

AIR BALANCING SPECIALTY INC.

**RON RUSSELL MIDDLE 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: **RON RUSSELL MIDDLE SCHOOL - PORTLAND, OREGON**

OWNER: DAVID DOUGLAS SCHOOL DISTRICT DATE STARTED: 04/16/21 DATE FINISHED: 04/16/21

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	
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: RON RUSSELL MIDDLE 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: RON RUSSELL MIDDLE 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	241			SW	1.00			11539		1080	5.62					
	R	Classroom	242			10x6x8 SW	1.00			13637		1653	7.27					
	R	Classroom	243			10x6x8 SW	1.00			14988		1653	6.62					
	R	Classroom	244			10x6x8 SW	1.00			15083		1931	7.68					
	DH	Main Office				SW	1.00			4592		325	4.25					
	DH	Office	141			SW	1.00			961		170	10.61					
	DH	Staff	142			SW	1.00			6069		480	4.75					
	DH	Counselor	144			SW	1.00			1015		170	10.05					
	DH	Principal	145			SW	1.00			861		165	11.50					
	DH	Nurse	148			SW	1.00			865		150	10.40					
	DH	Copy	150			SW	1.00			4723		205	2.60					
	DH	Counselor	152			SW	1.00			1159		180	9.32					
	DH	Conference	157			SW	1.00			2484		200	4.83					
	DH	Vice Principal	159			SW	1.00			1232		50	2.44					
	DH	Vice Principal	160			SW	1.00			930		50	3.23					
	DH	Office	161			SW	1.00			933		70	4.50					
	DH	Attendance	158			SW	1.00			1363		60	2.64					
	DH	Boys PE Office	121			SW	1.00			1382		155	6.73					
	DH	Girls PE Office				SW	1.00			1418		205	8.67					

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CONSTANT VOLUME - FPM

AIR BALANCE DATA SHEET

PROJECT NO.: 21-4253-DW

PROJECT: RON RUSSELL MIDDLE SCHOOL - PORTLAND, OREGON

DATE START: 04/16/21

FINISH: 04/16/21

SYSTEM: Classrooms and misc

SECTION:

BY: DN / WN

PAGE: 2 OF 5

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	Upper Gym RTU-9			52x20			6.50			13531	941	6117	27.12					
	DG	Gym RTU-7	115		52x20			6.50			251076	593	3855	0.92					
	DG	Band RTU-11	134		35x11			2.41			21544	688	1658	4.62					
	DG	Practice	135					1.00			390		45	6.92					
			136	140A				1.00			828		75	5.43					
		Office	137					1.00			739		60	4.87					
			138	140B				1.00			389		35	5.40					
		Practice	139					1.00			880		120	8.18					
	DG	Choir RTU-10	140		35x11			2.41			1939	683	1646	50.93					
	DG	Commons RTU-12			90x32			18.00			183675	405	7290	2.38					
	DG	Platform AHU-4			20x20			2.78			19335	781	2171	6.74					
	DH	Computer Lab	216					1.00			11012		1955	10.65					
	DH	Computer Lab	217					1.00			12307		1980	9.65					
	DH	Library					SW	1.00			62174		255	0.25					
	DH	A.V.	220					1.00			2946		130	2.65					
	DH	Librarian	221					1.00			872		70	4.82					
	DH	Quiet Study	222					1.00			656		90	8.23					
	DH	Work Rm	223					1.00			1982		115	3.48					

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CONSTANT VOLUME - FPM

AIR BALANCE DATA SHEET

PROJECT NO.: 21-4253-DW

PROJECT: RON RUSSELL MIDDLE SCHOOL - PORTLAND, OREGON

DATE START: 04/16/21

FINISH: 04/16/21

SYSTEM: Gym, Band, Practice, Choir, Commons, Computer Lab, Library, A.V.

SECTION:

BY: DN / WN

PAGE: 3 OF 5

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	Boys RR Supply (by rm 112)						1.00			2752		205	4.47				
	DH	Boys RR Exhaust(by rm 112)						1.00			2752		295	6.43				
	DH	Girls RR Supply (by rm 112)						1.00			2640		285	6.48				
	DH	Girls RR Exhaust (by rm 112)						1.00			2640		335	7.61				
	DH	Health RR Supply	49					1.00			705		55	4.68				
	DH	Health RR Exhaust	49					1.00			705		60	5.11				
	DH	Office Mens RR Supply						1.00			1424		95	4.00				
	DH	Office Mens RR Exhaust						1.00			1424		75	3.16				
	DH	Office Womens RR Supply						1.00			1434		115	4.81				
	DH	Office Womens RR Exhaust						1.00			1434		65	2.72				
	DH	Boys Toilet (Locker) Supply						1.00			1395		100	4.30				
	DH	Boys Toilet (Locker) Exhaust						1.00			1395		175	7.53				
	DH	Boys Locker Rm Supply	119					1.00			9191		640	4.18				
	DH	Boys Locker Rm Exhaust	119					1.00			9191		490	3.20				
	DH	Girls Toilet (Locker) Supply						1.00			1402		145	6.21				
	DH	Girls Toilet (Locker) Exhaust						1.00			1402		295	12.62				
	DH	Girls Locker Rm Supply	128					1.00			9117		1105	7.27				
	DH	Girls Locker Rm Exhaust	128					1.00			9117		805	5.30				
	DH	Boys RR Supply (by rm 182)						1.00			2671		310	6.96				
	DH	Boys RR Exhaust(by rm 182)						1.00			2671		285	6.40				
	DH	Girls RR Supply (by rm 182)						1.00			2657		275	6.21				
	DH	Girls RR Exhaust (by rm 182)						1.00			2657		275	6.21				

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PROJECT: RON RUSSELL MIDDLE SCHOOL - PORTLAND, OREGON

DATE START: 04/16/21

FINISH: 04/16/21

SYSTEM: Exhaust

SECTION:

BY: DN / WN

PAGE: 4 OF 5

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	Boys RR Supply (by rm 212)							1.00		2626		350	8.00					
	DH	Boys RR Exhaust(by rm 212)							1.00		2626		390	8.91					
	DH	Girls RR Supply (by rm 212)							1.00		2532		370	8.77					
	DH	Girls RR Exhaust (by rm 212)							1.00		2532		345	8.18					
	DH	Staff Mens RR Supply							1.00		1363		110	4.84					
	DH	Staff Mens RR Exhaust							1.00		1363		180	7.92					
	DH	Staff Womens RR Supply							1.00		1371		105	4.60					
	DH	Staff Womens RR Exhaust							1.00		1371		155	6.78					
	DH	Boys RR Supply (by rm 234)							1.00		2555		395	9.28					
	DH	Boys RR Exhaust(by rm 234)							1.00		2555		395	9.28					
	DH	Girls RR Supply (by rm 234)							1.00		2661		390	8.79					
	DH	Girls RR Exhaust (by rm 234)							1.00		2661		365	8.23					
	DH	Boys PE Office RR Supply 121A							1.00		627		125	11.96					
	DH	Boys PE Office RR Exhaust 121A							1.00		627		220	21.05					
	DH	Girls PE Office RR Supply 124A							1.00		627		170	16.27					
	DH	Girls PE Office RR Exhaust 124A							1.00		627		280	26.79					

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PAGE: 5 OF 5