

AIR BALANCING SPECIALTY INC.

**EARL BOYLES 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:

EARL BOYLES ELEMENTARY SCHOOL - PORTLAND, OREGON

FOR:

DAVID DOUGLAS SCHOOL DISTRICT

DATE STARTED: 03/15/21

DATE FINISHED: 03/15/21

MECHANICAL ENGINEER:

WORK PERFORMED BY: DALE NEFFENDORF
WILLIAM NEFFENDORF

GENERAL CONTRACTOR:

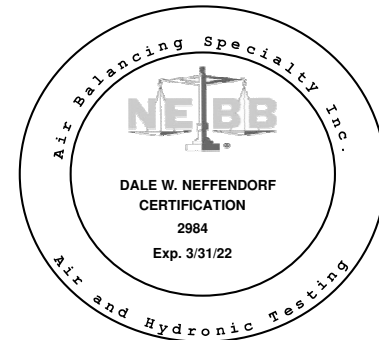
CERTIFIED BY: _____

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.:

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: EARL BOYLES 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

IN BUSINESS SINCE 1964

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PROJECT: EARL BOYLES 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		
	R	Classroom	1		36x8			1.40			9318	610	854	5.50					
	R	Classroom	2		36x8			1.40			9643	580	812	5.05					
	R	Classroom	3		36x8			1.40			9965	600	840	5.06					
	R	Classroom	4		24x4			0.50			9617	1180	590	3.68					
	R	Classroom	5		36x8			1.40			9479	640	896	5.67					
	R	Classroom	6		24x4			0.50			9496	1070	535	3.38					
	DH	Classroom	7		17x10			1.00			8774		580	3.97					
	DH	Restroom Exhaust	7					1.00			619		105	10.18					
	DH	Classroom	8					1.00			8503		610	4.30					
	DH	Restroom Exhaust	8					1.00			638		105	9.87					
	DH	Classroom	9					1.00			10015		620	3.71					
	DH	Restroom Exhaust	9					1.00			868		105	7.26					
	DH	Classroom	10					1.00			9885		570	3.46					
	DH	Restroom Exhaust	10					1.00			865		100	6.94					
	DH	Classroom	11					1.00			10612		1180	6.67					
	DH	Restroom Exhaust	11					1.00			726		210	17.36					
	DH	Classroom	12					1.00			10780		635	3.53					
	DH	Restroom Exhaust	12					1.00			730		95	7.81					

AIR BALANCING SPECIALTY, INC. 3532 SE Milwaukie Avenue, Portland, Oregon 97202-2751 Phone: (503) 230-2332 Fax: (503) 230-2820

CONSTANT VOLUME - FPM

AIR BALANCE DATA SHEET

PROJECT NO.: 21-4253-DW

PROJECT: EARL BOYLES ELEMENTARY SCHOOL - PORTLAND, OREGON

DATE START: 03/15/21

FINISH: 03/15/21

SYSTEM: Classrooms 1 - 6, Classrooms & Restrooms 7 - 12

SECTION:

BY: DN / WN

PAGE: 1 OF 4

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	13				1.00		10877		575	3.17						
	DH	Restroom Exhaust	13				1.00		726		95	7.85						
		Classroom	14															
	DH	Supply		1		SW	1.00				1585							
	DH	UV-		2			1.00				1490							
		Total							10007		3075	18.44						
	DH	Classroom UV	15				1.00		7081		1600	13.56						
	DH	Classroom UV	16				1.00		10232		855	5.01						
	DH	Classroom	17				1.00		9026		975	6.48						
	DH	Classroom UV	18				1.00		9263		770	4.99						
	DH	Classroom UV	19				1.00		8786		755	5.16						
	R	Classroom	20			36x8	1.40		9774	600	840	5.16						
	R	Classroom	21			36x8	1.40		9374	570	798	5.11						
1	R	Classroom	22			36x8	1.40		9872	40	56	0.34						
	R	Classroom	23			36x8	1.40		9522	630	882	5.56						
	R	Classroom	25			36x8	1.40		9681	600	840	5.21						
	R	Classroom	26			36x8	1.40		9800	670	938	5.74						
	R	Classroom	27			36x8	1.40		9629	540	756	4.71						
	DH	Boys Supply (by fan rm 31)					1.00		2619		0	0.00						
	DH	Boys Exhaust (by fan rm 31)					1.00		2619		350	8.02						
	DH	Girls Supply (by rm 34)					1.00		2431		0	0.00						
	DH	Girls Exhaust (by rm 34)					1.00		2431		125	3.09						

Ref. Note: (1) OBD is closed.

