



Certified Report

Prepared By: **AABC Testing & Certification**
2305 Historic Decatur Rd, Suite 100
San Diego, CA 92106

Job #: 2020-619

Prepared For:
3000 West Century Blvd.
Inglewood, CA 90303

Test Location: HALO Installation Project

Test Type: Testing and Validation

Test Date: 20JAN2021 & 27JAN2021

Twelve Month Cycle Six Month Cycle Project

Report Disposition: Accept __ Other; see Remarks __

Remarks: _____

Name/Signature/ Date: _____



Certification

Prepared for: WSS Store #68
3000 West Century Blvd.
Inglewood, CA 90303

Job #: 2020-619

The data presented in this report is an exact record of system performance and was obtained in accordance with current industry standard and procedures. Any variances from design quantities, which exceed tolerances, are noted throughout this report.

Certification and Validated Testing is performed to current industry standards and the project specifications.

All tested/actual is traceable to ANSI/NCL Z540/ISO/IEC 17025/10012 ANSI/NC SL Z-540

Contractor: AABC Testing & Certification
Address: 2305 Historic Decatur Rd, Suite 100
City, State, Zip: San Diego, CA 92106

Submitted and Certified by:



Signature:

Date: 04FEB2021

Report Processed by:

Signature: Dianna Stough

Date: 04FEB2021

Report Reviewed by:

Signature: Dennis Miller

Date: 04FEB2021



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General Notes and Summary

Prepared for: WSS Store #68

Job Number: 2020-619

Test Type: HALO Installation – Testing and Validation

Report Date: 04FEB2021

Scope of Work:

1. (Pre) Testing and Validation per:

- Baseline Zone Pressures for interior designated space. (inches water)
- Sample non-viable particle counts for 0.3, 0.5, 1.0, 3.0, 5.0, 10.0 microns sizes in designated interior space.
- Sample Temperature and Humidity
- Certified Report of all data and detailed maps of sampled locations and interior designated zones.

2. (Post) Testing and Validation:

- Verify flow at HALO units.
- Final Zone Pressures for interior designated spaces. (inches water).
- Sample non-viable particle counts for 0.3, 0.5, 1.0, 5.0, 10.0 microns sizes in designated interior space.
- Sample Temperature and Humidity for designated interior space.
- Documentation Report (Pre) and (Post) data.

Functional Test and Measurements:

- Nonviable Particle Counts
- Differential Pressure Testing
- Temperature / Humidity Testing
- FPM Airflow Testing

Summary of results:

All necessary testing completed. Please see attached appendices for details. Chart inserted to show Pre and Post non-viable particles. Recommend focus on 0.3 and 0.5 microns for this activity.

- Samples taken at 48” from floor.



Instrument Calibration Report

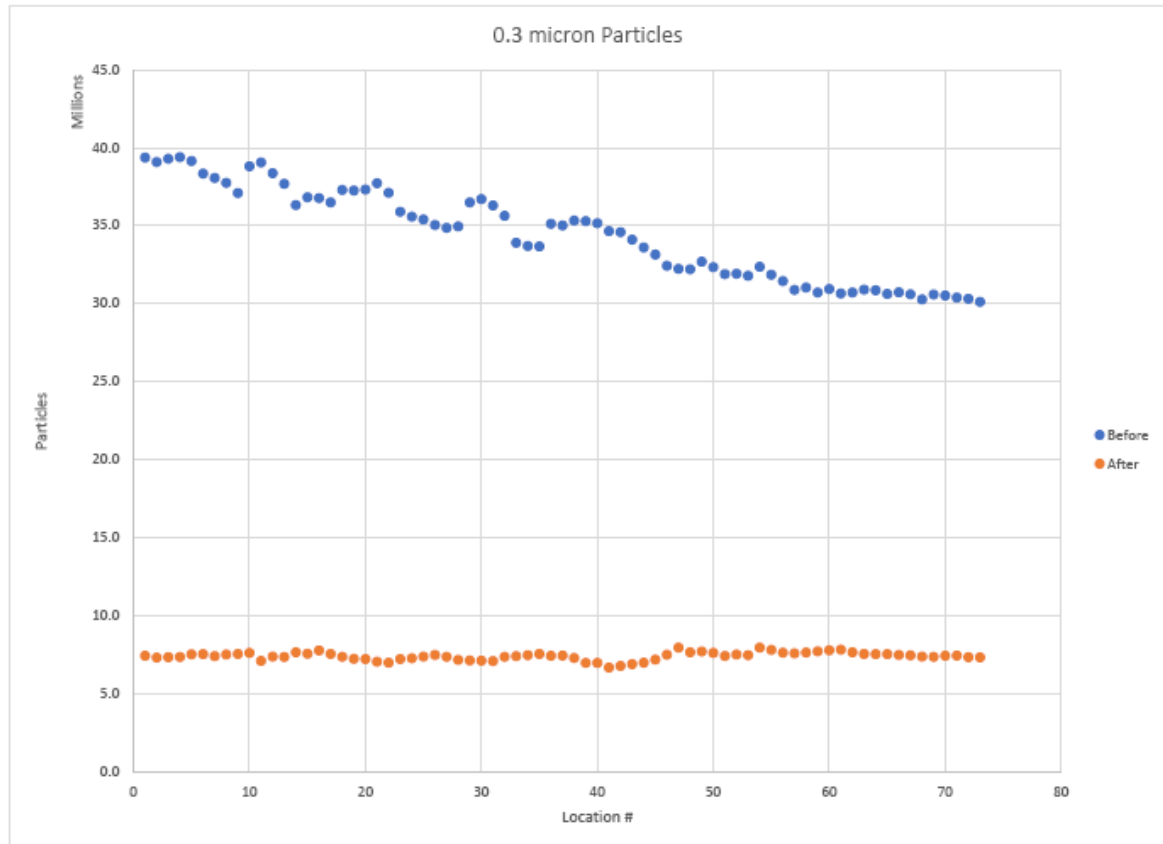
All test instruments are calibrated and traceable to applicable standards

MFR	MODEL #	SERIAL #	CAL DATE	DUE DATE	TECHNICIAN
Shortridge	ADM 870C	M19387	17AUG2020	17AUG2021	Dylan Miller
Lighthouse	Solair S3100	120704006	12OCT2020	12OCT2021	Dylan Miller



