6

Submittal Manager
Andrew Klawitter

Spec Section
23 05 93 - Testing, Adjusting, and Balancing for HVAC

Type
Testing Data

Number
23 05 93-1

Rev
1

Description
HVAC Testing & Balancing Procedure Submittal

☐ Reviewed/No Exceptions Taken
☐ Rejected ☒ Furnish as Corrected
☐ Submit Specified Item ☐ 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 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. 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.

CONSULTING ENGINEERING SERVICES, INC

Date 9/15/23 By AJS

CES 9/15/23:

1. This shall be the final balancing report for all phases of the project, see comments within report that identify items that were not complete.

Environmental Testing & Balancing, Inc.

154 STATE STREET SUITE 204
NORTH HAVEN, CT 06473
(203) 234-2089 FAX (203) 234-2147

CERTIFIED TESTING and BALANCING REPORT

Date:	August 28, 2023
Project:	New London High School Additions & Renovations
Address:	490 Jefferson Avenue & Chester Street New London Connecticut
Architect:	Antinozzi Associates
Engineer:	Consulting Engineering Services, Inc.
HVAC Contractor:	B-G Mechanical Contractors, Inc.

The data presented in this report is a record of system measurements and final adjustments that have been obtained in accordance with the current edition of the NEBB *Procedural Standard for Testing, Adjusting and Balancing of Environmental Systems*. The measurements shown, and the information given, in this report are certified to be accurate and complete, at the time and date information was gathered. Any variances from design quantities, which exceed NEBB tolerances, are noted in the TAB report project summary.

Submitted and Certified by:
NEBB Professional John E. Burgess

Environmental Testing & Balancing, Inc.
Registration No. 2968

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Glossary

Abbreviation	Meaning	Abbreviation	Meaning
" W.G.	(measured in) Inches Water Gauge	LWT	Leaving Water Temperature
A/C	Air Changes per Hour	MA	Mixed Air
AHU	Air Handling Unit	MAU, MUA	Make-Up Air Unit
AMPS	Amperages	Max	Maximum
BHP	Brake Horsepower	MBH	Thousand BTUs per Hour
BTU	British Thermal Unit	Min	Minimum
CD	Ceiling Diffuser	N/A	Not Available, Not Accessible
CEF	Ceiling Exhaust Fan	No.	Number
CF for DDC	BMS Correction Factor	OA	Outside Air
CFM	Cubic Feet per Minute	OBD	Opposed Blade Damper
CH	Chiller	OD	Outside Diameter
CHWC, CC	Chilled Water Coil, Cooling Coil	OED	Open End Duct
CS	Circuit Setter	PSI	Pounds per Square Inch
CT	Cooling Tower	RA	Return Air
CV	Constant Volume	RCP	Radiant Ceiling Panel
dB	Decibel	Req'd	Required
Dia	Diameter	RG	Return Grille
dP, DP	Differential Pressure	RGD(s)	Register(s), Grille(s), Diffuser(s)
EADB	Entering Air Dry Bulb	RHC	Reheat Coil
EAWB	Entering Air Wet Bulb	Rm Press	Room Pressure
EF	Exhaust Fan	RP	Radiant Panel
EG	Exhaust Grille	RPM	Revolutions per Minute
ER	Exhaust Register	RTU	Roof Top Unit
EWT	Entering Water Temperature	SA	Supply Air
EX / EXH	Exhaust	SD	Supply Diffuser
F	Fahrenheit	SL	Slot
FCU	Fan Coil Unit	SNRKL	Snorkel
FLA	Full Load Amperage	SP	Static Pressure
FPM	Feet per Minute	TADBF	Total Air Delivered by Fan
GPM	Gallons per Minute	TF	Thermafuser
HP	Horsepower	V	Volt / Voltage
HWC, HC	Hot Water Coil, Heating Coil	VAV	Variable Air Volume
HX	Heat Exchanger	VFD	Variable Frequency Drive
kW	Kilowatt		
LADB	Leaving Air Dry Bulb		
LAWB	Leaving Air Wet Bulb		`
LD	Linear Diffuser		

Notes

Measuring with Flow Hood (referencing Air Outlet Test Sheets and Grille, Register & Diffuser Test Sheets):

Registers, diffusers and grilles are read directly in cfm. (Report program indicates 1.00 in Ak Factor column.)

Measuring in Velocity (referencing Air Outlet Test Sheets and Grille, Register & Diffuser Test Sheets):

Ak Factor indicates actual area of registers, following multiplying the Ak by the area equals the actual free area; therefore cfm is calculated and based on this factor (fpm x Ak).

Codes (referencing Air Outlet Test Sheets and Grille, Register & Diffuser Test Sheets):

If codes are not listed here, please reference design drawings.

ENVIRONMENTAL TESTING & BALANCING, INC.

New London High School Additions & Renovations

Remarks

August 28, 2023

DOAS-3 Exhaust
Design is 13650 CFM whereas we tested 11609 CFM, or 85%, at the grilles.

EF-2
Not installed yet.

LEF-1, LEF-2
Fan design is 955 CFM, however, the hood at 100 FPM is 650 CFM. We set the fans for 650 CFM. There is no make up air for the fans.

MAU-1, MAU-2 (November 2021)
All dampers for these systems are wide open. Fan speeds are locked out on the VFD and unable to achieve design air. They are achieving about 50% of design, leaving the space extremely negative. A representative from CaptiveAire needs to adjust fan speeds based on the balancers recommendation. Associated KEFs are at design, and do not need to be adjusted.

MAU-1, MAU-2 (December 2021)
CaptiveAire set up MAU fan speed to operate @ 100% speed in order to maintain neutral pressure within the culinary space. This was done in order to keep the doors from staying open due to the negative pressure of the combined KEFs. CaptiveAire has provided their own CFM reads of how the system currently stands. This was set up to fix the door problem, and should be reviewed by the Engineer before further adjustments are made.

VRF-E1 1176
Design equals 212 CFM whereas we measured 237 CFM, set on high, as a lower speed setting would be too low for the area served.

AIR APPARATUS TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

DOA-1 **DESIGN DATA**

Manufacturer =	Daikin	**Model No. =**	OAHO46GDGM
		Serial No. =	FBOU201100107
Total Scheduled cfm =	19575	**Total Grille cfm =**	19773
Total Static Pressure =	7.61	**External Static Pressure =**	2.00
Fan rpm =	2060	**Brake Horsepower =**	16.57

MOTOR DESIGN DATA **(Typical of 2)**

Horsepower =	20	**Voltage =**	460	**Phase =**	3	**rpm =**	1750

AIR TEST DATA

Total cfm by Velgrid =	23539	**Return Air =**	14266
Total cfm by Grille Readings =	14641		

PRESSURE TEST DATA **@ 60 Hertz**

Total Suction Static Pressure =	-2.14
Total Discharge Static Pressure =	0.62
Total Static Pressure =	2.76
External Suction Static Pressure =	-0.78
External Discharge Static Pressure =	0.62
External Static Pressure =	1.40
Cooling Coil DP =	0.34
Heating Coil DP =	0.32
Filters DP =	0.36

MOTOR TEST DATA **(Typical of 2)** **@ 60 Hertz**

Motor Manufacturer / Frame =	Westinghouse / 256T						
Horsepower =	20	**Phase =**	3	**Voltage =**	460	460	460
Full Load Amps =	23.3			**FLA Corrected for Voltage =**			23.3
Motor rpm =	1770			**Service Factor =**	1.15		
No Load Amps =	9.9	9.8	9.8	**Operating Amps =**	11.0	11.0	11.0
Calculated Brake Horsepower =	6.62						

FAN TEST DATA

Motor Sheave Model / Dia. =	Direct Drive		
Motor Sheave Bore =			
Fan Sheave Model / Dia. =			
Fan Sheave Bore =		**Fan rpm =**	
Adjustable Sheave Dia. =		**Center Line Distance =**	
Belts =			
Filters =	(15) 24x24x2 (15) 24x24x12		
Static Control Setpoint =	**Operate @ 50 Hertz**		

CES 9/14/23: All phases shall be included on this report

AIR OUTLET TEST SHEET

Job Name: New London High School Additions & Renovations

Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Design fpm	Design cfm	First Test	New Req'd	Final fpm	Final cfm
	DOA-1						Note - 111-140 are next phase			
						@ 37 Hertz				
1	1079 se	A	8"	1.00	150	150	148	110	148	148
2	1079 ne	A	8"	1.00	150	150	156	110	156	156
3	1084	A	6"	1.00	35	35	41	26	41	41
4	1079 nw	A	8"	1.00	150	150	146	110	146	146
5	1079 sw	A	8"	1.00	150	150	153	110	153	153
6	1078	A	6"	1.00	70	70	77	52	77	77
7	1064 e	A	8"	1.00	185	185	191	136	191	191
8	1064 w	A	8"	1.00	185	185	179	136	179	179
9	1063 e	A	8"	1.00	185	185	183	136	183	183
10	1063 w	A	8"	1.00	185	185	189	136	189	189
11	1062	E	8x4	1.00	60	60	65	44	65	65
12	1054	A	6"	1.00	35	35	40	26	40	40
13	1053	A	6"	1.00	50	50	55	37	55	55
14	1052	A	6"	1.00	50	50	48	37	48	48
15	1055	A	6"	1.00	35	35	39	26	39	39
16	1038	A	6"	1.00	35	35	37	26	37	37
17	1040	A	8"	1.00	110	110	111	81	111	111
18	1056	A	6"	1.00	35	35	40	26	40	40
19	1057	A	6"	1.00	35	35	41	26	41	41
20	1058	A	6"	1.00	35	35	33	26	33	33
21	1061	A	6"	1.00	70	70	68	52	68	68
22	1059	A	6"	1.00	50	50	56	37	56	56
23	1060	A	6"	1.00	50	50	47	37	47	47
24	1065	A	6"	1.00	50	50	51	37	51	51
25	1051	A	8"	1.00	120	120	128	88	128	128
26	1051	A	6"	1.00	50	50	44	37	44	44
27	1047 s	A	8"	1.00	240	240	236	177	236	236
28	1046	A	6"	1.00	45	45	50	33	50	50
29	1047 n	A	8"	1.00	240	240	244	177	244	244
30	1048 n	A	12"	1.00	260	260	253	191	253	253
31	1048 s	A	12"	1.00	260	260	266	191	266	266
32	1049	A	6"	1.00	35	35	38	26	38	38
33	1050	A	8"	1.00	130	130	133	96	133	133
34	1142	A	6"	1.00	35	35	41	26	41	41
35	1035 e	A	10"	1.00	250	250	267	184	267	267
36	1036 e	A	8"	1.00	195	195	191	143	191	191
37	1036 w	A	8"	1.00	195	195	202	143	202	202

AIR OUTLET TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Design fpm	Design cfm	First Test	New Req'd	Final fpm	Final cfm
38	1035 w	A	10"	1.00	250	250	246	184	246	246
39	1039	A	6"	1.00	70	70	68	52	68	68
40	1032A	A	6"	1.00	95	95	99	70	99	99
41	1033	A	12"	1.00	500	500	491	368	491	491
42	1006	A	6"	1.00	35	35	33	26	33	33
43	1004	A	8"	1.00	200	200	209	147	209	209
44	1031 ne	A	6"	1.00	70	70	71	52	71	71
45	1031 se	A	6"	1.00	70	70	76	52	76	76
46	1031 w	A	6"	1.00	70	70	68	52	68	68
47	1032	A	6"	1.00	35	35	40	26	40	40
48	1038 w	A	10"	1.00	195	195	201	143	201	201
49	1040	A	6"	1.00	50	50	44	37	44	44
50	1041	A	6"	1.00	50	50	47	37	47	47
51	1042	A	6"	1.00	150	150	155	110	155	155
52	1038 e	A	10"	1.00	195	195	189	143	189	189
53	1044	C	6x6	1.00	60	60	57	44	57	57
54	1043	E	6x6	1.00	60	60	63	44	63	63
55	1045	A	6"	1.00	65	65	71	48	71	71
56	1028	A	6"	1.00	60	60	64	44	64	64
57	VRF-B3 OA	OED	8"	0.35	429	150	467	315	467	163
58	1022	A	8"	1.00	25	25	31	18	31	31
59	1018 se	A	8"	1.00	220	220	219	162	219	219
60	1018 ne	A	8"	1.00	220	220	227	162	227	227
61	1018 nw	A	8"	1.00	220	220	231	162	231	231
62	1018 sw	A	8"	1.00	220	220	214	162	214	214
63	1025 se	A	10"	1.00	220	220	222	162	222	222
64	1025 ne	A	10"	1.00	220	220	229	162	229	229
65	1025 nw	A	10"	1.00	220	220	225	162	225	225
66	1025 sw	A	10"	1.00	220	220	220	162	220	220
67	1023	A	6"	1.00	60	60	58	44	58	58
68	1030 nw	A	8"	1.00	160	160	154	118	154	154
69	1030 ne	A	8"	1.00	160	160	163	118	163	163
70	1030 se	A	8"	1.00	160	160	161	118	161	161
71	1030 sw	A	8"	1.00	160	160	152	118	152	152
72	1024 s	A	10"	1.00	285	285	294	210	294	294
73	1008 n	A	6"	1.00	60	60	66	44	66	66
74	1013	A	6"	1.00	35	35	40	26	40	40
75	1024 n	A	10"	1.00	285	285	275	210	275	275
76	1016 e	A	8"	1.00	255	255	251	188	251	251
77	1016 w	A	8"	1.00	255	255	259	188	259	259

AIR OUTLET TEST SHEET

Job Name: New London High School Additions & Renovations

Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Design fpm	Design cfm	First Test	New Req'd	Final fpm	Final cfm
78	1014 n	A	8"	1.00	250	250	242	184	242	242
79	1014 s	A	8"	1.00	250	250	249	184	249	249
80	1012 n	A	8"	1.00	245	245	255	180	255	255
81	1012 s	A	8"	1.00	245	245	241	180	241	241
82	1011 n	A	8"	1.00	250	250	253	184	253	253
83	1011 s	A	8"	1.00	250	250	255	184	255	255
84	1010 e	A	8"	1.00	245	245	251	180	251	251
85	1010 w	A	8"	1.00	245	245	242	180	242	242
86	1008 s	A	6"	1.00	60	60	54	44	54	54
87	1007 n	A	10"	1.00	285	285	276	210	276	276
88	1007 c	A	10"	1.00	285	285	288	210	288	288
89	1007 s	A	10"	1.00	285	285	274	210	274	274
90	1003 n	D	8"	1.00	170	170	177	125	177	177
91	1003 n	D	8"	1.00	170	170	169	125	169	169
92	1209	A	6"	1.00	35	35	38	26	38	38
93	1208	A	6"	1.00	40	40	44	29	44	44
94	1207	A	6"	1.00	35	35	33	26	33	33
95	1203	A	6"	1.00	75	75	71	55	71	71
96	0066	A	6"	1.00	65	65	68	48	68	68
97	0065	A	6"	1.00	65	65	66	48	66	66
98	1205	A	8"	1.00	135	135	143	99	143	143
99	1200	A	6"	1.00	35	35	34	26	34	34
100	1199	E	8x4	1.00	60	60	60	44	60	60
101	1211	A	6"	1.00	35	35	42	26	42	42
102	1210 n	A	6"	1.00	55	55	51	40	51	51
103	1210 s	A	6"	1.00	55	55	58	40	58	58
104	1206	A	6"	1.00	40	40	43	29	43	43
105	1204	A	6"	1.00	40	40	37	29	37	37
106	1202	A	6"	1.00	35	35	31	26	31	31
107	1201	A	6"	1.00	35	35	38	26	38	38
108	1196	A	6"	1.00	35	35	41	26	41	41
109	1195	A	6"	1.00	35	35	33	26	33	33
110	1194	E	6x6	1.00	50	50	51	37	51	51
111	0047	A	6"	1.00	25	25	1	18	0	0
112	0064	A	6"	1.00	40	40	1	29	0	0
113	0046 w	A	12"	1.00	460	460	1	338	0	0
114	0046 e	A	12"	1.00	460	460	1	338	0	0
115	0059	A	6"	1.00	75	75	1	55	0	0
116	0060	E	8x6	1.00	85	85	1	63	0	0
117	0049 nw	A	10"	1.00	250	250	1	184	0	0

AIR OUTLET TEST SHEET

Job Name: New London High School Additions & Renovations

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Outlet Number	Room Number	Code	Size	"Ak" Factor	Design fpm	Design cfm	First Test	New Req'd	Final fpm	Final cfm
118	0044A	E	8x4	1.00	100	100	1	74	0	0
119	0049 sw	A	10"	1.00	250	250	1	184	0	0
120	0050	A	10"	1.00	230	230	1	169	0	0
121	0044	A	6"	1.00	75	75	1	55	0	0
122	0049 ne	A	10"	1.00	250	250	1	184	0	0
123	0049 se	A	10"	1.00	250	250	1	184	0	0
124	0053	A	6"	1.00	35	35	1	26	0	0
125	0051	A	6"	1.00	35	35	1	26	0	0
126	0044	A	8"	1.00	75	75	1	55	0	0
127	0040			1.00	1	1	1	1	0	0
128	0039	A	10"	1.00	270	270	1	199	0	0
129	0037	E	8x6	1.00	60	60	1	44	0	0
130	0038	A	10"	1.00	270	270	1	199	0	0
131	0035	A	6"	1.00	35	35	1	26	0	0
132	0052 e	A	12"	1.00	415	415	1	305	0	0
133	0052 c	A	12"	1.00	415	415	1	305	0	0
134	0052 w	A	6"	1.00	90	90	1	66	0	0
135	0055	A	6"	1.00	35	35	1	26	0	0
136	0057	A	10"	1.00	345	345	1	254	0	0
137	0054	A	6"	1.00	80	80	1	59	0	0
138	0058	A	8"	1.00	145	145	1	107	0	0
139	0061	A	10"	1.00	280	280	1	206	0	0
140	0062	A	10"	1.00	280	280	1	206	0	0
						19901				14641
										74%
	Exhaust						**Note - 72-94 are next phase**			
						@ 46 Hertz				
1	1079 s	B	12x12	1.00	300	300	309	216	309	309
2	1079 n	B	12x12	1.00	300	300	311	216	311	311
3	1076	B	6x6	1.00	70	70	68	50	68	68
4	1060	B	6x6	1.00	50	50	52	36	52	52
5	1059	B	6x6	1.00	50	50	49	36	49	49
6	1058	B	6x6	1.00	35	35	37	25	37	37
7	1065	B	6x6	1.00	70	70	76	50	76	76
8	1061	B	6x6	1.00	75	75	72	54	72	72
9	1062	B	8x4	1.00	60	60	63	43	63	63
10	1054	B	6x6	1.00	35	35	42	25	42	42
11	1052	B	6x6	1.00	70	70	77	50	77	77
12	1055	B	6x6	1.00	35	35	36	25	36	36

CES 9/14/23: All phases shall be included on this report

AIR OUTLET TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Design fpm	Design cfm	First Test	New Req'd	Final fpm	Final cfm
13	1056	B	6x6	1.00	35	35	40	25	40	40
14	1057	B	6x6	1.00	35	35	39	25	39	39
15	1138	B	8x8	1.00	35	35	31	25	31	31
16	1138	B	6x6	1.00	35	35	24	25	24	24
17	1063	B	12x12	1.00	420	420	434	303	434	434
18	1064	B	12x12	1.00	420	420	423	303	423	423
19	1047	L	14x14	1.00	530	530	551	382	551	551
20	1048 w	B	12x12	1.00	235	235	229	169	229	229
21	1048 e	B	12x12	1.00	235	235	234	169	234	234
22	1051	B	8x8	1.00	120	120	116	87	116	116
23	1049	B	6x6	1.00	35	35	44	25	44	44
24	1047	L	6x6	1.00	40	40	41	29	41	41
25	1044	C	6x6	1.00	60	60	58	43	58	58
26	1043	C	6x6	1.00	60	60	62	43	62	62
27	1038	B	12x12	1.00	490	490	508	353	508	508
28	1036	B	12x12	1.00	490	490	514	353	514	514
29	1035	B	14x14	1.00	560	560	548	404	548	548
30	1050	B	8x8	1.00	150	150	144	108	144	144
31	1142	B	6x6	1.00	35	35	39	25	39	39
32	1033	B	14x14	1.00	560	560	555	404	555	555
33	1031	B	8x8	1.00	190	190	202	137	202	202
34	1038	B	6x6	1.00	85	85	91	61	91	91
35	1040	B	6x6	1.00	70	70	72	50	72	72
36	1042	B	6x6	1.00	70	70	66	50	66	66
37	1041	B	12x12	1.00	355	355	337	256	337	337
38	1024	B	14x14	1.00	525	525	514	379	514	514
39	1020	B	14x14	1.00	550	550	545	397	545	545
40	1011	B	14x14	1.00	560	560	569	404	569	569
41	1012	B	14x14	1.00	545	545	540	393	540	540
42	1014	B	14x14	1.00	560	560	553	404	553	553
43	1016	B	16x16	1.00	565	565	577	407	577	577
44	1025	B	18x18	1.00	795	795	806	573	806	806
45	1022	B	6x6	1.00	35	35	41	25	41	41
46	1018	B	20x20	1.00	780	780	776	562	776	776
47	1030 w	B	12x12	1.00	285	285	267	206	267	267
48	1030 e	B	12x12	1.00	285	285	282	206	282	282
49	1007 n	B	12x12	1.00	385	385	379	278	379	379
50	1007 s	B	12x12	1.00	385	385	404	278	404	404
51	1032	B	6x6	1.00	35	35	40	25	40	40
52	1033	B	6x6	1.00	85	85	79	61	79	79