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CONSTANT VOLUME - FPM

AIR BALANCE DATA SHEET

PROJECT NO.: 21-4253-DW

PROJECT: EARL BOYLES ELEMENTARY SCHOOL - PORTLAND, OREGON

DATE START: 03/15/21

FINISH: 03/15/21

SYSTEM: Classroom and Restrooms

SECTION:

BY: DN / WN

PAGE: 2 OF 4

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		
	R	Multi-Purpose Rm	40		80x40			22.22			62215	297	6599	6.36					
	DH	Principial (VVT-2)	46					1.00			1754		30	1.03					
	R	Workroom	47		12x6	SW		0.35			5050	2700	945	11.23					
	DH	Restroom Supply (by 48)						1.00			640		0	0.00					
	DH	Restroom Exhaust (by 48)						1.00			640		95	8.91					
	R	Conference Wall AC	51																
	R	Conference Ceiling Cassett Supply	52		60x1.5			0.50			2661	290	145	3.27					
	DH	Supply						1.00					-25						
	R	Office Wall AC	53																
	R	Office Wall AC	54		32x3			0.57			2172	570	325	8.98					
	R	Office Ceiling Cassett Supply			60x1.5			0.50				570	325						
	DH	Supply						1.00				300	150						
		Total									5224		445	5.11					
	R	Office Wall AC	55																
	R	Office Wall AC	56		26x3			0.46			812	420	193	14.28					
	R	Office Wall AC			32x3			0.57			2393	570	325	8.15					
	DH	Women's Supply	57					1.00			1304		0	0.00					
	DH	Women's Exhaust	57					1.00			1304		0	0.00					
	DH	Men's Supply	58					1.00			1294		0	0.00					
	DH	Men's Exhaust	58					1.00			1294		30	1.39					

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PROJECT NO.: 21-4253-DW

PROJECT: EARL BOYLES ELEMENTARY SCHOOL - PORTLAND, OREGON

DATE START: 03/15/21

FINISH: 03/15/21

SYSTEM: Multi-purpose, Workroom, Conferences, Offices and exhausts

SECTION:

BY: DN / WN

PAGE: 3 OF 4

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	Supply	64					1.00		1044		110	6.32					
	DH	Girl's Supply	67					1.00		3157		155	2.95					
	DH	Girl's Exhaust	67					1.00		3157		45	0.86					
	DH	Boy's Supply	68					1.00		3150		-25						
	DH	Boy's Exhaust	68					1.00		3150		35	0.67					
		PE Office	71															
	DH	Supply						1.00		1605		110	4.11					
	DH	PE Office RR Supply	71					1.00		719		25	2.09					
	DH	PE Office RR Exhaust	71					1.00		719		0	0.00					
		H4-4																
	DH	Observation 1	H4-4					1.00		619		50	4.85					
		H4-5																
	DH	Observation 2	H4-5					1.00		679		50	4.42					
	DH	Art Nook						1.00		11069		280	1.52					
	DP	Library Media				22"O	TRAV	2.69		45121	1567	4215	5.61					
	R	Parent Resource Zone	Open			24x4	SW	0.47		4341	940	442	6.11					
	DH	Health (VVT-1)						1.00		2102		70	2.00					
	DH	Health RR Supply						1.00		182		0	0.00					
	DH	Health RR Exhaust						1.00		182		50	16.48					
	DH	Restroom Supply						1.00		381		0	0.00					
	DH	Restroom Exhaust						1.00		381		35	5.51					
	DP	Gym				34"O	TRAV	6.30		177041	1341	8448	2.86					

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AIR BALANCE DATA SHEET

PROJECT NO.: 21-4253-DW

PROJECT: EARL BOYLES ELEMENTARY SCHOOL - PORTLAND, OREGON

DATE START: 03/15/21

FINISH: 03/15/21

SYSTEM: Exhausts, Observations, Offices, Art Nook, Library Media, Parent Resource

SECTION:

BY: DN / WN

PAGE: 4 OF 4