Appendices

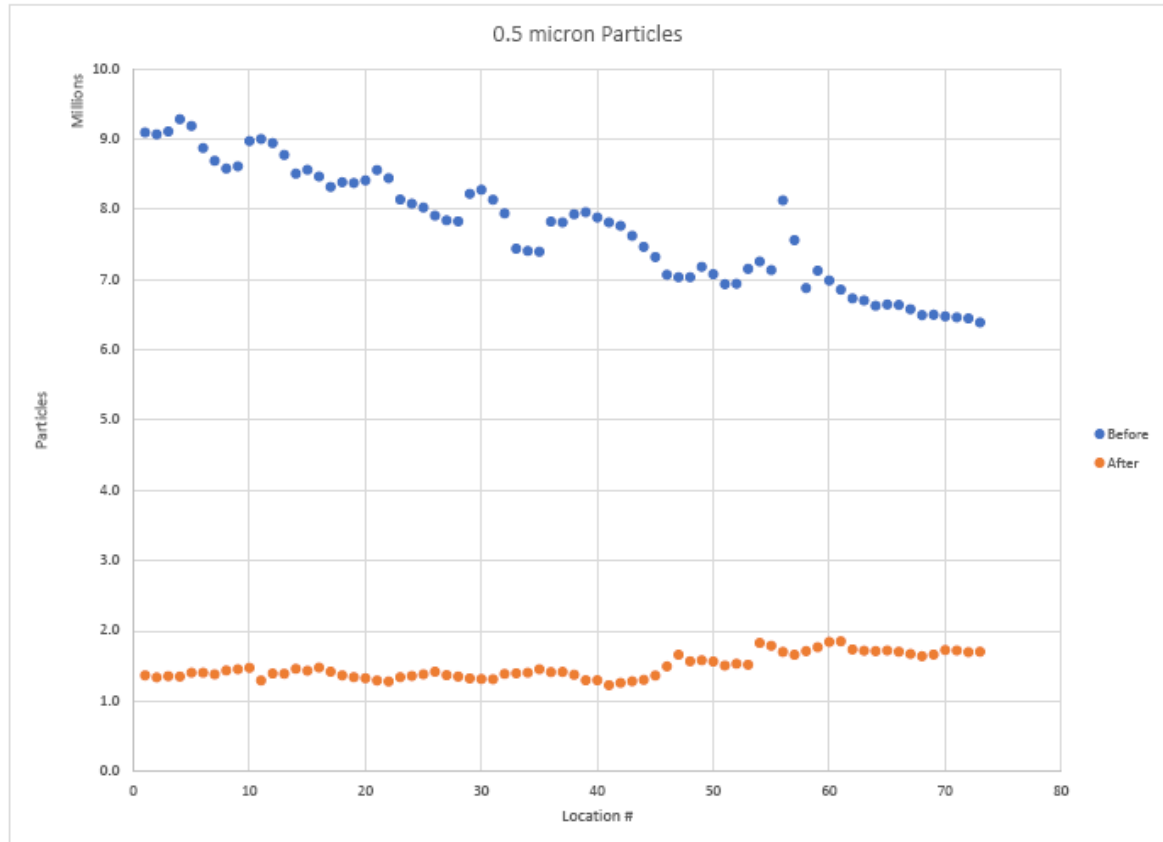
PARTICLE COUNT CHART: 0.3 MICRONS





Appendices

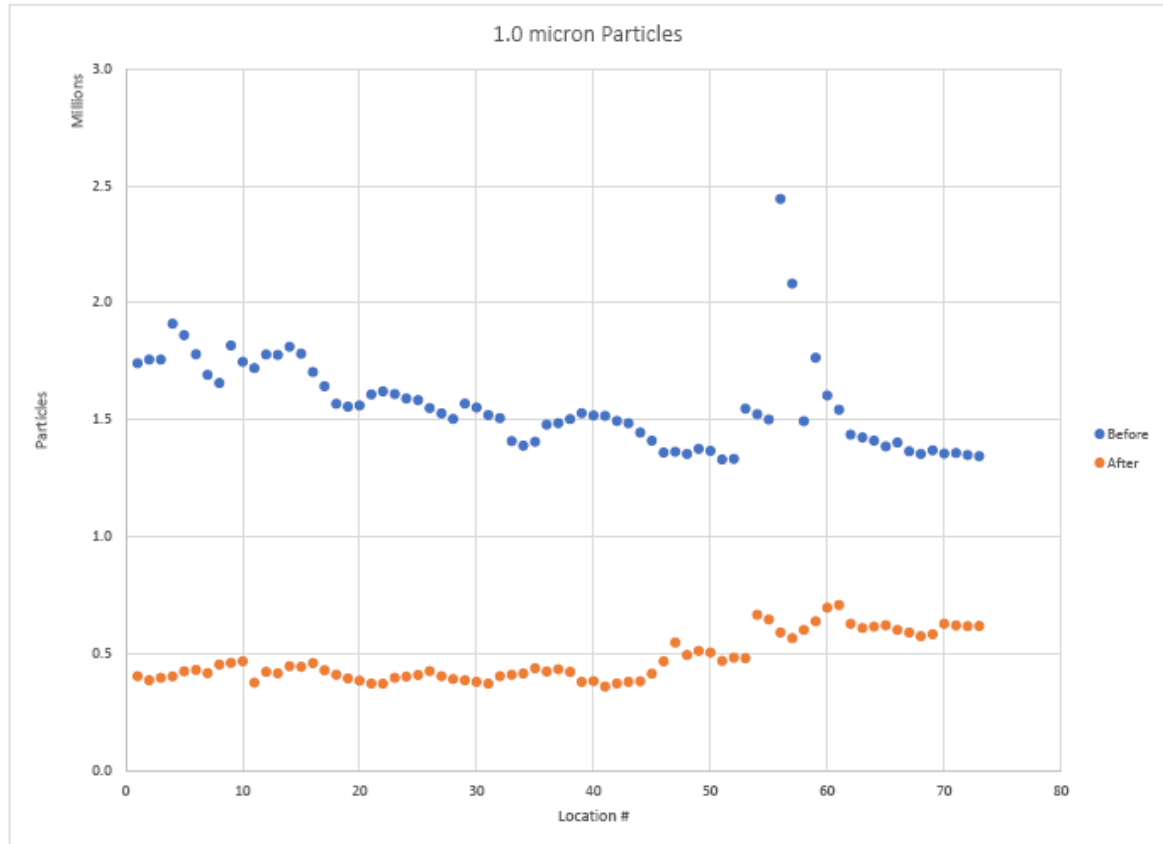
PARTICLE COUNT CHART: 0.5 MICRONS





Appendices

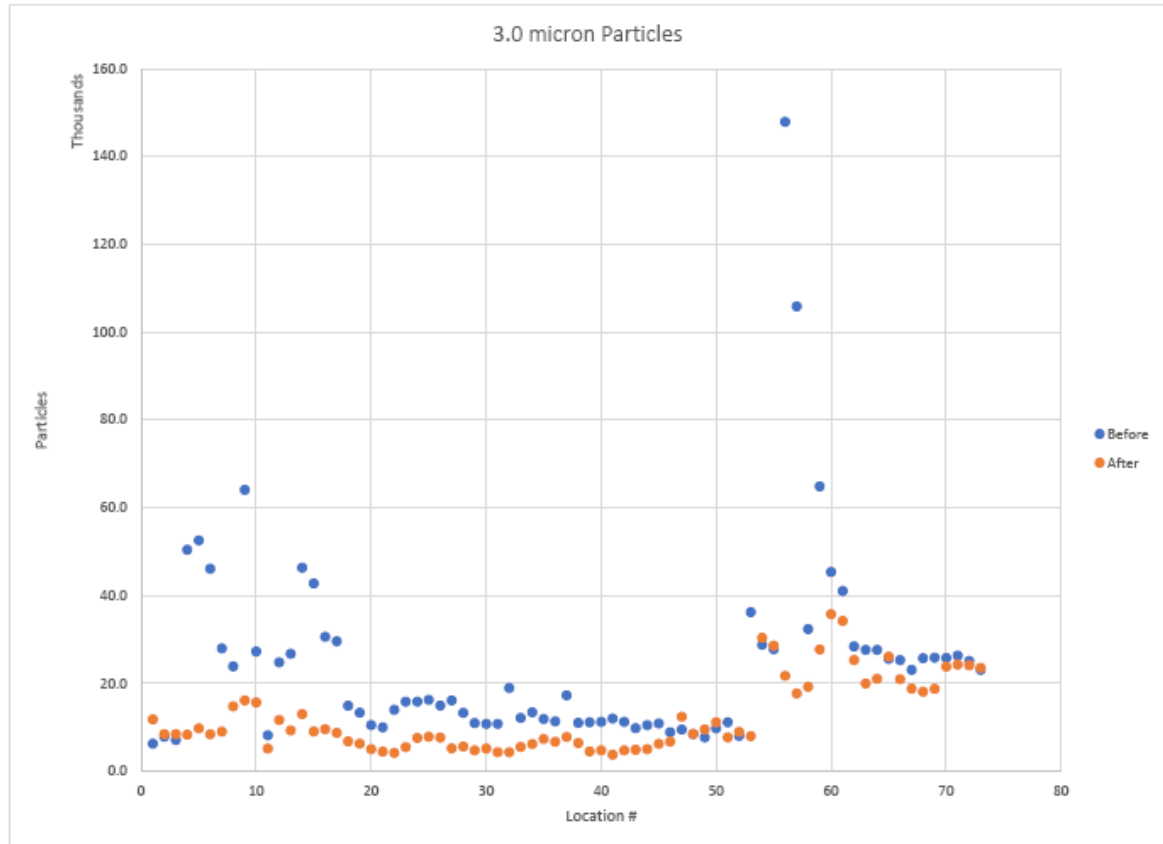
PARTICLE COUNT CHART: 1.0 MICRONS





Appendices

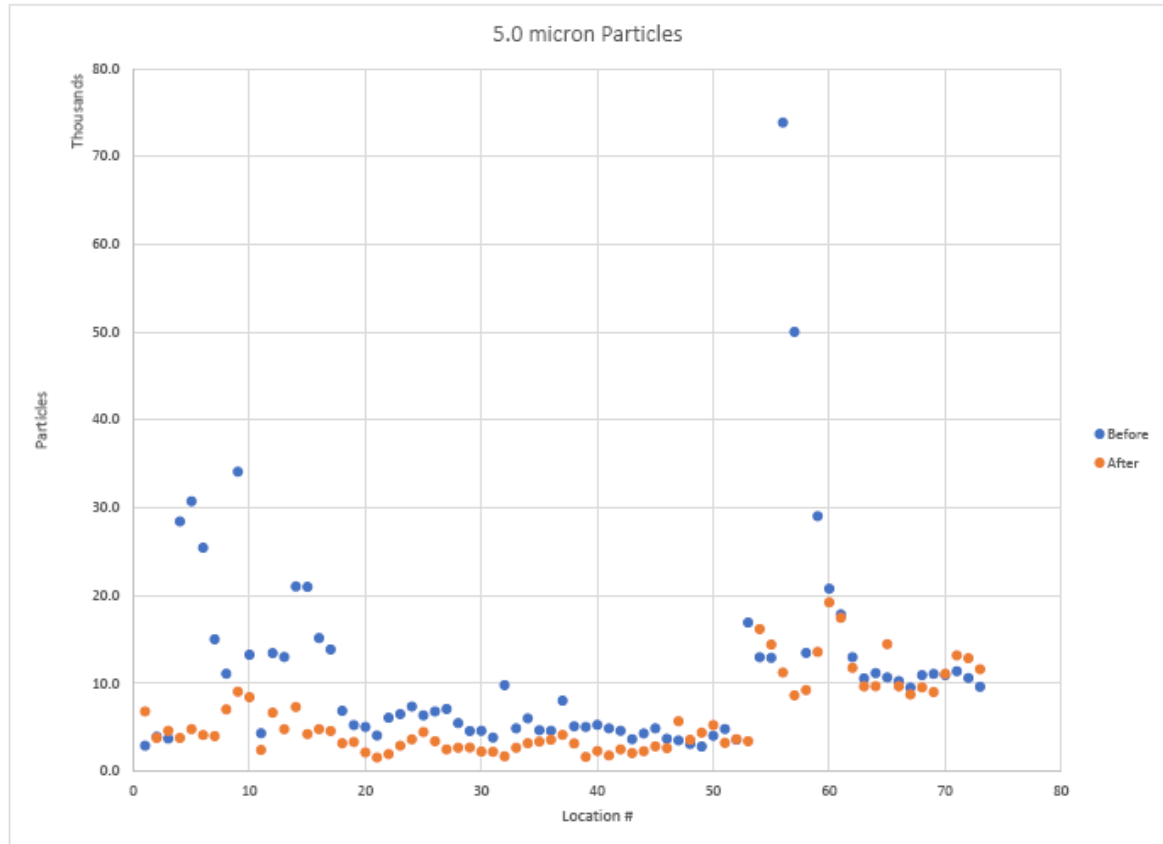
PARTICLE COUNT CHART: 3.0 MICRONS





Appendices

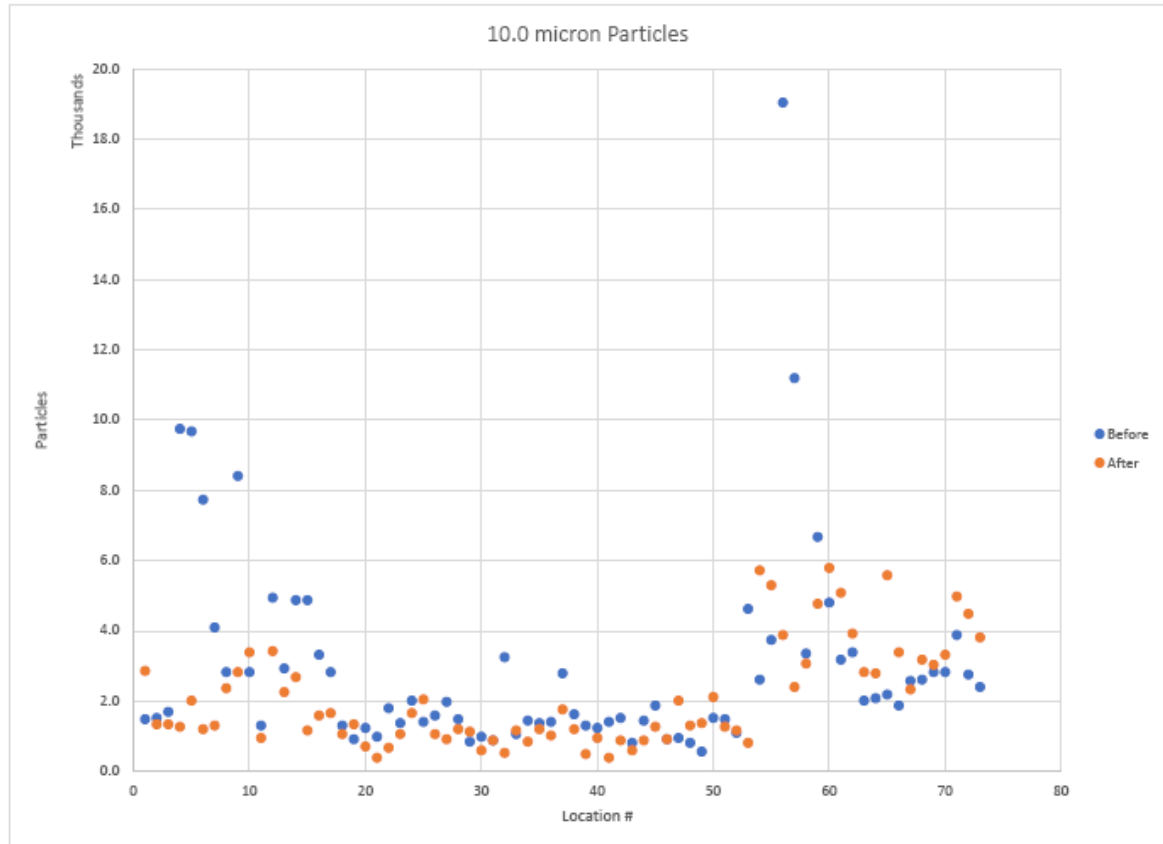
PARTICLE COUNT CHART: 5.0 MICRONS





Appendices

PARTICLE COUNT CHART: 10.0 MICRONS





Appendices

PARTICLE COUNT LOCATIONS:



Particle Count Locations

Project: WSS Store #68 Halo Installation

Note: Not to Scale

70	69	64	63	58	57		52	51	46
71	68	65	62	59	56	53	50		47
73									
72	67	66	61	60	55	54	49		48
	5	6	15	16	25	26	35	36	45
	4	7	14	17	24	27	34	37	44
	3	8	13	18	23	28	33	38	43
	2	9	12	19	22	29	32	39	42
	1	10	11	20	21	30	31	40	41
Technician: Dylan Miller					Date: 20JAN2021 & 27JAN2021				



Appendices

PARTICLE COUNT DATA: PRE

Instrument Model: SOLAIR 3100
 Instrument Serial #: 120704006
 Downloaded On: 1/26/2021 20:03:32
 Particle Data: Cumulative