AIR OUTLET TEST SHEET

Job Name: New London High School Additions & Renovations

Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Design fpm	Design cfm	First Test	New Req'd	Final fpm	Final cfm
53	1006	B	6x6	1.00	35	35	31	25	31	31
54	1003 n	B	10x10	1.00	150	150	144	108	144	144
55	1003 s	B	10x10	1.00	150	150	153	108	153	153
56	1211	B	6x6	1.00	35	35	35	25	35	35
57	1209	B	6x6	1.00	35	35	30	25	30	30
58	1208	B	6x6	1.00	40	40	43	29	43	43
59	1210	B	8x8	1.00	100	100	103	72	103	103
60	1207	B	6x6	1.00	35	35	40	25	40	40
61	1206	B	6x6	1.00	40	40	44	29	44	44
62	1204	B	6x6	1.00	40	40	41	29	41	41
63	1203	B	6x6	1.00	75	75	78	54	78	78
64	1202	B	6x6	1.00	35	35	33	25	33	33
65	1201	B	6x6	1.00	35	35	38	25	38	38
66	1199	C	8x4	1.00	60	60	66	43	66	66
67	1198	B	6x6	1.00	70	70	74	50	74	74
68	1197	B	6x6	1.00	70	70	69	50	69	69
69	1196	B	6x6	1.00	35	35	36	25	36	36
70	1195	B	6x6	1.00	35	35	36	25	36	36
71	1194	E	6x6	1.00	50	50	54	36	54	54
72	0047	B	6x6	1.00	40	40	1	29	1	1
73	0046	B	20x20	1.00	1020	1020	1	736	1	1
74	0050	B	10x10	1.00	190	190	1	137	1	1
75	0049 s	B	18x18	1.00	555	555	1	400	1	1
76	0049 n	B	18x18	1.00	555	555	1	400	1	1
77	0044A	C	8x4	1.00	85	85	1	61	1	1
78	0041	C	6x6	1.00	60	60	1	43	1	1
79	0040	C	6x6	1.00	60	60	1	43	1	1
80	0039	B	12x12	1.00	300	300	1	216	1	1
81	0038	B	12x12	1.00	300	300	1	216	1	1
82	0037	C	6x6	1.00	50	50	1	36	1	1
83	0032	C	6x6	1.00	35	35	1	25	1	1
84	0035	B	6x6	1.00	35	35	1	25	1	1
85	0060	B	8x8	1.00	55	55	1	40	1	1
86	0065	B	6x6	1.00	95	95	1	69	1	1
87	0062	B	12x12	1.00	300	300	1	216	1	1
88	0061	B	12x12	1.00	300	300	1	216	1	1
89	0058	B	8x8	1.00	135	135	1	97	1	1
90	0059	C	12x4	1.00	100	100	1	72	1	1
91	0052	B	20x20	1.00	920	920	1	663	1	1
92	0051	B	6x6	1.00	35	35	1	25	1	1

AIR OUTLET TEST SHEET

Job Name: New London High School Additions & Renovations

Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Design fpm	Design cfm	First Test	New Req'd	Final fpm	Final cfm
93	0053	B	6x6	1.00	35	35	1	25	1	1
94	0057	B	12x12	1.00	345	345	1	249	1	1
						19605				14137
										72%

AIR APPARATUS TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

DOA-2 **DESIGN DATA**

Manufacturer =	Daikin	**Model No. =**	OAH037GDGM
Type =	RTU	**Serial No. =**	FBOU220201258
Total Scheduled cfm =	15000	**Total Grille cfm =**	15050
Outside Air cfm =			
Total Static Pressure =	6.93	**External Static Pressure =**	2.00
Fan rpm =	1971	**Brake Horsepower =**	23.75

MOTOR DESIGN DATA

Horsepower =	25	**Voltage =**	460	**Phase =**	3	**rpm =**	1750

AIR TEST DATA

Total cfm by Velgrid =	15525
Total cfm by Grille Readings =	15088

PRESSURE TEST DATA

Total Suction Static Pressure =	-3.48		
Total Discharge Static Pressure =	1.58		
Total Static Pressure =	5.06		
External Suction Static Pressure =	-1.61		
External Discharge Static Pressure =	1.58		
External Static Pressure =	3.19		
Cooling Coil DP =	0.23	**Heating Coil DP =**	0.42
Filters DP =	1.02	**Final Filters DP =**	0.20

MOTOR TEST DATA

Motor Manufacturer / Frame =	Baldor / 284T						
Horsepower =	25	**Phase =**	3	**Voltage =**	460	460	460
Full Load Amps =	30.0			**FLA Corrected for Voltage =**			30.0
Motor rpm =	1775			**Service Factor =**	1.15		
No Load Amps =	8.2	8.2	8.2	**Operating Amps =**	25.6	25.6	25.6
Calculated Brake Horsepower =	20.75						

FAN TEST DATA

Motor Sheave Model / Dia. =	Direct Drive		
Motor Sheave Bore =			
Fan Sheave Model / Dia. =			
Fan Sheave Bore =		**Fan rpm =**	1964
Adjustable Sheave Dia. =		**Center Line Distance =**	
Belts =		**Supply Air Flow Station CF =**	1.03
Filters =	(10) 24x24 Box (10) 20x24x2	**Return Air Flow Station CF =**	2.20
Outside Air Setting =	N/A		
Static Control Setpoint =	1.00" w.g.		

AIR OUTLET TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Design fpm	Design cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
	DOA-2									
1	3034 n	A	10"	1.00	210	210	188	210	205	205
2	3034 s	A	10"	1.00	210	210	230	210	210	210
3	3002 n	A	8"	1.00	95	95	73	95	89	89
4	3033 n	A	10"	1.00	195	195	114	195	197	197
5	3032	A	6"	1.00	65	65	52	65	65	65
6	3017 n	A	6"	1.00	75	75	99	75	77	77
7	3002 s	A	8"	1.00	95	95	52	95	92	92
8	3033 s	A	10"	1.00	195	195	126	195	195	195
9	3031	A	6"	1.00	35	35	52	35	34	34
10	3003 n	A	10"	1.00	190	190	91	190	197	197
11	3030 n	A	10"	1.00	195	195	86	195	194	194
12	3030 s	A	10"	1.00	195	195	87	195	190	190
13	3003 s	A	10"	1.00	190	190	99	190	187	187
14	3004 n	A	10"	1.00	190	190	88	190	188	188
15	3029 n	A	10"	1.00	210	210	137	210	212	212
16	3029 s	A	10"	1.00	210	210	119	210	221	221
17	3004 s	A	10"	1.00	190	190	105	190	194	194
18	3028	E	8x4	1.00	60	60	53	60	64	64
19	3026 n	A	10"	1.00	190	190	77	190	193	193
20	3005 n	A	10"	1.00	190	190	89	190	182	182
21	3027	E	6x6	1.00	60	60	53	60	62	62
22	3005 s	A	10"	1.00	190	190	112	190	194	194
23	3017 s	A	6"	1.00	75	75	48	75	77	77
24	3026 s	A	10"	1.00	190	190	75	190	194	194
25	2032 n	A	10"	1.00	310	310	278	311	301	301
26	2032 s	A	10"	1.00	310	310	222	311	294	294
27	2002 n	A	10"	1.00	320	320	223	321	313	313
28	2031 n	A	10"	1.00	235	235	183	236	234	234
29	2030	A	6"	1.00	65	65	64	65	67	67
30	2031 s	A	10"	1.00	235	235	195	236	237	237
31	2002 s	A	10"	1.00	320	320	205	321	310	310
32	2003 n	A	10"	1.00	210	210	188	210	199	199
33	2017 n	A	6"	1.00	170	170	135	170	175	175
34	2029	A	8"	1.00	155	155	117	155	161	161
35	2028 n	A	10"	1.00	230	230	176	231	234	234
36	2028 s	A	10"	1.00	230	230	140	231	247	247
37	2003 s	A	10"	1.00	210	210	175	210	212	212

AIR OUTLET TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Design fpm	Design cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
38	2004 n	A	10"	1.00	210	210	197	210	205	205
39	2027 n	A	10"	1.00	305	305	168	306	312	312
40	2027 s	A	10"	1.00	305	305	132	306	297	297
41	2023 n	A	10"	1.00	320	320	125	321	305	305
42	2023 s	A	10"	1.00	320	320	125	321	320	320
43	2004 s	A	10"	1.00	210	210	192	210	212	212
44	2005 n	A	10"	1.00	210	210	176	210	220	220
45	2002	E	8x4	1.00	60	60	293	60	63	63
46	2025	E	8x4	1.00	60	60	296	60	59	59
47	2017 s	A	6"	1.00	170	170	147	170	174	174
48	2005 s	A	10"	1.00	210	210	174	210	212	212
49	1090 n	A	8"	1.00	180	180	84	180	183	183
50	1090 s	A	8"	1.00	180	180	245	180	173	173
51	1088A	A	6"	1.00	35	35	37	35	34	34
52	1096	A	6"	1.00	35	35	35	35	36	36
53	1085	A	6"	1.00	35	35	32	35	35	35
54	1093	A	6"	1.00	65	65	58	65	67	67
55	1094 n	A	10"	1.00	210	210	296	210	213	213
56	1088	A	6"	1.00	35	35	53	35	36	36
57	1098 n	A	6"	1.00	65	65	52	65	60	60
58	1087	A	6"	1.00	40	40	47	40	42	42
59	1094 s	A	10"	1.00	210	210	231	210	215	215
60	1095 n	A	10"	1.00	210	210	207	210	221	221
61	1100	A	6"	1.00	35	35	61	35	35	35
62	1104	A	6"	1.00	35	35	94	35	35	35
63	1101	A	6"	1.00	35	35	72	35	37	37
64	1102	A	6"	1.00	35	35	48	35	37	37
65	1095 s	A	10"	1.00	210	210	267	210	212	212
66	1199	A	6"	1.00	35	35	55	35	37	37
67	1104A	A	6"	1.00	35	35	47	35	36	36
68	1104	A	6"	1.00	35	35	49	35	35	35
69	1103 n	A	6"	1.00	35	35	53	35	33	33
70	1103 s	A	6"	1.00	35	35	52	35	33	33
71	1098 s	A	6"	1.00	65	65	68	65	65	65
72	1196 n	A	10"	1.00	210	210	267	210	207	207
73	1196 s	A	10"	1.00	210	210	259	210	215	215
74	1107	A	6"	1.00	35	35	39	35	34	34
75	1109	A	6"	1.00	35	35	48	35	37	37
76	1110	A	6"	1.00	35	35	52	35	35	35
77	1106	A	6"	1.00	35	35	53	35	36	36

AIR OUTLET TEST SHEET

Job Name: New London High School Additions & Renovations
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Outlet Number	Room Number	Code	Size	"Ak" Factor	Design fpm	Design cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
78	1105	A	6"	1.00	35	35	56	35	37	37
79	1197 n	A	10"	1.00	180	180	187	180	182	182
80	1197 s	A	10"	1.00	180	180	192	180	189	189
81	0096 n	A	10"	1.00	210	210	297	210	213	213
82	0096 s	A	10"	1.00	210	210	316	210	210	210
83	0003	A	10"	1.00	220	220	293	220	210	210
84	0027 n	A	6"	1.00	35	35	87	35	35	35
85	0029	A	8"	1.00	85	85	117	85	87	87
86	0033	A	6"	1.00	35	35	86	35	35	35
87	0034	A	8"	1.00	85	85	115	85	85	85
88	0031	A	10"	1.00	215	215	211	215	217	217
89	0004C	A	6"	1.00	35	35	65	35	35	35
90	0004 n	A	8"	1.00	145	145	148	145	151	151
91	0025 n	A	10"	1.00	195	195	270	195	193	193
92	0026	A	6"	1.00	70	70	72	70	67	67
93	0025 s	A	10"	1.00	195	195	280	195	185	185
94	0004 nc	A	8"	1.00	145	145	106	145	145	145
95	0004 sc	A	8"	1.00	150	150	157	150	155	155
96	0021	A	10"	1.00	255	255	269	256	257	257
97	0004 s	A	8"	1.00	145	145	172	145	146	146
98	0005 n	A	10"	1.00	190	190	225	190	191	191
99	0020	A	10"	1.00	255	255	285	256	255	255
100	0027 s	A	6"	1.00	65	65	86	65	65	65
101	0005 s	A	10"	1.00	190	190	269	190	193	193
						15055				15088
										100%
	Exhaust									
1	3034 n	B	10x10	1.00	190	190	107	188	179	179
2	3034 w	B	10x10	1.00	190	190	70	188	183	183
3	3033 n	B	10x10	1.00	175	175	99	173	174	174
4	3033 s	B	10x10	1.00	175	175	87	173	177	177
5	3032	B	6x6	1.00	65	65	49	64	68	68
6	3030 n	B	10x10	1.00	175	175	109	173	172	172
7	3031	B	6x6	1.00	30	30	30	30	31	31
8	3030 n	B	10x10	1.00	175	175	107	173	177	177
9	3029 n	B	10x10	1.00	190	190	72	188	194	194

AIR OUTLET TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Design fpm	Design cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
10	3029 s	B	10x10	1.00	190	190	169	188	199	199
11	3026 n	B	10x10	1.00	170	170	77	168	174	174
12	3028	E	8x4	1.00	60	60	34	59	55	55
13	3027	E	8x4	1.00	60	60	34	59	55	55
14	3026 s	B	10x10	1.00	170	170	60	168	165	165
15	3002 n	B	8x8	1.00	85	85	106	84	79	79
16	3002 e	B	8x8	1.00	85	85	97	84	83	83
17	3003 n	B	10x10	1.00	170	170	272	168	177	177
18	3003 s	B	10x10	1.00	170	170	191	168	179	179
19	3004 n	B	10x10	1.00	190	190	162	188	193	193
20	3004 s	B	10x10	1.00	190	190	159	188	199	199
21	3005 n	B	10x10	1.00	170	170	142	168	170	170
22	3005 s	B	10x10	1.00	170	170	116	168	169	169
23	2032 n	B	12x12	1.00	345	345	337	341	320	320
24	2032 w	B	12x12	1.00	345	345	319	341	332	332
25	2031 n	B	10x10	1.00	260	260	259	257	254	254
26	2031 s	B	10x10	1.00	260	260	252	257	251	251
27	2030	B	6x6	1.00	60	60	71	59	57	57
28	2028 n	B	10x10	1.00	260	260	241	257	250	250
29	2029	B	10x10	1.00	175	175	149	173	170	170
30	2028 s	B	10x10	1.00	260	260	248	257	253	253
31	2027 n	B	12x12	1.00	340	340	216	336	331	331
32	2027 s	B	12x12	1.00	340	340	223	336	342	342
33	2023 n	B	12x12	1.00	355	355	113	351	340	340
34	2023 s	B	12x12	1.00	355	355	125	351	347	347
35	2025	C	8x4	1.00	60	60	64	59	56	56
36	2026	C	8x4	1.00	60	60	62	59	59	59
37	2002 n	B	12x12	1.00	355	355	404	351	339	339
38	2002 s	B	12x12	1.00	355	355	343	351	329	329
39	2003 n	B	10x10	1.00	230	230	279	228	238	238
40	2003 s	B	10x10	1.00	230	230	251	228	231	231
41	2004 n	B	10x10	1.00	235	235	198	232	225	225
42	2004 s	B	10x10	1.00	235	235	232	232	235	235
43	2005 n	B	10x10	1.00	235	235	226	232	225	225
44	2005 s	B	10x10	1.00	235	235	189	232	229	229
45	1090 n	B	10x10	1.00	165	165	249	163	170	170
46	1090 w	B	10x10	1.00	165	165	253	163	165	165
47	1085	B	6x6	1.00	35	35	68	35	35	35
48	1086	B	6x6	1.00	35	35	68	35	36	36
49	1088	B	6x6	1.00	35	35	69	35	34	34

AIR OUTLET TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Design fpm	Design cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
50	1088A	B	6x6	1.00	35	35	74	35	35	35
51	1087	B	6x6	1.00	40	40	40	40	40	40
52	1002	B	6x6	1.00	35	35	36	35	36	36
53	1001	B	6x6	1.00	35	35	34	35	35	35
54	1100	B	6x6	1.00	35	35	68	35	38	38
55	1103A	B	6x6	1.00	35	35	69	35	33	33
56	1103	B	6x6	1.00	30	30	71	30	29	29
57	1104	B	6x6	1.00	35	35	47	35	35	35
58	1104A	B	6x6	1.00	35	35	48	35	37	37
59	1106	B	6x6	1.00	30	30	49	30	31	31
60	1107	B	6x6	1.00	35	35	53	35	35	35
61	1199	B	6x6	1.00	35	35	59	35	37	37
62	1105	B	6x6	1.00	35	35	62	35	34	34
63	1112	B	6x6	1.00	35	35	68	35	36	36
64	1110	B	6x6	1.00	35	35	35	35	35	35
65	1109	B	6x6	1.00	35	35	60	35	35	35
66	1193	B	6x6	1.00	60	60	104	59	64	64
67	1194 n	B	10x10	1.00	235	235	359	232	241	241
68	1194 s	B	10x10	1.00	235	235	354	232	247	247
69	1195 n	B	10x10	1.00	230	230	361	228	235	235
70	1195 s	B	10x10	1.00	230	230	350	228	240	240
71	1196 n	B	10x10	1.00	235	235	350	232	243	243
72	1196 s	B	10x10	1.00	235	235	337	232	231	231
73	1197 n	B	10x10	1.00	165	165	249	163	167	167
74	1197 s	B	10x10	1.00	165	165	237	163	168	168
75	0096 n	B	10x10	1.00	190	190	181	188	187	187
76	0096 s	B	10x10	1.00	190	190	179	188	176	176
77	0034	B	6x6	1.00	75	75	84	74	75	75
78	0029	B	6x6	1.00	75	75	88	74	74	74
79	0025 n	B	10x10	1.00	175	175	157	173	178	178
80	0028	C	6x6	1.00	35	35	74	35	35	35
81	0025 n	B	10x10	1.00	175	175	148	173	176	176
82	0026	B	6x6	1.00	65	65	64	64	65	65
83	0021 n	B	10x10	1.00	255	255	206	252	253	253
84	0021 s	B	10x10	1.00	255	255	147	252	251	251
85	0003	B	10x10	1.00	220	220	230	218	227	227
86	0031	B	10x10	1.00	215	215	197	213	209	209
87	0004C	B	6x6	1.00	30	30	90	30	30	30
88	0004 n	B	10x10	1.00	195	195	152	193	191	191
89	0004 c	B	10x10	1.00	195	195	121	193	183	183

AIR OUTLET TEST SHEET

Job Name: New London High School Additions & Renovations

Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Design fpm	Design cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
90	0004 s	B	10x10	1.00	195	195	145	193	189	189
91	0005 n	B	10x10	1.00	170	170	127	168	172	172
92	0005 s	B	10x10	1.00	170	170	131	168	160	160
						14490				14333
										99%

AIR APPARATUS TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

DOA-3 **DESIGN DATA**

Manufacturer =	Daikin	**Model No. =**	
Type =		**Serial No. =**	
Total Scheduled cfm =	13640	**Total Grille cfm =**	13880
Outside Air cfm =			
Total Static Pressure =	7.61	**External Static Pressure =**	2.00
Fan rpm =	1950	**Brake Horsepower =**	23.13

MOTOR DESIGN DATA

Horsepower =	25	**Voltage =**	460	**Phase =**	3	**rpm =**	1750

AIR TEST DATA

Total cfm by Traverse =	13625
Total cfm by Grille Readings =	13493

PRESSURE TEST DATA

Total Suction Static Pressure =	-5.53		
Total Discharge Static Pressure =	1.50		
Total Static Pressure =		7.03	
External Suction Static Pressure =	-0.70		
External Discharge Static Pressure =	0.82		
External Static Pressure =		1.52	
Cooling Coil DP =	0.69	**Heating Coil DP =**	0.14
Filters DP =	1.04		

MOTOR TEST DATA

Motor Manufacturer / Frame =		Baldor / 284T					
Horsepower =	25	**Phase =**	3	**Voltage =**	460	460	460
Full Load Amps =		30.0		**FLA Corrected for Voltage =**			30.0
Motor rpm =		1775		**Service Factor =**	1.15		
No Load Amps =	12.6	12.6	12.6	**Operating Amps =**	28.3	28.3	28.3
Calculated Brake Horsepower =			23.21				

FAN TEST DATA

Motor Sheave Model / Dia. =	Direct Drive	**@5 4.3 Hertz**	
Motor Sheave Bore =			
Fan Sheave Model / Dia. =			
Fan Sheave Bore =		**Fan rpm =**	1606
Adjustable Sheave Dia. =		**Center Line Distance =**	
Belts =		**Supply Air Flow Station CF =**	
Filters =	(10) 20x25x4 (10) 20x25x2	**Return Air Flow Station CF =**	
Outside Air Setting =		**Outside Air Flow Station CF =**	

