

AIR BALANCING SPECIALTY INC.

HIGH SCHOOL NORTH PORTLAND, OREGON

PROJECT NO: 21-4253-DW

AIR BALANCING SPECIALTY INC. 3532 S.E. MILWAUKIE AVENUE PORTLAND, OREGON 97202-2751
IN BUSINESS SINCE 1964 CERTIFIED NEBB FIRM - CERTIFICATION NO. 2984
PHONE (503) 230-2332 FAX (503) 230-2820

PROJECT NAME: **HIGH SCHOOL NORTH - PORTLAND, OREGON**

OWNER: DAVID DOUGLAS SCHOOL DISTRICT DATE STARTED: 04/13/21 DATE FINISHED: 04/14/21

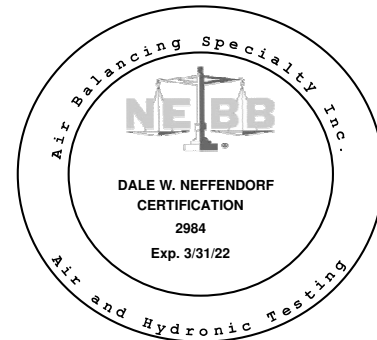
MECHANICAL ENGINEER: WORK PERFORMED BY: DALE NEFFENDORF
WILLIAM NEFFENDORF

GENERAL CONTRACTOR: CERTIFIED BY: _____

MECHANICAL CONTRACTOR: DATE: _____

SHEET METAL CONTRACTOR:

CONTROL CONTRACTOR:



IN BUSINESS SINCE 1964

AIR BALANCING SPECIALTY INC.

CERTIFIED NEBB No. 2984

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CERTIFIED TEST AND BALANCE REPORT

PROJECT NO.: 21-42253-DW

INSTRUMENT AIR	MODEL NO.	SERIAL NO.	RANGE	CALIBRATION DATE
(D) Shortridge Airdata Multimeter ADM Accessories	ADM860	M98375	0.0001 to 60.00" WC.	1/12/2021
(DH) Datameter Flow Hood	8400		25 - 2500 CFM	
(DP) Datameter Pitot Tube	12", 18", 24", 36", 48" & 60"		50 - 30000 FPM	
(DA) Datameter Airfoil	AFP18		50 - 5000 FPM	
(DG) Datameter Velgrid	VLG84		50 - 2500 FPM	
(R) Rotating Vane Anemometer	A4/-4"	83072B	200 - 10000 FPM	1/14/2021
Amprobe Ammeter	Fluke 335	99330394	0 - 750 Volts / 0 - 300 Amps	1/8/2021
Shimpo Tachometer	DT-207L	D26B0033	6 - 30,000 RPM	1/12/2021
WATER				
Hydrodata Meter	HDM-250	W01025	DP -10 to +300 PSI	1/12/2021

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EQUIPMENT USED IN BALANCING

PROJECT: HIGH SCHOOL NORTH - PORTLAND, OREGON

PROJECT NO.: 21-4253-DW

PAGE ABBREVIATION KEY

AK - GRILLE AREA OR RESTRICTION VALUE

VEL - VELOCITY

CFM - CUBIC FEET PER MINUTE

FPM - FEET PER MINUTE

ACH - AIR CHANGES PER HOUR

IN BUSINESS SINCE 1964

AIR BALANCING SPECIALTY INC.

CERTIFIED NEBB No. 2984

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PROJECT: HIGH SCHOOL NORTH - PORTLAND, OREGON

PROJECT NO.: 21-4253-DW

Ref	Ins	AREA SERVED			OUTLET			DESIGN Vel	CFM	CUBIC FEET	TEST #1				TEST #2				
					No.	Size	Blow				AK	FPM	CFM	ACH	PRESSURE	FPM	CFM	ACH	PRESSURE
	DH	Classroom	127		36x10	SW	1.00			7074		790	6.70						
	DH	Classroom	128		36x10	SW	1.00			7345		865	7.07						
	DH	Classroom	129		36x10	SW	1.00			7334		725	5.93						
	DH	Classroom	130		36x10	SW	1.00			7500		1075	8.60						
	DH	Classroom	131		36x10	SW	1.00			7581		905	7.16						
	DH	Classroom	132		36x10	SW	1.00			7544		955	7.60						
	DH	Classroom	133		36x10	SW	1.00			7374		960	7.81						
	DH	Classroom	134		36x10	SW	1.00			7309		860	7.06						
	DH	Computer Lab	135		36x10	SW	1.00			7354		880	7.18						
	DH	Classroom	136		36x10	SW	1.00			7317		940	7.71						
	DH	Classroom	138		30x12	SW	1.00			8700		275	1.90						
	DH	Classroom	139		30x12	SW	1.00			2297		800	20.90						
	DH	Classroom	140		30x12	SW	1.00			8764		755	5.17						
	DH	Classroom	141		30x12	SW	1.00			7403		975	7.90						
	DH	Classroom	142		30x12	SW	1.00			7354		945	7.71						
	DH	Classroom	143		30x12	SW	1.00			7313		1030	8.45						
	DH	Classroom	144		30x12	SW	1.00			7473		1035	8.31						
	DH	Classroom	145		30x12	SW	1.00			7507		925	7.39						
	DH	Classroom	146		30x12	SW	1.00			7700		1070	8.34						