Timestamp	Location (Number)	Location (Name)	0.3 micron (p/m ³)	0.5 micron (p/m ³)	1.0 micron (p/m ³)	3.0 micron (p/m ³)	5.0 micron (p/m ³)	10.0 micron (p/m ³)	Sample Time (s)	Sample Volume (L)	Temperature (F)	Relative Humidity (PCT)
1/20/2021 06:53:02	1	WSS	39378643.3	9091407.8	1742461.0	6321.3	2931.1	1483.2	60	28.3	67.5	35.9
1/20/2021 06:54:12	2	WSS	39084472.1	9066828.8	1758317.3	7875.2	3955.2	1518.5	60	28.3	67.6	35.4
1/20/2021 06:55:22	3	WSS	39296748.5	9106275.3	1758423.2	7168.9	3743.4	1695.1	60	28.3	67.5	35.2
1/20/2021 06:56:32	4	WSS	39402657.2	9280376.6	1911441.7	50464.7	28463.6	9746.8	60	28.3	67.7	35.3
1/20/2021 06:57:42	5	WSS	39148674.1	9184108.8	1862778.0	52583.5	30759.1	9676.2	60	28.3	67.1	35.3
1/20/2021 06:58:52	6	WSS	38344488.6	8872245.0	1780494.9	46156.3	25461.9	7733.9	60	28.3	67.2	35.1
1/20/2021 07:00:02	7	WSS	38074048.8	8690268.5	1692667.3	28004.5	15044.0	4096.5	60	28.3	67.8	35.6
1/20/2021 07:01:12	8	WSS	37753179.8	8579980.8	1657741.1	23908.0	11124.1	2825.2	60	28.3	67.5	35.4
1/20/2021 07:02:22	9	WSS	37102083.3	8609962.9	1818034.4	64096.1	34114.0	8404.9	60	28.3	68.0	35.0
1/20/2021 07:03:32	10	WSS	38819541.4	8970455.1	1748711.7	27298.2	13278.3	2825.2	60	28.3	67.9	35.1
1/20/2021 07:04:42	11	WSS	39055690.6	8998671.5	1721166.2	8228.3	4343.7	1306.6	60	28.3	67.5	35.1
1/20/2021 07:05:52	12	WSS	38363240.6	8940402.3	1780283.0	24826.2	13454.9	4944.1	60	28.3	68.2	35.2
1/20/2021 07:07:02	13	WSS	37693815.8	8772587.0	1777740.3	26768.5	13031.1	2931.1	60	28.3	68.2	35.2
1/20/2021 07:08:12	14	WSS	36327562.0	8506102.5	1812772.5	46368.2	21047.5	4873.4	60	28.3	68.2	35.2
1/20/2021 07:09:22	15	WSS	36823203.3	8561581.9	1783743.8	42801.4	21012.2	4873.4	60	28.3	68.2	35.3
1/20/2021 07:10:32	16	WSS	36781108.3	8464360.6	1704639.0	30617.8	15185.3	3319.6	60	28.3	69.3	35.3
1/20/2021 07:11:42	17	WSS	36504311.9	8318511.0	1643862.4	29620.0	13878.7	2825.2	60	28.3	68.4	35.4
1/20/2021 07:12:52	18	WSS	37304153.8	8383172.2	1569666.3	14938.1	6886.4	1306.6	60	28.3	68.5	35.2
1/20/2021 07:14:02	19	WSS	37256408.4	8373178.1	1557482.7	13384.3	5261.9	918.2	60	28.3	69.2	35.3
1/20/2021 07:15:12	20	WSS	37322799.9	8409799.4	1562109.0	10559.1	5050.0	1236.0	60	28.3	69.2	35.1
1/20/2021 07:16:22	21	WSS	37724221.7	8559498.3	1608971.5	10029.4	4096.5	988.8	60	28.3	68.9	35.1
1/20/2021 07:17:32	22	WSS	37117727.7	8441935.8	1622532.4	14019.9	6109.4	1801.0	60	28.3	69.1	35.0
1/20/2021 07:18:42	23	WSS	35896369.9	8137064.2	1611302.3	15891.6	6533.2	1377.3	60	28.3	68.5	34.5
1/20/2021 07:19:52	24	WSS	35587401.9	8078689.1	1591561.4	15891.6	7380.8	2012.9	60	28.3	68.5	34.3
1/20/2021 07:21:02	25	WSS	35405001.6	8025646.5	1584639.7	16315.4	6392.0	1412.6	60	28.3	68.6	34.7
1/20/2021 07:22:12	26	WSS	35048005.7	7907695.5	1551232.1	14973.4	6815.7	1589.2	60	28.3	68.1	34.7
1/20/2021 07:23:22	27	WSS	34870090.4	7843246.2	1528100.9	16138.8	7098.2	1977.6	60	28.3	68.1	34.7
1/20/2021 07:24:32	28	WSS	34964980.9	7827566.5	1504863.9	13313.6	5509.1	1483.2	60	28.3	68.7	34.7
1/20/2021 07:25:42	29	WSS	36503353.0	8218252.7	1569842.9	11018.2	4590.9	847.6	60	28.3	68.5	34.7
1/20/2021 07:26:52	30	WSS	36716376.5	8275956.8	1553209.7	10841.6	4626.2	988.8	60	28.3	68.4	34.7
1/20/2021 07:28:02	31	WSS	36301146.6	8135086.6	1521144.0	10841.6	3849.3	882.9	60	28.3	68.4	34.9
1/20/2021 07:29:12	32	WSS	35635006.1	7941597.6	1508042.2	18999.3	9817.5	3248.9	60	28.3	68.4	34.8
1/20/2021 07:30:22	33	WSS	33921432.5	7437657.3	1409973.4	12183.6	4908.7	1059.4	60	28.3	68.4	34.9
1/20/2021 07:31:32	34	WSS	33714241.3	7406898.2	1390974.1	13454.9	6038.8	1447.9	60	28.3	68.6	34.9
1/20/2021 07:32:42	35	WSS	33682069.7	7394396.8	1407077.6	11936.4	4696.9	1377.3	60	28.3	68.1	35.1
1/20/2021 07:33:52	36	WSS	35138093.4	7823293.4	1480355.5	11371.3	4626.2	1412.6	60	28.3	68.2	35.1
1/20/2021 07:35:02	37	WSS	35021978.8	7811463.0	1486606.2	17304.2	8051.7	2789.9	60	28.3	68.1	35.1
1/20/2021 07:36:12	38	WSS	35341258.7	7928213.3	1504016.3	11053.5	5120.6	1624.5	60	28.3	68.2	35.1
1/20/2021 07:37:22	39	WSS	35300152.4	7957877.6	1529442.9	11194.7	5050.0	1306.6	60	28.3	68.3	35.7
1/20/2021 07:38:32	40	WSS	35176092.0	7883681.5	1519696.1	11300.7	5297.2	1236.0	60	28.3	68.4	35.3
1/20/2021 07:39:42	41	WSS	34656966.4	7811816.2	1517683.1	12042.3	4908.7	1412.6	60	28.3	68.3	35.4
1/20/2021 07:40:52	42	WSS	34600710.1	7764459.2	1496247.1	11265.4	4626.2	1518.5	60	28.3	68.6	35.8
1/20/2021 07:42:02	43	WSS	34111919.8	7620869.8	1486288.4	9852.8	3672.7	812.2	60	28.3	69.2	35.8
1/20/2021 07:43:12	44	WSS	33619492.1	7463684.2	1446912.5	10559.1	4308.4	1447.9	60	28.3	68.2	35.8
1/20/2021 07:44:22	45	WSS	33160966.5	7319176.6	1411703.8	10912.2	4908.7	1871.7	60	28.3	68.3	35.8
1/20/2021 07:45:32	46	WSS	32447045.2	7067700.8	1361557.0	8934.6	3708.0	918.2	60	28.3	68.1	35.7
1/20/2021 07:50:49	47	WSS	32241301.9	7033516.2	1364311.5	9499.6	3531.5	953.5	60	28.3	68.4	35.9
1/20/2021 07:51:59	48	WSS	32262693.2	7033551.5	1355235.7	8510.8	3107.7	812.2	60	28.3	68.4	35.3
1/20/2021 07:53:09	49	WSS	32702758.7	7179754.3	1377236.7	7733.9	2825.2	565.0	60	28.3	68.3	35.2
1/20/2021 07:54:19	50	WSS	32348128.8	7076247.0	1368443.3	9817.5	4061.2	1518.5	60	28.3	68.3	35.1
1/20/2021 07:55:29	51	WSS	31905106.3	6934670.5	1331257.0	11194.7	4838.1	1483.2	60	28.3	68.3	34.2
1/20/2021 07:56:39	52	WSS	31939608.7	6940426.8	1334046.9	8087.1	3602.1	1094.8	60	28.3	68.5	34.7
1/20/2021 07:57:49	53	WSS	31805872.1	7152456.0	1548089.0	36268.2	16951.0	4626.2	60	28.3	68.7	34.5
1/20/2021 07:58:59	54	WSS	32381642.4	7256634.3	1525134.5	28816.8	12995.8	2613.3	60	28.3	68.5	34.5
1/20/2021 08:00:09	55	WSS	31867849.3	7133350.8	1502038.7	27792.6	12925.2	3743.4	60	28.3	68.4	34.5
1/20/2021 08:01:19	56	WSS	31459117.4	8126823.0	2443633.7	147897.8	73878.3	19034.6	60	28.3	68.3	34.5
1/20/2021 08:02:29	57	WSS	30906089.7	7560269.8	2083035.6	105873.4	50040.9	11194.7	60	28.3	68.3	34.5
1/20/2021 08:03:39	58	WSS	31051621.4	6878167.0	1495576.1	32418.9	13490.2	3354.9	60	28.3	68.2	34.6
1/20/2021 08:04:49	59	WSS	30736438.0	7125369.7	1766227.7	64908.4	29064.0	6674.5	60	28.3	68.4	34.6
1/20/2021 08:05:59	60	WSS	30959768.0	6987077.4	1605051.6	45414.7	20800.3	4802.8	60	28.3	68.3	34.6
1/20/2021 08:07:09	61	WSS	30661253.1	6855353.7	1544416.3	41071.0	17869.2	3178.3	60	28.3	68.6	34.5
1/20/2021 08:08:19	62	WSS	30733506.9	6731434.6	1437589.5	28463.6	12995.8	3390.2	60	28.3	68.8	34.5
1/20/2021 08:09:29	63	WSS	30917637.6	6702653.1	1425865.0	27686.7	10594.4	2012.9	60	28.3	68.8	34.4
1/20/2021 08:10:39	64	WSS	30877590.7	6625631.8	1411421.3	27686.7	11194.7	2083.6	60	28.3	68.7	34.4
1/20/2021 08:11:49	65	WSS	30639923.0	6643889.5	1387548.6	25638.4	10700.3	2189.5	60	28.3	68.8	34.4
1/20/2021 08:12:59	66	WSS	30741947.1	6638274.5	1404323.0	25355.9	10276.6	1871.7	60	28.3	68.6	34.5
1/20/2021 08:14:09	67	WSS	30618275.1	6577851.1	1366642.3	23131.1	9535.0	2578.0	60	28.3	68.7	34.5
1/20/2021 08:15:19	68	WSS	30284586.9	6492742.7	1355412.2	25779.7	10947.5	2613.3	60	28.3	68.7	34.5
1/20/2021 08:16:29	69	WSS	30607327.6	6499699.7	1370738.8	25921.0	11088.8	2825.2	60	28.3	68.6	34.1
1/20/2021 08:17:39	70	WSS	30536486.4	6475156.0	1357001.4	25815.0	10947.5	2825.2	60	28.3	68.6	34.1
1/20/2021 08:18:49	71	WSS	30400065.8	6459970.7	1359755.9	26380.1	11406.6	3884.6	60	28.3	68.5	34.7
1/20/2021 08:19:59	72	WSS	30323538.9	6445527.0	1351033.2	25179.4	10629.7	2754.5	60	28.3	68.3	34.6
1/20/2021 08:21:09	73	WSS	30128707.9	6387611.0	1345488.8	23131.1	9640.9	2401.4	60	28.3	68.4	34.6
Average			34431528.2	7742709.7	1562535.2	24508.4	11379.5	2937.9	60.0	28.3	68.3	35.0
Maximum			39402657.2	9280376.6	2443633.7	147897.8	73878.3	19034.6	60	28.3	69.3	35.9
Minimum			30128707.9	6387611.0	1331257.0	6321.3	2825.2	565.0	60	28.3	67.1	34.1