AIR OUTLET TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Design fpm	Design cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
	DOA-3									
1	3011 s	A	10"	1.00	195	195	337	185	185	185
2	3013	A	6"	1.00	35	35	151	33	32	32
3	3014 e	A	10"	1.00	190	190	321	181	186	186
4	3014 w	A	10"	1.00	190	190	300	181	183	183
5	3016	E	6x6	0.28	321	90	1747	305	298	83
6	3015 e	A	10"	1.00	190	190	290	181	184	184
7	3015 w	A	10"	1.00	190	190	280	181	178	178
8	3011 n	A	10"	1.00	195	195	344	185	181	181
9	3010 s	A	10"	1.00	190	190	211	181	192	192
10	3010 n	A	10"	1.00	190	190	167	181	189	189
11	3009	A	10"	1.00	315	315	234	299	315	315
12	3017	A	6"	1.00	75	75	142	71	72	72
13	3021 e	A	10"	1.00	190	190	134	181	194	194
14	3021 w	A	10"	1.00	190	190	145	181	190	190
15	3022 s	A	10"	1.00	190	190	186	181	190	190
16	3008	A	10"	1.00	315	315	312	299	307	307
17	3007 s	A	8"	1.00	160	160	124	152	157	157
18	3022 n	A	10"	1.00	190	190	144	181	184	184
19	3023	A	8"	1.00	130	130	167	124	124	124
20	3025 s	A	10"	1.00	190	190	231	181	194	194
21	3007 n	A	8"	1.00	160	160	188	152	161	161
22	3024	A	8"	1.00	135	135	121	128	128	128
23	3025 n	A	10"	1.00	190	190	129	181	186	186
24	2013	A	6"	1.00	35	35	67	33	34	34
25	2014	A	6"	1.00	35	35	89	33	35	35
26	2011 s	A	10"	1.00	190	190	117	181	191	191
27	2015 e	A	10"	1.00	190	190	156	181	187	187
28	2015 w	A	10"	1.00	190	190	181	181	189	189
29	2017A	E	6x6	0.28	321	90	131	305	312	87
30	2016 e	A	10"	1.00	190	190	155	181	181	181
31	2016 w	A	10"	1.00	190	190	199	181	184	184
32	2011 n	A	10"	1.00	190	190	176	181	176	176
33	2017 s	A	6"	1.00	170	170	168	162	171	171
34	2010 s	A	10"	1.00	205	205	186	195	193	193
35	2010 n	A	10"	1.00	205	205	194	195	201	201
36	2021 se	A	10"	1.00	295	295	332	280	307	307
37	2021 sw	A	10"	1.00	295	295	297	280	312	312

AIR OUTLET TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Design fpm	Design cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
38	2009	A	10"	1.00	315	315	253	299	337	337
39	2008	A	10"	1.00	315	315	278	299	324	324
40	2021 ce	A	10"	1.00	295	295	197	280	293	293
41	2022	A	10"	1.00	205	205	164	195	194	194
42	2007 s	A	10"	1.00	205	205	209	195	209	209
43	2021 ne	A	10"	1.00	295	295	312	280	312	312
44	2023 s	A	10"	1.00	320	320	277	304	327	327
45	2017 n	A	6"	1.00	170	170	146	162	170	170
46	2007 n	A	10"	1.00	205	205	189	195	203	203
47	2024	A	10"	1.00	205	205	221	195	194	194
48	2023 n	A	10"	1.00	320	320	296	304	307	307
49	1123 s	A	8"	1.00	150	150	133	143	136	136
50	1125 e	A	8"	1.00	145	145	128	138	130	130
51	1125 w	A	8"	1.00	145	145	152	138	134	134
52	1127	A	6"	1.00	70	70	123	67	63	63
53	1136A	A	6"	1.00	70	70	117	67	62	62
54	1126	A	6"	1.00	35	35	75	33	32	32
55	1123 n	A	8"	1.00	150	150	133	143	138	138
56	1128	A	6"	1.00	65	65	98	62	58	58
57	1122 s	A	8"	1.00	150	150	124	143	137	137
58	1122 n	A	8"	1.00	150	150	145	143	143	143
59	1121	A	10"	1.00	315	315	261	299	283	283
60	1131	A	8"	1.00	125	125	134	119	114	114
61	1136 e	A	8"	1.00	125	125	141	119	115	115
62	1136 w	A	8"	1.00	125	125	139	119	119	119
63	1120	A	10"	1.00	315	315	322	299	301	301
64	1135	A	6"	1.00	35	35	63	33	31	31
65	1134 e	A	6"	1.00	75	75	56	71	68	68
66	1134 w	A	6"	1.00	75	75	43	71	69	69
67	1119 s	A	10"	1.00	180	180	136	171	168	168
68	1133	E	6x6	0.25	240	60	489	228	221	55
69	1132	E	6x6	0.25	240	60	517	228	213	53
70	1119 n	A	10"	1.00	180	180	166	171	165	165
71	1117	A	6"	1.00	35	35	78	33	33	33
72		A	6"	1.00	40	40	91	38	36	36
73	1116	A	6"	1.00	35	35	87	33	37	37
74	1115	A	6"	1.00	35	35	65	33	34	34
75	1108	A	6"	1.00	40	40	56	38	37	37
76	1111	A	6"	1.00	35	35	66	33	34	34
77	1112	A	6"	1.00	35	35	76	33	33	33

AIR OUTLET TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Design fpm	Design cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
78	1114	A	6"	1.00	35	35	45	33	34	34
79	0014	A	8"	1.00	115	115	138	109	118	118
80	0013	E	6x6	0.33	106	35	423	101	112	37
81	0010	A	6"	1.00	65	65	78	62	66	66
82	0015	A	6"	1.00	35	35	34	33	34	34
83	0009 s	A	10"	1.00	140	140	121	133	142	142
84	0017	A	6"	1.00	35	35	128	33	33	33
85	0018	A	6"	1.00	350	350	27	333	34	34
86	0009 n	A	10"	1.00	140	140	128	133	128	128
87	0019	A	6"	1.00	40	40	23	38	36	36
88	0023 s	A	10"	1.00	195	195	211	185	186	186
89	0023 n	A	10"	1.00	195	195	208	185	184	184
90	0022	A	6"	1.00	70	70	67	67	64	64
91	0007	A	6"	1.00	35	35	45	33	32	32
92	0021	A	10"	1.00	255	255	256	242	233	233
						14200				13493
										95%
	Exhaust									
1	3013	B	6x6	1.00	35	35	62	30	31	31
2	3014 e	B	10x10	1.00	170	170	187	144	150	150
3	3014 w	B	10x10	1.00	170	170	249	144	143	143
4	3011 s	B	10x10	1.00	175	175	211	148	156	156
5	3011 n	B	10x10	1.00	175	175	194	148	148	148
6	3010 s	B	10x10	1.00	170	170	104	144	134	134
7	3010 n	B	10x10	1.00	170	170	98	144	151	151
8	3009	B	12x12	1.00	350	350	154	297	313	313
9	3008	B	12x12	1.00	350	350	145	297	301	301
10	3007 s	B	8x8	1.00	145	145	96	123	113	113
11	3007 n	B	8x8	1.00	145	145	84	123	121	121
12	3015 w	B	10x10	1.00	175	175	541	148	143	143
13	3015 e	B	10x10	1.00	175	175	487	148	155	155
14	3016	C	8x6	0.28	321	90	2098	273	288	81
15	3021 w	B	10x10	1.00	175	175	185	148	142	142
16	3021 e	B	10x10	1.00	175	175	149	148	149	149
17	3018	B	6x6	1.00	70	70	111	59	61	61
18	3019	B	6x6	1.00	70	70	112	59	63	63
19	3022 s	B	10x10	1.00	170	170	148	144	142	142
20	3023	B	8x8	1.00	115	115	97	98	89	89

AIR OUTLET TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Design fpm	Design cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
21	3022 n	B	10x10	1.00	170	170	133	144	131	131
22	3024	B	8x8	1.00	120	120	81	102	98	98
23	3025 s	B	10x10	1.00	170	170	121	144	150	150
24	3025 n	B	10x10	1.00	170	170	100	144	157	157
25	2017A	C	8x6	0.28	321	90	231	273	276	77
26	2016 e	B	10x10	1.00	170	170	134	144	142	142
27	2016 w	B	10x10	1.00	170	170	152	144	152	152
28	2014	B	6x6	1.00	30	30	21	25	25	25
29	2011 s	B	10x10	1.00	170	170	212	144	153	153
30	2011 n	B	10x10	1.00	170	170	164	144	143	143
31	2010 s	B	10x10	1.00	250	250	165	212	215	215
32	2010 n	C	10x10	1.00	250	250	158	212	203	203
33	2009	C	12x12	1.00	350	350	142	297	293	293
34	2008	B	12x12	1.00	350	350	172	297	303	303
35	2007 s	B	10x10	1.00	230	230	182	195	182	182
36	2007 n	B	10x10	1.00	230	230	231	195	193	193
37	2015 w	B	10x10	1.00	170	170	132	144	148	148
38	2015 e	B	10x10	1.00	170	170	143	144	135	135
39	2013	B	6x6	1.00	30	30	56	25	26	26
40	2019	B	6x6	1.00	70	70	248	59	61	61
41	2021 sw	B	12x12	1.00	330	330	254	280	267	267
42	2021 se	B	12x12	1.00	330	330	221	280	273	273
43	2019	B	6x6	1.00	70	70	56	59	63	63
44	2022	B	10x10	1.00	230	230	262	195	203	203
45	2021 cw	B	12x12	1.00	330	330	143	280	281	281
46	2021 nw	B	12x12	1.00	330	330	165	280	277	277
47	2023 s	B	12x12	1.00	355	355	176	301	317	317
48	2024	B	10x10	1.00	230	230	182	195	199	199
49	2023 n	B	12x12	1.00	350	350	254	297	311	311
50	1136 e	B	8x8	1.00	125	125	112	106	112	112
51	1136 w	B	8x8	1.00	125	125	141	106	108	108
52	1126	B	6x6	1.00	35	35	34	30	28	28
53	1136A	B	6x6	1.00	70	70	87	59	61	61
54	1127	B	12x12	1.00	70	70	76	59	62	62
55	1125 w	B	12x12	1.00	145	145	121	123	121	121
56	1125 e	B	12x12	1.00	145	145	143	123	116	116
57	1123 s	B	8x8	1.00	135	135	111	115	106	106
58	1123 n	B	8x8	1.00	135	135	132	115	112	112
59	1122 s	B	8x8	1.00	135	135	126	115	115	115
60	1122 n	B	8x8	1.00	135	135	112	115	112	112

AIR OUTLET TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Design fpm	Design cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
61	1121	B	12x12	1.00	350	350	234	297	295	295
62	1120	B	12x12	1.00	350	350	241	297	289	289
63	1119 s	B	8x8	1.00	160	160	143	136	125	125
64	1119 n	B	8x8	1.00	160	160	175	136	131	131
65	1129	B	6x6	1.00	70	70	90	59	54	54
66	1130	B	6x6	1.00	70	70	67	59	55	55
67	1131	B	8x8	1.00	120	120	134	102	93	93
68	1135	B	6x6	1.00	35	35	46	30	32	32
69	1132	C	6x4	0.17	353	60	448	299	300	51
70	1133	C	6x6	0.25	240	60	591	204	211	53
71	1134 w	B	6x6	1.00	70	70	67	59	61	61
72	1115	B	6x6	1.00	30	30	65	25	25	25
73	1116	B	6x6	1.00	30	30	51	25	24	24
74	1134 e	B	6x6	1.00	70	70	43	59	60	60
75	1117	B	6x6	1.00	30	30	53	25	25	25
76	1111	B	6x6	1.00	35	35	46	30	30	30
77	1114	B	6x6	1.00	35	35	32	30	31	31
78	1108A	B	6x6	1.00	40	40	54	34	34	34
79	0013	C	8x6	0.33	106	35	34	90	95	31
80	0010	B	6x6	1.00	65	65	71	55	53	53
81	0009 s	B	8x8	1.00	155	155	121	131	131	131
82	0009 n	B	8x8	1.00	155	155	121	131	127	127
83	0014	B	6x6	1.00	115	115	112	98	94	94
84	0015	B	6x6	0.25	120	30	343	102	102	26
85	0017	B	6x6	1.00	30	30	35	25	26	26
86	0023 s	B	10x10	1.00	195	195	175	165	174	174
87	0023 n	B	10x10	1.00	195	195	199	165	172	172
88	0022	B	6x6	1.00	70	70	45	59	60	60
89	0021	B	10x10	1.00	255	255	290	216	230	230
						13685				11609
										85%

AIR APPARATUS TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

AHU-1 **DESIGN DATA**

Manufacturer =	Daikin	**Model No. =**	OAH054GDGM
		Serial No. =	FBOU201100108
Total Scheduled cfm =	25000	**Total Grille cfm =**	25750
Total Static Pressure =	5.87	**External Static Pressure =**	2.50
Fan rpm =	2091	**Brake Horsepower =**	17.14

MOTOR DESIGN DATA **(Typical of 2)**

Horsepower =	20	**Voltage =**	460	**Phase =**	3	**rpm =**	1750

AIR TEST DATA **@ 60 Hertz** **@ 49 Hertz**

Total cfm by Velgrid =	30810	**Total cfm by Grille Readings =**	25757
Total cfm by Grille Readings =	25757	**Return Air =**	25039

PRESSURE TEST DATA **@ 49 Hertz**

Total Suction Static Pressure =	-2.67		
Total Discharge Static Pressure =	0.47		
Total Static Pressure =	3.14		
External Suction Static Pressure =	-1.53		
External Discharge Static Pressure =	0.47		
External Static Pressure =	2.00		
Cooling Coil DP =	0.36	**Heating Coil DP =**	0.07
Filters DP =	0.37		

MOTOR TEST DATA **(Typical of 2)**

Motor Manufacturer / Frame =	Westinghouse / 256T						
Horsepower =	20	**Phase =**	3	**Voltage =**	460	460	460
Full Load Amps =	23.3			**FLA Corrected for Voltage =**			23.3
Motor rpm =	1770			**Service Factor =**	1.15		
No Load Amps =	9.8	9.8	9.8	**Operating Amps =**	11.0	11.0	11.0
Calculated Brake Horsepower =	6.63						

FAN TEST DATA

Motor Sheave Model / Dia. =	Direct Drive		
Motor Sheave Bore =			
Fan Sheave Model / Dia. =			
Fan Sheave Bore =		**Fan rpm =**	
Adjustable Sheave Dia. =		**Center Line Distance =**	
Belts =			
Filters =	(15) 24x24x2 (15) 24x24x12		
Static Control Setpoint =	**Operate @ 49 Hertz**		

AIR OUTLET TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Design fpm	Design cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
	AHU-1									
						@ 49 Hertz				
1	0090 e	A	8"	1.00	200	200	110	200	110	207
2	0090 ec	A	8"	1.00	200	200	118	200	118	202
3	0090 wc	A	8"	1.00	200	200	103	200	103	196
4	0090 w	A	8"	1.00	200	200	114	200	114	213
5	0093	A	12"	1.00	470	470	143	470	143	468
6	0093	A	12"	1.00	470	470	215	470	215	477
7	0093	A	12"	1.00	470	470	280	470	280	464
8	0093	A	12"	1.00	470	470	294	470	294	471
9	0093	A	12"	1.00	470	470	291	470	291	475
10	0093	A	12"	1.00	470	470	318	470	318	461
11	0093	A	12"	1.00	470	470	305	470	305	468
12	0093	A	12"	1.00	470	470	344	470	344	471
13	0093	A	12"	1.00	470	470	333	470	333	479
14	0093	A	12"	1.00	550	550	390	550	390	541
15	0093	A	12"	1.00	550	550	325	550	325	556
16	0093	A	12"	1.00	550	550	310	550	310	542
17	0093	A	12"	1.00	550	550	328	550	328	553
18	0093	A	12"	1.00	550	550	342	550	342	550
19	0093	A	12"	1.00	550	550	351	550	351	543
20	0093	A	12"	1.00	550	550	355	550	355	548
21	0093	A	14"	1.00	440	440	226	440	226	437
22	0093	A	14"	1.00	440	440	227	440	227	420
23	0093	A	14"	1.00	440	440	245	440	245	447
24	0093	A	14"	1.00	440	440	229	440	229	451
25	0093	A	14"	1.00	440	440	239	440	239	440
26	0093	A	14"	1.00	440	440	252	440	252	433
27	0093	A	14"	1.00	440	440	200	440	200	442
28	0093	A	14"	1.00	440	440	214	440	214	444
29	0093	A	14"	1.00	440	440	223	440	223	436
30	0093	A	14"	1.00	440	440	214	440	214	435
31	0093	A	14"	1.00	440	440	207	440	207	444
32	0093	A	14"	1.00	440	440	197	440	197	450
33	0093	A	12"	1.00	470	470	426	470	426	479
34	0093	A	12"	1.00	470	470	415	470	415	468
35	0093	A	12"	1.00	470	470	409	470	409	471
36	0093	A	12"	1.00	470	470	375	470	375	470
37	0093	A	12"	1.00	470	470	396	470	396	466

AIR OUTLET TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Design fpm	Design cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
38	0093	A	12"	1.00	470	470	371	470	371	475
39	0093	A	12"	1.00	470	470	364	470	364	470
40	0093	A	12"	1.00	470	470	365	470	365	458
41	0093	A	12"	1.00	470	470	367	470	367	461
42	0093	A	12"	1.00	550	550	289	550	289	542
43	0093	A	14"	1.00	440	440	285	440	285	451
44	0093	A	14"	1.00	440	440	327	440	327	432
45	0093	A	12"	1.00	470	470	350	470	350	466
46	0093	A	14"	1.00	440	440	309	440	309	439
47	0093	A	14"	1.00	440	440	315	440	315	442
48	0093	A	14"	1.00	440	440	282	440	282	448
49	0093	A	12"	1.00	470	470	368	470	368	470
50	0093	A	14"	1.00	440	440	359	440	359	445
51	0093	A	14"	1.00	440	440	307	440	307	437
52	0093	A	14"	1.00	440	440	340	440	340	440
53	0093	A	12"	1.00	470	470	395	470	395	484
54	0093	A	12"	1.00	470	470	388	470	388	474
55	0093	A	12"	1.00	470	470	415	470	415	473
56	0093	A	12"	1.00	470	470	367	470	367	463
57	0093	A	12"	1.00	470	470	387	470	387	469
						25750				25757
										100%
	Return									
						@ 54 Hertz				
1	0093 s	B	22x22	1.00	1925	1925	2181	1926	2181	1918
2	0093	B	22x22	1.00	1925	1925	2167	1926	2167	1922
3	0093	B	22x22	1.00	1925	1925	2084	1926	2084	1931
4	0093	B	22x22	1.00	1925	1925	1854	1926	1854	1928
5	0093	B	22x22	1.00	1925	1925	1783	1926	1783	1937
6	0093	B	22x22	1.00	1925	1925	1792	1926	1792	1911
7	0093	B	22x22	1.00	1925	1925	1767	1926	1767	1914
8	0093	B	22x22	1.00	1925	1925	1829	1926	1829	1922
9	0093	B	22x22	1.00	1925	1925	1899	1926	1899	1939
10	0093	B	22x22	1.00	1925	1925	1947	1926	1947	1919
11	0093	B	22x22	1.00	1925	1925	1886	1926	1886	1931
12	0093	B	22x22	1.00	1925	1925	1973	1926	1973	1939
13	0093 n	B	22x22	1.00	1925	1925	1941	1926	1941	1928
						25025				25039
										100%

AIR APPARATUS TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

AHU-2 **DESIGN DATA**

Manufacturer =	Daikin	**Model No. =**	CAH047GDGM
Type =	Centrifugal - Plenum	**Serial No. =**	FBOU201100111
Total Scheduled cfm =	20000		
Outside Air cfm =			
Total Static Pressure =	4.41	**External Static Pressure =**	2.00
Fan rpm =	2091	**Brake Horsepower =**	9.79

MOTOR DESIGN DATA **(Typical of 2)**

Horsepower =	15	**Voltage =**	460	**Phase =**	3	**rpm =**	1750

AIR TEST DATA

Total cfm by Traverse =	20750	**Return Air =**	12696
Outside Air =	1040		

PRESSURE TEST DATA

Total Suction Static Pressure =	-1.26
Total Discharge Static Pressure =	1.48
Total Static Pressure =	2.74
External Suction Static Pressure =	-0.57
External Discharge Static Pressure =	1.48
External Static Pressure =	2.05
Coils DP =	0.61
Filters DP =	0.10

MOTOR TEST DATA **(Typical of 2)**

Motor Manufacturer / Frame =			NEMA / 254T					
Horsepower =	15	**Phase =**	3	**Voltage =**	460	460	460	
Full Load Amps =		35.8		**FLA Corrected for Voltage =**			35.8	
Motor rpm =		1770		**Service Factor =**	1.15			
No Load Amps =	9.1	9.1	9.1	**Operating Amps =**	27.2	27.2	27.2	
Calculated Brake Horsepower =			10.87					

