



### OUTSIDE AIR VENTILATION CALCULATION WSHP-1

ROOM NO	ROOM NAME	DESCRIPTION	AREA	AREA OUTDOOR AIR RATE	AREA OUTDOOR AIR	OCCUPANT LOAD RATE	OCCUPANCY	OCCUPANT OUTDOOR AIR RATE	OCCUPANT OUTDOOR AIR	BREATHING ZONE OUTDOOR AIR	ZONE AIR DISTRIBUTION EFFECTIVENESS	ZONE OUTDOOR AIR	ZONE PRIMARY AIRFLOW	SECONDARY RECIRCULATED AIR	OUTDOOR AIR FRACTION
001	ENTRY	MAIN ENTRY LOBBY	200	0.06	12	10	2	5	10	22	1	22	1000	0	0.022
002	DINING 1	DINNING	676	0.18	122	70	48	7.5	360	482	1	482	2500	0	0.193
003	DINING 2	DINNING	416	0.18	75	70	30	7.5	225	300	1	300	2000	0	0.150
-	SEC. ENTRANCE	MAIN ENTRY LOBBY	101	0.06	6	10	2	5	10	16	1	16	500	0	0.032
TOTALS			1393		215		82		605	820		820	6000	0	0.193

SYSTEM POPULATION DIVERSITY 82

AVERAGE OUTDOOR AIR FRACTION N/A  
DISCHARGE OUTDOOR AIR FRACTION N/A

OCCUPANT DIVERSITY 1.000

TOTAL REQUIRED O.A. 855

Ev 0.960

UNCORRECTED O.A. 820

PERCENTAGE OF O.A. 14%

METHOD IMC CHART

OUTDOOR AIR PROVIDED: 855 CFM (14%)

### OUTSIDE AIR VENTILATION CALCULATION WSHP-2

ROOM NO	ROOM NAME	DESCRIPTION	AREA	AREA OUTDOOR AIR RATE	AREA OUTDOOR AIR	OCCUPANT LOAD RATE	OCCUPANCY	OCCUPANT OUTDOOR AIR RATE	OCCUPANT OUTDOOR AIR	BREATHING ZONE OUTDOOR AIR	ZONE AIR DISTRIBUTION EFFECTIVENESS	ZONE OUTDOOR AIR	ZONE PRIMARY AIRFLOW	SECONDARY RECIRCULATED AIR	OUTDOOR AIR FRACTION
004	DINING 3	DINNING	817	0.18	147	70	58	7.5	435	582	1	582	2600	0	0.224
005	BA	BAR	234	0.18	43	100	24	7.5	180	222	1	222	1000	0	0.222
	RAMF	CORRIDOR	135	0.06	8	0	0	0	0	8	1	8	100	0	0.080
	HALLWAY	CORRIDOR	114	0.06	7	0	0	0	0	7	1	7	100	0	0.070
008	ADA WC	RESTROOMS	51	0	0	0	0	0	0	0	1	0	50	0	0.000
009	WC	RESTROOMS	31	0	0	0	0	0	0	0	1	0	50	0	0.000
010	WC	RESTROOMS	31	0	0	0	0	0	0	0	1	0	50	0	0.000
011	ADA WC	RESTROOMS	57	0	0	0	0	0	0	0	1	0	50	0	0.000
TOTALS			1470		204		82		615	819		819	4000	0	0.224

SYSTEM POPULATION DIVERSITY 82

AVERAGE OUTDOOR AIR FRACTION N/A  
DISCHARGE OUTDOOR AIR FRACTION N/A

OCCUPANT DIVERSITY 1.000

TOTAL REQUIRED O.A. 880

Ev 0.930

UNCORRECTED O.A. 819

PERCENTAGE OF O.A. 22%

METHOD IMC CHART

OUTDOOR AIR PROVIDED: 880 CFM (22%)

### OUTSIDE AIR VENTILATION CALCULATION WSHP-3

ROOM NO	ROOM NAME	DESCRIPTION	AREA	AREA OUTDOOR AIR RATE	AREA OUTDOOR AIR	OCCUPANT LOAD RATE	OCCUPANCY	OCCUPANT OUTDOOR AIR RATE	OCCUPANT OUTDOOR AIR	BREATHING ZONE OUTDOOR AIR	ZONE AIR DISTRIBUTION EFFECTIVENESS	ZONE OUTDOOR AIR	ZONE PRIMARY AIRFLOW	SECONDARY RECIRCULATED AIR	OUTDOOR AIR FRACTION
006	PDR	DINING	291	0.18	52	70	21	7.5	157.5	209.5	1	210	1200	0	0.175
TOTALS			291		52		21		157.5	209.5		262	1200	0	0.218