Appendices

PARTICLE COUNT DATA: POST

Instrument Model: SOLAIR 3100
 Instrument Serial #: 120704006
 Downloaded On: 1/29/2021 16:10:35
 Particle Data: Cumulative

Timestamp	Location (Number)	Location (Name)	0.3 micron (p/m ³)	0.5 micron (p/m ³)	1.0 micron (p/m ³)	3.0 micron (p/m ³)	5.0 micron (p/m ³)	10.0 micron (p/m ³)	Sample Time (s)	Sample Volume (L)	Temperature (F)	Relative Humidity (PCT)
1/27/2021 07:07:56	1	WSS	7467851.3	1365335.6	406789.6	11830.4	6815.7	2860.5	60	28.3	67.4	35.3
1/27/2021 07:09:06	2	WSS	7349158.7	1337295.8	389238.3	8510.8	3814.0	1342.0	60	28.3	67.5	35.0
1/27/2021 07:10:16	3	WSS	7377657.7	1354917.8	399973.9	8510.8	4626.2	1342.0	60	28.3	67.5	35.0
1/27/2021 07:11:26	4	WSS	7389735.3	1350291.6	405553.6	8369.6	3814.0	1271.3	60	28.3	67.5	35.0
1/27/2021 07:12:36	5	WSS	7553418.8	1403228.3	426989.6	9817.5	4802.8	2012.9	60	28.3	67.4	35.1
1/27/2021 07:13:46	6	WSS	7576726.4	1405665.0	433487.5	8440.2	4131.8	1200.7	60	28.3	67.4	35.1
1/27/2021 07:14:56	7	WSS	7446274.1	1382074.8	419891.4	9075.9	4025.9	1306.6	60	28.3	67.4	35.3
1/27/2021 07:16:06	8	WSS	7540423.0	1436671.3	455735.8	14832.2	7062.9	2366.1	60	28.3	67.7	35.1
1/27/2021 07:17:16	9	WSS	7587532.7	1452562.9	462657.4	16174.1	9075.9	2825.2	60	28.3	67.7	34.8
1/27/2021 07:18:26	10	WSS	7653994.9	1473151.3	469932.3	15715.0	8440.2	3390.2	60	28.3	67.9	34.6
1/27/2021 07:19:36	11	WSS	7141261.3	1294882.9	378891.1	5191.3	2436.7	953.5	60	28.3	67.9	34.6
1/27/2021 07:20:46	12	WSS	7417951.7	1391892.3	424552.9	11689.2	6674.5	3425.5	60	28.3	67.9	34.6
1/27/2021 07:21:56	13	WSS	7396303.8	1388537.4	418266.9	9323.1	4802.8	2260.1	60	28.3	67.9	34.5
1/27/2021 07:23:06	14	WSS	7693229.5	1459661.1	449343.8	13066.4	7345.5	2683.9	60	28.3	67.9	34.6
1/27/2021 07:24:16	15	WSS	7594171.9	1433422.3	446377.4	9111.2	4237.8	1165.4	60	28.3	67.9	34.6
1/27/2021 07:25:26	16	WSS	7805000.4	1477706.9	461951.2	9605.6	4802.8	1589.2	60	28.3	67.7	34.6
1/27/2021 07:26:36	17	WSS	7583612.8	1418095.8	431792.4	8793.4	4590.9	1659.8	60	28.3	67.9	34.7
1/27/2021 07:27:46	18	WSS	7405273.7	1366112.6	412263.4	6815.7	3213.6	1059.4	60	28.3	67.9	34.5
1/27/2021 07:28:56	19	WSS	7272243.4	1340050.3	396689.7	6321.3	3354.9	1342.0	60	28.3	68.1	34.6
1/27/2021 07:30:06	20	WSS	7262920.3	1327337.1	387684.4	5085.3	2154.2	706.3	60	28.3	68.3	34.2
1/27/2021 07:31:16	21	WSS	7087477.0	1292869.9	375183.0	4485.0	1589.2	388.5	60	28.3	68.3	34.2
1/27/2021 07:32:26	22	WSS	7026382.7	1280968.9	374370.8	4237.8	1977.6	671.0	60	28.3	68.5	34.1
1/27/2021 07:33:36	23	WSS	7263344.1	1340403.5	399408.9	5509.1	2931.1	1059.4	60	28.3	68.3	34.0
1/27/2021 07:34:46	24	WSS	7307310.8	1357919.6	404352.9	7628.0	3637.4	1659.8	60	28.3	68.3	34.1
1/27/2021 07:35:56	25	WSS	7409794.0	1380450.3	412016.2	7875.2	4485.0	2048.3	60	28.3	68.3	34.2
1/27/2021 07:37:06	26	WSS	7525449.5	1419649.6	428084.4	7698.6	3425.5	1059.4	60	28.3	67.9	34.2
1/27/2021 07:38:16	27	WSS	7399199.6	1369220.3	406295.2	5261.9	2507.3	918.2	60	28.3	67.9	34.4
1/27/2021 07:39:26	28	WSS	7203627.0	1350150.3	394323.6	5685.7	2683.9	1200.7	60	28.3	68.1	34.4
1/27/2021 07:40:36	29	WSS	7164357.1	1322357.7	389132.3	4802.8	2719.2	1130.1	60	28.3	68.3	34.4
1/27/2021 07:41:46	30	WSS	7152844.5	1315400.7	382422.5	5191.3	2260.1	600.3	60	28.3	68.1	34.4
1/27/2021 07:42:56	31	WSS	7131020.0	1312363.6	374723.9	4343.7	2224.8	882.9	60	28.3	68.1	34.6
1/27/2021 07:44:06	32	WSS	7408840.5	1386206.6	406577.8	4343.7	1730.4	529.7	60	28.3	68.1	34.4
1/27/2021 07:45:16	33	WSS	7440588.4	1395670.9	412969.7	5579.7	2683.9	1165.4	60	28.3	68.1	34.2
1/27/2021 07:46:26	34	WSS	7512347.8	1404782.1	418231.6	6215.4	3213.6	847.6	60	28.3	68.1	34.2
1/27/2021 07:47:36	35	WSS	7583718.7	1452562.9	440232.6	7380.8	3390.2	1200.7	60	28.3	67.9	34.6
1/27/2021 07:48:46	36	WSS	7463896.1	1411986.3	426601.2	6745.1	3602.1	1024.1	60	28.3	67.9	34.6