FAN TEST DATA

Motor Sheave Model / Dia. =	Direct Drive		
Motor Sheave Bore =			
Fan Sheave Model / Dia. =			
Fan Sheave Bore =		**Fan rpm =**	1766
Adjustable Sheave Dia. =		**Center Line Distance =**	
Belts =		**Supply Air Flow Station CF =**	1.03
Filters =	(12) 25x25x2		
Outside Air Setting =	5%		

AIR OUTLET TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Design fpm	Design cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
	AHU-2									
1	Branch 1	Trav	72x24	12.00	896	10750	899	893	899	10788
2	Branch 2	Trav	72x24	12.00	833	10000	824	830	824	9888
						20750				20676
										100%
	Return									
1	Branch 1	Trav	24x52	8.70	776	6750	773	776	773	6725
2	Branch 2	Trav	24x52	8.70	690	6000	692	689	692	6020
						12750				12746
										100%

AIR APPARATUS TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

AHU-3 **DESIGN DATA**

Manufacturer =	Daikin	**Model No. =**	OAHO54GDGM
		Serial No. =	FBOU201100109
Total Scheduled cfm =	25000	**Total Grille cfm =**	25000
Total Static Pressure =	6.10	**External Static Pressure =**	2.50
Fan rpm =	2112	**Brake Horsepower =**	17.73

MOTOR DESIGN DATA **(Typical of 2)**

Horsepower =	20	**Voltage =**	460	**Phase =**	3	**rpm =**	1750

AIR TEST DATA

Total cfm by Velgrid =	28463	**@ 60 Hertz**
Total cfm by Grille Readings =	25175	**@ 53 Hertz**

PRESSURE TEST DATA **@ 60 Hertz**

Total Suction Static Pressure =	-3.65		
Total Discharge Static Pressure =	0.90		
Total Static Pressure =		4.55	
External Suction Static Pressure =	-2.08		
External Discharge Static Pressure =	0.90		
External Static Pressure =		2.98	
Cooling Coil DP =	0.61	**Heating Coil DP =**	0.12
Filters DP =	0.42		

MOTOR TEST DATA **(Typical of 2)** **@ 60 Hertz**

Motor Manufacturer / Frame =	Westinghouse / 256T						
Horsepower =	20	**Phase =**	3	**Voltage =**	460	460	460
Full Load Amps =	23.3			**FLA Corrected for Voltage =**			23.3
Motor rpm =	1770			**Service Factor =**	1.15		
No Load Amps =	9.8	9.8	9.8	**Operating Amps =**	13.9	13.9	13.9
Calculated Brake Horsepower =	9.78						

FAN TEST DATA

Motor Sheave Model / Dia. =	Direct Drive		
Motor Sheave Bore =			
Fan Sheave Model / Dia. =			
Fan Sheave Bore =		**Fan rpm =**	
Adjustable Sheave Dia. =		**Center Line Distance =**	
Belts =			
Filters =	(15) 24x24x2 (15) 24x24x12		
Static Control Setpoint =	**Operate @ 53 Hertz**		

AIR OUTLET TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Design fpm	Design cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
	AHU-3									
1	1193 e	F	40"	8.72	956	8335	962	963	962	8389
2	1193 c	F	40"	8.72	955	8330	961	962	961	8380
3	1193 w	F	40"	8.72	956	8335	964	963	964	8406
						25000				25175
										101%

AIR APPARATUS TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

AHU-4 **DESIGN DATA**

Manufacturer =	Daikin	**Model No. =**	OAH018GDGM
Type =	Centrifugal - Plenum	**Serial No. =**	FBOU2012107
Total Scheduled cfm =	7500	**Total Grille cfm =**	7500
Outside Air cfm =			
Total Static Pressure =	5.23	**External Static Pressure =**	2.50
Fan rpm =	2891	**Brake Horsepower =**	5.07

MOTOR DESIGN DATA **(Typical of 2)**

Horsepower =	7.5	**Voltage =**	460	**Phase =**	3	**rpm =**	3500

AIR TEST DATA

Total cfm by Velgrid =	7516	**Total cfm by Grille Readings =**	7470
Outside Air =	508	**Exhaust Air =**	7166

PRESSURE TEST DATA

Total Suction Static Pressure =	-0.73
Total Discharge Static Pressure =	0.35
Total Static Pressure =	1.08
External Suction Static Pressure =	-0.32
External Discharge Static Pressure =	0.35
External Static Pressure =	0.67
Cooling Coil DP =	0.19
Filters DP =	0.22

MOTOR TEST DATA **(Typical of 2)**

Motor Manufacturer / Frame =	NEMA / 184T							
Horsepower =	7.5	**Phase =**	3	**Voltage =**	460	460	460
Full Load Amps =	17.3			**FLA Corrected for Voltage =**			17.3
Motor rpm =	3465			**Service Factor =**	1.15		
No Load Amps =	3.1	3.1	3.1	**Operating Amps =**	9.6	9.6	9.6
Calculated Brake Horsepower =	3.83						

FAN TEST DATA

Motor Sheave Model / Dia. =	Direct Drive		
Motor Sheave Bore =			
Fan Sheave Model / Dia. =			
Fan Sheave Bore =		**Fan rpm =**	3533
Adjustable Sheave Dia. =		**Center Line Distance =**	
Belts =		**Supply Air Flow Station CF =**	1.00
Filters =	(6) 24x24x2 (6) 24x24x4		
Outside Air Setting =	5%		

AIR OUTLET TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Design fpm	Design cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
	AHU-4									
1	1071	C	36x24	4.50	833	3750	833	830	833	3749
2	1071	C	36x24	4.50	833	3750	827	830	827	3722
						7500				7470
										100%
	Exhaust									
1	1071	E	36x24	4.50	833	3750	810	808	810	3645
2	1071	E	36x24	4.50	833	3750	805	808	805	3623
						7500				7268
										97%

AIR APPARATUS TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

HRV-1 **DESIGN DATA**

Manufacturer =	Daikin	**Model No. =**	OAHO21GDGM
		Serial No. =	FBOU201001053
Total Scheduled cfm =	7700	**Total Grille cfm =**	
			7257
Total Static Pressure =	3.84	**External Static Pressure =**	1.75
Fan rpm =	1813	**Brake Horsepower =**	6.81

MOTOR DESIGN DATA **@ 60 Hertz**

Horsepower =	7.5	**Voltage =**	460	**Phase =**	3	**rpm =**	1750

AIR TEST DATA

Total cfm by Traverse =	11935	**Return Air =**	7869
Total cfm by Grille Readings =	7397		

PRESSURE TEST DATA

Total Suction Static Pressure =	-2.72
Total Discharge Static Pressure =	0.71
Total Static Pressure =	3.43
External Suction Static Pressure =	-0.95
External Discharge Static Pressure =	0.71
External Static Pressure =	1.66

Cooling Coil DP =	0.67	**Heating Coil DP =**	0.66
Filters DP =	0.44		

MOTOR TEST DATA **@ 60 Hertz**

Motor Manufacturer / Frame =		Westinghouse / 215T					
Horsepower =	7.5	**Phase =**	3	**Voltage =**	460	460	460
Full Load Amps =		11.7		**FLA Corrected for Voltage =**			11.7
Motor rpm =		1750		**Service Factor =**	1.15		
No Load Amps =	4.9	4.9	4.9	**Operating Amps =**	8.9	8.9	8.9
Calculated Brake Horsepower =			5.23				

FAN TEST DATA

Motor Sheave Model / Dia. =	Direct Drive		
Motor Sheave Bore =			
Fan Sheave Model / Dia. =			
Fan Sheave Bore =		**Fan rpm =**	
Adjustable Sheave Dia. =		**Center Line Distance =**	
Belts =			
Filters =			
Static Control Setpoint =	**Operate @ 40 Hertz**		

AIR OUTLET TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Design fpm	Design cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
	HRV-1									
						@ 40 Hertz				
1	1188 sw	A	8"	1.00	100	100	109	101	109	109
2	1188 nw	A	8"	1.00	100	100	97	101	97	97
3	1187	A	6"	1.00	120	120	128	122	128	128
4	1190	A	6"	1.00	40	40	41	41	41	41
5	1186	A	6"	1.00	35	35	40	35	40	40
6	1179 w	A	6"	1.00	135	135	132	137	132	132
7	1188 nc	A	8"	1.00	100	100	98	101	98	98
8	1188 sc	A	8"	1.00	100	100	106	101	106	106
9	1185	A	10"	1.00	255	255	266	258	266	266
10	1188 ne	A	8"	1.00	100	100	101	101	101	101
11	1188 se	A	8"	1.00	100	100	104	101	104	104
12	1182	A	8"	1.00	110	110	114	111	114	114
13	1184	A	10"	1.00	255	255	249	258	249	249
14	1174	A	10"	1.00	255	255	252	258	252	252
15	1176	A	8"	1.00	110	110	111	111	111	111
16	1170 se	A	8"	1.00	100	100	96	101	96	96
17	1170 nw	A	8"	1.00	100	100	98	101	98	98
18	1173	A	10"	1.00	255	255	257	258	257	257
19	1170 nc	A	8"	1.00	100	100	103	101	103	103
20	1170 sw	A	8"	1.00	100	100	100	101	100	100
21	1171	A	6"	1.00	40	40	42	41	42	42
22	1179 e	A	6"	1.00	135	135	129	137	129	129
23	VRF-B3 1179	OED	6x6	0.20	75	15	105	76	104	21
24	1170 ne	A	8"	1.00	100	100	107	101	107	107
25	1170 se	A	8"	1.00	100	100	102	101	102	102
26	1169 s	A	8"	1.00	135	135	131	137	131	131
27	1163	A	8"	1.00	180	180	177	182	177	177
28	1164	A	8"	1.00	155	155	156	157	156	156
29	1161 nw	A	8"	1.00	145	145	149	147	149	149
30	1161 sw	A	8"	1.00	145	145	142	147	142	142
31	1172	A	6"	1.00	120	120	119	122	119	119
32	1168	A	6"	1.00	35	35	37	35	37	37
33	1169 n	A	8"	1.00	135	135	141	137	141	141
34	1149	A	6"	1.00	110	110	116	111	116	116
35	1151	A	6"	1.00	35	35	28	35	28	28
36	1161 se	A	8"	1.00	145	145	140	147	140	140
37	1152	A	8"	1.00	100	100	96	101	96	96

AIR OUTLET TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Design fpm	Design cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
38	1161 ne	A	8"	1.00	145	145	153	147	153	153
39	1150	A	6"	1.00	110	110	114	111	114	114
40	1154	A	10"	1.00	250	250	259	253	259	259
41	1158	A	6"	1.00	35	35	40	35	40	40
42	1157	A	6"	1.00	35	35	31	35	31	31
43	1155	A	10"	1.00	250	250	269	252	269	269
44	1156	A	6"	1.00	35	35	39	35	39	39
45	1148	A	6"	1.00	35	35	41	35	41	41
46	1147	A	6"	1.00	35	35	42	35	42	42
47	1145 sw	A	8"	1.00	110	110	112	111	112	112
48	1145 se	A	8"	1.00	110	110	114	111	114	114
49	1145 sce	A	8"	1.00	110	110	107	111	107	107
50	1145 scw	A	8"	1.00	110	110	106	111	106	106
51	1145 ncw	A	8"	1.00	110	110	111	111	111	111
52	1145 nce	A	8"	1.00	110	110	103	111	103	103
53	1145 ne	A	8"	1.00	110	110	101	111	101	101
54	1145 nw	A	8"	1.00	110	110	110	111	110	110
55	1139 w	A	12"	1.00	365	365	379	370	379	379
56	1139 c	A	12"	1.00	365	365	359	370	359	359
57	1139 e	A	12"	1.00	365	365	372	370	372	372
						7305				7397
										101%
	Exhaust									
						@ 47 Hertz				
1	1188 w	B	8x8	1.00	215	215	222	219	222	222
2	1187	B	6x6	1.00	140	140	137	143	137	137
3	1190	B	6x6	1.00	35	35	41	36	41	41
4	1186	B	6x6	1.00	35	35	39	36	39	39
5	1188 e	B	8x8	1.00	215	215	219	219	219	219
6	1185	B	12x12	1.00	280	280	286	285	286	286
7	1184	B	12x12	1.00	280	280	283	285	283	283
8	1188 e	B	8x8	1.00	215	215	211	219	211	211
9	1182	B	8x8	1.00	115	115	109	117	109	109
10	1183	B	6x6	1.00	70	70	77	71	77	77
11	1176	B	8x8	1.00	115	115	121	117	121	121
12	1177	B	6x6	1.00	70	70	68	71	68	68
13	1174	B	12x12	1.00	280	280	283	285	283	283
14	1170 w	B	8x8	1.00	215	215	224	219	224	224
15	1173	B	12x12	1.00	280	280	288	285	288	288

AIR OUTLET TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Design fpm	Design cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
16	1170 c	B	8x8	1.00	215	215	217	219	217	217
17	1171	B	6x6	1.00	35	35	40	36	40	40
18	1168	B	6x6	1.00	35	35	33	36	33	33
19	1172	B	8x8	1.00	140	140	145	143	145	145
20	1170 e	B	10x10	1.00	215	215	212	219	212	212
21	1169 n	B	8x8	1.00	135	135	142	138	142	142
22	1169 s	B	8x8	1.00	135	135	136	138	136	136
23	1164	B	8x8	1.00	180	180	178	183	178	178
24	1163	B	10x10	1.00	180	180	174	183	174	174
25	1161 w	B	12x12	1.00	340	340	349	346	349	349
26	1151	B	6x6	1.00	35	35	39	36	39	39
27	1153	B	6x6	1.00	75	75	78	76	78	78
28	1152	B	8x8	1.00	140	140	144	143	144	144
29	1161 e	B	12x12	1.00	340	340	358	346	358	358
30	1154	B	10x10	1.00	280	280	292	285	292	292
31	1155	B	10x10	1.00	280	280	286	285	286	286
32	1156	B	6x6	1.00	35	35	34	36	34	34
33	1157	B	6x6	1.00	35	35	42	36	42	42
34	1158	B	6x6	1.00	35	35	39	36	39	39
35	1148	B	6x6	1.00	35	35	35	36	35	35
36	1147	B	6x6	1.00	35	35	31	36	31	31
37	1145 s	B	16x16	1.00	500	500	489	509	489	489
38	1145 n	B	14x14	1.00	500	500	528	509	528	528
39	1144	B	6x6	1.00	35	35	40	36	40	40
40	1139 w	B	22x22	1.00	600	600	613	611	613	613
41	1139 e	B	22x22	1.00	595	595	587	606	587	587
						7725				7869
										102%

FAN TEST SHEET

Job Name: **New London High School Additions & Renovations**
Tested by: **L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)**

Fan Number	DOA-1 EF		DOA-2 EF		DOA-3 EF	
Serving						
Manufacturer	Daikin		Daikin		Daikin	
Model Number	OAHO46GDGM		OAH037GDGM			
Serial Number	FBOU201100107		FBOU220201258			
	@ 60 Hertz		**@ 60 Hertz**			
	Design	**Test**	**Design**	**Test**	**Design**	**Test**
Total cfm	19700	19901	14750	14677	13675	13083

Suction Static Pressure		-1.90		-1.23		-1.29
Discharge Static Pressure		0.48		0.33		0.37
External Static Pressure	1.50	2.38	1.50	1.56	1.50	1.66
Motor Sheave	Direct Drive		Direct Drive			
Model / Diameter						
Bore						
Fan Sheave						
Model / Diameter						
Bore						
Belts						
Center Line Distance						
	(Typical of 2)					
Motor Manufacturer / Frame	Westinghouse / 215T		Baldor		Baldor / 254T	
Horsepower	10	10	15	15	15	15
Motor rpm	1750	1750	1750	1750	1750	1750
Phase	3	3	3	3	3	3
Voltage	460	460	460	460	460	460
		460		460		460
		460		460		460
Service Factor		1.15		1.15		1.15
Rated Amperage		11.7		18.0		18.2
Corrected for Voltage		11.7		18.0		18.2
No Load Amperage		4.9		6.5		7.6
		4.9		6.5		7.6
		4.9		6.5		7.6
Operating Amperage		8.8		14.4		17.8
		8.8		14.4		17.8
		8.8		14.4		17.8
Brake Horsepower	9.83	6.86	14.06	11.34	13.36	14.58
Fan rpm	2085	@ 60 Hertz	1691	@ 60 Hertz	1645	1770
VFD Setting						@ 60 Hertz

FAN TEST SHEET

Job Name: **New London High School Additions & Renovations**
Tested by: **L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)**

Fan Number	DOA-4 EF		AHU-1 EF		AHU-2 EF	
Serving			Cafeteria			
Manufacturer	Daikin		Daikin		Daikin	
Model Number	DPS006A		OAHO54GDGM		CAH047GDGM	
Serial Number			FBOU201100108		FBOU201100111	
			@ 60 Hertz			
	Design	**Test**	**Design**	**Test**	**Design**	**Test**
Total cfm	1480		25025	27319	20000	12696

Suction Static Pressure				-1.47		-0.89
Discharge Static Pressure				0.41		0.22
External Static Pressure	0.75		1.50	1.88	1.50	1.11
Motor Sheave			Direct Drive		Direct Drive	
Model / Diameter						
Bore						
Fan Sheave						
Model / Diameter						
Bore						
Belts						
Center Line Distance						
					(Typical of 2)	
Motor Manufacturer / Frame			Westinghouse / 254T		NEMA / 213T	
Horsepower	2.3		15	15	7.5	7.5
Motor rpm	N/A		1750	1770	1750	1750
Phase	3		3	3	3	3
Voltage	460		460	460	460	181
				460		181
				460		181
Service Factor				1.15		1.15
Rated Amperage				17.9		17.9
Corrected for Voltage				17.9		45.5
No Load Amperage				7.5		2.1
				7.5		2.1
				7.5		2.1
Operating Amperage				9.0		6.0
				9.0		6.0
				9.0		6.0
Brake Horsepower	0.93		10.36	5.57	4.39	0.84
Fan rpm	2020		1823	@ 60 Hertz	1393	@ 30 Hertz

FAN TEST SHEET

Job Name: **New London High School Additions & Renovations**
Tested by: **L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)**

Fan Number	AHU-3 EF	AHU-4 EF	HRV-1 EF
Serving	Gym		OAH021GDGM
Manufacturer	Daikin	Daikin	Daikin
Model Number	OAHO54GDGM	OAH018GDGM	OAH021001053
Serial Number	FBOU201100109	FBOU201200107	FBOU201001053

	Design	**Test**	**Design**	**Test**	**Design**	**Test**
Total cfm	25000	25065	7500	7166	7700	11333
					@ 47 Hertz = 7725	
Suction Static Pressure	-2.82		-0.90		-1.42	
Discharge Static Pressure	0.24		0.22		0.82	
External Static Pressure	1.50	3.06	1.50	1.12	1.75	2.24
Motor Sheave	Direct Drive		Direct Drive		Direct Drive	
Model / Diameter						
Bore						
Fan Sheave						
Model / Diameter						
Bore						
Belts						
Center Line Distance						
	(Typical of 2)		(Typical of 2)			
Motor Manufacturer / Frame	Westinghouse		NEMA / 184T		Westinghouse / 215T	
Horsepower	15	15	5	5	7.5	7.5
Motor rpm	1750	1770	1750	1740	1750	1750
Phase	3	3	3	3	3	3
Voltage	460	460	460	460	460	460
		460		460		460
		460		460		460
Service Factor	1.15		1.15		1.15	
Rated Amperage	17.9		6.2		9.0	
Corrected for Voltage	17.9		6.2		9.0	
No Load Amperage	7.5		1.5		3.8	
	7.5		1.5		3.8	
	7.5		1.5		3.8	
Operating Amperage	1.0		3.6		7.8	
	1.0		3.6		7.8	
	1.0		3.6		7.8	
Brake Horsepower	10.36	-2.92	1.76	2.62	6.81	6.26
Fan rpm	1823	@ 55 Hertz	2156	@ 60 Hertz	1813	@ 60 Hertz

FAN TEST SHEET

Job Name: **New London High School Additions & Renovations**
Tested by: **L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)**

Fan Number	MAU-1	MAU-2	EF-2
Serving	Culinary Arts L2 0070	Culinary Arts L1 0068	Outdoor Equip Str 0011
Manufacturer	CaptiveAire	CaptiveAire	Cook
Model Number	A4-D.1000-30D	A4-D.1000-30D	100SQB17DH(VF)
Serial Number			

	Design	Test	Design	Test	Design	Test
Total cfm	7400	5670	9840	5688	280	
Total Grille cfm	7380	5662	11150	5687		
Suction Static Pressure		-0.52		-0.49		
Discharge Static Pressure		0.23		0.38		
External Static Pressure	0.75	0.75	0.75	0.87	0.50	
Motor Sheave	Direct Drive		Direct Drive			
Model / Diameter						
Bore						
Fan Sheave						
Model / Diameter						
Bore						
Belts						
Center Line Distance						

