

4. WHOLE ROOM SIMULATION DATABASE

4.1 Description of Simulation Data Entry

The first page contains a listing of the room geometry and ventilation configuration together with a picture. Summary result data is then presented for both average rack and room breathing zones. Temperature and CO₂ are presented as single figures whilst NH₃ values are shown over a ten day period. Please refer to Volume I: Section 4.1.2.8.2 for an explanation of the relationship between NH₃ generation rates and cage relative humidity.

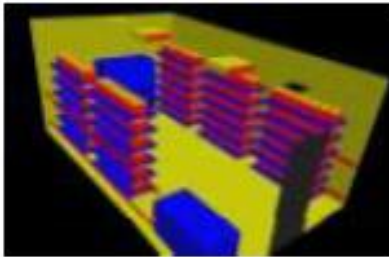
The second page shows three histogram population distributions of temperature, contamination (concentration) and relative humidity in the cage occupied zone of all cages in the room. The histograms show the number of cages (frequency) which have values that fall in the range between two values marked on the horizontal axis with the upper-value indicated. For example, in the sample histogram on the next page the column labeled 22.2 indicates that just over 40 cages have temperatures between 22°C and 22.2°C.

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Component	Baseline		Description		
Supply Configuration	Supply Discharge	Supply Discharge	Exhaust Configuration	Exhaust	Exhaust
Radial	Temperature (°C)	RH	Configuration	Temperature (°C)	RH
	18.8	67%	Ceiling	22	30%
Change	Rack	Rack	Number of	Total mass of	Room
Radial	Orientation	Density	Mice in Room	Mice in Room	Pressurization
Off	On wall	Single	1000	21100 g	mg 1000/hr

Room cage and ventilation arrangement

Room
ACM
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Cage
Condition
Top On



Room geometry

Analysis Results

Cage Occupied Zone

	Temperature		CO ₂	RH
	°C	°F		
Mean	22.04	71.70	21.54	66.79%
S.D.	0.40	0.72	259	2.90%
Max.	22.99	73.38	21.11	71.90%

Cage occupied zone summary result data

Cage Occupied Zone NH₃ (ppm)

Day	1	2	3	4	5	6	7	8	9	10
Mean	1.25	1.18	1.27	6.20	10.60	17.82	25.79	29.51	35.35	38.09
Max.	1.67	1.17	4.09	9.16	15.47	22.96	34.51	42.84	51.32	55.20

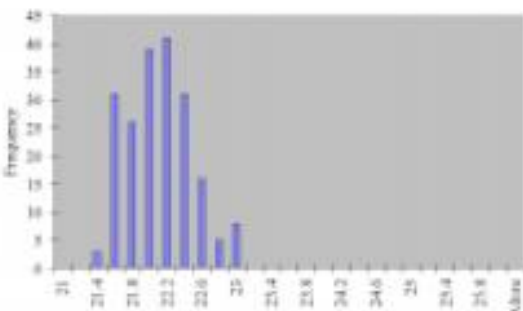
Room Breathing Zone

	Temperature		CO ₂	RH
	°C	°F		
Mean	20.50	68.92	36	51.7%
S.D.	0.46	0.82	30	
Max.	21.78	71.20	117	

Room breathing zone summary result data

Room Breathing Zone NH₃ (ppm)

Day	1	2	3	4	5	6	7	8	9	10
Mean	0.02	0.06	0.06	0.11	0.13	0.26	0.40	0.49	0.59	0.67
Max.	0.07	0.14	0.21	0.40	0.60	1.01	1.31	1.88	2.25	2.41



Sample histogram population distribution

4.2 Simulation Data Entries

The following section presents data entries for each of the CFD animal research facility simulations.

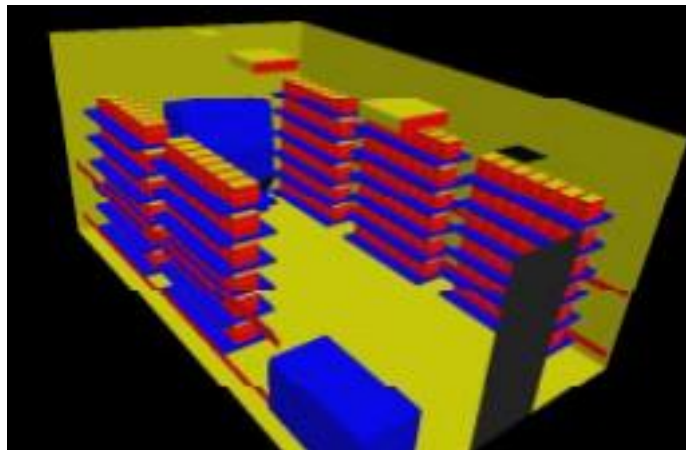
Casename **Basecase**

Description

Supply Configuration	Supply Discharge Temperature (°C)	Supply Discharge RH	Exhaust Configuration	Exhaust Temperature (°C)	Exhaust RH
Radial	18.8	61%	Ceiling	22	50%
Change Station	Rack Orientation	Rack Density	Number of Mice in Room	Total mass of Mice in Room	Room Pressurisation
ON	On wall	Single	1050	21000 gr	neg 100cfm

Room ACH
15

Cage Condition
Top On



Analysis Results

Cage Occupied Zone

	Temperature		CO ₂	RH
	°C	°F	(ppm)	
Mean	22.06	71.70	2158	66.78%
S.D.	0.40	0.72	359	2.60%
Max.	22.99	73.38	3133	75.06%

Cage Occupied Zone NH₃ (ppm)

Day	1	2	3	4	5	6	7	8	9	10
Mean	1.15	2.18	3.37	6.33	10.66	15.82	23.78	29.51	35.35	38.09
Max.	1.67	3.17	4.89	9.19	15.47	22.96	34.53	42.84	51.32	55.30

Room Breathing Zone

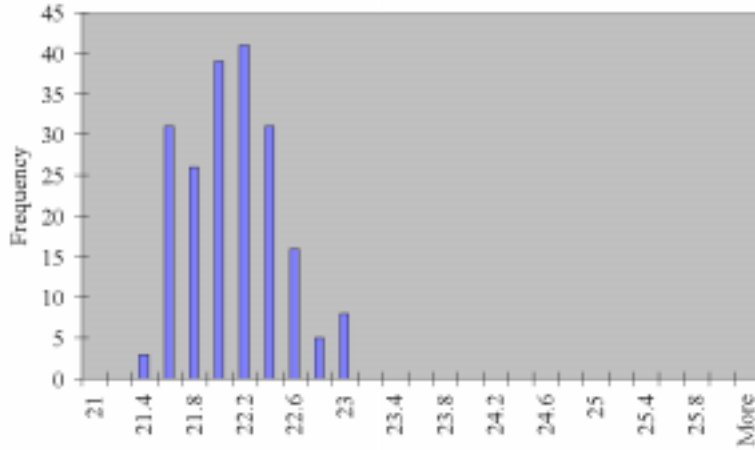
	Temperature		CO ₂	RH
	°C	°F	(ppm)	
Mean	20.291	68.52	36	55.37%
S.D.	0.46	0.82	20	
Max.	21.78	71.20	137	

Room Breathing Zone NH₃ (ppm)

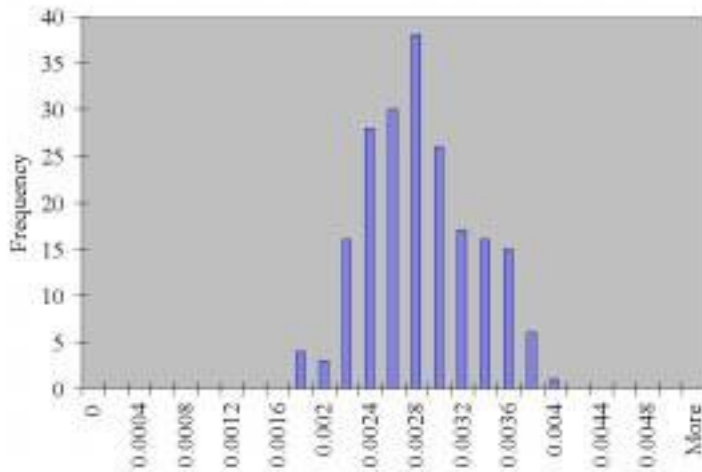
Day	1	2	3	4	5	6	7	8	9	10
Mean	0.02	0.04	0.06	0.11	0.18	0.26	0.40	0.49	0.59	0.63
Max.	0.07	0.14	0.21	0.40	0.68	1.01	1.51	1.88	2.25	2.43

Histogram Distributions

Cage occupied zone average temperature (°C) distribution



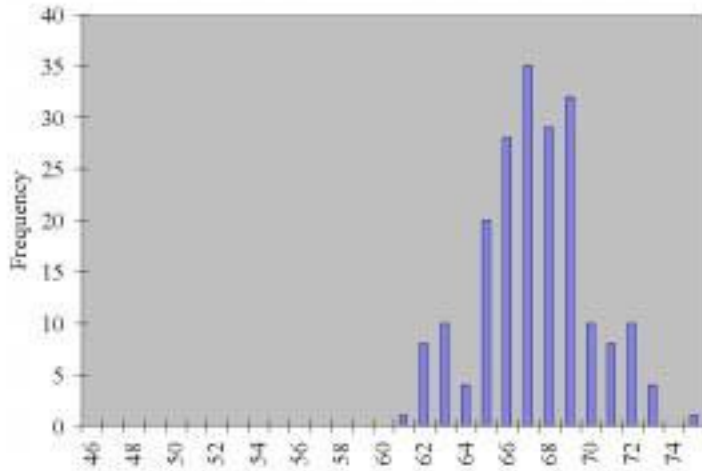
Cage occupied zone average contamination (kg/kg) distribution



Contamination conversion factors (kg/kg -7 ppm)

Day	CO ₂	NH ₃
1	785000	418
2	785000	795
3	785000	1225
4	785000	1922
5	785000	2848
6	785000	3443
7	785000	8409
8	785000	8483
9	785000	8442
10	785000	11384

Cage occupied zone average relative humidity (%) distribution



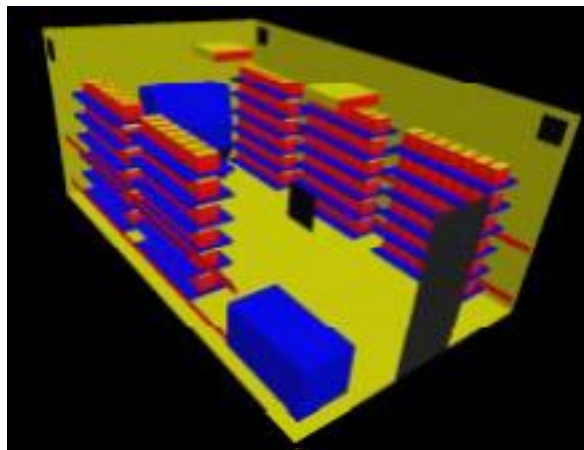
Casename **Case 02**

Description

Supply Configuration	Supply Discharge Temperature (°C)	Supply Discharge RH	Exhaust Configuration	Exhaust Temperature (°C)	Exhaust RH
Radial	18.8	61%	High	22	50%
Change Station	Rack Orientation	Rack Density	Number of Mice in Room	Total mass of Mice in Room	Room Pressurisation
ON	On wall	Single	1050	21000 gr	neg 100cfm

Room ACH
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Cage Condition
Top On