SYSTEM POPULATION DIVERSITY 21

AVERAGE OUTDOOR AIR FRACTION N/A  
DISCHARGE OUTDOOR AIR FRACTION N/A

OCCUPANT DIVERSITY 1.000

TOTAL REQUIRED O.A. 215

Ev 0.980

UNCORRECTED O.A. 210

PERCENTAGE OF O.A. 18%

METHOD IMC CHART

OUTDOOR AIR PROVIDED: 215 CFM (18%)

### OUTSIDE AIR VENTILATION CALCULATION WSHP-4

ROOM NO	ROOM NAME	DESCRIPTION	AREA	AREA OUTDOOR AIR RATE	AREA OUTDOOR AIR	OCCUPANT LOAD RATE	OCCUPANCY	OCCUPANT OUTDOOR AIR RATE	OCCUPANT OUTDOOR AIR	BREATHING ZONE OUTDOOR AIR	ZONE AIR DISTRIBUTION EFFECTIVENESS	ZONE OUTDOOR AIR	ZONE PRIMARY AIRFLOW	SECONDARY RECIRCULATED AIR	OUTDOOR AIR FRACTION
-	HOST	MAIN ENTRY LOBBY	130	0.06	8	10	2	5	10	18	1	18	150	0	0.120
-	DINING	DINNING	650	0.18	117	70	46	7.5	345	462	1	462	2350	0	0.197
-	PERM. AREA	DINNING	497	0.18	89	70	35	7.5	262.5	351.5	1	352	2000	0	0.176
-	RAW BAR	BAR	103	0.18	19	100	11	7.5	82.5	101.5	1	102	750	0	0.136
-	BAR	BAR	112	0.18	20	100	12	7.5	90	110	1	110	750	0	0.147
TOTALS			1492		253		106		790	1043		1044	6000	0	0.197

SYSTEM POPULATION DIVERSITY 106

AVERAGE OUTDOOR AIR FRACTION N/A  
DISCHARGE OUTDOOR AIR FRACTION N/A

OCCUPANT DIVERSITY 1.000

TOTAL REQUIRED O.A. 1098

Ev 0.950

UNCORRECTED O.A. 1043

PERCENTAGE OF O.A. 18%

METHOD IMC CHART

OUTDOOR AIR PROVIDED: 1100 CFM (18%)

### OUTSIDE AIR VENTILATION CALCULATION WSHP-5

ROOM NO	ROOM NAME	DESCRIPTION	AREA	AREA OUTDOOR AIR RATE	AREA OUTDOOR AIR	OCCUPANT LOAD RATE	OCCUPANCY	OCCUPANT OUTDOOR AIR RATE	OCCUPANT OUTDOOR AIR	BREATHING ZONE OUTDOOR AIR	ZONE AIR DISTRIBUTION EFFECTIVENESS	ZONE OUTDOOR AIR	ZONE PRIMARY AIRFLOW	SECONDARY RECIRCULATED AIR	OUTDOOR AIR FRACTION
201	KITCHEN	MEAT PROCESSING	356	0	0	10	4	15	60	180	0.8	75	733	0	0.102
202	OFFICE	OFFICE	37	0.06	2	5	1	5	6	6	0.8	9	67	0	0.134
TOTALS			393		0		5	0	65	186		84	800	0	0.134

SYSTEM POPULATION DIVERSITY 5

AVERAGE OUTDOOR AIR FRACTION N/A  
DISCHARGE OUTDOOR AIR FRACTION N/A

OCCUPANT DIVERSITY 1.000

TOTAL REQUIRED O.A. 1000

Ev 1.000

UNCORRECTED O.A. 67

PERCENTAGE OF O.A. 6.7%

METHOD IMC CHART

OUTDOOR AIR PROVIDED: 70 CFM (8%)

REVIEWED FOR COMPLIANCE 10/20/18

Performance of this review does not release the applicant from full responsibility to comply with applicable codes, ordinances and regulations.