Motor Manufacturer / Frame	Westinghouse / 215T		Westinghouse / 254T			
Horsepower	5	5	7.5	7.5	.25	
Motor rpm	N/A	1170	N/A	1170	1725	
Phase	3	3	3	3	1	
Voltage	460	460	460	460	115	
		460		460		
		460		460		
Service Factor		1.15		1.15		
Rated Amperage		7.2		10.1		
Corrected for Voltage		7.2		10.1		
No Load Amperage		3.0		4.2		
		3.0		4.2		
		3.0		4.2		
Operating Amperage		4.1		4.1		
		4.1		4.1		
		4.1		4.1		
Brake Horsepower	2.60	2.30	4.93	1.88	0.06	
Fan rpm	931	N/A	1147	N/A	1400	

CES 9/14/23: All phases shall be included on this report

FAN TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Fan Number	KEF-1		KEF-2		KEF-3	
Serving	Kitchen 0087		Culinary Arts L2 0070		Culinary Arts L2 0070	
Manufacturer	Cook		Cook		Cook	
Model Number	210 CPS		210VX17D		210V17D	
Serial Number	140SJ22751		140SJ22751		140SJ22751	
	Design	**Test**	**Design**	**Test**	**Design**	**Test**
Total cfm	4800	0	1900	2046	5500	6718
Total Grille cfm	2075					
Suction Static Pressure		N/A		N/A		N/A
Discharge Static Pressure		N/A		N/A		N/A
External Static Pressure	2.50	N/A	2.30	N/A	2.50	N/A
Motor Sheave			Direct Drive		Direct Drive	
Model / Diameter	2VP60					
Bore	1 1/8"					
Fan Sheave						
Model / Diameter	5" (OD)					
Bore	(H) 1 7/16"					
Belts	(2) A46					
Center Line Distance	17"					

Motor Manufacturer / Frame	WEG / 182/4T		Westinghouse / 245T		WEG / 213/5T	
Horsepower	5	5	2	2	7.5	7.5
Motor rpm	1725	1750	1725	1740	1725	1770
Phase	3	3	3	3	3	3
Voltage	460	460	460	460	460	460
		460		460		460
		460		460		460
Service Factor		1.15		1.15		1.15
Rated Amperage		6.5		2.7		9.1
Corrected for Voltage		6.5		2.7		9.1
No Load Amperage		0.0		1.1		3.7
		0.0		1.1		3.7
		0.0		1.1		3.7
Operating Amperage		0.0		1.0		0.0
		0.0		1.0		0.0
		0.0		1.0		0.0
Brake Horsepower	2.81	0.00	1.30	0.41	3.56	-1.92
Fan rpm	1335	0	1586	N/A	1441	N/A

FAN TEST SHEET

Job Name: **New London High School Additions & Renovations**
Tested by: **L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)**

Fan Number	KEF-4		KEF-5		KEF-6	
Serving	Culinary Arts Dem 0069		Culinary Arts L1 0068		Culinary Arts L1 0068	
Manufacturer	Cook				Cook	
Model Number	210VX17D				365VX12B	
Serial Number	140SJ22751		140SJ22751		140SJ22751	
	Design	**Test**	**Design**	**Test**	**Design**	**Test**
Total cfm	1900	1935	3500	3569	3500	3599
Suction Static Pressure		N/A		N/A		N/A
Discharge Static Pressure		N/A		N/A		N/A
External Static Pressure	2.30	N/A		N/A	2.50	N/A
Motor Sheave	Direct Drive		Direct Drive		Direct Drive	
Model / Diameter						
Bore						
Fan Sheave						
Model / Diameter						
Bore						
Belts						
Center Line Distance						
Motor Manufacturer / Frame	Westinghouse / 145T		WEG / 182/4T		WEG / 182/4T	
Horsepower	2	2		3	7.5	3
Motor rpm	1725	1740		1765	1725	1765
Phase	3	3		3	3	3
Voltage	460	460		460	460	460
		460		460		460
		460		460		460
Service Factor		1.15		1.15		1.15
Rated Amperage		2.7		3.8		3.8
Corrected for Voltage		2.7		0.0		3.8
No Load Amperage		1.3		1.6		1.6
		1.3		1.6		1.6
		1.3		1.6		1.6
Operating Amperage		1.0		1.0		1.0
		1.0		1.0		1.0
		1.0		1.0		1.0
Brake Horsepower	1.30	0.33		-0.75	4.78	0.20
Fan rpm	1586	N/A		1	N/A	N/A

CES 9/14/23: All phases shall be included on this report

FAN TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Fan Number	KEF-7		DEF-1		LEF-1	
Serving	Culinary Arts L1 0068		Warewashing 0091		Prep Room 2024	
Manufacturer	Cook		Cook		Cook	
Model Number	195V17D		120R28DOR80VF		120TCNHBLE07	
Serial Number	140SJ22751		140SJ22751		140SJ72251/701	
	Design	**Test**	**Design**	**Test**	**Design**	**Test**
Total cfm	5300	5663	600	1	955	610
Total Grille cfm			400			
Suction Static Pressure		N/A		N/A		N/A
Discharge Static Pressure		N/A		N/A		N/A
External Static Pressure	2.50	N/A	1.50	N/A	1.50	N/A
Motor Sheave			Direct Drive			
Model / Diameter	2VP60				MVL40	
Bore	1 1/8"				7/8	
Fan Sheave						
Model / Diameter	2 Groove 5" (OD)				N/A	
Bore	(H) 1 3/16"				N/A	
Belts	(2) A43				A40	
Center Line Distance	15"				15 1/2	

Motor Manufacturer / Frame	WEG / 182/4T		Vari-Flow / USMotors/48		Westinghouse / 143T	
Horsepower	5	5	0.75	0.74	1.5	1.5
Motor rpm	1725	1750	2800	2380	3450	3465
Phase	3	3	1	1	3	3
Voltage	460	460	208	208	460	273
		460				273
		460				273
Service Factor		1.15		1.00		1.15
Rated Amperage		6.5		5.4		2.0
Corrected for Voltage		6.5		5.4		3.4
No Load Amperage		2.7		2.2		0.8
		2.7		0.0		0.8
		2.7				0.8
Operating Amperage		1.0		1.0		1.2
		1.0				1.2
		1.0				1.2
Brake Horsepower	3.73	-0.34	0.50	-0.02	0.95	0.41
Fan rpm	1584	1604	2106	1	2512	N/A
VFD Setting						@ 36 Hertz

FAN TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Fan Number	LEF-2					
Serving	Prep Room 2022					
Manufacturer	Cook					
Model Number	120TCNHBLE07					
Serial Number	140SJ72251/701					

	Design	Test	Design	Test	Design	Test
Total cfm	955	650				

Suction Static Pressure		N/A				
Discharge Static Pressure		N/A				
External Static Pressure	1.50	N/A				
Motor Sheave						
Model / Diameter	MVL40					
Bore	7/8					
Fan Sheave						
Model / Diameter	N/A					
Bore	N/A					
Belts	A40					
Center Line Distance	15 1/2					

Motor Manufacturer / Frame	Westinghouse / 143T					
Horsepower	1.5	1.5				
Motor rpm	3450	3465				
Phase	3	3				
Voltage	460	273				
		273				
		273				
Service Factor		1.15				
Rated Amperage		2.0				
Corrected for Voltage		3.4				
No Load Amperage		0.8				
		0.8				
		0.8				
Operating Amperage		1.2				
		1.2				
		1.2				
Brake Horsepower	0.95	0.40				
Fan rpm	2512	N/A				
VFD Setting		@ 36 Hertz				

GRILLE, REGISTER & DIFFUSER TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Required fpm	Required cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
MAU-1										
1	0070	J	22x96	5.03	328	1650	314	252	314	1579
2	0070	J	22x96	5.03	328	1650	273	252	273	1373
3	0070	J	22x50	2.85	274	780	204	210	204	581
4	0070	J	22x96	5.03	328	1650	176	252	176	885
5	0070	J	22x96	5.03	328	1650	247	252	247	1242
						7380				5662
										77%
MAU-2										
1	0068	J	12"	1.00	500	500	63	255	63	63
2	0068	J	22x90	4.26	364	1550	62	186	62	264
3	0068	J	22x90	4.26	364	1550	66	186	66	281
4	0068	J	22x90	4.26	364	1550	253	186	253	1078
5	0068	J	22x90	4.26	364	1550	301	186	301	1282
6	0068	J	22x124	5.80	328	1900	107	167	107	621
7	0068	J	22x147	6.90	370	2550	304	188	304	2098
						11150				5687
										51%
EF-2										
1	0011	G	10x10	1.00	280	280				
KEF-1										
1	0087 e		12"	1.00	1000	1000				
2	0087 w		12"	1.00	1075	1075				
						2075				
KEF-2										
1	0070		17.5x84	12.25	155	1900	167		167	2046
										108%
KEF-3										
1	0070 s		17.5x84	12.25	155	1900	174	188	174	2132
2	0070C		17.5x56	8.16	214	1750	310	260	310	2530
3	0070 n		17.5x84	12.25	155	1900	168	188	168	2058
						5550				6719
										121%

GRILLE, REGISTER & DIFFUSER TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Required fpm	Required cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
KEF-4										
1	0069		17.5x84	12.25	155	1900	158		158	1936
										102%
KEF-5										
1	0068 n		17.5x70	10.20	172	1750	174	175	174	1775
2	0068 s		17.5x70	10.20	172	1750	176	175	176	1795
						3500				3570
										102%
KEF-6										
1	0068 n		17.5x70	10.20	172	1750	174	177	174	1775
2	0068 s		17.5x70	10.20	172	1750	179	177	179	1826
						3500				3601
										103%
KEF-7										
1	0068 n		17.5x112	16.33	129	2100	140	132	140	2286
2	0068 c		17.5x56	8.16	196	1600	184	202	184	1501
3	0068 s		17.5x70	10.20	176	1800	184	182	184	1877
						5500				5664
										103%
DEF-1										
1	0091 s		8"	1.00	200	200				
2	0091 n		8"	1.00	200	200				
						400				
LEF-1										
1	2024	Fm Hd	52x18	6.50	100	650	171		100	650
										100%
LEF-2										
1	2022	Fm Hd	52x18	6.50	100	650	98		94	611
										94%
AC-B1-G										
1	0028	OED		1.00	500	500				
	Model No.: FAQ18TAVJURZ			Serial No.:			Speed:			

GRILLE, REGISTER & DIFFUSER TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Required fpm	Required cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
AC-B2-M										
1	1133	OED	32x2	0.44	1136	500	1143		1143	503
	Model No.: FAQ18TAVJURZ			Serial No.: E003148			Speed: High			101%
AC-B1-2										
1	2025	OED	26x4	0.72	694	500	707		707	509
	Model No.: FAQ18TAVJURZ			Serial No.: E003146			Speed: High			102%
AC-B1-3										
1	3027	OED	26x4	0.72	694	500	704		704	507
	Model No.: FAQ18TAVJURZ			Serial No.: E003090			Speed: High			101%
AC-A2-M										
1	1044	OED		1.00	500	500				
	Model No.: FAQ18TAVJURZ			Serial No.:			Speed:			
AC-A3-M										
1	1199	OED		1.00	500	500	523		523	523
	Model No.: FAQ124TAVJURZ			Serial No.: E001723			Speed: High			105%
AC-A4-C										
1	0072	OED		1.00	500	500				
	Model No.: FAQ18TAVJURZ			Serial No.:			Speed:			
AC-A2-C										
1	0040	OED		1.00	500	500				
	Model No.: FAQ24TAVJURZ			Serial No.:			Speed:			
VRF-A1										
1	1093	OED	24x24	1.00	436	436	439		439	439
	Model No.: FXFQ12TVJU			Serial No.: C005583			Speed: High			101%

GRILLE, REGISTER & DIFFUSER TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Required fpm	Required cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
VRF-A1										
1	0009	OED	24x24	1.00	436	436	430		430	430
	Model No.: FXFQ12TVJU			Serial No.: C005584			Speed: High			99%
VRF-A1										
1	1150	OED		1.00	436	436	449		449	449
	Model No.: FXFQ12TVJU			Serial No.: C003676			Speed: High			103%
VRF-A1										
1	1142	OED		1.00	436	436	452		452	452
	Model No.: FXFQ30TVJU			Serial No.: C0037499			Speed: High			104%
VRF-A3										
1	0025	OED	24x24	1.00	742	742	750		750	750
	Model No.: FXFQ18TVJU			Serial No.: C008197			Speed: High			101%
VRF-A3										
1	0026	OED	24x24	1.00	742	742	747		747	747
	Model No.: FXFQ18TVJU			Serial No.: C008198			Speed: High			101%
VRF-A3										
1	1107	OED		1.00	742	742				
	Model No.: FXFQ18TVJU			Serial No.:			Speed:			
VRF-A3										
1	1188	OED		1.00	742	742	757		757	757
	Model No.: FXFQ18TVJU			Serial No.: C006957			Speed: High			102%
VRF-A3										
1	1042	OED		1.00	742	742				
	Model No.: FXFQ18TVJU			Serial No.:			Speed:			

GRILLE, REGISTER & DIFFUSER TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Required fpm	Required cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
VRF-A3										
1	0052	OED		1.00	742	742				
	Model No.: FXFQ18TVJU			Serial No.:			Speed:			
VRF-A4										
1	2005	OED	24x24	1.00	777	777	781		781	781
	Model No.: FXFQ24TVJU			Serial No.: C014873			Speed: High			101%
VRF-A4										
1	2004	OED	24x24	1.00	777	777	783		783	783
	Model No.: FXFQ24TVJU			Serial No.: C014871			Speed: High			101%
VRF-A4										
1	2003	OED	24x24	1.00	777	777	778		778	778
	Model No.: FXFQ24TVJU			Serial No.: C014872			Speed: High			100%
VRF-A4										
1	2007	OED	24x24	1.00	777	777	779		779	779
	Model No.: FXFQ24TVJU			Serial No.: C011045			Speed: High			100%
VRF-A4										
1	2010	OED	24x24	1.00	777	777	763		763	763
	Model No.: FXFQ24TVJU			Serial No.: C014874			Speed: High			98%
VRF-A4										
1	2011	OED		1.00	777	777	771		771	771
	Model No.: FXFQ24TVJU			Serial No.: C014862			Speed: High			99%
VRF-A4										
1	1094	OED	24x24	1.00	777	777	779		779	779
	Model No.: FXFQ24TVJU			Serial No.: C014882			Speed: High			100%

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Outlet Number	Room Number	Code	Size	"Ak" Factor	Required fpm	Required cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
VRF-A4										
1	1095	OED	24x24	1.00	777	777	778		778	778
	Model No.: FXFQ24TVJU			Serial No.: C014879			Speed: High			100%
VRF-A4										
1	1096	OED	24x24	1.00	777	777	782		782	782
	Model No.: FXFQ24TVJU			Serial No.: C014883			Speed: High			101%
VRF-A4										
1	1097	OED	24x24	1.00	777	777	781		781	781
	Model No.: FXFQ24TVJU			Serial No.: C014879			Speed: High			101%
VRF-A4										
1	1131	OED	24x24	1.00	777	777	788		788	788
	Model No.: FXFQ24TVJU			Serial No.: C014881			Speed: High			101%
VRF-A4										
1	1123	OED	24x24	1.00	777	777	763		763	763
	Model No.: FXFQ24TVJU			Serial No.: C014861			Speed: High			98%
VRF-A4										
1	1122	OED	24x24	1.00	777	777	733		733	733
	Model No.: FXFQ24TVJU			Serial No.: C015425			Speed: High			94%
VRF-A4										
1	1119	OED		1.00	777	777	773		773	773
	Model No.: FXFQ24TVJU			Serial No.: C014878			Speed: High			99%
VRF-A4										
1	1139	OED		1.00	777	777	789		789	789
	Model No.: FXFQ24TVJU			Serial No.: C012121			Speed: High			102%

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Outlet Number	Room Number	Code	Size	"Ak" Factor	Required fpm	Required cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
VRF-A4										
1	1139	OED		1.00	777	777	794		794	794
	Model No.: FXFQ24TVJU			Serial No.: C012602			Speed: High			102%
VRF-A4										
1	1162	OED		1.00	777	777				
	Model No.: FXFQ24TVJU			Serial No.:			Speed:			
VRF-A4										
1	1163	OED		1.00	777	777				
	Model No.: FXFQ24TVJU			Serial No.:			Speed:			
VRF-A4										
1	1161	OED		1.00	777	777	784		784	784
	Model No.: FXFQ24TVJU			Serial No.: C012122			Speed: High			101%
VRF-A4										
1	1010	OED		1.00	777	777	781		781	781
	Model No.: FXFQ24TVJU			Serial No.: C012123			Speed: High			101%
VRF-A4										
1	0049	OED		1.00	777	777				
	Model No.: FXFQ24TVJU			Serial No.:			Speed:			
VRF-A4										
1	0037	OED		1.00	777	777				
	Model No.: FXFQ24TVJU			Serial No.:			Speed:			
VRF-A4										
1	0046	OED		1.00	777	777				
	Model No.: FXFQ24TVJU			Serial No.:			Speed:			

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Outlet Number	Room Number	Code	Size	"Ak" Factor	Required fpm	Required cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
VRF-A4										
1	0003	OED	24x24	1.00	777	777	779		779	779
	Model No.: FXFQ24TVJU			Serial No.: C014865			Speed: High			100%
VRF-A4										
1	0031	OED	24x24	1.00	777	777	782		782	782
	Model No.: FXFQ24TVJU			Serial No.: C014865			Speed: High			101%
VRF-A5										
1	3025	OED	24x24	1.00	1112	1112	1106		1106	1106
	Model No.: FXFQ30TVJU			Serial No.: C009377			Speed: High			99%
VRF-A5										
1	3033	OED		1.00	1112	1112	1132		1132	1132
	Model No.: FXFQ30TVJU			Serial No.: C009368			Speed: High			102%
VRF-A5										
1	3022	OED	24x24	1.00	1112	1112	1068		1068	1068
	Model No.: FXFQ30TVJU			Serial No.: C009366			Speed: High			96%
VRF-A5										
1	3030	OED	24x24	1.00	1112	1112	1132		1132	1132
	Model No.: FXFQ30TVJU			Serial No.: C009368			Speed: High			102%
VRF-A5										
1	3003	OED	24x24	1.00	1112	1112	1142		1142	1142
	Model No.: FXFQ30TVJU			Serial No.: C009346			Speed: High			103%
VRF-A5										
1	3007	OED		1.00	1112	1112				
	Model No.: FXFQ30TVJU			Serial No.:			Speed:			

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Outlet Number	Room Number	Code	Size	"Ak" Factor	Required fpm	Required cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
VRF-A5										
1	3010	OED		1.00	1112	1112	1123		1123	1123
	Model No.: FXFQ30TVJU			Serial No.: C009362			Speed: High			101%
VRF-A5										
1	3004	OED	24x24	1.00	1112	1112	1132		1132	1132
	Model No.: FXFQ30TVJU			Serial No.: C009345			Speed: High			102%
VRF-A5										
1	3011	OED		1.00	1112	1112	1131		1131	1131
	Model No.: FXFQ30TVJU			Serial No.: C009385			Speed: High			102%
VRF-A5										
1	3005	OED	24x24	1.00	1112	1112	1130		1130	1130
	Model No.: FXFQ30TVJU			Serial No.: C009347			Speed: High			102%
VRF-A5										
1	3015	OED		1.00	1112	1112	1085		1085	1085
	Model No.: FXFQ30TVJU			Serial No.: C009380			Speed: High			98%
VRF-A5										
1	3021	OED		1.00	1112	1112	1142		1142	1142
	Model No.: FXFQ30TVJU			Serial No.: C009384			Speed: High			103%
VRF-A5										
1	2031	OED	24x24	1.00	1112	1112	1122		1122	1122
	Model No.: FXFQ30TVJU			Serial No.: C009383			Speed: High			101%
VRF-A5										
1	2028	OED	24x24	1.00	1112	1112	1125		1125	1125
	Model No.: FXFQ30TVJU			Serial No.: C009376			Speed: High			101%

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Outlet Number	Room Number	Code	Size	"Ak" Factor	Required fpm	Required cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
VRF-A5										
1	2015	OED	24x24	1.00	1112	1112	1123		1123	1123
	Model No.: FXFQ30TVJU			Serial No.: C010044			Speed: High			101%
VRF-A5										
1	2016	OED		1.00	1112	1112				
	Model No.: FXFQ30TVJU			Serial No.:			Speed:			
VRF-A5										
1	1136	OED	24x24	1.00	1112	1112	1089		1089	1089
	Model No.: FXFQ30TVJU			Serial No.: C009361			Speed: High			98%
VRF-A5										
1	1125	OED	24x24	1.00	1112	1112	1092		1092	1092
	Model No.: FXFQ30TVJU			**Serial No.:**			Speed: High			98%
VRF-A5										
1	1090	OED		1.00	1112	1112				
	Model No.: FXFQ30TVJU			Serial No.:			Speed:			
VRF-A5										
1	0005	OED	24x24	1.00	1112	1112	1113		1113	1113
	Model No.: FXFQ30TVJU			Serial No.: C009381			Speed: High			100%
VRF-A5										
1	0023	OED	24x24	1.00	1112	1112	1155		1155	1155
	Model No.: FXFQ30TVJU			Serial No.: C009386			Speed: High			104%
VRF-A5										
1	0003	OED		1.00	1112	1112	1137		1137	1137
	Model No.: FXFQ30TVJU			Serial No.: C007498			Speed: High			102%