Analysis Results

Cage Occupied Zone

	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	22.33	72.20	1703	62.01%
S.D.	0.27	0.48	321	2.82%
Max.	23.23	73.82	2478	68.60%

Cage Occupied Zone NH3 (ppm)

Day	1	2	3	4	5	6	7	8	9	10
Mean	0.89	1.72	2.66	4.03	5.92	8.35	11.72	15.45	19.99	25.01
Max.	1.29	2.51	3.87	5.87	8.61	12.14	17.05	22.48	29.08	36.39

Room Breathing Zone

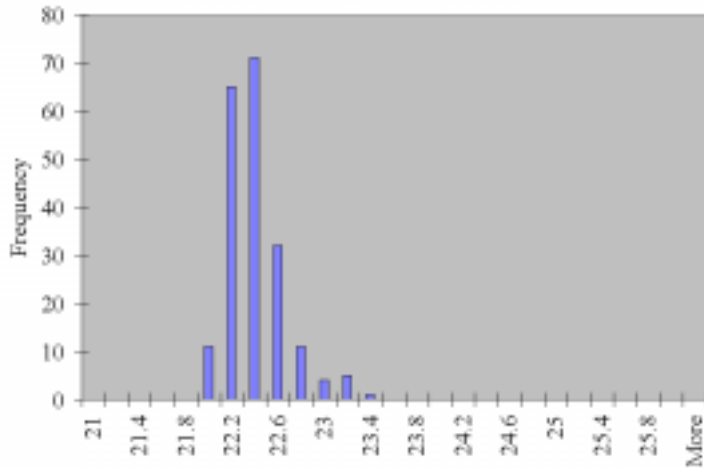
	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	20.69	69.23	65	54.25%
S.D.	0.25	0.44	22	
Max.	21.60	70.89	180	

Room Breathing Zone NH3 (ppm)

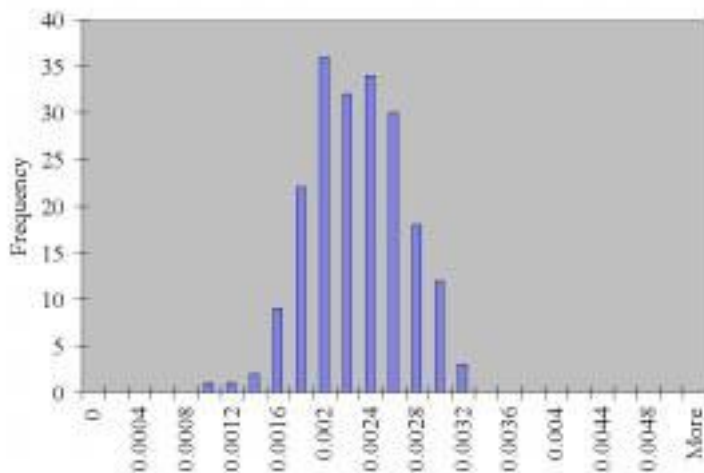
Day	1	2	3	4	5	6	7	8	9	10
Mean	0.03	0.07	0.10	0.15	0.23	0.32	0.45	0.59	0.76	0.95
Max.	0.09	0.18	0.28	0.43	0.63	0.88	1.24	1.64	2.12	2.65

Histogram Distributions

Cage occupied zone average temperature (°C) distribution



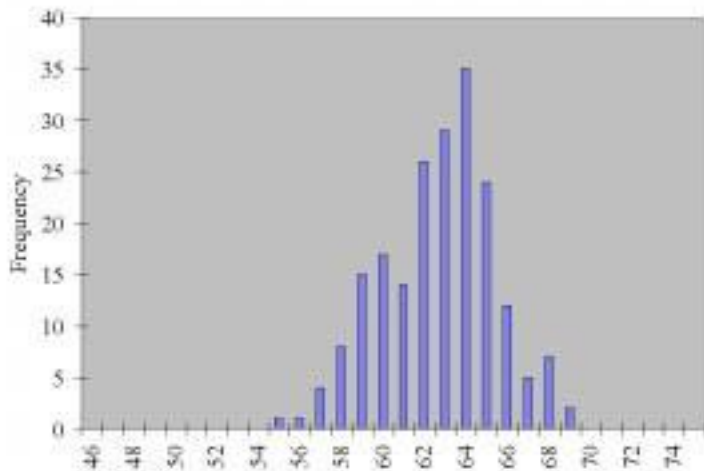
Cage occupied zone average contamination (kg/kg) distribution



Contamination conversion factors (kg/kg -7 ppm)

Day	CO ₂	NH ₃
1	785000	410
2	785000	795
3	785000	1225
4	785000	1860
5	785000	2727
6	785000	3847
7	785000	5401
8	785000	7122
9	785000	9214
10	785000	11384

Cage occupied zone average relative humidity (%) distribution



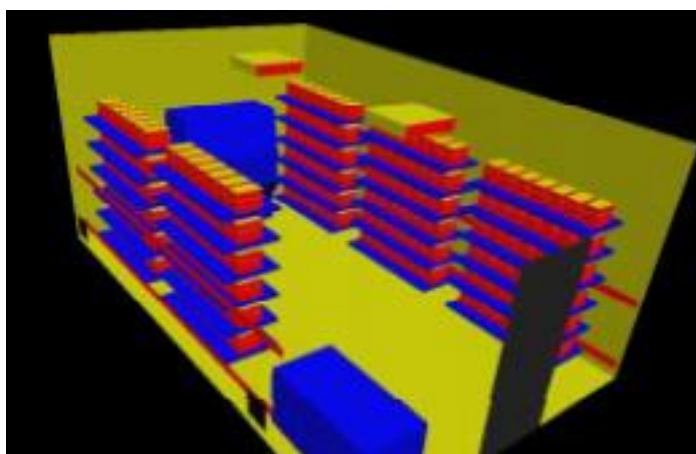
Casename **Case 03**

Description

Supply Configuration	Supply Discharge Temperature (°C)	Supply Discharge RH	Exhaust Configuration	Exhaust Temperature (°C)	Exhaust RH
Radial	18.8	61%	Low	22	50%
Change Station	Rack Orientation	Rack Density	Number of Mice in Room	Total mass of Mice in Room	Room Pressurisation
ON	On wall	Single	1050	21000 gr	neg 100cfm

Room ACH
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Cage Condition
Top On



Analysis Results

Cage Occupied Zone

	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	23.36	74.05	1568	57.15%
S.D.	0.48	0.87	343	3.00%
Max.	24.58	76.25	2581	64.65%

Cage Occupied Zone NH3 (ppm)

Day	1	2	3	4	5	6	7	8	9	10
Mean	0.82	1.59	2.45	3.53	4.96	6.88	9.41	12.70	16.87	22.05
Max.	1.34	2.61	4.03	5.81	8.16	11.32	15.50	20.90	27.76	36.29

Room Breathing Zone

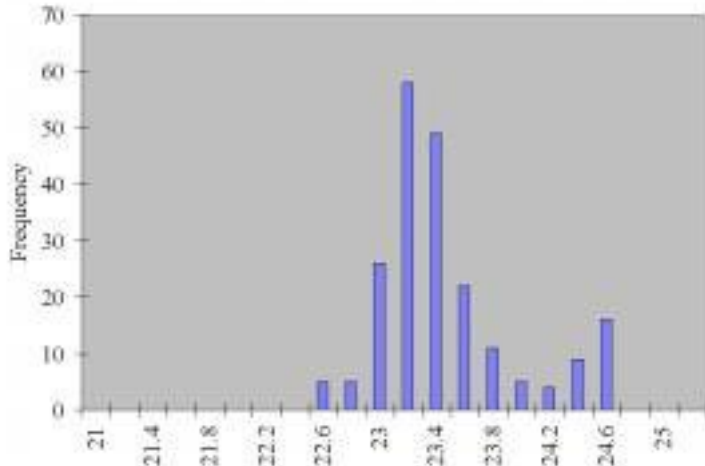
	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	22.06	71.71	64	49.73%
S.D.	0.37	0.66	25	
Max.	23.37	74.07	170	

Room Breathing Zone NH3 (ppm)

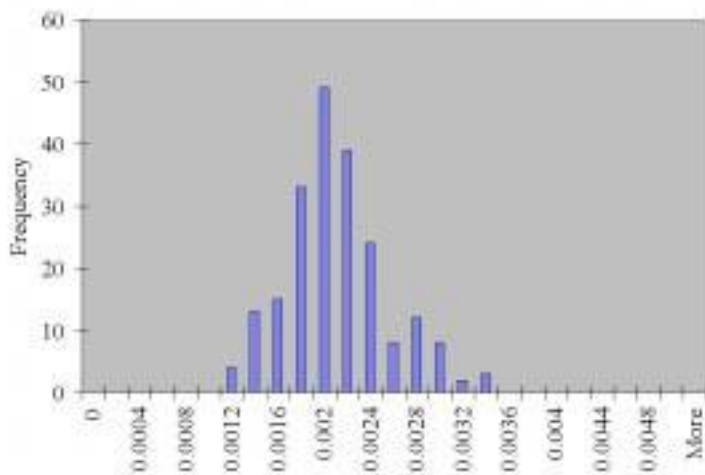
Day	1	2	3	4	5	6	7	8	9	10
Mean	0.03	0.06	0.10	0.14	0.20	0.28	0.38	0.52	0.69	0.90
Max.	0.09	0.17	0.27	0.38	0.54	0.75	1.02	1.38	1.83	2.39

Histogram Distributions

Cage occupied zone average temperature (°C) distribution



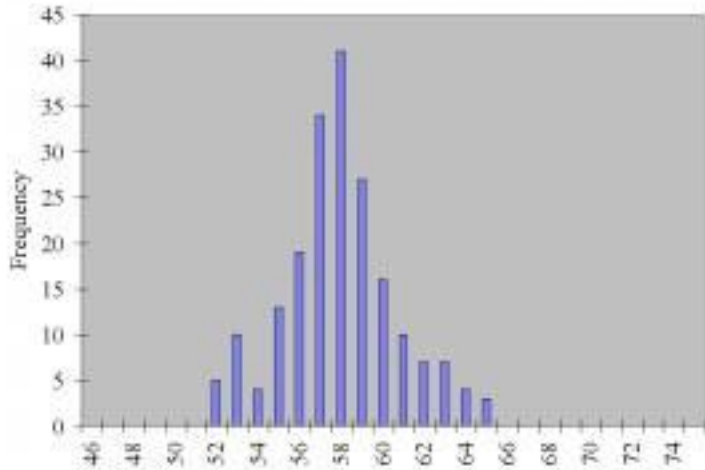
Cage occupied zone average contamination (kg/kg) distribution



Contamination conversion factors (kg/kg -7 ppm)

Day	CO ₂	NH ₃
1	785000	408
2	785000	795
3	785000	1225
4	785000	1766
5	785000	2483
6	785000	3443
7	785000	4712
8	785000	6356
9	785000	8442
10	785000	11384

