

MEMORANDUM

DATE : September 23, 2023

TO : Shane LaFave / Roers Companies, LLC

FROM : Pratap Singh, Ph.D., PE / KSingh

SUBJECT : Weekly Test Results and Remedial Action Activities for the Week Ending 09/23/2023
Community Within the Corridor - East Block

COPY TO : Que El-Amin / Scott Crawford, Inc., Robert Reineke, PE, Robert Fedorchak, PE
Project #40441B

The purpose of this memorandum is to report the test results and provide a summary of the work performed as a part of the emergency response for the referenced project for the week ending 09/23/2023. The following tasks were performed throughout the week:

1. Task #1 - Blower Fan Exhaust Sampling
Samples were collected from the blower exhaust of all operational blowers including the recently added blowers 10 and 11. All blowers had a cumulative blow rate of about 4100 cfm leading to about 0.12 lbs removal of TCE in the third week of September. The individual blower exhaust rates and their corresponding actual TCE removal with Year-To-Date exhaust quantities can be seen in Tables 1 and 2. The layout of the floor plan with the placement of blowers can be found in Figure 1.
2. Task #2 - Indoor Air TCE Measurements
Indoor air measurements were taken to assess the situation during the period when the construction is inactive. All the units had levels below 8.8 $\mu\text{g}/\text{m}^3$. The data from the units can be shown in Tables 3, 4, and 5. The comprehensive data can be seen in Table 7.
3. Task #3 – Vacuum Measurements
Vacuum measurements were taken throughout the entire East Block. There was sufficient vacuum throughout the block except for outside 1035. This lack of vacuum was mainly due to Blower 7 being out of order for maintenance. This will be restored in the coming week. The vacuum data is reported in Table 6.

Attachments

KSingh has included the following figures, tables, and pictures for reference:

- Figure 1: CWC EB Floor Plan
- Table 1: Blower Fan Exhaust Data Table for September
- Table 2: Blower Fan Exhaust Data Table since March
- Table 3: Indoor air data for September 19, 2023

- Table 4: Indoor air data for September 20, 2023
- Table 5: Indoor air data for September 21, 2023
- Table 6: Vacuum Measurements
- Table 7: Comprehensive Data Table