1/27/2021 07:49:56	37	WSS	7485120.2	1414917.4	435783.0	7839.9	4167.1	1765.7	60	28.3	67.9	34.6
1/27/2021 07:51:06	38	WSS	7327722.7	1374694.0	424552.9	6462.6	3178.3	1200.7	60	28.3	67.9	34.6
1/27/2021 07:52:16	39	WSS	7015682.3	1295801.1	382351.9	4555.6	1659.8	494.4	60	28.3	67.9	34.7
1/27/2021 07:53:26	40	WSS	7010597.0	1296083.6	385459.6	4767.5	2330.8	953.5	60	28.3	68.1	34.8
1/27/2021 07:54:36	41	WSS	6711905.6	1227078.7	362151.9	3814.0	1801.0	388.5	60	28.3	68.1	35.0
1/27/2021 07:55:46	42	WSS	6821698.9	1260239.2	374829.9	4767.5	2507.3	882.9	60	28.3	67.9	34.8
1/27/2021 07:56:56	43	WSS	6937778.2	1282416.8	381892.8	4908.7	2083.6	600.3	60	28.3	68.1	34.8
1/27/2021 07:58:06	44	WSS	7026135.5	1303075.9	384929.9	5050.0	2295.5	882.9	60	28.3	67.9	34.8
1/27/2021 07:59:16	45	WSS	7218777.0	1364029.0	417384.0	6250.7	2860.5	1271.3	60	28.3	67.9	34.8
1/27/2021 08:00:01	46	WSS	7539575.4	1492998.2	469755.7	6780.4	2648.6	918.2	60	28.3	67.7	34.6
1/27/2021 08:07:11	47	WSS	7992344.7	1659400.9	549849.4	12466.1	5721.0	2012.9	60	28.3	67.9	34.5
1/27/2021 08:08:21	48	WSS	7685389.7	1566629.2	497089.2	8546.1	3602.1	1306.6	60	28.3	67.7	34.4
1/27/2021 08:09:31	49	WSS	7740621.8	1581072.9	514746.6	9570.3	4414.3	1377.3	60	28.3	67.9	34.2
1/27/2021 08:10:41	50	WSS	7649192.1	1565110.7	507613.0	11194.7	5261.9	2118.9	60	28.3	68.1	34.1
1/27/2021 08:11:51	51	WSS	7457821.9	1506700.3	471733.3	7733.9	3248.9	1271.3	60	28.3	68.1	34.1
1/27/2021 08:13:01	52	WSS	7552253.4	1532727.2	485823.9	9005.2	3672.7	1165.4	60	28.3	68.1	34.1
1/27/2021 08:14:11	53	WSS	7507615.6	1516376.5	483493.1	8051.7	3425.5	812.2	60	28.3	67.9	34.1
1/27/2021 08:15:21	54	WSS	7987965.7	1827710.6	668330.1	30405.9	16209.4	5721.0	60	28.3	68.1	34.1
1/27/2021 08:16:31	55	WSS	7844129.1	1786463.0	648165.4	28640.2	14443.7	5297.2	60	28.3	68.1	34.0
1/27/2021 08:17:41	56	WSS	7668509.2	1701248.8	592544.8	21789.1	11265.4	3884.6	60	28.3	68.1	34.0
1/27/2021 08:18:51	57	WSS	7629627.8	1659153.7	568742.7	17728.0	8652.1	2401.4	60	28.3	68.1	34.0
1/27/2021 08:20:01	58	WSS	7673382.7	1711490.0	603739.5	19246.5	9252.4	3072.4	60	28.3	67.9	34.1
1/27/2021 08:21:11	59	WSS	7756654.7	1767428.4	640290.2	27757.3	13596.1	4767.5	60	28.3	67.9	34.1
1/27/2021 08:22:21	60	WSS	7823576.0	1843249.0	698736.0	35773.8	19246.5	5791.6	60	28.3	67.9	34.1
1/27/2021 08:23:31	61	WSS	7860232.6	1849711.6	710072.0	34255.2	17480.8	5085.3	60	28.3	68.1	34.0
1/27/2021 08:24:41	62	WSS	7688603.3	1735751.2	630154.9	25355.9	11795.1	3919.9	60	28.3	68.3	34.0
1/27/2021 08:25:51	63	WSS	7590146.0	1717316.9	612003.2	19988.1	9676.2	2825.2	60	28.3	68.3	33.9
1/27/2021 08:27:01	64	WSS	7578209.6	1711596.0	618183.2	21082.9	9711.5	2789.9	60	28.3	68.3	33.9
1/27/2021 08:28:11	65	WSS	7567791.8	1719612.4	624080.8	26132.9	14479.0	5579.7	60	28.3	68.3	33.9
1/27/2021 08:29:21	66	WSS	7522483.1	1702202.3	604304.6	20976.9	9676.2	3390.2	60	28.3	68.5	33.7
1/27/2021 08:30:31	67	WSS	7494619.8	1672114.2	592615.4	18858.0	8758.0	2330.8	60	28.3	68.5	33.7
1/27/2021 08:31:41	68	WSS	7413890.5	1639589.3	576865.1	18151.7	9570.3	3178.3	60	28.3	68.5	33.7
1/27/2021 08:32:51	69	WSS	7404108.3	1662826.4	585446.5	18822.7	9040.6	3037.1	60	28.3	68.5	33.9
1/27/2021 08:34:01	70	WSS	7466474.0	1726604.7	630508.1	23872.7	11124.1	3319.6	60	28.3	68.5	33.6
1/27/2021 08:35:11	71	WSS	7478233.8	1719859.6	623162.6	24331.8	13207.7	4979.4	60	28.3	68.5	33.7
1/27/2021 08:36:21	72	WSS	7383413.9	1696587.2	619383.9	24119.9	12889.9	4485.0	60	28.3	68.5	33.9
1/27/2021 08:37:31	73	WSS	7370488.8	1703014.5	620620.0	23590.2	11618.5	3814.0	60	28.3	68.5	33.9
Average			7444900.2	1485544.4	478361.3	12217.9	6052.8	2085.5	60.0	28.3	68.0	34.4
Maximum			7992344.7	1849711.6	710072.0	35773.8	19246.5	5791.6	60	28.3	68.5	35.3
Minimum			6711905.6	1227078.7	362151.9	3814.0	1589.2	388.5	60	28.3	67.4	33.6