Cage occupied zone average relative humidity (%) distribution



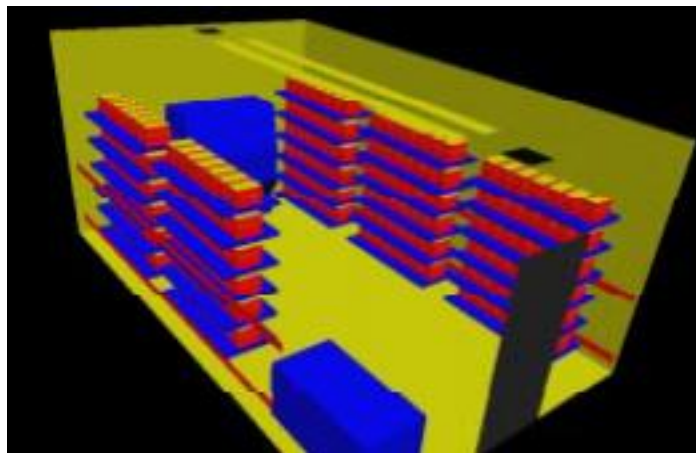
Casename **Case 04**

Description

Supply Configuration	Supply Discharge Temperature (°C)	Supply Discharge RH	Exhaust Configuration	Exhaust Temperature (°C)	Exhaust RH
Slot	18.8	61%	Ceiling	22	50%
Change Station	Rack Orientation	Rack Density	Number of Mice in Room	Total mass of Mice in Room	Room Pressurisation
ON	On wall	Single	1050	21000 gr	neg 100cfm

Room
ACH
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Cage Condition
Top On



Analysis Results

Cage Occupied Zone

	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	22.17	71.91	1709	62.68%
S.D.	0.29	0.52	286	2.29%
Max.	22.95	73.31	2296	67.45%

Cage Occupied Zone NH3 (ppm)

Day	1	2	3	4	5	6	7	8	9	10
Mean	0.90	1.73	2.67	4.18	6.29	8.96	12.75	16.61	21.17	25.80
Max.	1.20	2.32	3.58	5.62	8.45	12.03	17.13	22.31	28.44	34.67

Room Breathing Zone

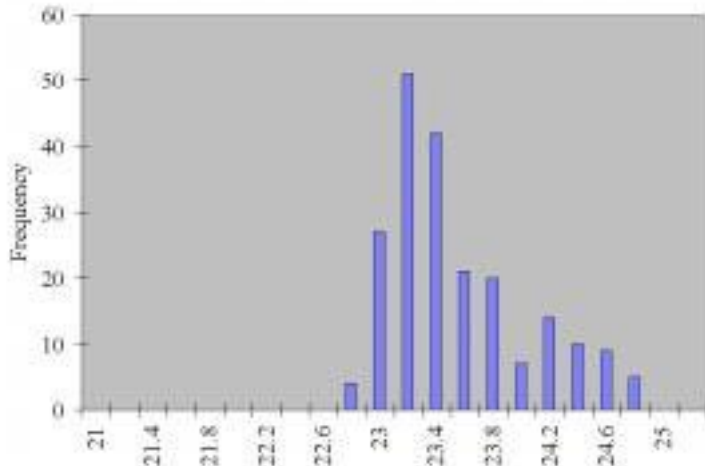
	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	20.42	68.76	62	55.14%
S.D.	0.17	0.31	26	
Max.	21.18	70.12	170	

Room Breathing Zone NH3 (ppm)

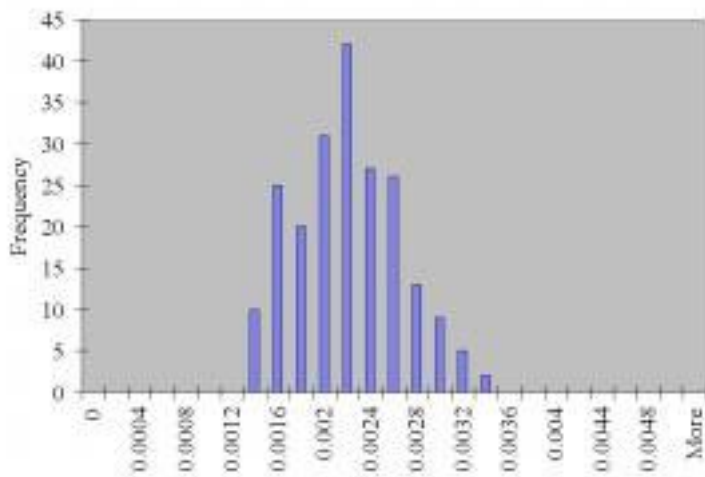
Day	1	2	3	4	5	6	7	8	9	10
Mean	0.03	0.06	0.10	0.15	0.23	0.32	0.46	0.60	0.77	0.94
Max.	0.09	0.17	0.26	0.42	0.62	0.89	1.27	1.65	2.10	2.56

Histogram Distributions

Cage occupied zone average temperature (°C) distribution



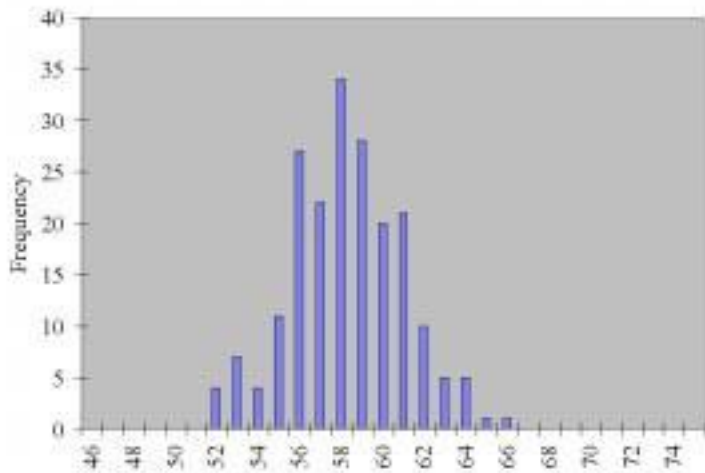
Cage occupied zone average contamination (kg/kg) distribution



Contamination conversion factors (kg/kg -7 ppm)

Day	CO ₂	NH ₃
1	785000	411
2	785000	795
3	785000	1225
4	785000	1922
5	785000	2888
6	785000	4114
7	785000	5857
8	785000	7629
9	785000	9725
10	785000	11384

Cage occupied zone average relative humidity (%) distribution



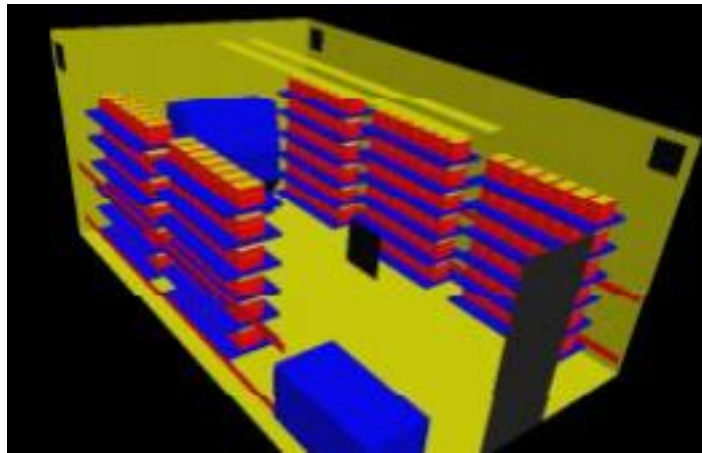
Casename **Case 05**

Description

Supply Configuration	Supply Discharge Temperature (°C)	Supply Discharge RH	Exhaust Configuration	Exhaust Temperature (°C)	Exhaust RH
Slot	18.8	61%	High	22	50%
Change Station	Rack Orientation	Rack Density	Number of Mice in Room	Total mass of Mice in Room	Room Pressurisation
ON	On wall	Single	1050	21000 gr	neg 100cfm

Room
ACH
15

Cage Condition
Top On



Analysis Results

Cage Occupied Zone

	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	22.28	72.10	1742	62.51%
S.D.	0.25	0.45	276	2.09%
Max.	22.86	73.15	2333	67.21%

Cage Occupied Zone NH3 (ppm)

Day	1	2	3	4	5	6	7	8	9	10
Mean	0.91	1.76	2.72	4.23	6.32	8.99	12.75	16.66	21.31	26.14
Max.	1.22	2.36	3.64	5.67	8.46	12.03	17.07	22.30	28.53	34.99

Room Breathing Zone

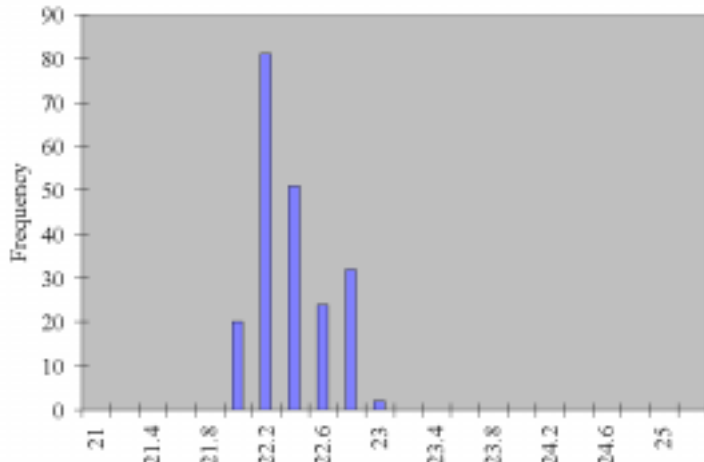
	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	20.54	68.96	49	54.63%
S.D.	0.19	0.34	24	
Max.	21.94	71.48	153	

Room Breathing Zone NH3 (ppm)

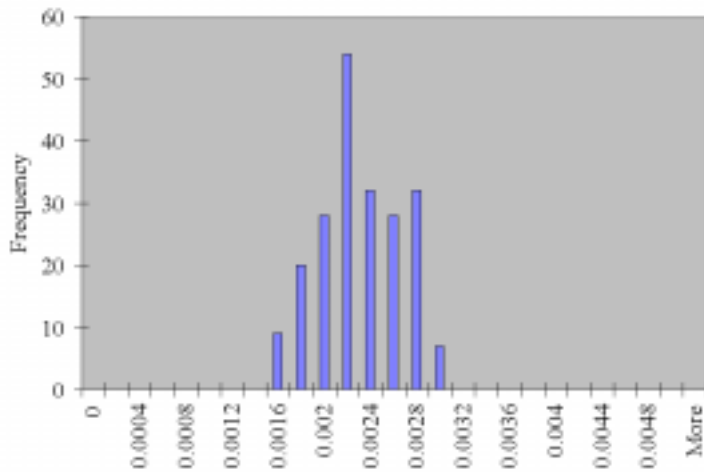
Day	1	2	3	4	5	6	7	8	9	10
Mean	0.03	0.05	0.08	0.12	0.18	0.25	0.36	0.47	0.60	0.74
Max.	0.08	0.16	0.24	0.37	0.56	0.79	1.12	1.47	1.88	2.30

Histogram Distributions

Cage occupied zone average temperature (°C) distribution



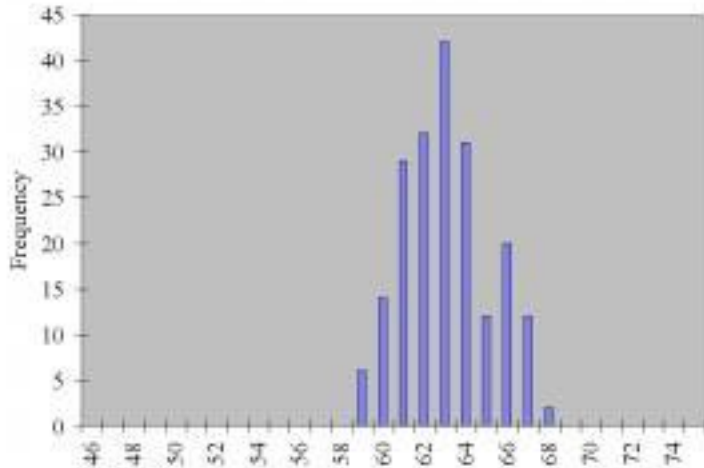
Cage occupied zone average contamination (kg/kg) distribution



