

AIR BALANCING SPECIALTY INC.

LINCOLN PARK ELEMENTARY SCHOOL 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: **LINCOLN PARK ELEMENTARY SCHOOL - PORTLAND, OREGON**

OWNER: DAVID DOUGLAS SCHOOL DISTRICT DATE STARTED: 03/17/21 DATE FINISHED: 03/17/21

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

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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: LINCOLN PARK ELEMENTARY SCHOOL - 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

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PROJECT: LINCOLN PARK ELEMENTARY SCHOOL - PORTLAND, OREGON

PROJECT NO.: 21-4253-DW

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		
	DG	Classroom	1		30x12			1.88			7937	445	837	6.32					
	DG	Classroom	2		30x12			1.88			9605	420	790	4.93					
	DG	Classroom	3		30x12			1.88			9605	460	865	5.40					
	DG	Classroom	4		30x12			1.88			9605	385	724	4.52					
	DG	Classroom	5		30x12			1.88			9605	507	953	5.95					
	DG	Classroom	6		30x12			1.88			9605	366	688	4.30					
	DG	Classroom	7		30x12			1.88			9605	375	705	4.40					
	DG	Classroom	8		30x12			1.88			9605	409	769	4.80					
	DG	Classroom	9		30x12			1.88			9605	429	807	5.04					
	DG	Classroom	10		30x12			1.88			9605	447	840	5.25					
	DG	Classroom	11		30x12			1.88			12007	510	959	4.79					
	DG	Classroom	12		30x12			1.88			9356	431	810	5.20					
	DG	Classroom	13		30x12			1.88			9356	383	720	4.62					
	DG	Classroom	14		30x12			1.88			9356	337	634	4.06					
	DG	Classroom	15		30x12			1.88			9656	394	741	4.60					
	DG	Classroom	16		30x12			1.88			4356	385	724	9.97					
	DG	Classroom	17		30x12			1.88			9356	367	690	4.42					
	DG	Classroom	18		30x12			1.88			9356	424	797	5.11					
	DG	Classroom	19		30x12			1.88			9356	424	797	5.11					

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CONSTANT VOLUME - FPM

AIR BALANCE DATA SHEET

PROJECT NO.: 21-4253-DW

PROJECT: LINCOLN PARK ELEMENTARY SCHOOL - PORTLAND, OREGON

DATE START: 03/17/21

FINISH: 03/17/21

SYSTEM: Classrooms 1 - 19

SECTION:

BY: DN / WN

PAGE: 1 OF 5

Ref	Ins	AREA SERVED			OUTLET			DESIGN		CUBIC FEET	TEST #1				TEST #2			
					No.	Size	Blow	AK	Vel		CFM	FPM	CFM	ACH	PRESSURE	FPM	CFM	ACH
	DG	Classroom	20		30x12		1.88			9301	396	744	4.80					
	DG	Classroom	21		30x12		1.88			9301	376	707	4.56					
	DG	Classroom	22		30x12		1.88			9301	427	803	5.18					
	DG	Classroom	23		30x12		1.88			9301	410	771	4.97					
	DG	Classroom	24		30x12		1.88			9301	416	782	5.05					
	DG	Classroom	25		30x12		1.88			9301	416	782	5.05					
	DG	Classroom	26		32x10		1.67			9301	1100	1837	11.85					
	DH	Open Office	27				1.00			7370		1285	10.46					
	DH	Office	27A				1.00			846		175	12.41					
	DH	Office	27B				1.00			828		160	11.59					
	DH	Office	27C				1.00			931		270	17.40					
	DH	Office	27D				1.00			1864		265	8.53					
	DH	Office	27E				1.00			1795		340	11.36					
	DH	Office	27F				1.00			804		110	8.21					
	DG	Classroom	28		32x10		1.67			9301	1050	1754	11.31					
	DH	Principal	110								NO OUTLET							
	DH	Office	109				1.00			924		265	17.21					
	DH	Main Office					1.00			3953		520	7.89					

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AIR BALANCE DATA SHEET

PROJECT NO.: 21-4253-DW

PROJECT: LINCOLN PARK ELEMENTARY SCHOOL - PORTLAND, OREGON

DATE START: 03/17/21

FINISH: 03/17/21

SYSTEM: Classrooms 20 - 26, Offices, Classroom 28, Principal

SECTION:

BY: DN / WN

PAGE: 2 OF 5

Ref	Ins	AREA SERVED			OUTLET			DESIGN			CUBIC FEET	TEST #1				TEST #2			
					No.	Size	Blow	AK	Vel	CFM		FPM	CFM	ACH	PRESSURE	FPM	CFM	ACH	PRESSURE
	DH	Office	103				1.00			1326		295	13.35						
	DH	Staff	111				1.00			3796		455	7.19						
	DH	Library					1.00			16525		760	2.76						
	DH	Library Office									NO OUTLET								
	DG	Gym	162		32x10		5.60			49264	661	3702	4.51						
	DH	Gym Office	160				1.00			1733		110	3.81						
	DH	Gym Office	159				1.00			2362		135	3.43						
	DG	Cafeteria			48x24		6.00			77452	362	2172	1.68						

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PROJECT NO.: 21-4253-DW

PROJECT: LINCOLN PARK ELEMENTARY SCHOOL - PORTLAND, OREGON

DATE START: 03/17/21

FINISH: 03/17/21

SYSTEM: Office, Library, Gym, Cafeteria

SECTION:

BY: DN / WN

PAGE: 3 OF 5

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	Restroom Exhaust	27				1.00		459		60	7.84						
	DH	Girl's Restroom Exhaust	25				1.00		180		30	10.00						
	DH	Boy's Restroom Exhaust	25				1.00		180		0	0.00						
	DH	Restroom Exhaust	24				1.00		180		0	0.00						
	DH	Restroom Exhaust	23				1.00		180		40	13.33						
	DH	Boy's Restroom Exhaust	22				1.00		180		40	13.33						
	DH	Girl's Restroom Exhaust	21				1.00		180		30	10.00						
	DH	Girl's Restroom Exhaust	20				1.00		180		40	13.33						
	DH	Boy's Restroom Exhaust	19				1.00		180		30	10.00						
	DH	Boy's Restroom Exhaust	18				1.00		180		45	15.00						
	DH	Girl's Restroom Exhaust	17				1.00		180		45	15.00						
	DH	Girl's Restroom Exhaust	16				1.00		180		35	11.67						
	DH	Boy's Restroom Exhaust	15				1.00		180		25	8.33						
	DH	Boy's Restroom Exhaust	14				1.00		180		30	10.00						
	DH	Girl's Restroom Exhaust	13				1.00		180		50	16.67						
	DH	Girl's Restroom Exhaust	12				1.00		180		35	11.67						
	DH	Boy's Restroom Exhaust	12				1.00		180		30	10.00						
	DH	Staff Restroom	165				1.00		386		35	5.44						
	DH	Staff Restroom	164				1.00		386		35	5.44						
	DH	Girl's Café. RR Exhaust	153				1.00		880		100	6.82						
	DH	Boy's Café. RR Exhaust	151				1.00		880		100	6.82						

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DATE START: 03/17/21

FINISH: 03/17/21

SYSTEM: Exhaust

SECTION:

BY: DN / WN

PAGE: 4 OF 5

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	Kitchen Restroom	164				1.00	164			70	25.61						
	DH	Girl's RR Supply					1.00	2118			0	0.00						
	DH	Girl's RR Exhaust					1.00	2118			40	1.13						
	DH	Boy's RR Supply					1.00	2104			240	6.84						
	DH	Boy's RR Exhaust					1.00	2104			365	10.41						
	DH	Girl's RR Supply	118				1.00	1416			0	0.00						
	DH	Girl's RR Exhaust	118				1.00	1416			25	1.06						
	DH	Boy's RR Supply	119				1.00	1510			0	0.00						
	DH	Boy's RR Exhaust	119				1.00	1510			30	1.19						
	DH	Restroom Supply	112				1.00	130			0	0.00						
	DH	Restroom Exhaust	112				1.00	130			75	34.62						
	DH	Office Restroom Supply					1.00	122			0	0.00						
	DH	Office Restroom Exhaust					1.00	122			60	29.51						

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PAGE: 5 OF 5