East Building Level 1

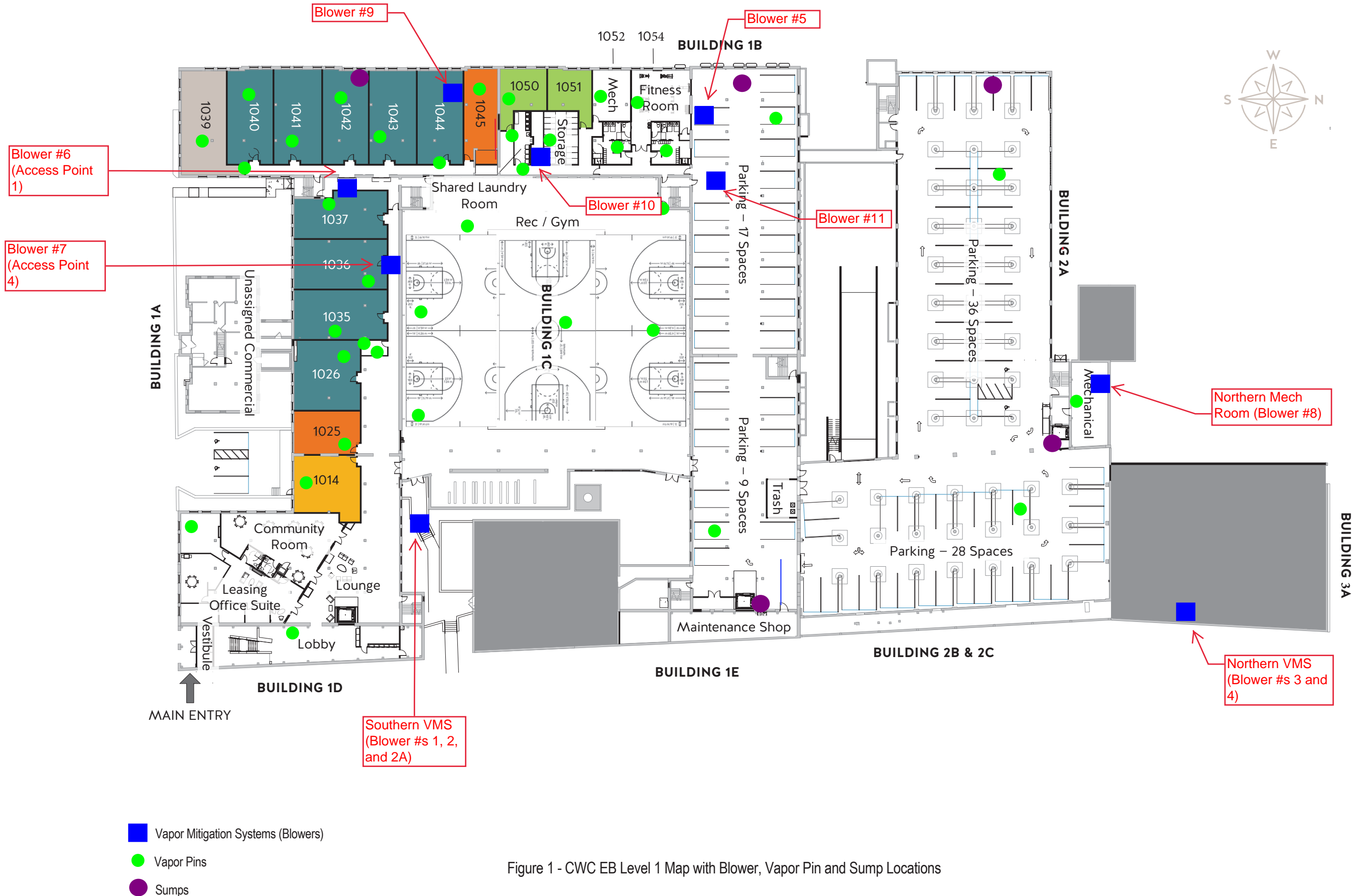


Figure 1 - CWC EB Level 1 Map with Blower, Vapor Pin and Sump Locations

Table 1: Blower Fan Exhaust Data Table for September

GC TCE Measurements of Blower Effluent and Estimated Removal Rates						
Date: September 22, 2023						
Blower No.	Pipe Diameter	Exhaust Velocity	Flow Rate	TCE Concentration	TCE Removal Rate	TCE Removal
	inches	fpm	cfm	µg/m ³	lbs/day	lbs
1	4	4705	411	4.67	0.000172	0.001207
2	4	4922	430	16.02	0.000619	0.004330
2A	4	4922	430	22.69	0.000876	0.006133
3 and 4	6	5276	1036	8.87	0.000826	0.005782
5	4	5040	440	274.58	0.010856	0.075995
6	4	4095	357	74.51	0.002394	0.016755
7	4					0.000000
8	4	4233	369	6.86	0.000228	0.001595
9	4	1772	155	1.08	0.000015	0.000105
10	4	2736	239	0.86	0.000018	0.000129
11	4	3012	263	66.48	0.001571	0.010996
			4128		Total	0.12

Table 2: Blower Fan Exhaust Data Table since March

TCE Measurements of Blower Effluent and Removal						
TCE Removal (lbs in Month)						
Blower No.	May	June	July	August	September	Total
1	0.0172	0.0619	0.0250	0.0039	0.0037	0.1117
2	0.0313	0.0206	0.0190	0.0149	0.0144	0.1002
2A				0.0277	0.0201	0.0478
3+4	0.0241	0.0154	0.0387	0.0471	0.0220	0.1473
5		0.4196	0.2556	0.3277	0.1883	1.1911
6		0.0229	0.0085	0.0886	0.0445	0.1646
7		0.0093	0.0210	0.0179	0.0000	0.0482
8		0.0015		0.0052	0.0066	0.0133
9				0.0001	0.0004	0.0005
10					0.0003	0.0003
11					0.0252	0.0252
				Total		1.8499

Table 3: Indoor Air Monitoring Results from 09/19/2023

No.	Location	Time	TCE Reading ($\mu\text{g}/\text{m}^3$)	>8.8 $\mu\text{g}/\text{m}^3$
1	1st Floor Hallway	10:25 AM	<0.6	-
2	Fitness Center	10:43 AM	<0.6	-
3	N Mechanical Room	11:02 AM	4.8	-
4	SW Garage	11:13 AM	<0.6	-
5	Stairwell 4	11:30 AM	<0.6	-