Appendices

AIR OUTLET TEST:

	AIR OUTLET TEST
---	------------------------

PROJECT: WQSS Store #68 SYSTEM: Existing

AREA SERVED	OUTLET	ACTUAL	NOTES
	NO.	AIRFLOW FPM	
Store Floor	1	36	①
Store Floor	2	37	①
Store Floor	3	42	①
Store Floor	4	27	①
Store Floor	5	33	①
Store Floor	6	34	①
Store Floor	7	34	①
Store Floor	8	29	①

Notes:
① Veify airflow at HALO unit.
Technician: Dylan Miller
Test Date: 27JAN2021



Appendices

ROOM PRESSURE TEST:

	<h3><i>Room Pressure Test Report</i></h3>
---	---

PROJECT WSS Store #68

SYSTEM Existing

Room Numbers		Differential Pressure	Test Date
High Pressure Room	Low Pressure Room	Measured ΔP	
Store	Exterior	0.002"	20JAN2021
Exterior	Store	0.021"	27JAN2021

Notes:
 Room pressure take pre and post HALO installation.

Technician: Dylan Miller



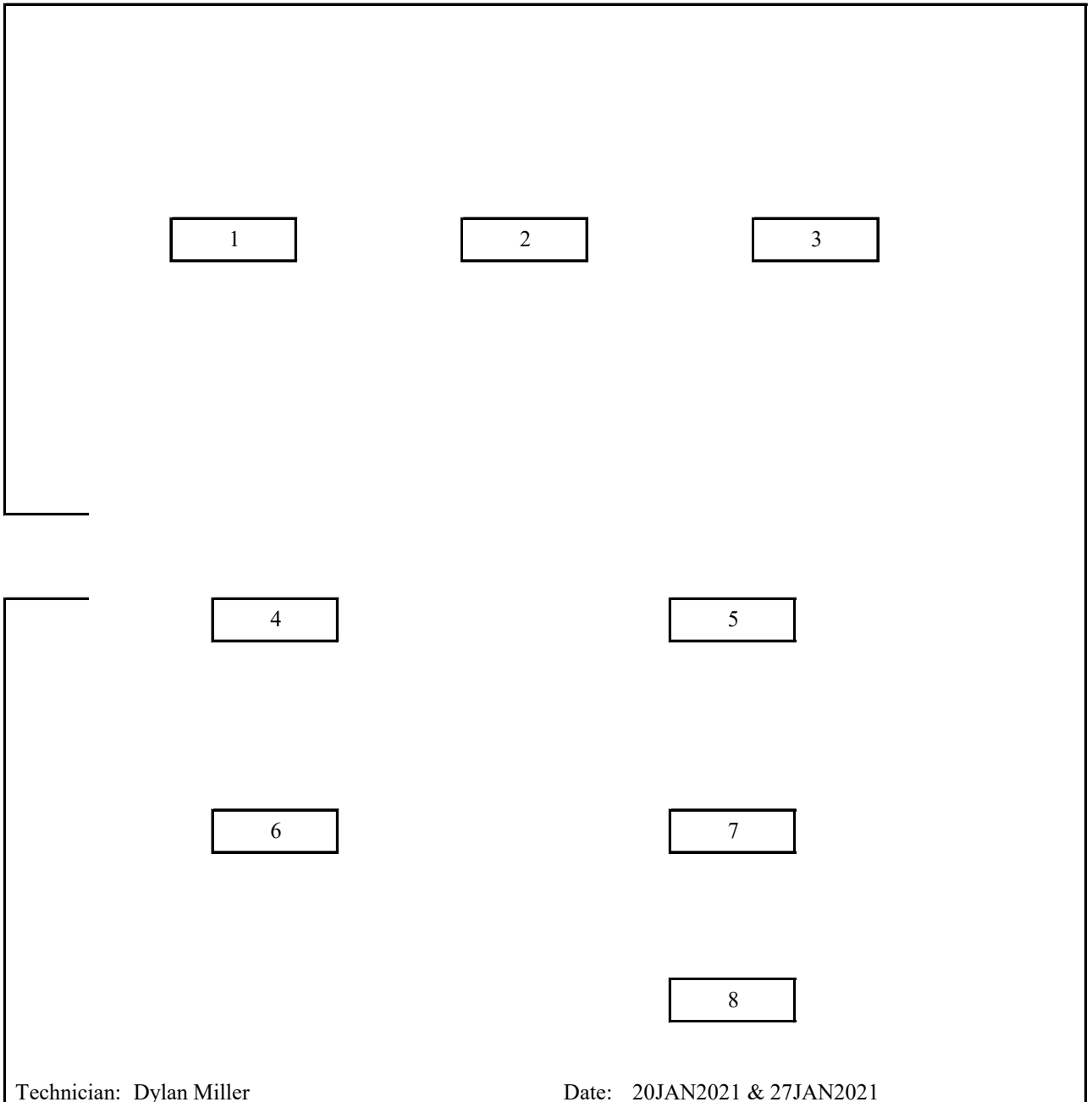
Appendices

HEPA FILTER LOCATIONS:

 **HEPA Filter Locations**

Project: WSS Store #68 Halo Installation

Note: Not to Scale





Appendices

CALIBRATION CERTIFICATE FOR: SHORTRIDGE ADM 870C / M19387



MICRO PRECISION CALIBRATION INC.
9080 ACTIVITY RD, STE C
SAN DIEGO CA 92126
858-547-0217

Certificate of Calibration

Date: Aug 17, 2020

Cert No. 551220083770144

Customer:
AABC TESTING AND CERTIFICATION INC.
2305 HISTORIC DECATUR RD. SUITE100
SAN DIEGO CA 92108

Work Order #: SD-60032960

MPC Control #: DV9391
Asset ID: N/A
Gage Type: ELECTRONIC MICROMANOMETER
Manufacturer: SHORTRIDGE INSTRUMENTS
Model Number: ADM-870C
Size: N/A
Temp/RH: 22.0°C / 60.0%
Location: Calibration performed at MPC facility

Serial Number: M19387
Department: N/A
Performed By: FIDEL MARTINEZ
Received Condition: IN TOLERANCE
Returned Condition: IN TOLERANCE
Cal. Date: August 17, 2020
Cal. Interval: 12 MONTHS
Cal. Due Date: August 17, 2021

Calibration Notes:
Manufacturer's specifications were used to calibrate this unit.

Standards Used to Calibrate Equipment

I.D.	Description	Model	Serial	Manufacturer	Cal. Due Date	Traceability #
CF7854	CFM THERMO-ANEMOMETER	407113	Q562712	EXTECH INSTRUMENTS	May 31, 2021	551220083622469

Procedures Used in this Event

Procedure Name	Description
MPC-AIR-001 Rev. 01	Air Velocity, Temperature and Flow Meters, General, rev01, Feb-11-2020

Calibrating Technician:

FIDEL MARTINEZ

QC Approval:

PEDRO ADAME

STATEMENTS OF PASS OR FAIL CONFORMANCE: The accuracy of measurement has been taken into account when determining compliance with specifications. All measurements and test results given herein to ensure the probability of false-accept does not exceed 5% in compliance with ANSI/ISO 9000:2015 and in case without guard bands the probability of false-accept depends on test uncertainty ratio.

THE CALIBRATION REPORT STATUS:


PASS: Term used when compliance statement is given, and the measurement result is PASS.
PASS? Term used when compliance statement is given, and the measurement result is conditional passed or PASS?
FAIL: Term used when compliance statement is given, and the measurement result is FAIL.
FAIL? Term used when compliance statement is given, and the measurement result is conditional failed or FAIL?
REPORT OF VALUE: Term used when reported measurement is not requiring compliance statement in report.
ADJUSTED: When adjustments are made to an instrument which changes the value of measurement from what was measured as faced to new value as left.
LIMITED: When an instrument fails calibration but is still functional in a limited manner.



The expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%, unless otherwise stated. This calibration report complies with ISO/IEC 17025:2017 and ANSI/ISO/IEC 17025. Calibration cycles and resulting due dates were submitted/approved by the customer. Any number of factors may cause an instrument to drift out of tolerance before the next scheduled calibration. Recalibration cycles should be based on the frequency of use, environmental conditions and customer's established systematic accuracy. All standards are traceable to SI through the National Institute of Standards and Technology (NIST) and/or recognized national or international standards laboratories. Services rendered include proper manufacturer's service instruction and are warranted for no less than 30 (30) days. The information on this report pertains only to the instrument identified. This may not be reproduced in part or in whole without the prior written approval of the issuing MP Calibration Laboratory.



Appendices

CALIBRATION CERTIFICATE FOR: LIGHTHOUSE SOLAIR S3100 / 120704006, P1



CERT #4914.01

CALIBRATION CERTIFICATE Certificate Number 44116120704006

Model: S3100
Serial Number: 120704006
Sensor ID: 120704-008
Calibration Location: 1221 Disk Drive, Medford, OR 97501
Date of Calibration: October 12, 2020
Next calibration on this instrument is due: October 12, 2021

Calibration Method: Calibration of this instrument has been accomplished as defined in ISO 21501-4 2018: Light scattering airborne particle counter for clean spaces. All work performed is in accordance with Lighthouse Worldwide Solutions, Quality Manual P/N 714252800-1. Reproduction of this certificate and accompanying documentation is prohibited without the expressed written permission of Lighthouse Worldwide Solutions. All records of work performed are maintained by Lighthouse Worldwide Solutions.

Traceability: The Standards of the Compliant Calibration Laboratory are traceable to the International System of Units (SI) through the National Institute of Standards and Technology, and are part of a comprehensive measurement assurance program for ensuring continued accuracy and measurement traceability within the level of uncertainty reported by this laboratory. The unique laboratory calibration number identified above shall be used in referencing metrological traceability for artifacts identified only in this certificate.

Uncertainty: The reported uncertainty is based on a standard uncertainty multiplied by a coverage factor of $k = 2$, which provides a confidence level of approximately 95%. The values and test criteria are applied using Simple Acceptance/ Shared Risk approach.

Results: This certifies the above named instrument conforms to the original specifications in effect at date of manufacture and test.