Contamination conversion factors (kg/kg -7 ppm)

Day	CO ₂	NH ₃
1	785000	411
2	785000	795
3	785000	1225
4	785000	1906
5	785000	2848
6	785000	4048
7	785000	5744
8	785000	7504
9	785000	9599
10	785000	11384

Cage occupied zone average relative humidity (%) distribution



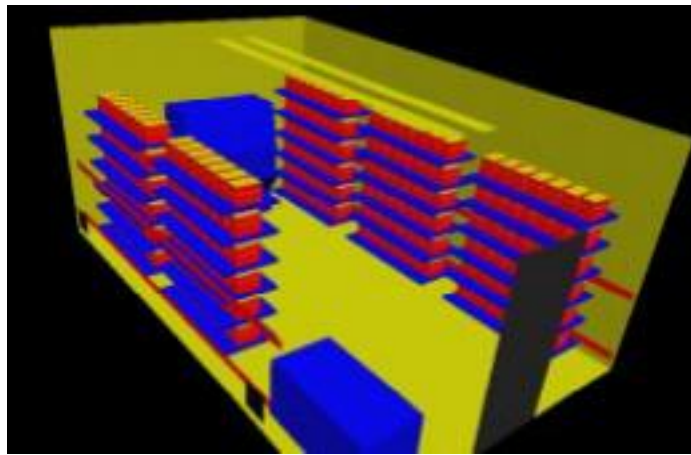
Casename **Case 06**

Description

Supply Configuration	Supply Discharge Temperature (°C)	Supply Discharge RH	Exhaust Configuration	Exhaust Temperature (°C)	Exhaust RH
Slot	18.8	61%	Low	22	50%
Change Station	Rack Orientation	Rack Density	Number of Mice in Room	Total mass of Mice in Room	Room Pressurisation
ON	On wall	Single	1050	21000 gr	neg 100cfm

Room ACH
15

Cage Condition
Top On



Analysis Results

Cage Occupied Zone

	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	23.45	74.21	1652	57.45%
S.D.	0.49	0.88	353	3.04%
Max.	24.70	76.46	2645	65.27%

Cage Occupied Zone NH3 (ppm)

Day	1	2	3	4	5	6	7	8	9	10
Mean	0.86	1.67	2.58	3.72	5.22	7.24	9.92	13.37	17.76	23.22
Max.	1.38	2.68	4.13	5.95	8.37	11.60	15.88	21.42	28.44	37.18

Room Breathing Zone

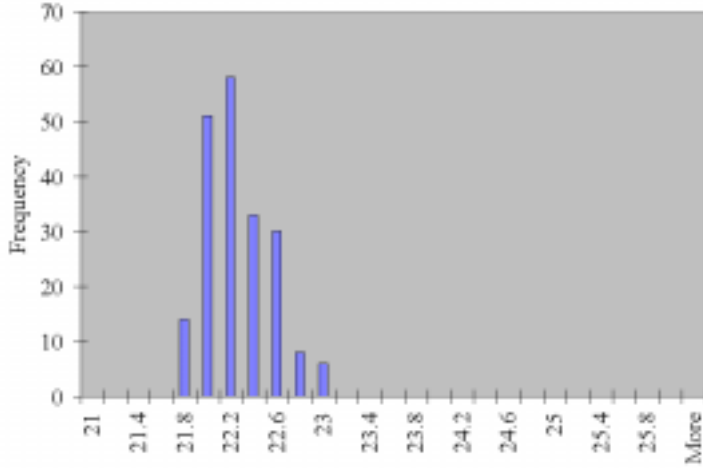
	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	22.26	72.07	72	49.16%
S.D.	0.44	0.80	17	
Max.	23.47	74.25	157	

Room Breathing Zone NH3 (ppm)

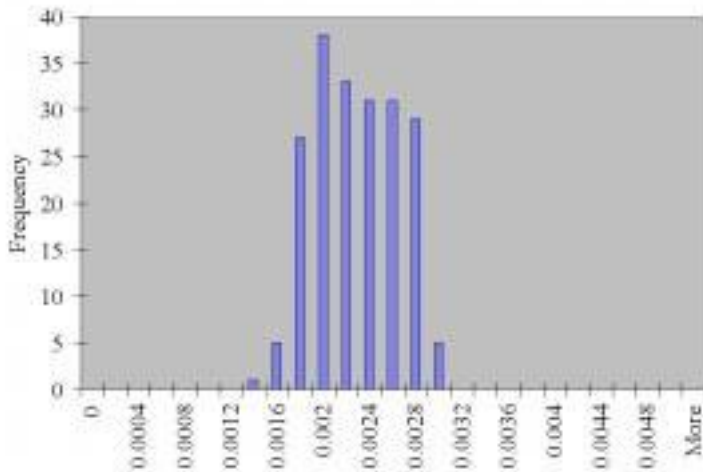
Day	1	2	3	4	5	6	7	8	9	10
Mean	0.04	0.07	0.11	0.16	0.23	0.31	0.43	0.58	0.77	1.01
Max.	0.08	0.16	0.25	0.35	0.50	0.69	0.94	1.27	1.69	2.21

Histogram Distributions

Cage occupied zone average temperature (°C) distribution



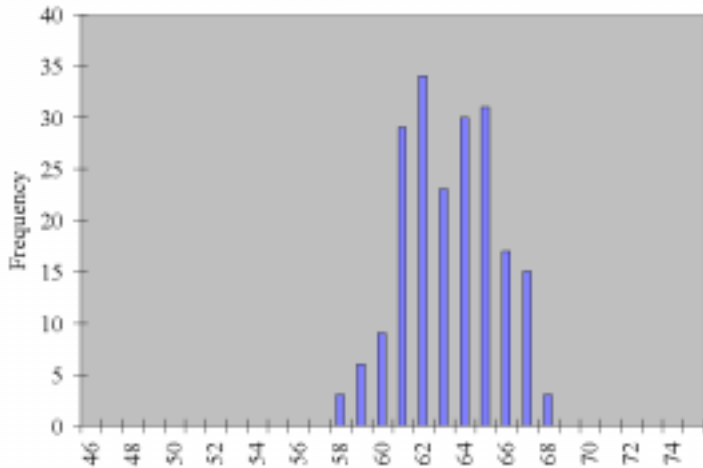
Cage occupied zone average contamination (kg/kg) distribution



Contamination conversion factors (kg/kg -7 ppm)

Day	CO ₂	NH ₃
1	785000	408
2	785000	795
3	785000	1225
4	785000	1766
5	785000	2483
6	785000	3443
7	785000	4712
8	785000	6356
9	785000	8442
10	785000	11384

Cage occupied zone average relative humidity (%) distribution



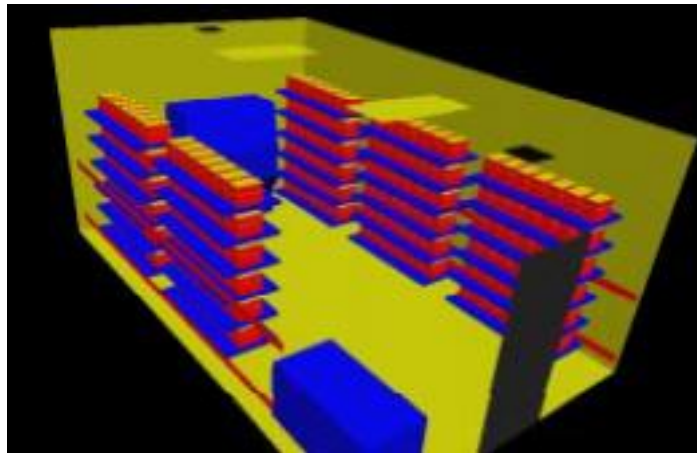
Casename **Case 07**

Description

Supply Configuration	Supply Discharge Temperature (°C)	Supply Discharge RH	Exhaust Configuration	Exhaust Temperature (°C)	Exhaust RH
Low Ind	18.8	61%	Ceiling	22	50%
Change Station	Rack Orientation	Rack Density	Number of Mice in Room	Total mass of Mice in Room	Room Pressurisation
ON	On wall	Single	1050	21000 gr	neg 100cfm

Room
ACH
15

Cage Condition
Top On



Analysis Results

Cage Occupied Zone

	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	22.45	72.42	2321	66.43%
S.D.	0.66	1.19	488	3.53%
Max.	23.71	74.68	3385	74.89%

Cage Occupied Zone NH3 (ppm)

Day	1	2	3	4	5	6	7	8	9	10
Mean	1.24	2.35	3.62	6.71	11.21	16.60	24.87	30.95	37.22	40.46
Max.	1.80	3.43	5.28	9.79	16.35	24.20	36.26	45.13	54.28	59.00

Room Breathing Zone

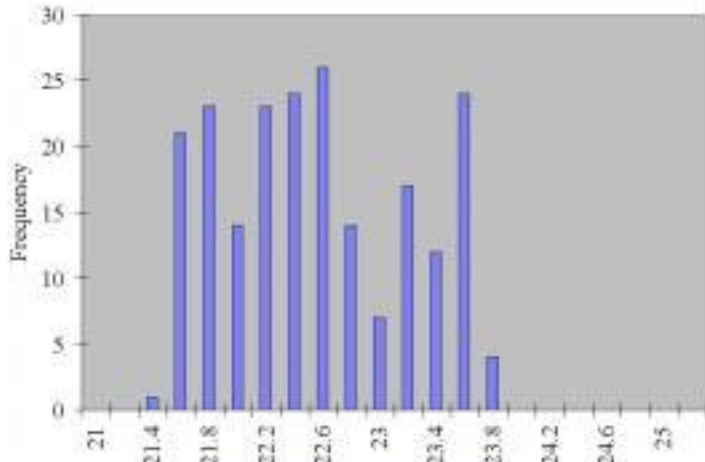
	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	19.96	67.93	57	56.73%
S.D.	0.68	1.22	82	
Max.	22.20	71.96	371	

Room Breathing Zone NH3 (ppm)

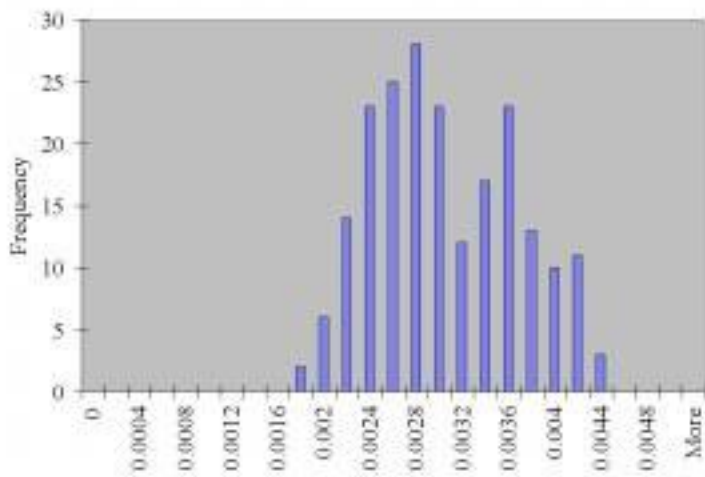
Day	1	2	3	4	5	6	7	8	9	10
Mean	0.03	0.06	0.09	0.16	0.27	0.41	0.61	0.76	0.91	0.99
Max.	0.20	0.38	0.58	1.07	1.79	2.65	3.97	4.94	5.94	6.46