**Reporting Limit = 0.6 $\mu\text{g}/\text{m}^3$

Table 4: Indoor Air Monitoring Results from 09/20/2023

No.	Location	Time	TCE Reading ($\mu\text{g}/\text{m}^3$)	>8.8 $\mu\text{g}/\text{m}^3$
1	Fitness Center	8:16 AM	<0.6	-
2	N Mechanical Room	8:33 AM	4.1	-
3	SW Garage	9:14 AM	<0.6	-
4	Stairwell 4	9:21 AM	<0.6	-
5	Unit 1014	9: 40 AM	<0.6	-
6	Unit 1025	9: 48 AM	<0.6	-
7	Unit 1026	9: 56 AM	<0.6	-
8	Unit 1035	10: 09 AM	<0.6	-
9	Unit 1036	10: 23 AM	<0.6	-
10	Unit 1037	10: 47 AM	<0.6	-
11	Unit 1039	11: 16 AM	<0.6	-
12	Unit 1040	11: 32 AM	<0.6	-
13	Unit 1041	11: 50 AM	<0.6	-

**Reporting Limit = 0.6 $\mu\text{g}/\text{m}^3$

Table 5: Indoor Air Monitoring Results from 09/20/2023

No.	Location	Time	TCE Reading ($\mu\text{g}/\text{m}^3$)	>8.8 $\mu\text{g}/\text{m}^3$
1	Unit 1042	8:03 AM	<0.6	-
2	Unit 1043	8:15 AM	<0.6	-
3	Unit 1044	8:26 AM	<0.6	-
4	Unit 1045	8:41 AM	<0.6	-
5	Unit 1048	9:00 AM	<0.6	-
6	Unit 1049	9:08 AM	<0.6	-
7	Unit 1050	9:16 AM	<0.6	-
8	Unit 1052	9:26 AM	<0.6	-
9	Unit 1056	9:35 AM	<0.6	-

**Reporting Limit = 0.6 $\mu\text{g}/\text{m}^3$

Table 6: Vacuum Measurements

Date	19-Sep	20-Sep	21-Sep	22-Sep	
Time	15:00	13:00	10:00	12:30	
Location					Average
1055	-0.213	-0.216	-0.214	-0.211	-0.214
1054	-0.459	-0.452	-0.455	-0.454	-0.455
1053	-0.221	-0.216	-0.222	-0.229	-0.222
Oppo. 1054	-0.116	-0.105	-0.116	-0.123	-0.115
Stairwell 4	-0.011	-0.01	-0.012	-0.008	-0.010
1052	-0.406	-0.411	-0.415	-0.419	-0.413
Out 1044	-0.058	-0.063	-0.066	-0.066	-0.063
1043	-0.025	-0.021	-0.029	-0.035	-0.028
1042	-0.01	-0.011	-0.014	-0.019	-0.014
1041	-0.029	-0.033	-0.036	-0.041	-0.035
1040	-0.049	-0.043	-0.048	-0.058	-0.050
Out 1040	-0.064	-0.074	-0.076	-0.082	-0.074
1039	-0.013	-0.011	-0.019	-0.023	-0.017
1037	-0.008	-0.011	-0.013	-0.014	-0.012
1036	-0.019	-0.016	-0.018	-0.018	-0.018
1035	-0.022	-0.025	-0.02	-0.018	-0.021
Out 1035	0	0	0	0	0.000
1058 E	-0.017	-0.019	-0.021	-0.02	-0.019
1058 W	-0.015	-0.018	-0.015	-0.013	-0.015
1026	-0.049	-0.055	-0.081	-0.088	-0.068
1025	-0.095	-0.099	-0.082	-0.067	-0.086
1014	-0.422	-0.421	-0.425	-0.419	-0.422
1011	-0.08	-0.086	-0.091	-0.111	-0.092
SE Lobby	-1.186	-1.165	-1.453	-1.111	-1.229
BB 3	-0.055	-0.063	-0.068	-0.044	-0.058
BB 4	-0.016	-0.023	-0.014	-0.009	-0.016
BB 5	-0.014	-0.017	-0.015	-0.017	-0.016
SW Garage (26)	-0.174	-0.187	-0.168	-0.209	-0.185
SW Garage (6)	-0.016	-0.017	-0.017	-0.019	-0.017
SW Garage (19)	-0.025	-0.029	-0.033	-0.031	-0.030
SE Garage (11)	-0.024	-0.029	-0.021	-0.023	-0.024
SE Garage (14)	-0.029	-0.023	-0.048	-0.072	-0.043
NW Garage (80)	-0.026	-0.021	-0.023	-0.028	-0.025
NE Garage (36)	-1.711	-1.703	-1.698	-1.669	-1.695