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CONSTANT VOLUME - FPM

AIR BALANCE DATA SHEET

PROJECT NO.: 21-4253-DW

PROJECT: HIGH SCHOOL NORTH - PORTLAND, OREGON

DATE START: 04/09/21

FINISH: 04/14/21

SYSTEM: Classrooms 127 - 136 & Classrooms 138 - 146

SECTION:

BY: DN / WN

PAGE: 1 OF 11

Ref	Ins	AREA SERVED			OUTLET			DESIGN		CUBIC FEET	TEST #1				TEST #2				
					Rm.#	No.	Size	Blow	AK		Vel	CFM	FPM	CFM	ACH	PRESSURE	FPM	CFM	ACH
	DH	Classroom	147		30x12	SW	1.00			7178		1050	8.78						
	DH	Classroom	148		30x12	SW	1.00			7380		420	3.41						
	DH	Classroom	149		30x12	SW	1.00			7280		690	5.69						
	DH	Classroom	150		30x12	SW	1.00			7257		900	7.44						
	DH	Nurse	151A		30x12	SW	1.00			3171		200	3.78						
	DH	Classroom	152		30x12	SW	1.00			8640		825	5.73						
	DH	Classroom	153		30x12	SW	1.00			7423		820	6.63						
	DH	Classroom	154		30x12	SW	1.00			8404		780	5.57						
	DH	Classroom	155		30x12	CEIL	1.00			8629		910	6.33						
	DH	Office	155A		30x12	SW	1.00			1260		115	5.48						
	DH	Classroom	156		30x12	CEIL	1.00			8651		710	4.92						
	DH	Office	156A		30x12	CEIL	1.00			1260		175	8.33						
	DH	Computer Lab	169			CEIL	1.00			16198		1380	5.11						
	DH	Computer Lab	170			SW	1.00			22395		3290	8.81						
	DH	Classroom	168			SW	1.00			38232		2700	4.24						
	DH	Book Room				CEIL	1.00			23915		1920	4.82						
	DH	Library				SW	1.00			61719		6890	6.70						

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CONSTANT VOLUME - FPM

AIR BALANCE DATA SHEET

PROJECT NO.: 21-4253-DW

PROJECT: HIGH SCHOOL NORTH - PORTLAND, OREGON

DATE START: 04/09/21

FINISH: 04/14/21

SYSTEM: Classrooms 147-156, Computer Lab 169,170, Book Room, Library

SECTION:

BY: DN / WN

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Ref	Ins	AREA SERVED	Rm.#	No.	OUTLET		AK	DESIGN		CUBIC FEET	TEST #1				TEST #2			
					Size	Blow		Vel	CFM		FPM	CFM	ACH	PRESSURE	FPM	CFM	ACH	PRESSURE
	DA	Classroom	S1		16"O	TRAV	1.40			12024	229	321	1.60					
	DA	Classroom	S2		16"O	TRAV	1.40			12560	674	944	4.51					
	DA	Classroom	S3		16"O	TRAV	1.40			12587	549	769	3.66					
	DA	Classroom	S4		16"O	TRAV	1.40			12133	333	466	2.31					
	DA	Classroom	S5		16"O	TRAV	1.40			12608	659	923	4.39					
	DA	Classroom	S6		16"O	TRAV	1.40			12453	290	406	1.96					
	DA	Classroom	S7		16"O	TRAV	1.40			16317	737	1032	3.79					
	DA	Classroom	S8		16"O	TRAV	1.40			17253	797	1116	3.88					
	DA	Lab	S9		20"O	TRAV	2.18			19048	597	1301	4.10					
	DA	Classroom	S10		20"O	TRAV	2.18			19133	893	1947	6.10					
	DA	Classroom	S11		20"O	TRAV	2.18			19432	468	1020	3.15					
	DA	Classroom	S12		20"O	TRAV	2.18			18533	288	628	2.03					