Histogram Distributions

Cage occupied zone average temperature (°C) distribution



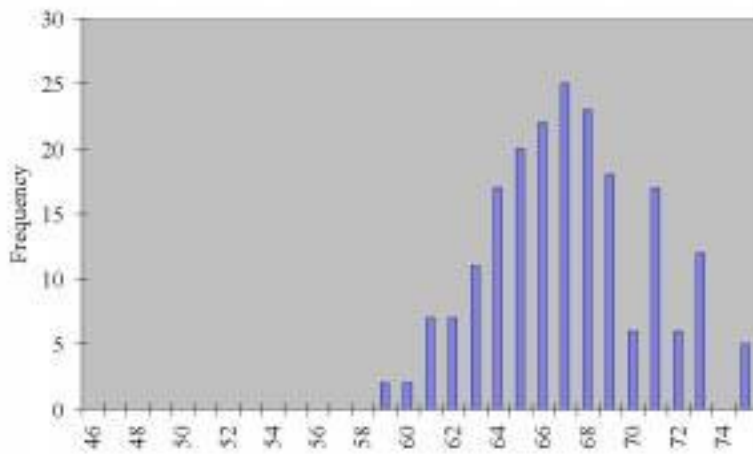
Cage occupied zone average contamination (kg/kg) distribution



Contamination conversion factors (kg/kg -7 ppm)

Day	CO ₂	NH ₃
1	785000	418
2	785000	795
3	785000	1225
4	785000	2270
5	785000	3791
6	785000	5612
7	785000	8409
8	785000	10466
9	785000	12587
10	785000	11384

Cage occupied zone average relative humidity (%) distribution



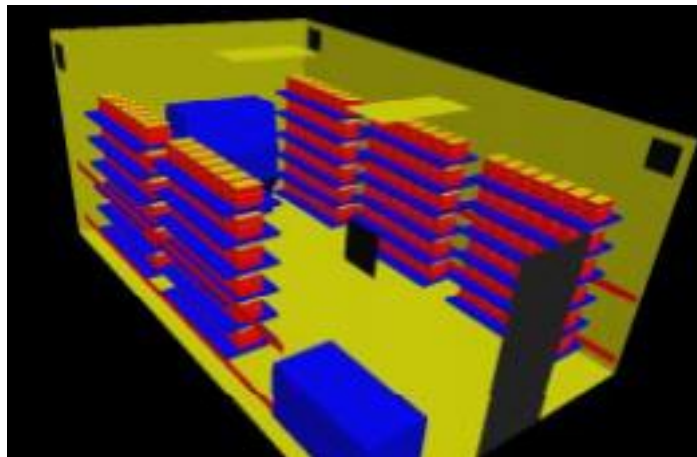
Casename **Case 08**

Description

Supply Configuration	Supply Discharge Temperature (°C)	Supply Discharge RH	Exhaust Configuration	Exhaust Temperature (°C)	Exhaust RH
Low Ind	18.8	61%	High	22	50%
Change Station	Rack Orientation	Rack Density	Number of Mice in Room	Total mass of Mice in Room	Room Pressurisation
ON	On wall	Single	1050	21000 gr	neg 100cfm

Room
ACH
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Cage Condition
Top On



Analysis Results

Cage Occupied Zone

	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	22.22	71.99	1871	63.81%
S.D.	0.25	0.45	328	2.73%
Max.	22.83	73.10	2638	69.33%

Cage Occupied Zone NH3 (ppm)

Day	1	2	3	4	5	6	7	8	9	10
Mean	0.98	1.89	2.92	4.83	7.53	10.88	15.79	20.22	25.23	29.56
Max.	1.39	2.67	4.12	6.81	10.62	15.34	22.26	28.50	35.57	41.68

Room Breathing Zone

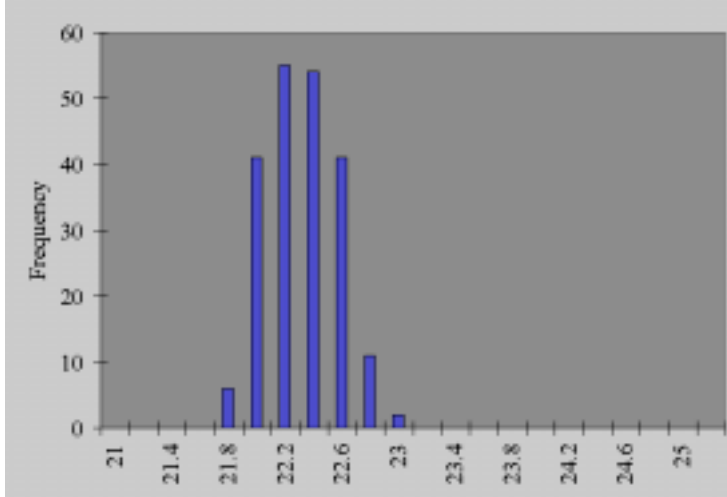
	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	20.48	68.86	64	54.97%
S.D.	0.27	0.48	31	
Max.	21.47	70.65	225	

Room Breathing Zone NH3 (ppm)

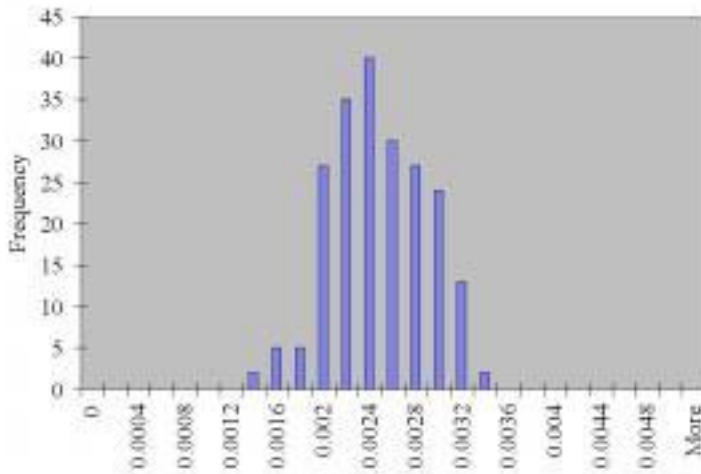
Day	1	2	3	4	5	6	7	8	9	10
Mean	0.03	0.06	0.10	0.16	0.26	0.37	0.54	0.69	0.86	1.01
Max.	0.12	0.23	0.35	0.58	0.91	1.31	1.90	2.43	3.04	3.56

Histogram Distributions

Cage occupied zone average temperature (°C) distribution



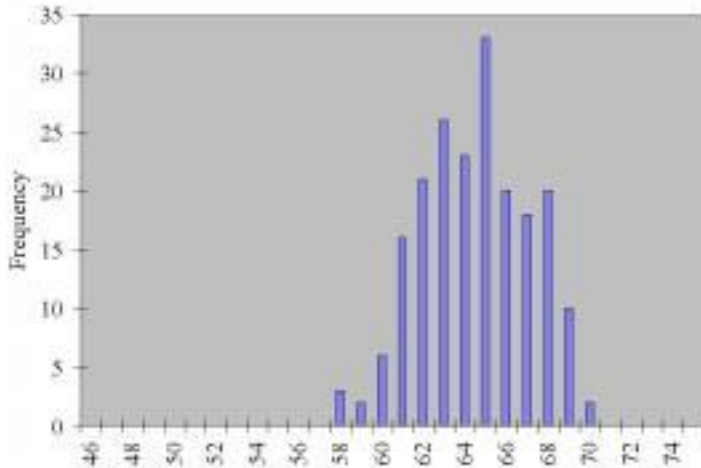
Cage occupied zone average contamination (kg/kg) distribution



Contamination conversion factors (kg/kg -7 ppm)

Day	CO ₂	NH ₃
1	785000	413
2	785000	795
3	785000	1225
4	785000	2027
5	785000	3160
6	785000	4565
7	785000	6625
8	785000	8483
9	785000	10586
10	785000	11384

Cage occupied zone average relative humidity (%) distribution



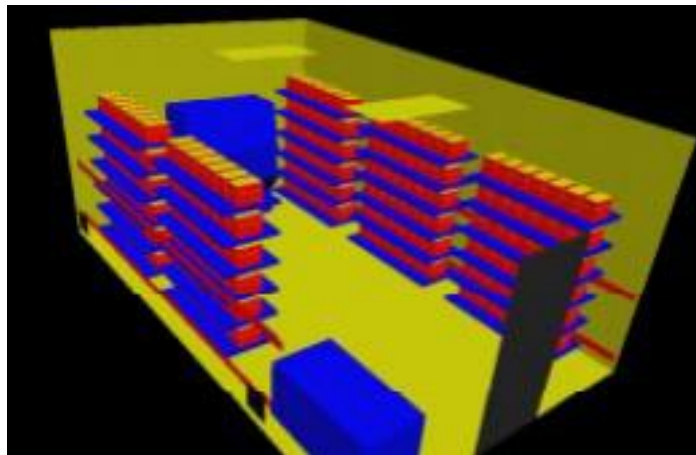
Casename **Case 09**

Description

Supply Configuration	Supply Discharge Temperature (°C)	Supply Discharge RH	Exhaust Configuration	Exhaust Temperature (°C)	Exhaust RH
Low Ind	18.8	61%	Low	22	50%
Change Station	Rack Orientation	Rack Density	Number of Mice in Room	Total mass of Mice in Room	Room Pressurisation
ON	On wall	Single	1050	21000 gr	neg 100cfm

Room ACH
15

Cage Condition
Top On



Analysis Results

Cage Occupied Zone

	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	23.61	74.49	1725	57.46%
S.D.	0.54	0.97	335	3.18%
Max.	24.78	76.61	2931	64.20%

Cage Occupied Zone NH3 (ppm)

Day	1	2	3	4	5	6	7	8	9	10
Mean	0.90	1.75	2.69	3.88	5.46	7.57	10.36	13.97	18.55	24.25
Max.	1.52	2.97	4.57	6.59	9.27	12.86	17.60	23.74	31.53	41.21

Room Breathing Zone

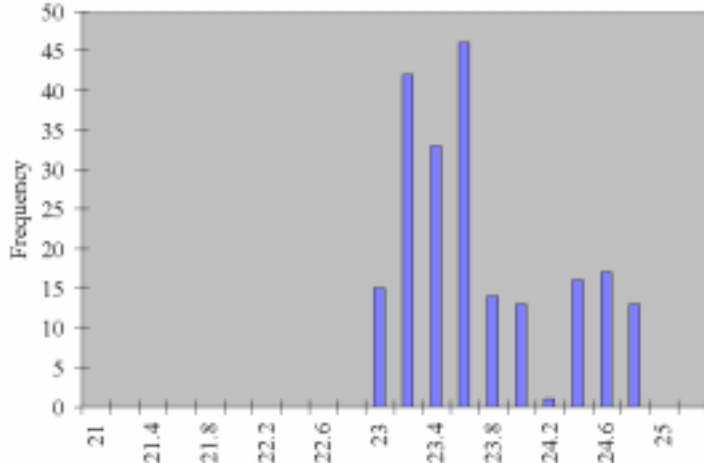
	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	22.57	72.62	88	48.37%
S.D.	0.60	1.08	31	
Max.	23.76	74.76	277	