Environmental Conditions
 Ambient temperature 73.0 °F Relative humidity 42.0 %

Test Equipment

Standards	Model	Mfg	Serial	Cal Date	Cal Due
Flow meter	4043	TSI	40431745014	3/31/2020	12/31/2020
DMM	Fluke 170	FLUKE	85610016	5/15/2020	5/15/2021
MCA	8000C	AMPTEK	786	10/2/2020	10/2/2021
Test Standard	Solair	LIGHTHOUSE	140199002	6/9/2020	12/9/2020

Particle Size Standards

Nominal Size	Particle Size	Tolerance (nm)	Lot No.	Manufacturer	Expiration Date
0.30µm	0.30µm	+/-3	223077	Thermo Scientific	4/1/2023
0.40µm	0.40µm	+/-3	211099	Thermo Scientific	4/30/2022
0.50µm	0.51µm	+/-3.5	225560	Thermo Scientific	8/1/2023
1.00µm	1.04µm	+/-8	215812	Thermo Scientific	8/31/2022
3.00µm	2.92µm	+/-15	199811	Thermo Scientific	3/1/2023
5.00µm	5.02µm	+/-20	230776	Thermo Scientific	9/1/2023
10.00µm	9.99µm	+/-80	221642	Thermo Scientific	10/31/2021

Counting Efficiency Particle Size Standards


Nominal Size	Particle Size	Tolerance (nm)	Lot No.	Manufacturer	Expiration Date
0.30µm	0.30µm	+/-3	223077	Thermo Scientific	4/1/2023
0.50µm	0.51µm	+/-3.5	225560	Thermo Scientific	8/1/2023



422348965-1 UCF R1a
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Appendices

CALIBRATION CERTIFICATE FOR: LIGHTHOUSE SOLAIR S3100 / 120704006, P2



CERT #4914.01

CALIBRATION RESULTS AS LEFT Certificate Number 44116120704006

Size Calibrations as Left

Channel	Chnl Size	Threshold	Particle Size	Particle Size Voltage	Expanded Uncertainty	As Left Size Error
1	0.30µm	52mV	0.303µm	53.0mV	0.009 µm	0%
2	0.50µm	471mV	0.510µm	493.0mV	0.01 µm	0%
3	1.00µm	1134mV	1.036µm	1180.0mV	0.014 µm	0%
4	3.00µm	3483mV	2.920µm	3464.0mV	0.035 µm	0%
5	5.00µm	3818mV	5.020µm	3823.0mV	0.04 µm	0%
6	10.00µm	4571mV	9.990µm	4571.0mV	0.189 µm	0%

Measurements as Left

Nominal Flow Rate:	Measured Flow:	Expanded Uncertainty	Result
28.30 LPM	28.34 LPM	(limit ±5% of nominal) 0.8L/min	Pass

False Count Rate:

Standard	Observed Cts:	Upper confidence level	Result
JIS B 9921 Zero Count	0	(≤ 1 ct max / 5 min.)	Pass
ISO21501-4 False Count Rate	0		2 Particles/m3

Counting Efficiency 50%:

Size	Counting Efficiency	Expanded Uncertainty	Result
0.303 µm	47.8% (limit 30% - 70%)	3.4 %	Pass

Counting Efficiency 100%:

Size	Counting Efficiency	Expanded Uncertainty	Result
0.51 µm	100.9% (limit 90% - 110%)	7.2 %	Pass

Size Resolution:

Size	Size Resolution	Expanded Uncertainty	Result
0.401 µm	7.10% (limit 15%)	1.6 %	Pass

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Appendices

CALIBRATION CERTIFICATE FOR: LIGHTHOUSE SOLAIR S3100 / 120704006, P3



LIGHTHOUSE
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CERT #4914.01

CALIBRATION RESULTS AS FOUND Certificate Number 44116120704006

Size Calibrations as Found

Channel	Size(um)	As Rec'd Threshold Settings mV	As measured Threshold Settings mV	As Rec'd size (um)	Percent size error (%)	Percent size error tolerance	Expanded Uncertainty	Pass/Fail
1	0.3	52	52	0.300	0.0%	+/- 10%	0.009 um	Pass
2	0.5	471	471	0.499	-0.2%	+/- 10%	0.01 um	Pass
3	1	1134	1134	0.998	-0.2%	+/-10%	0.014 um	Pass
4	3	3483	3483	2.984	-0.5%	+/-10%	0.035 um	Pass
5	5	3818	3818	4.991	-0.2%	+/-10%	0.04 um	Pass
6	10	4571	4571	9.989	-0.1%	+/-10%	0.169 um	Pass

Measurements as Found

Nominal Flow Rate:	Measured Flow:	(limit ±5% of nominal)	Expanded Uncertainty	Result
28.30 LPM	28.34 LPM		0.8L/min	Pass

False Count Rate:


Standard	Observed Cts:	Upper confidence level	Result
JIS B 9921 Zero Count	0	(≤ 1 ct max / 5 min.)	Pass
ISO21501-4 False Count Rate	0		2 Particles/m3

Counting Efficiency

Efficiency	Size	Counting Efficiency	Expanded Uncertainty	Result
50%	0.303 um	47.8% (limit 30% - 70%)	3.4 %	Pass
100%	0.51 um	100.9% (limit 90% - 110%)	7.2 %	Pass

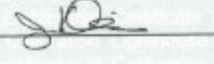
Size Resolution:

Size	Resolution	Expanded Uncertainty	Result
0.401 um	7.10% (limit 15%)	1.6 %	Pass

Signature: 

Head of Calibration: D. Spranger

Head of calibration acknowledges that the calibration has been carried out in accordance with ISO 17025:2017 and Lighthouse Worldwide Solutions ISO 17025 Quality Management system to comply to ISO 21501-4:2018 calibration requirements.

Signature: 

Calibration Tech/Engineer: J. Klein

42388969-1 UCF R2a

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Appendices

ABBREVIATIONS

General Abbreviations			
Δ	Delta (Difference)	LAT	Leaving Air Temperature
∅	Phase	LFH	Laminar Flow Hood
μg/L	Micro Grams per Liter	LRA	Locked Rotor Amps
μM	Micrometer	LSD/R	Linear Slot Diffuser/Return
AC	Alternating Current	LVG	Leaving
ACH / ACPH	Air Changes Per Hour	LWR	Low Wall Return
AFA / AFM	Airflow Alarm / Airflow Monitor	M/FT ³	Millions Particle Per Cubicle Feet
AHU	Air Handling Unit	MAG	Magnehelic
AK	Area × Constant	MBH	BTUH × 1000
Alert	Action Required	MSF	Motor Speed Factor
ATS	Animal Transfer Station	NA	Not Applicable
BSC	Biological Safety Cabinet	ND	None Detected
BTUH	British Thermal Units Per Hour	NM	Not Measured
CC / HC / RHC	Cooling Coil / Heating Coil / Reheating Coil	NP	Nameplate
CE	Ceiling Exhaust	NPSHA	Net Positive Suction Head Available
CED / CEG	Ceiling Exhaust - Diffuser / Grill	NPSHR	Net Positive Suction Head Required
CFM	Cubic Feet Per Minute	NR	Not Required
CHWR/S	Chiller Water Return/Supply	NS	Not Specified
ClO ₂ / CD	Chlorine Dioxide	OA / OSA	Outside Air
CNC	Controlled Not Classified	PAO	Polyalphaolefins
CRD / CRG	Ceiling Return - Diffuser / Grill	PCW	Process Cooling Water
CSD / CSG	Ceiling Supply - Diffuser / Grill	PD	Pressure Drop
CW	Chilled Water	PD	Pressure Drop
CWR/S	Chilled Water Return/Supply	PEC	Primary Engineer Control
DB	Dry Bulb Temperature	PG	Pick-up Gain
DC	Direct Current	PSI / PSIG	Pounds per Square Inch / Gauge
DCA	Direct Compounding Area	PT	Pitot Traverse
DD	Direct Drive	RA	Return Air
DIA	Diameter	RH	Relative Humidity
DIM	Direct Inflow Method	RND	Round
DNL	Data Not Listed	RPM	Revolutions Per Minute
DNT	Data Not Taken	SA	Supply Air
DSP	Down Stream Penetration	SF	Service factor
EA	Exhaust Air	SP	Static Pressure
EAT	Entering Air Temperature	SWE / SWR	Sidewall - Exhaust / Return
ENT	Entering	SWS	Sidewall - Supply
ESP	External Static Pressure	T1, T2, T3	Motor Leads
FH	Laboratory Fume Hood	TBD	To Be Determined
FLA	Full Load Amps	TSP	Total Static Pressure
FO	Full Open (Damper or Valve)	T-STAT	Thermostat
FPM	Feet Per Minute	V	Volt
G/FT ³	Grams per Cubic Foot	VAC	Alternating Current Voltage
GFCI / GFI	Ground Fault Circuit Interrupter	VAV	Variable Air Volume
GPM	Gallons Per Minute	VD	Volume Damper
HD	Historical Data	VDC	Direct Current Voltage
HEPA	High Efficiency Particulate Air Filter	VFD	Variable Frequency Drive
HFBE	HEPA Filter Balance Enclosure	(V) H ₂ O ₂	(Vapor) Hydrogen Peroxide
HP / BHP	Horse Power / Brake Horse Power	VLf	Vertical Laminar Flow
H _z	Hertz	VP	Velocity Pressure
KW	Kilowatt	WB	Wet Bulb Temperature
L1, L2 , L3	Incoming Power Connections	WC	Water Column