### OUTSIDE AIR VENTILATION CALCULATION WSHP-6

ROOM NO	ROOM NAME	DESCRIPTION	AREA	AREA OUTDOOR AIR RATE	AREA OUTDOOR AIR	OCCUPANT LOAD RATE	OCCUPANCY	OCCUPANT OUTDOOR AIR RATE	OCCUPANT OUTDOOR AIR	BREATHING ZONE OUTDOOR AIR	ZONE AIR DISTRIBUTION EFFECTIVENESS	ZONE OUTDOOR AIR	ZONE PRIMARY AIRFLOW	SECONDARY RECIRCULATED AIR	OUTDOOR AIR FRACTION
012	KITCHEN	MEAT PROCESSING	207	0	0	10	3	15	45	45	0.8	57	400	0	0.142
TOTALS			207		0		3	15	45	45		57	400	0	0.142

SYSTEM POPULATION DIVERSITY 3

AVERAGE OUTDOOR AIR FRACTION N/A  
DISCHARGE OUTDOOR AIR FRACTION N/A

OCCUPANT DIVERSITY 1.000

TOTAL REQUIRED O.A. 45

Ev 1.00

UNCORRECTED O.A. 45

PERCENTAGE OF O.A. 11%

METHOD IMC CHART

OUTDOOR AIR PROVIDED: 45 CFM (11%)

### OUTSIDE AIR VENTILATION CALCULATION WSHP-7

ROOM NO	ROOM NAME	DESCRIPTION	AREA	AREA OUTDOOR AIR RATE	AREA OUTDOOR AIR	OCCUPANT LOAD RATE	OCCUPANCY	OCCUPANT OUTDOOR AIR RATE	OCCUPANT OUTDOOR AIR	BREATHING ZONE OUTDOOR AIR	ZONE AIR DISTRIBUTION EFFECTIVENESS	ZONE OUTDOOR AIR	ZONE PRIMARY AIRFLOW	SECONDARY RECIRCULATED AIR	OUTDOOR AIR FRACTION
012	KITCHEN	MEAT PROCESSING	514	0	0	10	6	15	90	90	0.8	113	600	0	0.188
TOTALS			514		0		6	15	90	90		113	600	0	0.188

SYSTEM POPULATION DIVERSITY 6

AVERAGE OUTDOOR AIR FRACTION N/A  
DISCHARGE OUTDOOR AIR FRACTION N/A

OCCUPANT DIVERSITY 1.000

TOTAL REQUIRED O.A. 94

Ev 0.960

UNCORRECTED O.A. 90

PERCENTAGE OF O.A. 16%

METHOD IMC CHART

OUTDOOR AIR PROVIDED: 95 CFM (16%)

**AIR BALANCE CALCULATION**

TOTAL SUPPLY AIR: 19200 CFM  
 TOTAL RETURN AIR: 15900 CFM  
 TOTAL OUTSIDE AIR: 1260 CFM  
 TOTAL MAKE-UP AIR: 8800 CFM (6600 MUA TO HOODS, 1200 OA TO HVAC)  
 KITCHEN EXHAUST: 9500 CFM  
 TOILET EXHAUST: 560 CFM<sup>1</sup>  
 SCULLERY EXHAUST: 600 CFM<sup>2</sup>

<sup>1</sup> TOILET EXHAUST IS CONTROLLED VIA TIMECLOCK  
<sup>2</sup> SCULLERY EXHAUST IS INTERMITTENT USE VIA TIMED SWITCH  
 NOTE: SPACE IS NEUTRAL PRESSURE WITHOUT EF-1

<b>ARCHITECT</b> HapstakDemetriou + ARCHITECTURE   DESIGN 2715 M STREET NW, 4th Floor WASHINGTON, DC 20007 202.333.9038 www.hd-ad.com info@hd-ad.com	<b>CLIENT</b> Alexanader Smith (410) 241-1224 afsmith11@gmail.com STRUCTURAL ENGINEER BEI Structural Engineers 3930 Pender Dr. Suite 175 Fairfax, VA 22030	<b>MEP ENGINEER</b> J.B. Wyble and Associates, P.A. 7950 Norfolk Ave., Bethesda, MD 301-654-1410 FOOD SERVICE CONSULTANT JLA Corp 13031 US Highway 19N, Clearwater, FL 33764 727-470-7862	<b>OUZO BAY/ LOCH BAR HOUSTON</b> 4444 WESTHEIMER RD, HOUSTON, TX 77027 PROJECT NO. JBW17108	REV DATE ISSUED FOR 05/16/2018 PROGRESS SET 06/11/2018 PERMIT SET 08/30/2018 PERMIT COMMENTS 10/04/2018 PERMIT COMMENTS	REV DATE ISSUED FOR _____ _____ _____ _____	<b>MECHANICAL TABLES</b>  <b>M003</b>
				I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF TEXAS. PE. LICENSE #: 129510, EXPIRATION DATE: DECEMBER 31, 2018 FIRM LICENSE #: F19615, EXPIRATION DATE: MARCH 31, 2019		