Room Breathing Zone NH3 (ppm)

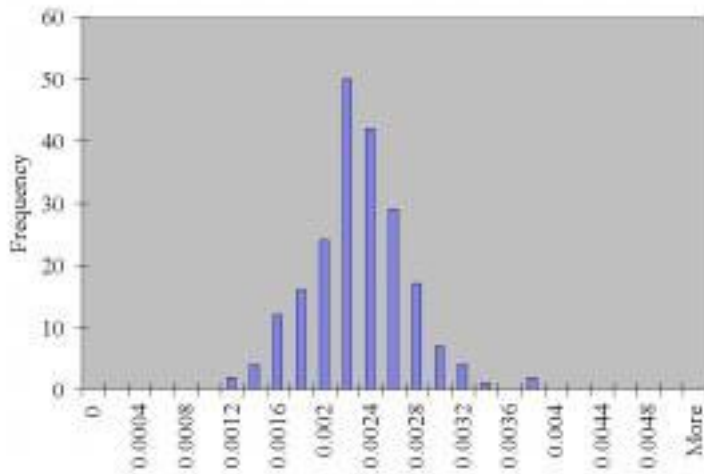
Day	1	2	3	4	5	6	7	8	9	10
Mean	0.05	0.09	0.14	0.20	0.28	0.38	0.53	0.71	0.94	1.23
Max.	0.14	0.28	0.43	0.62	0.88	1.21	1.66	2.24	2.98	3.89

Histogram Distributions

Cage occupied zone average temperature (°C) distribution



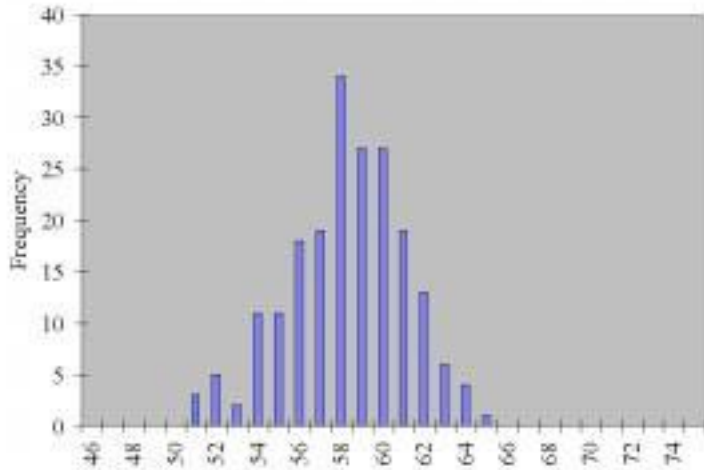
Cage occupied zone average contamination (kg/kg) distribution



Contamination conversion factors (kg/kg -7 ppm)

Day	CO ₂	NH ₃
1	785000	408
2	785000	795
3	785000	1225
4	785000	1766
5	785000	2483
6	785000	3443
7	785000	4712
8	785000	6356
9	785000	8442
10	785000	11384

Cage occupied zone average relative humidity (%) distribution



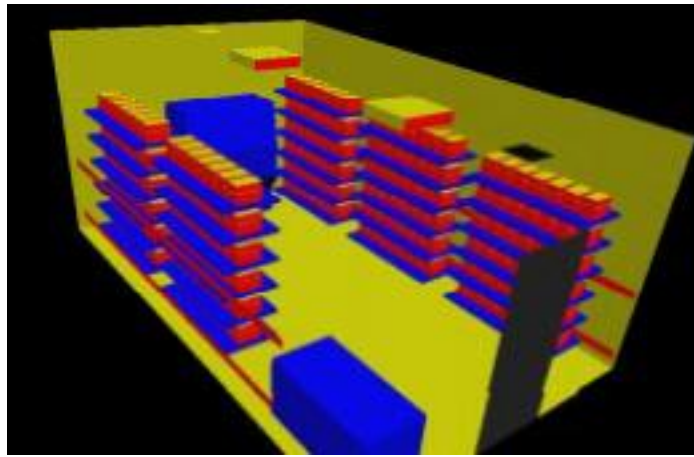
Casename **Case 10**

Description

Supply Configuration	Supply Discharge Temperature (°C)	Supply Discharge RH	Exhaust Configuration	Exhaust Temperature (°C)	Exhaust RH
Radial	20.7	54%	Ceiling	22	50%
Change Station	Rack Orientation	Rack Density	Number of Mice in Room	Total mass of Mice in Room	Room Pressurisation
OFF	On wall	Single	1050	21000 gr	neg 100cfm

Room ACH
15

Cage Condition
Top On



Analysis Results

Cage Occupied Zone

	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	23.24	73.84	2119	61.71%
S.D.	0.28	0.51	376	3.14%
Max.	23.88	74.98	3201	68.32%

Cage Occupied Zone NH3 (ppm)

Day	1	2	3	4	5	6	7	8	9	10
Mean	1.11	2.14	3.31	4.94	7.17	10.06	14.03	18.61	24.25	30.72
Max.	1.67	3.24	5.00	7.47	10.83	15.20	21.20	28.12	36.65	46.42

Room Breathing Zone

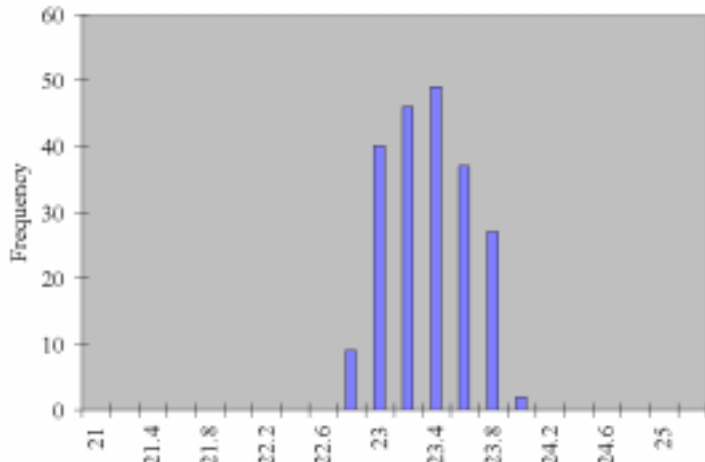
	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	20.92	69.66	29	53.13%
S.D.	0.39	0.70	44	
Max.	22.21	71.98	158	

Room Breathing Zone NH3 (ppm)

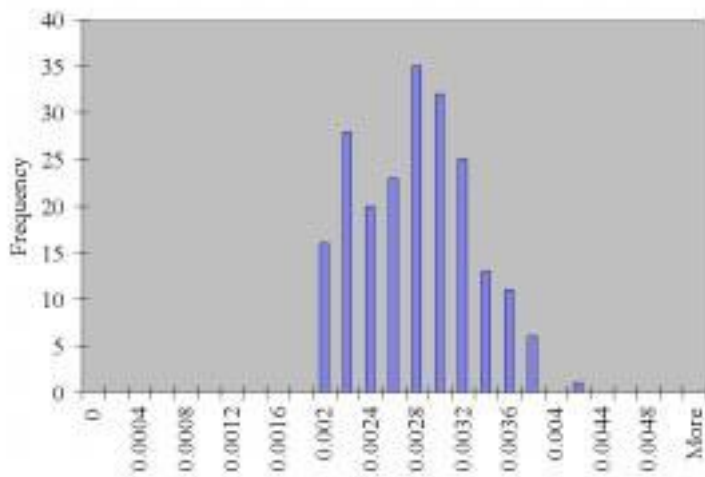
Day	1	2	3	4	5	6	7	8	9	10
Mean	0.02	0.03	0.05	0.07	0.10	0.14	0.19	0.26	0.33	0.42
Max.	0.08	0.16	0.25	0.37	0.53	0.75	1.05	1.39	1.81	2.29

Histogram Distributions

Cage occupied zone average temperature (°C) distribution



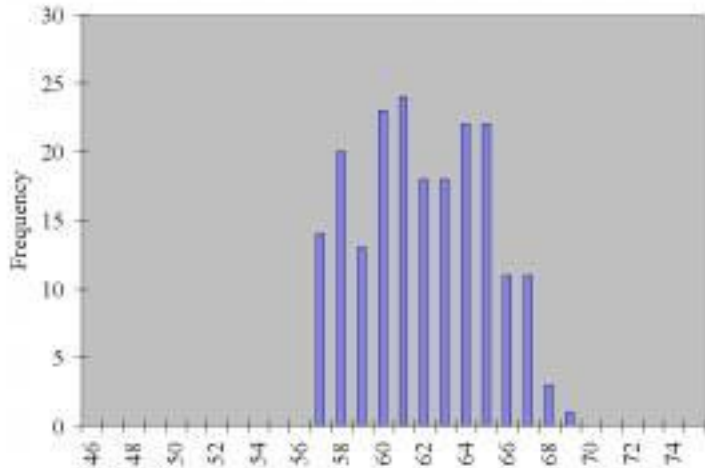
Cage occupied zone average contamination (kg/kg) distribution



Contamination conversion factors (kg/kg -7 ppm)

Day	CO ₂	NH ₃
1	785000	410
2	785000	795
3	785000	1225
4	785000	1832
5	785000	2655
6	785000	3728
7	785000	5198
8	785000	6897
9	785000	8987
10	785000	11384

Cage occupied zone average relative humidity (%) distribution



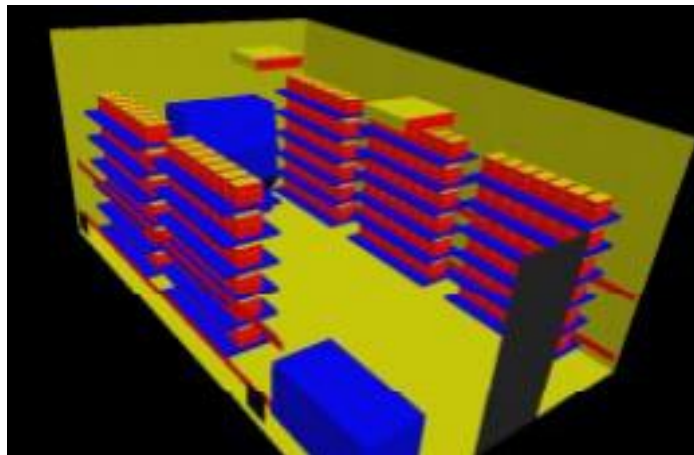
Casename **Case 11**

Description

Supply Configuration	Supply Discharge Temperature (°C)	Supply Discharge RH	Exhaust Configuration	Exhaust Temperature (°C)	Exhaust RH
Radial	20.7	54%	Low	22	50%
Change Station	Rack Orientation	Rack Density	Number of Mice in Room	Total mass of Mice in Room	Room Pressurisation
OFF	On wall	Single	1050	21000 gr	neg 100cfm

Room ACH
15

Cage Condition
Top On



Analysis Results

Cage Occupied Zone

	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	22.75	72.95	2118	63.61%
S.D.	0.27	0.48	412	2.69%
Max.	23.36	74.04	2903	69.23%

Cage Occupied Zone NH3 (ppm)

Day	1	2	3	4	5	6	7	8	9	10
Mean	1.11	2.14	3.30	5.42	8.40	12.10	17.51	22.48	28.16	33.21
Max.	1.53	2.94	4.53	7.43	11.51	16.59	24.01	30.82	38.60	45.52