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Outlet Number	Room Number	Code	Size	"Ak" Factor	Required fpm	Required cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
VRF-A5										
1	0003	OED		1.00	1112	1112	1141		1141	1141
	Model No.: FXFQ30TVJU			Serial No.: C007385			Speed: High			103%
VRF-A5										
1	0003	OED		1.00	1112	1112				
	Model No.: FXFQ30TVJU			Serial No.:			Speed:			
VRF-A5										
1	0079	OED		1.00	1112	1112				
	Model No.: FXFQ30TVJU			Serial No.:			Speed:			
VRF-A5										
1	0079	OED		1.00	1112	1112				
	Model No.: FXFQ30TVJU			Serial No.:			Speed:			
VRF-A5										
1	0079	OED		1.00	1112	1112				
	Model No.: FXFQ30TVJU			Serial No.:			Speed:			
VRF-A5										
1	0079	OED		1.00	1112	1112				
	Model No.: FXFQ30TVJU			Serial No.:			Speed:			
VRF-A5										
1	0051	OED		1.00	1112	1112				
	Model No.: FXFQ30TVJU			Serial No.:			Speed:			
VRF-A5										
1	0047	OED		1.00	1112	1112				
	Model No.: FXFQ30TVJU			Serial No.:			Speed:			

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Outlet Number	Room Number	Code	Size	"Ak" Factor	Required fpm	Required cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
VRF-A6										
1	3029	OED	24x24	1.00	1165	1165	1174		1174	1174
	Model No.: FXFQ36TVJU			Serial No.: C009379			Speed: High			101%
VRF-A6										
1	3014	OED		1.00	1165	1165	1094		1094	1094
	Model No.: FXFQ36TVJU			Serial No.: C010799			Speed: High			94%
VRF-A6										
1	2032	OED	24x24	1.00	1165	1165	1168		1168	1168
	Model No.: FXFQ36TVJU			Serial No.: C011017			Speed: High			100%
VRF-A6										
1	2002	OED	24x24	1.00	1165	1165	1167		1167	1167
	Model No.: FXFQ36TVJU			Serial No.: C011048			Speed: High			100%
VRF-A6										
1	2027	OED	24x24	1.00	1165	1165	1175		1175	1175
	Model No.: FXFQ36TVJU			Serial No.: C011019			Speed: High			101%
VRF-A6										
1	2023	OED	24x24	1.00	1165	1165	1169		1169	1169
	Model No.: FXFQ36TVJU			Serial No.: C011043			Speed: High			100%
VRF-A6										
1	2021	OED		1.00	1165	1165				
	Model No.: FXFQ36TVJU			Serial No.:			Speed:			
VRF-A6										
1	0096	OED	24x24	1.00	1165	1165	1165		1165	1165
	Model No.: FXFQ36TVJU			Serial No.: C011050			Speed: High			100%

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Outlet Number	Room Number	Code	Size	"Ak" Factor	Required fpm	Required cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
VRF-A6										
1	0021	OED	24x24	1.00	1165	1165	1175		1175	1175
	Model No.: FXFQ36TVJU			Serial No.: C011039			Speed: High			101%
VRF-A6										
1	0021	OED	24x24	1.00	1165	1165	1168		1168	1168
	Model No.: FXFQ36TVJU			Serial No.: C011049			Speed: High			100%
VRF-A6										
1	0021	OED	24x24	1.00	1165	1165	1164		1164	1164
	Model No.: FXFQ36TVJU			Serial No.: C011049			Speed: High			100%
VRF-A6										
1	0020	OED	24x24	1.00	1165	1165	1172		1172	1172
	Model No.: FXFQ36TVJU			Serial No.: C011035			Speed: High			101%
VRF-A6										
1	0004	OED	24x24	1.00	1165	1165	1163		1163	1163
	Model No.: FXFQ36TVJU			Serial No.: C011044			Speed: High			100%
VRF-A6										
1	0004	OED	24x24	1.00	1165	1165	1174		1174	1174
	Model No.: FXFQ36TVJU			Serial No.: C011051			Speed: High			101%
VRF-A6										
1	1145	OED		1.00	1165	1165	1178		1178	1178
	Model No.: FXFQ36TVJU			Serial No.: C008699			Speed: High			101%
VRF-A6										
1	1145	OED		1.00	1165	1165	1187		1187	1187
	Model No.: FXFQ36TVJU			Serial No.: C008938			Speed: High			102%

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Outlet Number	Room Number	Code	Size	"Ak" Factor	Required fpm	Required cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
VRF-A6										
1	1145	OED		1.00	1165	1165	1174		1174	1174
	Model No.: FXFQ36TVJU			Serial No.: C008991			Speed: High			101%
VRF-A6										
1	1210	OED		1.00	1165	1165	1188		1188	1188
	Model No.: FXFQ36TVJU			Serial No.: C008702			Speed: High			102%
VRF-A6										
1	1016	OED		1.00	1165	1165	1179		1179	1179
	Model No.: FXFQ36TVJU			Serial No.: C008975			Speed: High			101%
VRF-A6										
1	0057	OED		1.00	1165	1165				
	Model No.: FXFQ36TVJU			Serial No.:			Speed:			
VRF-A7										
1	3002	OED	24x24	1.00	1218	1218	1227		1227	1227
	Model No.: FXFQ48TVJU			Serial No.: C006118			Speed:			101%
VRF-A7										
1	1014	OED		1.00	1218	1218	1238		1238	1238
	Model No.: FXFQ48TVJU			Serial No.: C004909			Speed: High			102%
VRF-A7										
1	1012	OED		1.00	1218	1218	1244		1244	1244
	Model No.: FXFQ48TVJU			Serial No.: C004789			Speed: High			102%
VRF-A7										
1	1011	OED		1.00	1218	1218	1228		1228	1228
	Model No.: FXFQ48TVJU			Serial No.: C004787			Speed: High			101%

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Outlet Number	Room Number	Code	Size	"Ak" Factor	Required fpm	Required cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
VRF-A7										
1	1030	OED		1.00	1218	1218	1239		1239	1239
	Model No.: FXFQ48TVJU			Serial No.: C004812			Speed: High			102%
VRF-A7										
1	1030	OED		1.00	1218	1218	1244		1244	1244
	Model No.: FXFQ48TVJU			Serial No.: C004812			Speed: High			102%
VRF-A7										
1	0017	OED		1.00	1218	1218				
	Model No.: FXFQ48TVJU			Serial No.:			Speed:			
VRF-B1										
1	1110	OED		1.00	317	317				
	Model No.: FXMQ07PBVJU			Serial No.:			Speed:			
VRF-B1										
1	1109	OED		1.00	317	317				
	Model No.: FXMQ07PBVJU			Serial No.:			Speed:			
VRF-B1										
1	1116	OED		1.00	317	317				
	Model No.: FXMQ07PBVJU			Serial No.:			Speed:			
VRF-B1										
1	1087	OED		1.00	317	317				
	Model No.: FXMQ07PBVJU			Serial No.:			Speed:			
VRF-B1										
1	1008	OED		1.00	317	317				
	Model No.: FXMQ07PBVJU			Serial No.:			Speed:			

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Outlet Number	Room Number	Code	Size	"Ak" Factor	Required fpm	Required cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
VRF-B1										
1	1087 w	A	6"	1.00	75	75	74	75	75	75
2	1087 e	A	6"	1.00	75	75	78	75	76	76
3	1086	A	6"	1.00	75	75	72	75	74	74
4	1085	A	6"	1.00	75	75	73	75	74	74
						300				299
	Model No.: FXMQ07PBVJU			Serial No.: E013493			Speed: High			100%
Return										
1	1086	B	6x6	1.00	75	75	77	74	76	76
2	1085	B	6x6	1.00	75	75	69	74	72	72
3	1087	B	8x8	1.00	150	150	152	149	149	149
						300				297
										99%
VRF-B1										
1	1109	A	2408	1.00	105	105	104	103	104	104
2	1110	A	2408	1.00	105	105	101	103	101	101
						210				205
	Model No.: FXMQ07PBVJU			Serial No.: E013486			Speed: High			98%
Return										
1	1109	B	8x8	1.00	105	105	103	105	103	103
2	1110	B	8x8	1.00	105	105	106	105	106	106
						210				209
										100%
VRF-B1										
1	1116	A	6"	1.00	75	75	74	74	74	74
2	1107	A	6"	1.00	75	75	67	74	67	67
3	1108	A	8"	1.00	150	150	151	149	151	151
						300				292
	Model No.: FXMQ07PBVJU			Serial No.: E012123			Speed: High			97%
Return										
1	1116	B	6x6	1.00	75	75	72	74	72	72
2	1107	B	6x6	1.00	75	75	63	74	63	63
3	1108	B	8x8	1.00	150	150	140	149	140	140
						300				275
										92%

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Outlet Number	Room Number	Code	Size	"Ak" Factor	Required fpm	Required cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
VRF-B2										
1	1100	OED		1.00	317	317				
	Model No.: FXMQ09PBVJU			Serial No.:			Speed:			
VRF-B2										
1	1061	OED		1.00	317	317				
	Model No.: FXMQ09PBVJU			Serial No.:			Speed:			
VRF-B2										
1	1100	A	6"	1.00	75	75	69	75	74	74
2	1104	A	6"	1.00	50	50	46	50	50	50
3	1104A	A	6"	1.00	50	50	47	50	52	52
4	1099 n	A	6"	1.00	40	40	38	40	41	41
5	1099 s	A	6"	1.00	40	40	37	40	39	39
						255				256
	Model No.: FXMQ09PBVJU			Serial No.: E013491			Speed: High			100%
Return										
1	1100	B	6x6	1.00	75	75	65	75	77	77
2	1099	B	8x8	1.00	125	125	144	124	133	133
						200				210
										105%
VRF-B2										
1	1054	OED		1.00	317	317				
	Model No.: FXMQ09PBVJU			Serial No.:			Speed:			
VRF-B2										
1	1061 n	A	6"	1.00	50	50				
2	1061 s	A	6"	1.00	75	75				
3	1058	A	6"	1.00	50	50				
4	1059	A	6"	1.00	50	50				
5	1060	A	6"	1.00	50	50				
						275				
	Model No.: FXMQ09PBVJU			Serial No.:			Speed:			

GRILLE, REGISTER & DIFFUSER TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Required fpm	Required cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
Return										
1	1061	B	8x8	1.00	125	125				
2	1058	B	6x6	1.00	50	50				
3	1059	B	6x6	1.00	50	50				
4	1060	B	6x6	1.00	50	50				
						275				
VRF-B2										
1	1054 s	A	6"	1.00	50	50				
2	1054 n	A	6"	1.00	75	75				
3	1055	A	6"	1.00	50	50				
4	1056	A	6"	1.00	75	75				
5	1057	A	6"	1.00	50	50				
						300				
	Model No.: FXMQ09PBVJU			Serial No.:			Speed:			
Return										
1	1054	B	8x8	1.00	125	125				
2	1057	B	6x6	1.00	50	50				
3	1056	B	6x6	1.00	50	50				
4	1055	B	6x6	1.00	75	75				
						300				
VRF-B3										
1	1019	A	6"	1.00	115	115				
2	1020	A	6"	1.00	50	50				
3	1027	A	6"	1.00	50	50				
4	1026	A	6"	1.00	50	50				
5	1021	A	6"	1.00	50	50				
						315				
	Model No.: FXMQ12PBVJU			Serial No.:			Speed:			
Return										
1	1019	B	8x8	1.00	165	165				
2	1027	B	6x6	1.00	85	85				
3	1020	B	6x6	1.00	85	85				
4	1021	B	6x6	1.00	85	85				
5	1026	B	6x6	1.00	85	85				
						505				

GRILLE, REGISTER & DIFFUSER TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Required fpm	Required cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
VRF-B3										
1	1019	OED		1.00	450	450				
	Model No.: FXMQ09PBVJU			Serial No.:			Speed:			
VRF-B3										
1	1006	OED		1.00	450	450				
	Model No.: FXMQ12PBVJU			Serial No.:			Speed:			
VRF-B3										
1	1032A	A	12"	1.00	315	315				
	Model No.: FXMQ12PBVJU			Serial No.:			Speed:			
VRF-B3										
1	1179	A	6"	1.00	80	80				
2	1179	A	6"	1.00	80	80				
3	1179	A	6"	1.00	80	80				
4	1179	A	6"	1.00	75	75				
						315				
	Model No.: FXMQ12PBVJU			Serial No.:			Speed:			
VRF-B6										
1	1048 e	A	12"	1.00	400	400	411	410	411	411
2	1048 w	A	12"	1.00	400	400	409	410	409	409
						800				820
	Model No.: FXMQ24PBVJU			Serial No.: E007963			Speed: High			103%
VRF-B6										
1	1048 e	A	12"	1.00	400	400	407	411	407	407
2	1048 w	A	12"	1.00	400	400	414	411	414	414
						800				821
	Model No.: FXMQ24PBVJU			Serial No.: E007962			Speed: High			103%

GRILLE, REGISTER & DIFFUSER TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Required fpm	Required cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
VRF-B6										
1	1031	A	10"	1.00	400	400	391			
2	1031	A	10"	1.00	400	400	414		414	414
						800				104%
	Model No.: FXMQ24PBVJU			Serial No.: E007953			Speed: High			
Return										
1	1031	B	14x14	1.00	400	400				
2	1031	B	14x14	1.00	400	400				
						800				
VRF-B9										
1	1018 e	A	10"	1.00	250	250	243	251	243	243
2	1018 ec	A	10"	1.00	250	250	259	251	259	259
3	1018 wc	A	10"	1.00	250	250	252	251	252	252
4	1018 w	A	10"	1.00	250	250	248	251	248	248
						1000				1002
	Model No.: FXMQ36PBVJU			Serial No.: E0019179			Speed: High			100%
Return										
1	1018 s	B	22x22	1.00	495	495	501	492	501	501
2	1018 n	B	22x22	1.00	490	490	478	487	478	478
						985				979
										99%
VRF-B9										
1	1018 e	A	10"	1.00	250	250	255	251	255	255
2	1018 ec	A	10"	1.00	250	250	253	251	253	253
3	1018 wc	A	10"	1.00	250	250	245	251	245	245
4	1018 w	A	10"	1.00	250	250	250	251	250	250
						1000				1003
	Model No.: FXMQ36PBVJU			Serial No.: E0019178			Speed: High			100%
Return										
1	1018 s	B	22x22	1.00	495	495	499	494	499	499
2	1018 n	B	22x22	1.00	490	490	484	489	484	484
						985				983
										100%

GRILLE, REGISTER & DIFFUSER TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Required fpm	Required cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
VRF-B9										
1	1025 se	A	10"	1.00	250	250	253	252	253	253
2	1025 ne	A	10"	1.00	250	250	259	252	259	259
3	1025 sw	A	10"	1.00	250	250	246	252	246	246
4	1025 nw	A	10"	1.00	250	250	251	252	251	251
						1000				1009
	Model No.: FXMQ36PBVJU			Serial No.: E0019897			Speed: High			101%
VRF-B9										
1	1025 se	A	10"	1.00	250	250	257	251	257	257
2	1025 ne	A	10"	1.00	250	250	252	251	252	252
3	1025 sw	A	10"	1.00	250	250	244	251	244	244
4	1025 nw	A	10"	1.00	250	250	251	251	251	251
						1000				1004
	Model No.: FXMQ36PBVJU			Serial No.: E0019906			Speed: High			100%
VRF-B10										
1	1007 sw	A	10"	1.00	200	200				
2	1007 cw	A	10"	1.00	200	200				
3	1007 nw	A	10"	1.00	200	200				
4	1007 se	A	10"	1.00	200	200				
5	1007 ce	A	10"	1.00	200	200				
6	1007 ne	A	10"	1.00	200	200				
						1200				
	Model No.: FXMQ48PBVJU			Serial No.:			Speed:			
Return										
1	1007 s	B	18x18	1.00	600	600				
2	1007 n	B	18x18	1.00	600	600				
						1200				

GRILLE, REGISTER & DIFFUSER TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Required fpm	Required cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
VRF-B11										
1	1024 nw	A	10"	1.00	300	300	307	305	307	307
2	1024 cw	A	10"	1.00	325	325	333	331	333	333
3	1024 sw	A	10"	1.00	325	325	321	331	321	321
4	1024 e	A	10"	1.00	325	325	336	331	336	336
						1275				1297
	Model No.: FXMQ54PBVJU			Serial No.: E0019906			Speed: High			102%
Return										
1	1024 e	B	18x18	1.00	625	625	614	628	614	614
2	1024 w	B	18x18	1.00	625	625	642	628	642	642
						1250				1256
										100%
VRF-C7										
1	0068	OED		1.00	1	1				
	Model No.: F			Serial No.:			Speed:			
VRF-C7										
1	0069	OED		1.00	1	1				
	Model No.: F			Serial No.:			Speed:			
VRF-C7										
1	0070	OED		1.00	1	1				
	Model No.: F			Serial No.:			Speed:			
VRF-D1										
1	0022	OED		1.00	317	317	319		319	319
	Model No.: FXZQ09TAVJU			Serial No.: J008845			Speed: High			101%
VRF-D1										
1	1006	OED		1.00	317	317				
	Model No.: FXZQ09TAVJU			Serial No.:			Speed:			

GRILLE, REGISTER & DIFFUSER TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Required fpm	Required cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
VRF-D1										
1	1032	OED		1.00	317	317	327		327	327
	Model No.: FXZQ09TAVJU			Serial No.: J006493			Speed: High			103%
				JOO	6493			High		
VRF-D1										
1	1084	OED		1.00	317	317				
	Model No.: FXZQ09TAVJU			Serial No.:			Speed:			
VRF-D1										
1	1203	OED		1.00	317	317	333		333	333
	Model No.: FXZQ09TAVJU			Serial No.: J006469			Speed: High			105%
VRF-D1										
1	1208	OED		1.00	317	317	336		336	336
	Model No.: FXZQ09TAVJU			Serial No.: J006495			Speed: High			106%
VRF-D1										
1	1209	OED		1.00	317	317	341		341	341
	Model No.: FXZQ09TAVJU			Serial No.: J006485			Speed: High			108%
VRF-D1										
1	1211	OED		1.00	317	317	335		335	335
	Model No.: FXZQ09TAVJU			Serial No.: J006500			Speed: High			106%
VRF-D1										
1	3031	OED	12x12	1.00	317	317	319		319	319
	Model No.: FXZQ09TAVJU			Serial No.: J006856			Speed: High			101%
VRF-D1										
1	3032	OED	12x12	1.00	317	317	321		321	321
	Model No.: FXZQ09TAVJU			Serial No.: J008846			Speed: High			101%

GRILLE, REGISTER & DIFFUSER TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Required fpm	Required cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
VRF-E1										
1	0029	OED	28x6	1.00	212	212	210		210	210
	Model No.: FXEQ07PVJU			Serial No.: N/A			Speed: High			99%
VRF-E1										
1	0034	OED	28x6	1.00	212	212	215		215	215
	Model No.: FXEQ07PVJU			Serial No.: N/A			Speed: High			101%
VRF-E1										
1	1102	OED	28x6	1.00	212	212	210		210	210
	Model No.: FXEQ07PVJU			Serial No.: N/A			Speed: High			99%
VRF-E1										
1	1103	OED	28x6	1.00	212	212	215		215	215
	Model No.: FXEQ07PVJU			Serial No.: N/A			Speed: High			101%
VRF-E1										
1	1103A	OED		1.00	212	212				
	Model No.: FXEQ07PVJU			Serial No.:			Speed:			
VRF-E1										
1	1105	OED		1.00	212	212				
	Model No.: FXEQ07PVJU			Serial No.:			Speed:			
VRF-E1										
1	1112	OED	28x6	1.17	181	212	182		182	213
	Model No.: FXEQ07PVJU			Serial No.: N/A			Speed: High			100%
VRF-E1										
1	1114	OED	28x6	1.17	181	212	188		188	220
	Model No.: FXEQ07PVJU			Serial No.: N/A			Speed: High			104%

GRILLE, REGISTER & DIFFUSER TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Required fpm	Required cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
VRF-E1										
1	1115	OED	28x6	1.00	212	212	217		217	217
	Model No.: FXEQ07PVJU			Serial No.: N/A			Speed: High			102%
VRF-E1										
1	1138	OED	28x6	1.00	212	212	217		217	217
	Model No.: FXEQ07PVJU			Serial No.: N/A			Speed: High			102%
VRF-E1										
1	1151	OED		1.00	212	212	226		226	226
	Model No.: FXEQ07PVJU			Serial No.: F003672			Speed: High			107%
VRF-E1										
1	1171	OED		1.00	212	212	230		230	230
	Model No.: FXEQ07PVJU			Serial No.: F003646			Speed: High			108%
VRF-E1										
1	1176	OED		1.00	212	212	237		237	237
	Model No.: FXEQ07PVJU			Serial No.: F003666			Speed: High			112%
VRF-E1										
1	1182	OED		1.00	212	212	225		225	225
	Model No.: FXEQ07PVJU			Serial No.: F003645			Speed: High			106%
VRF-E1										
1	1186	OED		1.00	212	212	220		220	220
	Model No.: FXEQ07PVJU			Serial No.: F003644			Speed: High			104%
VRF-E1										
1	1195	OED		1.00	212	212	229		229	229
	Model No.: FXEQ07PVJU			Serial No.: F003677			Speed: High			108%