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PROJECT NO.: 21-4253-DW

PROJECT: HIGH SCHOOL NORTH - PORTLAND, OREGON

DATE START: 04/09/21

FINISH: 04/14/21

SYSTEM: Classrooms S1 - S12

SECTION:

BY: DN / WN

PAGE: 3 OF 11

Ref	Ins	AREA SERVED			OUTLET			DESIGN Vel	CFM	CUBIC FEET	TEST #1				TEST #2			
		Rm.#	No.	Size	Blow	AK	FPM				CFM	ACH	PRESSURE	FPM	CFM	ACH	PRESSURE	
	DH	Classroom	121		SW	1.00			7110		1130	9.54						
	DH	Classroom	122		SW	1.00			6634		605	5.47						
	DH	Classroom	123		SW	1.00			7211		1350	11.23						
	DH	Staff Room			SW	1.00			10351		1085	6.29						
	DH	Classroom	124		SW	1.00			6717		1150	10.27						
	DH	Classroom	125/126		SW	1.00			6401		1000	9.37						
	DH	Classroom	171		SW	1.00			14763		60	0.24	FILTER BEHIND GRILLE					
	DH	Classroom	172		SW	1.00			10255		900	5.27						
	DH	Classroom	173		SW	1.00			9782		810	4.97						
	DH	Classroom	174		SW	1.00			12625		940	4.47						
	DH	Classroom	175		SW	1.00			9741		905	5.57						
	DH	Classroom	176		CEIL	1.00			5937		1090	11.02						
	DH	Classroom	177			1.00			5919		1190	12.06						
	DH	Classroom	178			1.00			7378		1290	10.49						
	DH	Classroom	179			1.00			5884		1190	12.13						
	DH	Classroom	180			1.00			4263		1140	16.05						
	DH	Classroom	181			1.00			5975		1065	10.69						
	DH	Classroom	182			1.00			5808		605	6.25						
	DH	Classroom	183			1.00			5741		845	8.83						

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PROJECT NO.: 21-4253-DW

PROJECT: HIGH SCHOOL NORTH - PORTLAND, OREGON

DATE START: 04/09/21

FINISH: 04/14/21

SYSTEM: Classrooms 121-126 & Classrooms 171 - 183

SECTION:

BY: DN / WN

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Ref	Ins	AREA SERVED			OUTLET			DESIGN			CUBIC FEET	TEST #1				TEST #2			
		Rm.#	No.	Size	Blow	AK	Vel	CFM	FPM	CFM		ACH	PRESSURE	FPM	CFM	ACH	PRESSURE		
	DH	Classroom	184					1.00			1765		200	6.80					
	DH	Classroom	185					1.00			2678		205	4.59					
	DH	Classroom	301			CEIL		1.00			7369		910	7.41					
	DH	Classroom	302			CEIL		1.00			7358		905	7.38					
	DH	Classroom	303			CEIL		1.00			7330		955	7.82					
	DH	Classroom	304			CEIL		1.00			7306		870	7.14					
	DH	Classroom	305			CEIL		1.00			7308		890	7.31					
	DH	Classroom	306			CEIL		1.00			7331		900	7.37					
	DH	Classroom	307			CEIL		1.00			7361		910	7.42					
	DH	Classroom	308			CEIL		1.00			7325		935	7.66					
	DH	Classroom	309			CEIL		1.00			6295		905	8.63					
	DH	Classroom	310			CEIL		1.00			6356		905	8.54					
	DH	Classroom	321			CEIL		1.00			7381		965	7.84					
	DH	Classroom	322			CEIL		1.00			7377		770	6.26					
	DH	Classroom	323			CEIL		1.00			7371		985	8.02					
	DH	Classroom	324			CEIL		1.00			7369		850	6.92					
	DH	Classroom	325			CEIL		1.00			7375		365	2.97					
	DH	Classroom	326			CEIL		1.00			7366		950	7.74					

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PROJECT NO.: 21-4253-DW

PROJECT: HIGH SCHOOL NORTH - PORTLAND, OREGON

DATE START: 04/09/21

FINISH: 04/14/21

SYSTEM: Classrooms 184-185, 301 - 310 & 321-326

SECTION:

BY: DN / WN

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