Room Breathing Zone

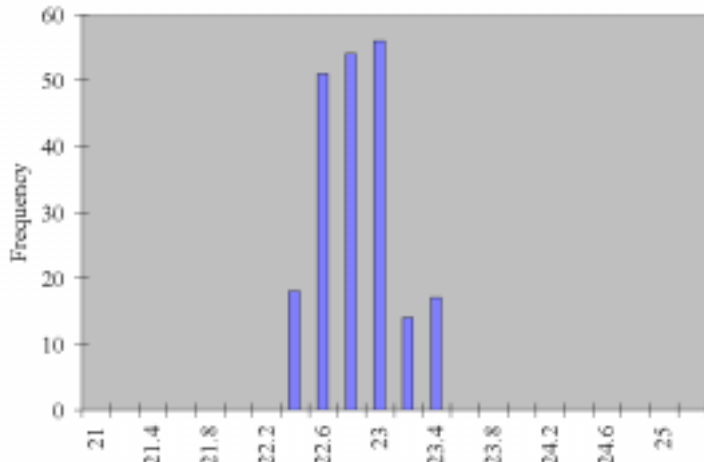
	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	21.31	70.35	48	52.02%
S.D.	0.39	0.70	55	
Max.	22.11	71.81	223	

Room Breathing Zone NH3 (ppm)

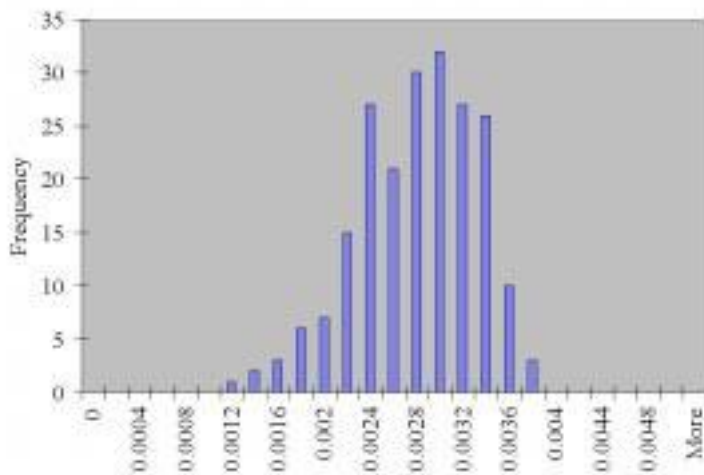
Day	1	2	3	4	5	6	7	8	9	10
Mean	0.03	0.05	0.07	0.12	0.19	0.27	0.39	0.51	0.63	0.75
Max.	0.12	0.23	0.35	0.57	0.88	1.27	1.84	2.36	2.96	3.49

Histogram Distributions

Cage occupied zone average temperature (°C) distribution



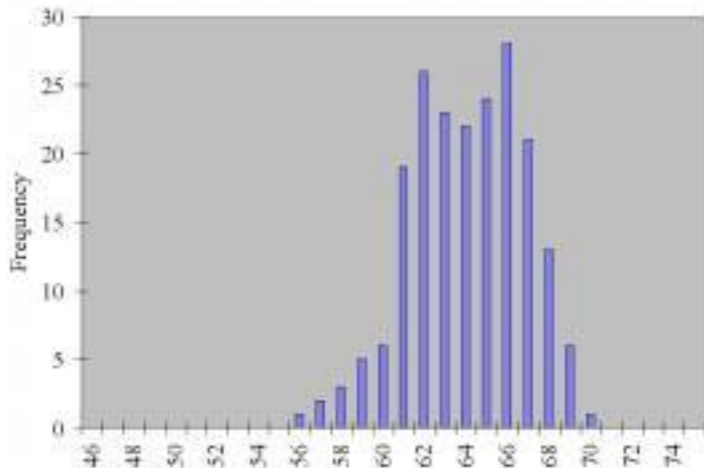
Cage occupied zone average contamination (kg/kg) distribution



Contamination conversion factors (kg/kg -7 ppm)

Day	CO ₂	NH ₃
1	785000	413
2	785000	795
3	785000	1225
4	785000	2008
5	785000	3112
6	785000	4486
7	785000	6491
8	785000	8334
9	785000	10436
10	785000	11384

Cage occupied zone average relative humidity (%) distribution



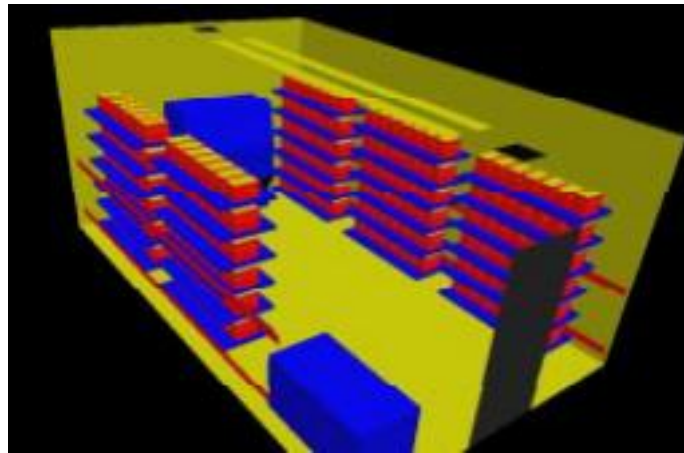
Casename **Case 12**

Description

Supply Configuration	Supply Discharge Temperature (°C)	Supply Discharge RH	Exhaust Configuration	Exhaust Temperature (°C)	Exhaust RH
Slot	20.7	54%	Ceiling	22	50%
Change Station	Rack Orientation	Rack Density	Number of Mice in Room	Total mass of Mice in Room	Room Pressurisation
OFF	On wall	Single	1050	21000 gr	neg 100cfm

Room ACH
15

Cage Condition
Top On



Analysis Results

Cage Occupied Zone

	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	22.91	73.24	2208	63.65%
S.D.	0.37	0.67	441	2.78%
Max.	23.58	74.45	3024	69.07%

Cage Occupied Zone NH3 (ppm)

Day	1	2	3	4	5	6	7	8	9	10
Mean	1.16	2.23	3.45	5.66	8.78	12.66	18.32	23.52	29.43	34.67
Max.	1.59	3.06	4.72	7.75	12.02	17.33	25.09	32.20	40.30	47.47

Room Breathing Zone

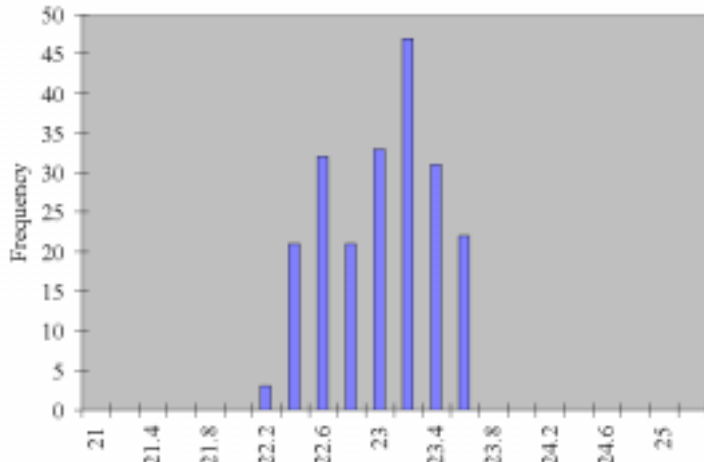
	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	21.13	70.03	17	52.35%
S.D.	0.44	0.80	42	
Max.	22.14	71.85	231	

Room Breathing Zone NH3 (ppm)

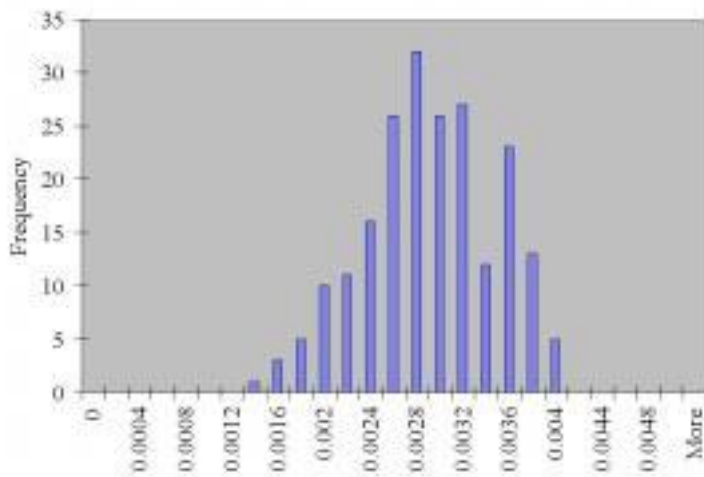
Day	1	2	3	4	5	6	7	8	9	10
Mean	0.01	0.02	0.03	0.04	0.07	0.10	0.14	0.18	0.23	0.27
Max.	0.12	0.23	0.36	0.59	0.92	1.32	1.92	2.46	3.08	3.63

Histogram Distributions

Cage occupied zone average temperature (°C) distribution



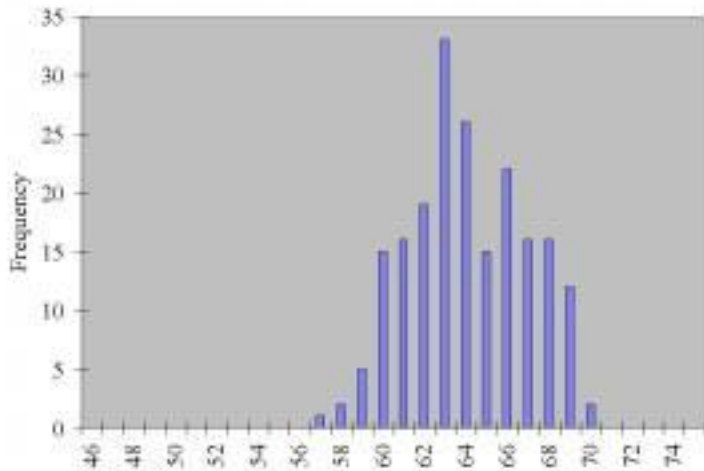
Cage occupied zone average contamination (kg/kg) distribution



Contamination conversion factors (kg/kg -7 ppm)

Day	CO ₂	NH ₃
1	785000	413
2	785000	795
3	785000	1225
4	785000	2011
5	785000	3121
6	785000	4500
7	785000	6514
8	785000	8360
9	785000	10462
10	785000	11384

Cage occupied zone average relative humidity (%) distribution



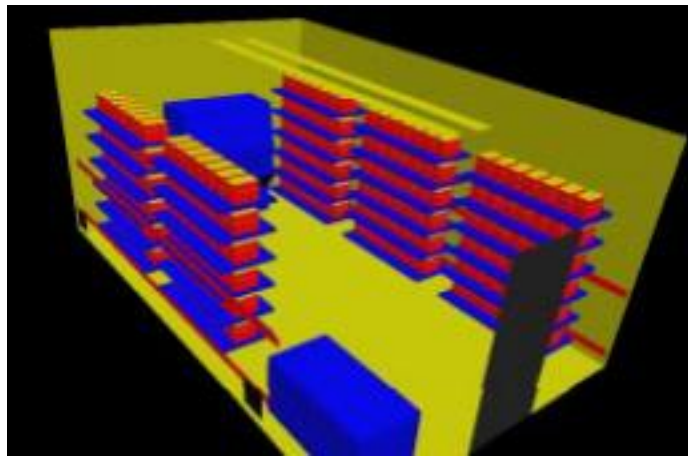
Casename **Case 13**

Description

Supply Configuration	Supply Discharge Temperature (°C)	Supply Discharge RH	Exhaust Configuration	Exhaust Temperature (°C)	Exhaust RH
Slot	20.7	54%	Low	22	50%
Change Station	Rack Orientation	Rack Density	Number of Mice in Room	Total mass of Mice in Room	Room Pressurisation
OFF	On wall	Single	1050	21000 gr	neg 100cfm