GRILLE, REGISTER & DIFFUSER TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Required fpm	Required cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
VRF-E1										
1	1196	OED		1.00	212	212	231		231	231
	Model No.: FXEQ07PVJU			Serial No.: F003668			Speed: High			109%
VRF-E1										
1	1201	OED		1.00	212	212	224		224	224
	Model No.: FXEQ07PVJU			Serial No.: F003665			Speed: High			106%
VRF-E1										
1	1202	OED		1.00	212	212	228		228	228
	Model No.: FXEQ07PVJU			Serial No.: F003670			Speed: High			108%
VRF-E1										
1	1204	OED		1.00	212	212	233		233	233
	Model No.: FXEQ07PVJU			Serial No.: F003681			Speed: High			110%
VRF-E1										
1	1206	OED		1.00	212	212	226		226	226
	Model No.: FXEQ07PVJU			Serial No.: F003667			Speed: High			107%
VRF-E1										
1	2022	OED	28x6	1.17	181	212	178		178	208
	Model No.: FXEQ07PVJU			Serial No.: N/A			Speed: High			98%
VRF-E1										
1	2024	OED	28x6	1.17	181	212	183		183	214
	Model No.: FXEQ07PVJU			Serial No.: N/A			Speed: High			101%
VRF-E1										
1	3023	OED	28x6	1.17	181	212	192		192	225
	Model No.: FXEQ07PVJU			Serial No.: N/A			Speed: High			106%

GRILLE, REGISTER & DIFFUSER TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Outlet Number	Room Number	Code	Size	"Ak" Factor	Required fpm	Required cfm	First Test	New Req'd	fpm/cfm Reading	Final cfm
VRF-E1										
1	3024	OED	28x6	1.17	181	212	201		201	235
	Model No.: FXEQ07PVJU			Serial No.: N/A			Speed: High			111%
VRF-A5										
1	3026	OED	24x24	1.00	0	N/A	922		922	922
	Model No.: FXFQ3OTCJU			Serial No.: C009350			Speed: High			
VRF-????										
1	3034	OED	24x24	1.00	0	N/A	915		915	915
	Model No.: F			Serial No.: C011047			Speed: High			

TRAVERSE SUMMARY TEST SHEET

Job Name: **New London High School Additions & Renovations**
Tested by: **L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)**

System No.	Zone No.	Height / Dia.	Width	Area	Design Velocity	Design cfm	Test Velocity	Test cfm	Static Pressure
@ 60 Hertz									
DOA-1	Supply	52	112	40.4	484	19575	582	23539	Velgrid
	Exhaust	24	42	7.0	2814	19700	2843	19901	Velgrid
@ 60 Hertz									
DOA-2	Supply	36	45	11.3	1333	15000	1380	15525	Velgrid
	Exhaust	30	50	10.4	1416	14750	1409	14677	Velgrid
DOA-3	Supply	30	40	8.3	1637	13640	1635	13625	0.47
	Exhaust	30	40	8.3	1641	13675	1570	13083	-0.78
@ 60 Hertz									
AHU-1	Supply	60	115	47.9	537	25750	643	30810	Velgrid
	Exhaust	40	50	13.9	1802	25025	1967	27319	-1.40
AHU-2	Total	60	100	41.7	498	20750	498	20750	Coil Scan
	Branch 1	24	52	8.7	779	6750	773	6699	-0.21
	Branch 2	24	52	8.7	692	6000	692	5997	-0.17
	Total							**12696**	
	Min OA	32	72	16.0	63	1000	65	1040	-0.01
@ 60 Hertz									
AHU-3	Supply	60	115	47.9	522	25000	594	28463	Velgrid
	Exhaust	44	48	14.7	1705	25000	1709	25065	-0.65
AHU-4	Total	42	30	8.8	857	7500	859	7516	Velgrid
	Exhaust	42	30	8.8	857	7500	819	7166	Velgrid
	Min OA	42	30	8.8	57	500	58	508	Velgrid
@ 60 Hertz									
HRV-1	Supply	42	66	19.3	400	7700	620	11935	Velgrid
	Exhaust	18	56	7.0	1100	7700	1619	11333	Velgrid
MAU-1	Supply	36	70	17.5	422	7380	324	5670	Velgrid
MAU-2	Supply	36	70	17.5	637	11150	325	5688	Velgrid

FUME HOOD TEST SHEET

Job Name: **New London High School Additions & Renovations**
Tested by: **L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)**

LEF-1

Design CFM = 650

Width = 52
Height = 18

Area = 6.5

Final Velocity Profile -Readings are in Feet per Minute

94	88	88	86	93
95	98	95	99	102

Average Face Velocity = 94 FPM
Total CFM = 610 or 94%

LEF-2

Design CFM = 650

Width = 52
Height = 18

Area = 6.5

Final Velocity Profile -Readings are in Feet per Minute

98	97	101	105	100
101	103	100	96	99

Average Face Velocity = 100 FPM
Total CFM = 650 or 100%

PUMP TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

PUMP DATA

Pump Number	P-1AB	P-2A		
Pump Manufacturer	Armstrong	Armstrong		
Model Number	4302 0408-020.0	4302 0608-050.0		
Impeller Size	6.66	7.38		
Rpm	3082	3232		
Specified gpm	350.0	900.0		
Specified Head	100	130		

MOTOR DATA

Motor Manufacturer / Frame	Brook C / 256T	WEG / 324TSC		
Horsepower	20	50		
Rpm	3515	3560		
Voltage	460	460		
Phase	3	3		
Amperage				
Rated	22.2	58.7		
Corrected for Voltage				

TEST RESULTS - CLOSE OFF

Suction				
Discharge				
Pressure Differential				
Head in Feet				

TEST RESULTS - OPERATING

Suction				
Discharge				
Pressure Differential				
Head in Feet				
Final gpm				
Test Voltage				
Operating Amperage				
Calculated Horsepower				
Brake				
Water				
Pump Efficiency				
Differential Pressure	22.0 PSI	24.0 PSI		

CIRCUIT SETTER TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Number	Serving	Brand Name	Model Number	Size	Design gpm	Setting	Final Reading	Final gpm
	P-1A / P-1B							
1	UH-A 0014 nw	Macon		0.75	1.0	AutoFlow	26.2	1.0
2	UH-A 0014 sw	Macon		0.75	1.0	AutoFlow	26.7	1.0
3	UH-A 0014 se	Macon		0.75	1.0	AutoFlow	25.9	1.0
4	UH-A 0010	Macon		0.75	1.0	AutoFlow		
5	UH-A 0013	Macon		0.75	1.0	AutoFlow	24.9	1.0
6	UH-A 0011	Macon		0.75	1.0	AutoFlow	25.2	1.0
7	CUH-E 0012	Macon		0.75	1.7	AutoFlow		
8	RP 0023 s	Macon		0.75	0.5	AutoFlow	24.8	0.5
9	RP 0023 c	Macon		0.75	0.5	AutoFlow	20.3	0.5
10	RP 0023 n	Macon		0.75	0.5	AutoFlow	18.8	0.5
11	RP 0021 s	Macon		0.75	1.0	AutoFlow	17.4	1.0
12	RP 0021 n	Macon		0.75	1.0	AutoFlow	17.6	1.0
13	RP 0025	Macon		0.75	1.0	AutoFlow	18.5	1.0
14	CUH-C 1083	Macon		0.75	2.3	AutoFlow	19.2	1.0
15	RP 0096	Macon		0.75	0.5	AutoFlow	17.1	1.0
16	CUH-C 0003	Macon		0.75	2.3	AutoFlow	18	1.0
17	RP 0003	Macon		0.75	0.5	AutoFlow	18.9	1.0
18	RP 0031	Macon		0.75	1.0	AutoFlow	20.3	1.0
19	RP 0004 n	Macon		0.75	0.5	AutoFlow	17.3	1.0
20	RP 0004 c	Macon		0.75	0.5	AutoFlow	19.3	1.0
21	RP 0004 s	Macon		0.75	1.0	AutoFlow	18.4	1.0
22	RP 0005	Macon		0.75	1.0	AutoFlow	18.9	1.0
23	RP 1136 n	Macon		0.75	0.5	AutoFlow	23.6	0.5
24	RP 1134	Macon		0.75	0.5	AutoFlow	21.9	0.5
25	RP 1115	Macon		0.75	0.5	AutoFlow	20.3	0.5
26	RP 1111	Macon		0.75	0.5	AutoFlow	21.6	0.5
27	RP 1114	Macon		0.75	0.5	AutoFlow	19.1	0.5
28	RP 1112	Macon		0.75	0.5	AutoFlow	27.4	0.5
29	RP 1105	Macon		0.75	0.5	AutoFlow	30.1	0.5
30	RP 1103	Macon		0.75	0.5	AutoFlow	27.3	0.5
31	RP 1103A	Macon		0.75	0.5	AutoFlow	28.5	0.5
32	RP 1102	Macon		0.75	0.5	AutoFlow	29.3	0.5
33	RP 1090	Macon		0.75	0.5	AutoFlow	28.9	0.5
34	RP 1093	Macon		0.75	0.5	AutoFlow	25.7	0.5
35	RP 1094 n	Macon		0.75	0.5	AutoFlow	29.6	0.5
36	RP 1094 s	Macon		0.75	0.5	AutoFlow	28.3	0.5

CIRCUIT SETTER TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Number	Serving	Brand Name	Model Number	Size	Design gpm	Setting	Final Reading	Final gpm
37	RP 1095 n	Macon		0.75	0.5	AutoFlow	26.9	0.5
38	RP 1095 s	Macon		0.75	0.5	AutoFlow	27.7	0.5
39	RP 1096 n	Macon		0.75	0.5	AutoFlow	29.1	0.5
40	RP 1096 s	Macon		0.75	0.5	AutoFlow	29.3	0.5
41	RP 1097 n	Macon		0.75	0.5	AutoFlow	28.4	0.5
42	RP 1097 s	Macon		0.75	0.5	AutoFlow	29.4	0.5
43	RP 1119	Macon		0.75	0.5	AutoFlow	22.3	0.5
44	RP 1120	Macon		0.75	0.5	AutoFlow	22.6	0.5
45	RP 1121	Macon		0.75	0.5	AutoFlow	24.3	0.5
46	RP 1122	Macon		0.75	0.5	AutoFlow	24.3	0.5
47	RP 1123	Macon		0.75	0.5	AutoFlow	25.8	0.5
48	RP 11	Macon		0.75	0.5	AutoFlow	24.7	0.5
49	RP 1125 n	Macon		0.75	0.5	AutoFlow	24.9	0.5
50	RP 1125 s	Macon		0.75	0.5	AutoFlow	24.3	0.5
51	RP 1126	Macon		0.75	0.5	AutoFlow	24.1	0.5
52	RP 1136 s	Macon		0.75	0.5	AutoFlow	24.1	0.5
53	RP 2016 n	Macon		0.75	0.5	AutoFlow	22.1	0.5
54	RP 2021 s	Macon		0.75	0.5	AutoFlow	21.3	0.5
55	RP 2021 c	Macon		0.75	0.5	AutoFlow	21.5	0.5
56	RP 2021 n	Macon		0.75	0.5	AutoFlow	22.7	0.5
57	RP 2023 s	Macon		0.75	0.5	AutoFlow	26.7	0.5
58	RP 2023 c	Macon		0.75	0.5	AutoFlow	26.3	0.5
59	RP 2023 n	Macon		0.75	0.5	AutoFlow	26.5	0.5
60	RP 2027 s	Macon		0.75	0.5	AutoFlow	26.2	0.5
61	RP 2027 n	Macon		0.75	0.5	AutoFlow	25.3	0.5
62	RP 2028 s	Macon		0.75	0.5	AutoFlow	25.5	0.5
63	RP 2028 n	Macon		0.75	0.5	AutoFlow	26.7	0.5
64	RP 2031 s	Macon		0.75	0.5	AutoFlow	25.4	0.5
65	RP 2031 n	Macon		0.75	0.5	AutoFlow	26.2	0.5
66	RP 2032 w	Macon		0.75	0.5	AutoFlow	28.3	0.5
67	RP 2032 n	Macon		0.75	0.5	AutoFlow	24.6	0.5
68	RP 2002 n	Macon		0.75	0.5	AutoFlow	23.3	0.5
69	RP 2002 s	Macon		0.75	0.5	AutoFlow	24.4	0.5
70	RP 2003 n	Macon		0.75	0.5	AutoFlow	24.2	0.5
71	RP 2003 s	Macon		0.75	0.5	AutoFlow	22.7	0.5
72	RP 2004 n	Macon		0.75	0.5	AutoFlow	24.7	0.5
73	RP 2004 s	Macon		0.75	0.5	AutoFlow	25.3	0.5
74	RP 2005 n	Macon		0.75	0.5	AutoFlow	22.7	0.5

CIRCUIT SETTER TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Number	Serving	Brand Name	Model Number	Size	Design gpm	Setting	Final Reading	Final gpm
75	RP 2005 s	Macon		0.75	0.5	AutoFlow	22.3	0.5
76	RP 2007	Macon		0.75	0.5	AutoFlow	19.4	0.5
77	RP 2008	Macon		0.75	0.5	AutoFlow	19.5	0.5
78	RP 2009	Macon		0.75	0.5	AutoFlow	20.2	0.5
79	RP 2010	Macon		0.75	0.5	AutoFlow	21.6	0.5
80	RP 2011	Macon		0.75	0.5	AutoFlow	18.8	0.5
81	RP 2015 s	Macon		0.75	0.5	AutoFlow	19.3	0.5
82	RP 2015 n	Macon		0.75	0.5	AutoFlow	19.6	0.5
83	RP 2016 s	Macon		0.75	0.5	AutoFlow	18.9	0.5
84	UH-A	Macon		0.75		AutoFlow	22.1	1.0
85	DOA-3	Macon		2.0	42.4	AutoFlow	15.9	44.0
86	DOA-2	Macon		2.5	66.5	AutoFlow	24.3	66.5
87	RP 3016 n	Macon		0.75	0.5	AutoFlow	21.2	0.5
88	RP 3021 s	Macon		0.75	0.5	AutoFlow	23.1	0.5
89	RP 3021 n	Macon		0.75	0.5	AutoFlow	20.4	0.5
90	RP 3022 s	Macon		0.75	0.5	AutoFlow	21.3	0.5
91	RP 3022 n	Macon		0.75	0.5	AutoFlow	22.2	0.5
92	RP 3025 s	Macon		0.75	0.5	AutoFlow	19.2	0.5
93	RP 3025 n	Macon		0.75	0.5	AutoFlow	20.3	0.5
94	RP 3026 s	Macon		0.75	0.5	AutoFlow	30.2	0.5
95	RP 3026 n	Macon		0.75	0.5	AutoFlow	30.2	0.5
96	RP 3029 s	Macon		0.75	0.5	AutoFlow	27.4	0.5
97	RP 3029 n	Macon		0.75	0.5	AutoFlow	27.8	0.5
98	RP 3030 s	Macon		0.75	0.5	AutoFlow	31.3	0.5
99	RP 3030 n	Macon		0.75	0.5	AutoFlow	31.3	0.5
100	RP 3033 s	Macon		0.75	0.5	AutoFlow	29.7	0.5
101	RP 3033 n	Macon		0.75	0.5	AutoFlow	29.7	0.5
102	RP 3034 w	Macon		0.75	0.5	AutoFlow	31.4	0.5
103	RP 3034 n	Macon		0.75	0.5	AutoFlow	31.2	0.5
104	RP 3002 n	Macon		0.75	0.5	AutoFlow	31	0.5
105	RP 3002 s	Macon		0.75	0.5	AutoFlow	31	0.5
106	RP 3003 n	Macon		0.75	0.5	AutoFlow	30.7	0.5
107	RP 3003 s	Macon		0.75	0.5	AutoFlow	30.4	0.5
108	RP 3004 n	Macon		0.75	0.5	AutoFlow	29.8	0.5
109	RP 3004 s	Macon		0.75	0.5	AutoFlow	29.1	0.5
110	RP 3005 n	Macon		0.75	0.5	AutoFlow	27.3	0.5
111	RP 3005 s	Macon		0.75	0.5	AutoFlow	29.4	0.5
112	RP 3007	Macon		0.75	0.5	AutoFlow	23.4	0.5

CIRCUIT SETTER TEST SHEET

Job Name: New London High School Additions & Renovations
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Number	Serving	Brand Name	Model Number	Size	Design gpm	Setting	Final Reading	Final gpm
113	RP 3008	Macon		0.75	0.5	AutoFlow	22.6	0.5
114	RP 3009	Macon		0.75	0.5	AutoFlow	22.1	0.5
115	RP 3010	Macon		0.75	0.5	AutoFlow	21.9	0.5
116	RP 3011	Macon		0.75	0.5	AutoFlow	21.5	0.5
117	UH-A 3017	Macon		0.75	1.0	AutoFlow	20.1	0.5
118	RP 3014 s	Macon		0.75	0.5	AutoFlow	21.6	0.5
119	RP 3014 n	Macon		0.75	0.5	AutoFlow	20.9	0.5
120	RP 3016 s	Macon		0.75	0.5	AutoFlow	21.4	0.5
121	UH-1 0042	Macon		0.75	1.0	AutoFlow	21.7	0.5
122	AHU-2	Macon		2.0	48.0	AutoFlow	17.6	48.0
123	UH-A 0042	Macon		0.75	1.0	AutoFlow	14.3	1.0
124	UH-1 0043	Macon		0.75	1.0	AutoFlow	14.1	1.0
125	UH-1 00??	Macon		0.75	1.0	AutoFlow	14.7	1.0
126	RP 0035	Macon		0.75	1.0	AutoFlow	14.2	1.0
127	RP 0044	Macon		0.75	0.5	AutoFlow	18.6	0.5
128	RP 0049 n	Macon		0.75	0.5	AutoFlow	19.7	0.5
129	RP 0049 c	Macon		0.75	0.5	AutoFlow	20	0.5
130	RP 0049 s	Macon		0.75	0.5	AutoFlow	20.3	0.5
131	RP 0053	Macon		0.75	0.5	AutoFlow	20.6	0.5
132	RP 0052 n	Macon		0.75	0.5	AutoFlow	20.8	0.5
133	RP 0052 s	Macon		0.75	0.5	AutoFlow	20.6	0.5
134	UH-A 0074	Macon		0.75	0.5	AutoFlow	21.5	0.5
135	UH-A 0075	Macon		0.75	0.5	AutoFlow	21.4	0.5
136	CUH-C 0080	Macon		0.75	0.5	AutoFlow	20	0.5
137	CUH-C 00??	Macon		0.75	0.5	AutoFlow	21.3	0.5
138	CUH-A 0089	Macon		0.75	0.5	AutoFlow	21.6	0.5
139	AHU-4	Macon		1.25	25.9	AutoFlow	10.3	25.9
140	RP 1018 e	Macon		0.75	0.5	AutoFlow	22	0.5
141	RP 1018 ne	Macon		0.75	1.0	AutoFlow	12.7	1.0
142	RP 1018 nw	Macon		0.75	1.0	AutoFlow	13.5	1.0
143	CUH-D 1017	Macon		0.75	1.0	AutoFlow	12.9	1.0
144	RP 1016 n	Macon		0.75	1.0	AutoFlow	13	1.0
145	RP 1016 w	Macon		0.75	1.0	AutoFlow	12.6	1.0
146	RP 1013 n	Macon		0.75	1.0	AutoFlow	12.9	1.0
147	RP 1013 w	Macon		0.75	1.0	AutoFlow	13.6	1.0
148	RP 1012	Macon		0.75	1.0	AutoFlow	13.5	1.0
149	RP 1011 w	Macon		0.75	1.0	AutoFlow	13.1	1.0
150	RP 1011 e	Macon		0.75	1.0	AutoFlow	13.4	1.0