Red highlighted cells indicate values below the desired level of -0.01 inH2O

Community Within the Corridor - East Block

Table 7 - Discrete Sampling Test Results

Sample Location	1-May	2-May	3-May	4-May	5-May	8-May	9-May	10-May	11-May	12-May	15-May	16-May	17-May	18-May	19-May	22-May	23-May	24-May	25-May	26-May	30-May	31-May	
1045 Entry Floor Hole																							
1045 North Wall																							
1045 Wood Column																							
1050 South Wall Hole																							
1st Floor Hallway Center		14	9	3.5	2.3		3.49							21.2	3.48	5.39				2.38	3.6		
1st Floor Hallway North																							
1st Floor Hallway South									0.947	1.92	1.96		0										
2081 Hallway																							
2nd Floor Corridor North																							
2nd Floor Corridor South																							
2nd Floor Hallway Center								4.69			4.2										2.74		
2nd Floor Hallway North																							
2nd Floor Hallway South																							
Stairwell 2								4.15															
2nd Floor Stairwell 4						7.19																	
2nd Floor Stairwell 8																							
3rd Floor Corridor																							
3rd Floor Hallway Center											1.7										1.71		
3rd Floor Hallway South																							
3rd Floor Stairwell 2				2.35																			
Stairwell 3								3.9															
3rd Floor Stairwell 4																							
Basket Ball Court														1.84			8.96						
Basket Ball Court 2		2.2		3	2.3	0.624			1.02					1.53			0						
Basket Ball Court 3														1.56			0.536						
Basket Ball Court 4														0.816			0.734						
Elevator																							
Fitness Center								29				33.8	21	21	24.5	16.6		42.5	15.1		24.2		
Front Lobby																							
NW Garage													14			0.62							
N Garage										1.78			0.607		0	0.63		0.776					
SE Garage																6.6		0.6					
Hallway Outside 3021																							
Hallway Outside 3035																							
Hallway Outside 3065																							
N Mechanical Room	13.7	11.5			10.1	10.9	11.8		6.89		10.7						0.737						
Men's Locker Room	58	31.6						53.3			52.3	7.62								21.7			
Women's Locker Room					45															25.8			
Powerhouse																							
Unit 1002 - Postboxes																						0	
Unit 1006	2.97							2.4			1.7						0.737					0	
SSD Vent Pipe #1 - S - 7.5 HP	26.1	27.9			25.7		26.2		21.9				27.01		26.7				7.04				19.6
SSD Vent Pipe #2 - S - 10 HP	1.2				20		15.7		18.7				18.2		19.3				11.1				33.8

Community Within the Corridor - East Block

Table 7 - Discrete Sampling Test Results

Sample Location	1-Jun	5-Jun	7-Jun	8-Jun	9-Jun	12-Jun	13-Jun	14-Jun	15-Jun	16-Jun	23-Jun	26-Jun	3-Jul	10-Jul	11-Jul	12-Jul	14-Jul	19-Jul	21-Jul	
1045 Entry Floor Hole																				
1045 North Wall																				
1045 Wood Column																				
1050 South Wall Hole																				
1st Floor Hallway Center							0.24							0.1						
1st Floor Hallway North																				
1st Floor Hallway South					0.4												0.39	0	0	
2081 Hallway																				
2nd Floor Corridor North																				
2nd Floor Corridor South																				
2nd Floor Hallway Center					0.42									0.1						
2nd Floor Hallway North																				
2nd Floor Hallway South																				
Stairwell 2																				
2nd Floor Stairwell 4																				
2nd Floor Stairwell 8																				
3rd Floor Corridor																				
3rd Floor Hallway Center						0.47								0.1						
3rd Floor Hallway South																				
3rd Floor Stairwell 2																				
Stairwell 3					0.1		0.23										0.42	0	0	
3rd Floor Stairwell 4																				
Basket Ball Court					2.65							0.2								
Basket Ball Court 2																	0.48	0.34	0.19	
Basket Ball Court 3							0.24													
Basket Ball Court 4																				
Elevator																				
Fitness Center	16.1	4.2		0.4			0.29	0.55				0.49	0.69							
Front Lobby																	0.56	0.21	0.23	