CIRCUIT SETTER TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Number	Serving	Brand Name	Model Number	Size	Design gpm	Setting	Final Reading	Final gpm
151	RP 1010	Macon		0.75	0.5	AutoFlow	19.5	0.5
152	RP 1007 n	Macon		0.75	0.5	AutoFlow	19.8	0.5
153	RP 1007 w	Macon		0.75	0.5	AutoFlow	21.3	0.5
154	DOA-1	Macon		2.0	61.5	AutoFlow	5.1	61.5
155	CUH-G 1072	Macon		0.75	2.0	AutoFlow	8.7	2.0
156	CUH-B 1082	Macon		0.75	1.2	AutoFlow	9.4	1.2
157	CUH-A 1081	Macon		0.75	1.0	AutoFlow	10	1.0
158	CUH-C 1080	Macon		0.75	2.3	AutoFlow	7.8	2.3
159	RP 1078	Macon		0.75	0.5	AutoFlow	22	0.5
160	RP 1060	Macon		0.75	0.5	AutoFlow	21.5	0.5
161	RP 1059	Macon		0.75	0.5	AutoFlow	21.2	0.5
162	RP 1058	Macon		0.75	0.5	AutoFlow	20.6	0.5
163	RP 1057	Macon		0.75	0.5	AutoFlow	20.9	0.5
164	RP 1056	Macon		0.75	0.5	AutoFlow	21	0.5
165	RP 1055	Macon		0.75	0.5	AutoFlow	20.2	0.5
166	CUH-A 1001 n	Macon		0.75	1.0	AutoFlow	11.1	1.0
167	CUH-A 1001 s	Macon		0.75	1.0	AutoFlow	12.3	1.0
168	CUH-D 1002	Macon		0.75	1.0	AutoFlow	12	1.0
169	RP 1210 n	Macon		0.75	1.0	AutoFlow	11.8	1.0
170	RP 1210 w	Macon		0.75	1.0	AutoFlow	11.7	1.0
171	RP 1210 s	Macon		0.75	0.5	AutoFlow	21.1	0.5
172	RP 1206	Macon		0.75	0.5	AutoFlow	20.7	0.5
173	RP 1204	Macon		0.75	0.5	AutoFlow	20.9	0.5
174	RP 1202	Macon		0.75	0.5	AutoFlow	21.4	0.5
175	RP 1201	Macon		0.75	0.5	AutoFlow	21.7	0.5
176	RP 1196	Macon		0.75	0.5	AutoFlow	21	0.5
177	RP 1195	Macon		0.75	0.5	AutoFlow	21.5	0.5
178	CUH-A 1191	Macon		0.75	1.0	AutoFlow	11.3	1.0
179	RP 1189	Macon		0.75	0.5	AutoFlow	20.9	0.5
180	RP 1188 w	Macon		0.75	0.5	AutoFlow	20.6	0.5
181	RP 1188 e	Macon		0.75	0.5	AutoFlow	20.6	0.5
182	RP 1182	Macon		0.75	0.5	AutoFlow	21	0.5
183	RP 1177	Macon		0.75	0.5	AutoFlow	21.2	0.5
184	RP 1170 w	Macon		0.75	0.5	AutoFlow	21.2	0.5
185	RP 1170 e	Macon		0.75	0.5	AutoFlow	21.5	0.5
186	AHU-3	Macon		1.5	28.6	AutoFlow	2.8	28.6
187	CUH-B 1166 w	Macon		0.75	1.2	AutoFlow	9.4	1.2
188	HRV-1	Macon		1.5	21.3	AutoFlow	15.1	21.3

CIRCUIT SETTER TEST SHEET

Job Name: New London High School Additions & Renovations

Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Number	Serving	Brand Name	Model Number	Size	Design gpm	Setting	Final Reading	Final gpm
189	UH-A 1168	Macon		0.75	1.0	AutoFlow	10	1.0
190	CUH-B 1166 e	Macon		0.75	0.5	AutoFlow		0.5
191	DOA-4	Macon		1.5		AutoFlow		
192	RP 1161 w	Macon		0.75	1.0	AutoFlow	9.6	1.0
193	RP 1161 e	Macon		0.75	0.5	AutoFlow	20.1	0.5
194	AHU-1	Macon		2.0	30.3	AutoFlow	5.6	30.3
195	CUH-E 1160	Macon		0.75	2.0	AutoFlow	9.3	2.0
196	RP 1158	Macon		0.75	0.5	AutoFlow	20.8	0.5
97	RP 1157	Macon		0.75	0.5	AutoFlow	20.3	0.5
198	RP 1156	Macon		0.75	0.5	AutoFlow	21.2	0.5
199	RP 1138	Macon		0.75	0.5	AutoFlow	21	0.5
200	RP 1140 w	Macon		0.75	0.5	AutoFlow	20.8	0.5
201	RP 1140 e	Macon		0.75	0.5	AutoFlow	20.2	0.5
	P-2A / P-2B							
1	AHU-2	Macon		4.0	135.2	AutoFlow	5.18	135.2
2	AHU-4	Macon		2.5	42.6	AutoFlow	6.2	42.6
3	DOA-1	Macon		4.0	156.0	AutoFlow	5.8	162.4
4	AHU-3	Macon		3.0	162.4	AutoFlow	23.5	162.4
5	HRV-1	Macon		3.0	41.9	AutoFlow	5.6	41.9
6	DOA-4	Macon		1.5		AutoFlow		
7	AHU-1	Macon		4.0	130.8	AutoFlow	5.1	130.8
8	DOA-2	Macon		4.0	126.4	AutoFlow	19.3	126.4
9	DOA-3	Macon		3.0	107.5			

CHILLER TEST SHEET

Job Name: New London High School Additions & Renovations
Tested by: L Rivera, MA DeZinno, P Ouellette August 28, 2023 (20201)

Chiller Designation	CH-1	CH-2
Model Number	AWV018A	AWV018A
Serial Number	STNU210100143	STNU210100161

EVAPORATOR	**Design**	**Test**	**Design**	**Test**
Entering Water Pressure		53.0		52.5
Leaving Water Pressure		49.5		49.0
Pressure Delta P	7.8	8.0	7.8	8.0
Entering Water Temperature		55.0		54.0
Leaving Water Temperature		41.0		42.0
Water Delta T	14.0	14.0	14.0	12.0
GPM	486.9	491.0	486.9	491.0

CONDENSER

Entering Water Pressure		N/A		N/A
Leaving Water Pressure		N/A		N/A
Pressure Delta P				
Entering Water Temperature		N/A		N/A
Leaving Water Temperature		N/A		N/A
Water Delta T				
GPM		N/A		N/A

COMPRESSOR

Voltage	T1-T2	460	N/A	460	N/A
	T1-T3		N/A		N/A
	T2-T3		N/A		N/A
Amperage	L1		N/A		N/A
	L2		N/A		N/A
	L2		N/A		N/A
KW Input		320.9	N/A	320.9	N/A

Remarks:

Environmental Testing & Balancing, Inc.

Instrument Calibration Sheet

Date Calibrated	Instrument	Model No.	Serial No.	Manufacturer
Air Test Equipment				
December 2022	Air Data Multimeter	ADM 860	M01616	Shortridge
October 2022	Digital Anemometer	RVA801	A02690	Alnor
December 2022	Digital Ampmeter	323	23840291	Fluke
July 2022	Digital Tachometer	PLT 200	1850935	Monarch
December 2022	Digital Thermometer	51/II	88180003	Fluke
July 2022	Vane Anemometer	AN300	Z313497	Extech
December 2022	Humidity Meter	TH300	03137177	Dickson
January 2023	Ultrasound Meter	FSCS	N282623T	Fuji
Hydronic Test Equipment				
October 2022	Hydrodata Multimeter	HDM-250	W08038	Shortridge

AIRDATA MULTIMETER CERTIFICATE OF RECALIBRATION

Customer ID: 010520 S/N: M01616
Customer: ENVIRONMENTAL TESTING & BALANCING, INC. City: NORTH HAVEN State: CT
As-Received Model #: ADM-860 Converted to Model #: Order #: R131186
PO #: Customer Eqpt ID#: Calibration Due Date:

Instrument has been calibrated using Calibration Standards which are traceable to NIST (National Institute of Standards and Technology). Quality Assurance plan and calibration procedures meet the requirements for ANSI/NCSL Z540-1-1994, ISO 17025, MIL-STD-45662A and manufacturer's specifications. Calibration accuracy is certified when meters are used with properly functioning accessories only. All Uncertainties are expressed in expanded terms (twice the calculated uncertainty). This report shall not be reproduced, except in full, without the written approval of Shortridge Instruments, Inc. Results relate only to the item calibrated. For limitations on use, see Shortridge Instruments, Inc. Instruction Manual for the use of AirData Multimeters. Procedure: Procedure for Differential Pressure, Absolute Pressure and Temperature Recalibration of AirData Multimeters SIP-CP02 Revision: 27 Date: 04/02/10

Calibration Technician(s): R. Calabrese, H. Gentleman Calibration Date: 04/12/2013
Calibration Approved by: A. Nesswald Title: Quality Date: 04/12/2013
As-Received Test performed after minor repair: Yes (No)

AS-Received By: RC Date: 04/12/13 Rh: 38 % Ambient Temperature: 76 °F Barometric Pressure: 28.41 in Hg All within spec: (YES) NO NA

Final Test By: HG Date: 04/12/13 Rh: 39 % Ambient Temperature: 76 °F Barometric Pressure: 28.37 in Hg All within spec: (YES) NO

Test By: Date: Rh: % Ambient Temperature: °F Barometric Pressure: in Hg All within spec: YES NO

ABSOLUTE PRESSURE TEST (in Hg)

TEST METER TOLERANCE = ± 2.0 % ± .1 in Hg AS-RECEIVED TEST WITHIN SPEC (YES) NO N/A See Notes

Pressure Standard: Heise #02-R S/N: 41741/42451 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #04-R S/N: 41743/42453 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #06-R S/N: 41742/42452 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #08-R S/N: 42185/43326 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #10-R S/N: 42203/43352 (As-Rcvd) Test 2 Test 3
Pressure Standard: Heise #12-R S/N: 43186/44731 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #14-R S/N: 43412/45043 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #16-R S/N: 44581/46845 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #20-R S/N: 44582/46847 As-Rcvd Test 2 Test 3

Approx Set Pt	Standard	Test Meter	% Diff	Standard	Test Meter	% Diff	Standard	Test Meter	% Diff
14.0	14.00	14.0	0	14.13	14.1	-.35			
28.4	28.41	28.4	-.04	28.34	28.3	-.14			
40.0	40.03	40.0	-.07	40.27	40.2	-.25			

DIFFERENTIAL PRESSURE TEST (in wc)

TEST METER TOLERANCE = ± 2.0 % ± 0.001 in wc AS-RECEIVED TEST WITHIN SPEC (YES) NO N/A See Notes

Pressure Standard: Heise #01-L S/N: 41739/42449 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #01-R S/N: 41739/42449 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #02-L S/N: 41741/42451 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #03-L S/N: 41738/42448 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #03-R S/N: 41738/42448 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #04-L S/N: 41743/42456 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #05-L S/N: 41740/42450 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #05-R S/N: 41740/42447 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #06-L S/N: 41742/42455 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #07-L S/N: 42185/42186 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #07-R S/N: 42185/43326 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #08-L S/N: 42185/43329 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #09-L S/N: 42202/43351 (As-Rcvd) Test 2 Test 3
Pressure Standard: Heise #09-R S/N: 42202/43350 (As-Rcvd) Test 2 Test 3
Pressure Standard: Heise #10-L S/N: 42203/43353 (As-Rcvd) Test 2 Test 3
Pressure Standard: Heise #11-L S/N: 43165/44551 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #11-R S/N: 43165/44730 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #12-L S/N: 43165/44732 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #13-L S/N: 43415/45041 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #13-R S/N: 43415/45039 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #14-L S/N: 43412/45045 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #17-L S/N: 44579/46842 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #17-R S/N: 44579/46841 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #18-L S/N: 44581/46846 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #19-L S/N: 44580/46844 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #19-R S/N: 44580/46843 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #20-L S/N: 44582/46848 As-Rcvd Test 2 Test 3

Approx Set Pt	Standard	Test Meter	% Diff	Standard	Test Meter	% Diff	Standard	Test Meter	% Diff
0500	.0500	.0500	0	.0506	.0504	-.40			
1250	.1255	.1254	-.08	.1247	.1244	-.40			
2250	.2256	.2252	-.18	.2260	.2248	-.55			
2700	.2708	.2707	-.04	.2732	.2735	.11			
2.000	2.004	2.003	-.05	2.023	2.024	.15			
3.600	3.603	3.600	-.08	3.658	3.660	.05			
4.400	4.405	4.421	.36	4.420	4.432	.27			
27.00	27.03	27.05	.07	27.04	27.11	.26			
50.00	50.03	49.92	-.22	49.98	49.93	.10			
Overange	NA	✓	NA	NA	✓	NA	NA		NA

Shortridge Instruments, Inc.
7855 East Redfield Road Scottsdale, Arizona 85260
(480) 991-6744 • Fax (480) 443-1267 • www.shortridge.com

ADM Recalibration Rev34/03/21/12 1 of 2 07/02/12

Pro-Calibration, LLC

480 Harwich Rd. Brewster, MA 02631
774-323-3662

Calibration Certificate

Manufacturer: FLUKE
Model: 323 True RMS
Serial Number: 23840291
Asset Number: ETBI-084

CUSTOMER: Environmental Testing & Balancing
154 State St. Suite 204
North Haven CT 06473

Pro-Calibration, LLC certifies that the above listed instrument meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). It has been calibrated using measurement standards traceable to the National Institute of Standards and Technology (NIST), or to NIST accepted intrinsic standards of measurement, or derived by the ratio type of self-calibration techniques. This calibration complies with ANSI/NCSL Z540.3:2006 and or ISO/ IEC 17025:2005. (TUR >=4:1) in accordance with "The Guide to the Epression of Uncertainty in Measurement (GUM)". This report may not be reproduced, except in full, unless permission for the publication of an approved abstract is obtained in writing from the calibration organization issuing this report.

CALIBRATION INFORMATION

Cal Date: 8 Dec 2022
Next Cal Due: 8 Dec 2023
Cal Procedure: Manufacturer Specifications
Temperature: 21.0°C
Humidity: 45 %
Test Result: Y
As Received: In Tolerance
As Returned: In Tolerance

Remarks:

STANDARDS USED FOR CALIBRATION

Asset Number	Description	Cal. Date	Due Date
CTI1153	FLUKE 5522A-PQ/IG MULTIFUNCTION CALIBRATOR	24 Aug 2022	24 Aug 2024

Signed:

PRINTED ON: 8 Dec 2022

Certificate Number
ETBI-064:1670492215

Page 1 of 1

Pro-Calibration, LLC

480 Harwich Rd. Brewster, MA 02631
774-323-3662

Calibration Certificate

Manufacturer: MONARCH INSTRUMENTS
Model: PLT200
Serial Number: 1850935
Asset Number: ETBI-030

CUSTOMER: Environmental Testing & Balancing
154 State St. Suite 204
North Haven CT 06473

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CALIBRATION INFORMATION

Cal Date: 11 Jul 2022
Next Cal Due: 11 Jul 2023
Cal Procedure: Manufacturer Specifications
Temperature: 21.0°C
Humidity: 45 %
Test Result: Y
As Received: In Tolerance
As Returned: In Tolerance

Remarks:

STANDARDS USED FOR CALIBRATION

Asset Number	Description	Cal. Date	Due Date
CTI1005	PRO-CAL LS-1 LIGHT SOURCE	08 Mar 2022	08 Mar 2023
CTI683	HEWLETT PACKARD 3525A GENERATOR	06 Jan 2022	06 Jan 2023

Signed:

PRINTED ON: 11 Jul 2022

Certificate Number
ETBI-030:1657538979

Page 1 of 1

Pro-Calibration, LLC
480 Harwich Rd. Brewster, MA 02631
774-323-3662

Calibration Certificate

Manufacturer: MONARCH INSTRUMENTS
Model: PLT200
Serial Number: 1851205
Asset Number: ETBI-029

CUSTOMER: Environmental Testing & Balancing
154 State St. Suite 204
North Haven CT 06473

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CALIBRATION INFORMATION

Cal Date:	8 Dec 2022	Temperature:	21.0°C	As Received:	In Tolerance
Next Cal Due:	8 Dec 2023	Humidity:	45 %	As Returned:	In Tolerance
Cal Procedure:	Manufacturer Specifications	Test Result:	Y		

Remarks:

STANDARDS USED FOR CALIBRATION

Asset Number	Description	Cal. Date	Due Date
CTI1005	PRO-CAL LS-1 LIGHT SOURCE	08 Mar 2022	08 Mar 2023
CTI883	HEWLETT PACKARD 3525A GENERATOR	06 Jan 2022	06 Jan 2023

Signed:

PRINTED ON: 8 Dec 2022

Certificate Number
ETBI-029:1670491228

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Pro-Calibration, LLC
480 Harwich Rd. Brewster, MA 02631
774-323-3662

Calibration Certificate

Manufacturer: FLUKE
Model: 51/II
Serial Number: 88180003
Asset Number: ETBI-018

CUSTOMER: Environmental Testing & Balancing
154 State St. Suite 204
North Haven CT 06473

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CALIBRATION INFORMATION

Cal Date:	15 Dec 2022	Temperature:	21.0°C	As Received:	In Tolerance
Next Cal Due:	15 Dec 2023	Humidity:	45 %	As Returned:	In Tolerance
Cal Procedure:	Manufacturer Specifications	Test Result:	Y		

Remarks:

STANDARDS USED FOR CALIBRATION

Asset Number	Description	Cal. Date	Due Date
CTI1153	FLUKE 5522A-PQ/1G MULTIFUNCTION CALIBRATOR	24 Aug 2022	24 Aug 2024

Signed:

PRINTED ON: 15 Dec 2022

Certificate Number
ETBI-018:1671097031

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Pro-Calibration, LLC
480 Harwich Rd. Brewster, MA 02631
774-323-3662

Calibration Certificate

Manufacturer: EXTECH INSTRUMENTS
Model: AN300
Serial Number: Z313497
Asset Number: ETBI-031

CUSTOMER: Environmental Testing & Balancing
154 State St. Suite 204
North Haven CT 06473

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CALIBRATION INFORMATION

Cal Date:	11 Jul 2022	Temperature:	21.0°C	As Received:	In Tolerance
Next Cal Due:	11 Jul 2023	Humidity:	45 %	As Returned:	In Tolerance
Cal Procedure:	Manufacturer Specifications	Test Result:	Y		

Remarks:

STANDARDS USED FOR CALIBRATION

Asset Number	Description	Cal. Date	Due Date
CTI1072	SHORTRIDGE INSTRUMENTS ADM-870 AIRDATA MULTIMETER	19 Oct 2021	19 Oct 2022
CTI1152	FLUKE 700G02 MASTER REFERENCE GAUGE 1.0000/PSI	02 Mar 2022	02 Mar 2023
CTI975	ALNOR APM150 DIGITAL DISPLAY	03 Jan 2022	03 Jan 2023
CTI991	DWYER INSTRUMENTS 100-5 MANOMETER	11 Feb 2022	11 Feb 2023
CTI992	TSI 1650 THERMOANEMOMETER	18 Mar 2022	18 Mar 2023
CTI994	ANALOGIC AN8520 TEMPERATURE CALIBRATOR	03 Jan 2022	03 Jan 2023

Signed:

PRINTED ON: 11 Jul 2022

Certificate Number
ETBI-031:1657540077

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Pro-Calibration, LLC
480 Harwich Rd. Brewster, MA 02631
774-323-3662

Calibration Certificate

Manufacturer: DICKSON
Model: TH300
Serial Number: 03137177
Asset Number: ETBI-007

CUSTOMER: Environmental Testing & Balancing
154 State St. Suite 204
North Haven CT 06473

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CALIBRATION INFORMATION

Cal Date:	15 Dec 2022	Temperature:	21.0°C	As Received:	In Tolerance
Next Cal Due:	15 Dec 2023	Humidity:	45 %	As Returned:	In Tolerance
Cal Procedure:	Manufacturer Specifications	Test Result:	Y		

Remarks:

STANDARDS USED FOR CALIBRATION

Asset Number	Description	Cal. Date	Due Date
CTI1003	MINCO S-3100 PRECISION RTD	08 Mar 2022	08 Mar 2023
CTI1057	OMEGA ENGINEERING DP41-RTD-B 5 DIGIT TEMPERATURE DISPLAY	04 Nov 2022	04 Nov 2023
CTI1060	EXTECH HR-33 33%RH HUMIDITY STD.	04 Jan 2021	04 Jan 2024
CTI1061	EXTECH HR-75 75%RH HUMIDITY STD.	04 Jan 2021	04 Jan 2024
CTI1136	ROTRONIC HF53W-XMRT-HC2-SH PRECISION HUMIDITY / TEMP. METER	17 Feb 2021	17 Feb 2023

Signed:

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Certificate Number
ETBI-007:1671098697

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Pro-Calibration, LLC
480 Harwich Rd. Brewster, MA 02631
774-323-3562

Calibration Certificate

Manufacturer: SHORTRIDGE INSTRUMENTS
Model: HDM-250
Serial Number: W08038
Asset Number: ETBI-063

CUSTOMER: Environmental Testing & Balancing
154 State St. Suite 204
North Haven CT 06473

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CALIBRATION INFORMATION

Cal Date:	24 Oct 2022	Temperature:	21.0°C	As Received:	In Tolerance
Next Cal Due:	24 Oct 2023	Humidity:	45 %	As Returned:	In Tolerance
Cal Procedure:	Manufacturer Specifications	Test Result:	Y		

Remarks:

STANDARDS USED FOR CALIBRATION

Asset Number	Description	Cal. Date	Due Date
CTI1066	FLUKE 9009 DUAL WELL DRY BLOCK CALIBRATOR	10 Dec 2021	10 Dec 2022
CTI1062	AMETEK TG-150 DEAD WEIGHT TESTER	03 Jan 2022	03 Jan 2023
CTI1124	FLUKE 2700G-BG2M -10/+300,PSI MASTER REFERENCE GAUGE	03 Feb 2022	03 Feb 2023

Signed:

PRINTED ON: 24 Oct 2022

Certificate Number
ETBI-063:1666605829