NW Garage					0.85	0												
N Garage						0.27												
SE Garage						0.23												
Hallway Outside 3021																		
Hallway Outside 3035																		
Hallway Outside 3065																		
N Mechanical Room	1.5				7.7	3.4				2.2	2.86							
Men's Locker Room				0.5			0.2			0.56	0.47	0.6						
Women's Locker Room				0.4			0.5											
Powerhouse																		
Unit 1002 - Postboxes																		
Unit 1006							0.21											
SSD Vent Pipe #1 - S - 7.5 HP						21.7												
SSD Vent Pipe #2 - S - 10 HP						18.4												
SSD Vent Pipe #3 - N - 7.5 HP																		
SSD Vent Pipe #4 - N - 10 HP																		
SW Garage							0.3			0.33								
Stairwell 4		3		0.34		0.24				0.33	0.2							
Stairwell 6																		
Stairwell 7																		
Unit 1011																		
Unit 1014				0.21						0			0.1					
Unit 1025				0.31														
Unit 1026													0.1					
Unit 1035				0.22						0.28	0.1		0.1					
Unit 1036			6.9	0.26						0.3								
Unit 1037				0.46						0.35	0.1		0.1					
Unit 1039				0.7	0.3					0.27	0.19		0.1					
Unit 1040				0.6							0.24							

Unit 1041				0.51											0.19	1.66	0.24	0.22
Unit 1042		4	19.2	0.8							0.24	0.1			0.1	0.82	0.21	0
Unit 1043				0.53			0.32			0.47		1.19						
Unit 1044		65.2	11.7	1.7			1.85			3.2	1.67	1.79			1.76	2.1	1.4	0.92
Unit 1045	23.3		14.4	2.4	5.26	3.84	3.33	2.99	2.88	2.57								
Unit 1048	121	19.8	13.5	0.33			0.43			0.72	0.1	0.55						
Unit 1049	21.8	23.6		1.2			0.58			2.5	1.03							
Unit 1050	60.4	27.3	10.3	3.4	3.05	2.28	1.95	2.12	2.17	1.62								
Unit 1051	16.9			0.76			0.38								0.26	1.35	0.27	0.24
Unit 1052	14.5			0.23			0.36				0.35	0.1						
Unit 1056	14.6																	
Unit 1057																		
Unit 1058							0.21			0.34								
Unit 1079																		
Unit 2014						0.35									0.1	0.54	0	0
Unit 2015																		
Unit 2016													0.1					
Unit 2017													0.1					
Unit 2022																		
Unit 2025													0.1					
Unit 2036																		
Unit 2037																		
Unit 2039																		
Unit 2040													0.1					
Unit 2042													0.1					
Unit 2043																		
Unit 2044																		
Unit 2045				0.52														
Unit 2049																		
Unit 2056				1											0.1	1.23	0.41	0.5
Unit 2057															0.1	0.49	1.09	0
Unit 2058															0.1	1.05	0.97	0
Unit 2059															0.1	0.21	0.77	0

SE Garage									
Hallway Outside 3021									
Hallway Outside 3035									
Hallway Outside 3065									
N Mechanical Room		4.19							
Men's Locker Room			< 0.6						
Women's Locker Room			< 0.6						
Powerhouse									
Unit 1002 - Postboxes									
Unit 1006									
SSD Vent Pipe #1 - S - 7.5 HP									
SSD Vent Pipe #2 - S - 10 HP									
SSD Vent Pipe #3 - N - 7.5 HP									
SSD Vent Pipe #4 - N - 10 HP									
SW Garage		< 0.6							
Stairwell 4		< 0.6							
Stairwell 6									
Stairwell 7									
Unit 1011									
Unit 1014			< 0.6						
Unit 1025			< 0.6						
Unit 1026			< 0.6						
Unit 1035			< 0.6						
Unit 1036			< 0.6						
Unit 1037			< 0.6						
Unit 1039			< 0.6						
Unit 1040			< 0.6						
Unit 1041			< 0.6						
Unit 1042				< 0.6					
Unit 1043				< 0.6					
Unit 1044				< 0.6					
Unit 1045				< 0.6					
Unit 1048				< 0.6					
Unit 1049				< 0.6					

Unit 1050				< 0.6					
Unit 1051									
Unit 1052				< 0.6					
Unit 1056				< 0.6					
Unit 1057									
Unit 1058									
Unit 1079									
Unit 2014	< 0.6								
Unit 2015									
Unit 2016									
Unit 2017									
Unit 2019	< 0.6								
Unit 2022									
Unit 2023	< 0.6								
Unit 2025									
Unit 2036									
Unit 2037									
Unit 2039	< 0.6								
Unit 2040									
Unit 2041	< 0.6								
Unit 2042									
Unit 2043									
Unit 2044									
Unit 2045									
Unit 2049									
Unit 2056									
Unit 2057									
Unit 2058	< 0.6								
Unit 2059									
Unit 2061									
Unit 2062									
Unit 2063	< 0.6								
Unit 2064									
Unit 2065	< 0.6								

Unit 3079									
Unit 3092									
Unit 3093	< 0.6								