Room
ACH
15

Cage Condition
Top On



Analysis Results

Cage Occupied Zone

	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	22.77	72.98	2491	66.46%
S.D.	0.21	0.38	254	1.81%
Max.	23.37	74.06	3001	70.61%

Cage Occupied Zone NH3 (ppm)

Day	1	2	3	4	5	6	7	8	9	10
Mean	1.33	2.52	3.89	7.21	12.05	17.85	26.75	33.29	40.02	43.47
Max.	1.60	3.04	4.68	8.69	14.52	21.50	32.23	40.10	48.21	52.37

Room Breathing Zone

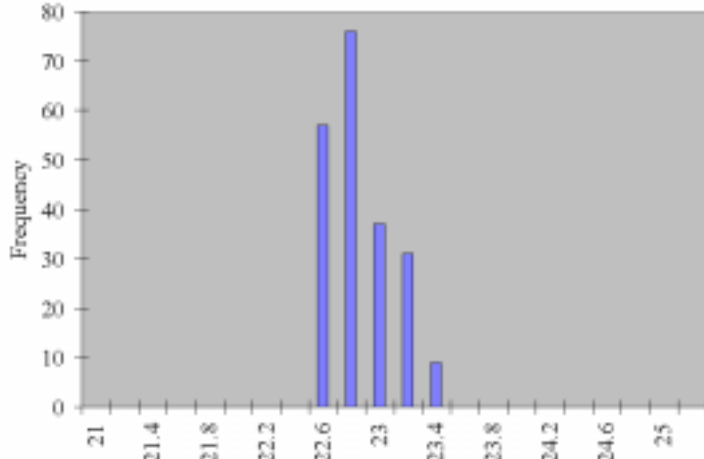
	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	20.84	69.51	37	53.47%
S.D.	0.17	0.31	58	
Max.	22.04	71.67	281	

Room Breathing Zone NH3 (ppm)

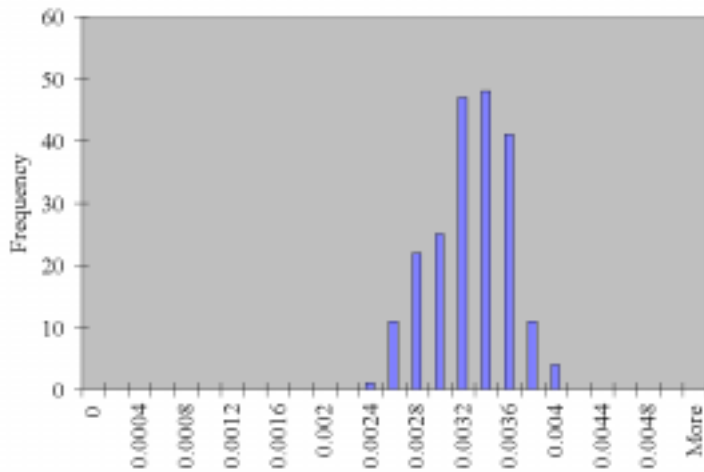
Day	1	2	3	4	5	6	7	8	9	10
Mean	0.02	0.04	0.06	0.11	0.18	0.26	0.39	0.49	0.59	0.64
Max.	0.15	0.28	0.44	0.81	1.36	2.01	3.02	3.75	4.51	4.90

Histogram Distributions

Cage occupied zone average temperature (°C) distribution



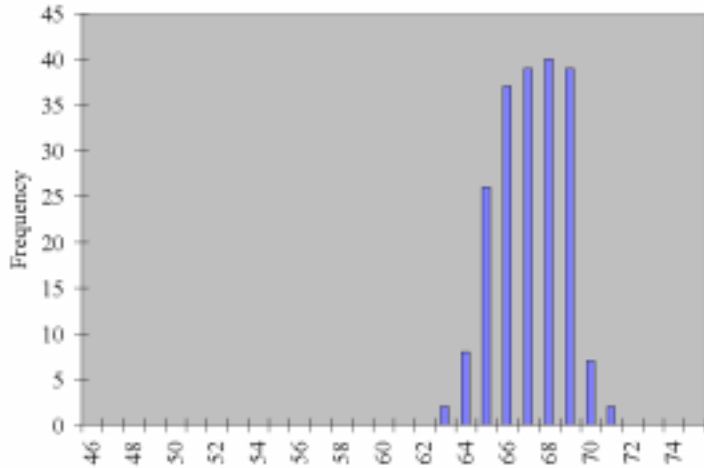
Cage occupied zone average contamination (kg/kg) distribution



Contamination conversion factors (kg/kg -7 ppm)

Day	CO ₂	NH ₃
1	785000	418
2	785000	795
3	785000	1225
4	785000	2273
5	785000	3798
6	785000	5624
7	785000	8430
8	785000	10490
9	785000	12611
10	785000	11384

Cage occupied zone average relative humidity (%) distribution



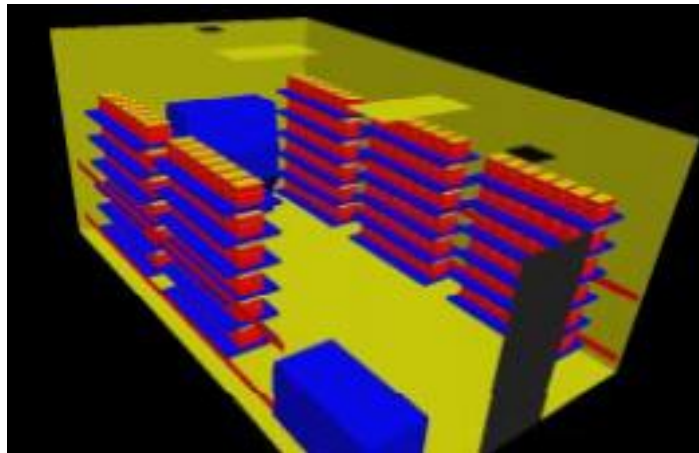
Casename **Case 14**

Description

Supply Configuration	Supply Discharge Temperature (°C)	Supply Discharge RH	Exhaust Configuration	Exhaust Temperature (°C)	Exhaust RH
Low Ind	20.7	54%	Ceiling	22	50%
Change Station	Rack Orientation	Rack Density	Number of Mice in Room	Total mass of Mice in Room	Room Pressurisation
OFF	On wall	Single	1050	21000 gr	neg 100cfm

Room
ACH
15

Cage Condition
Top On



Analysis Results

Cage Occupied Zone

	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	22.80	73.04	2215	64.18%
S.D.	0.21	0.37	222	1.51%
Max.	23.32	73.97	2619	67.00%

Cage Occupied Zone NH3 (ppm)

Day	1	2	3	4	5	6	7	8	9	10
Mean	1.17	2.24	3.46	5.82	9.17	13.30	19.40	24.73	30.67	35.51
Max.	1.38	2.65	4.09	6.88	10.84	15.72	22.94	29.23	36.26	41.99

Room Breathing Zone

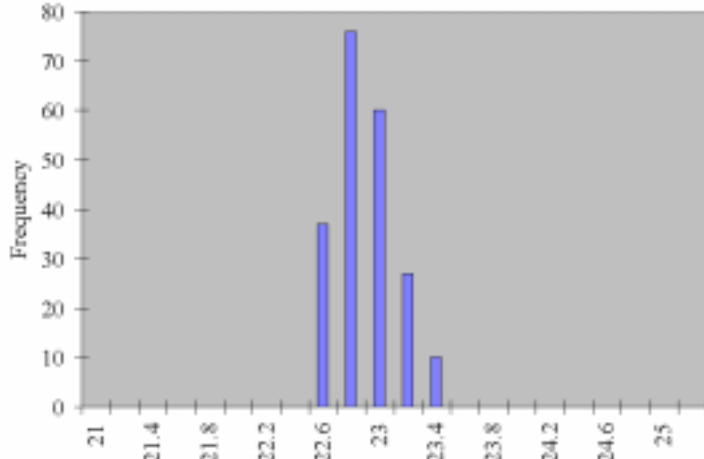
	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	21.12	70.01	52	52.68%
S.D.	0.17	0.31	23	
Max.	22.07	71.72	220	

Room Breathing Zone NH3 (ppm)

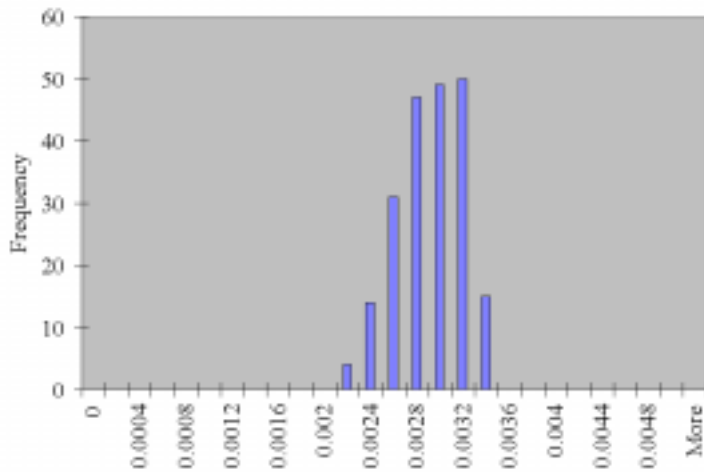
Day	1	2	3	4	5	6	7	8	9	10
Mean	0.03	0.05	0.08	0.14	0.21	0.31	0.45	0.58	0.72	0.83
Max.	0.12	0.22	0.34	0.58	0.91	1.32	1.93	2.45	3.04	3.52

Histogram Distributions

Cage occupied zone average temperature (°C) distribution



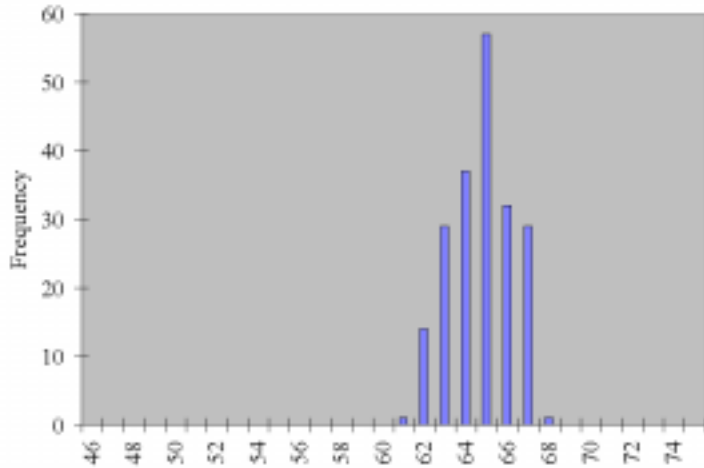
Cage occupied zone average contamination (kg/kg) distribution



Contamination conversion factors (kg/kg -7 ppm)

Day	CO ₂	NH ₃
1	785000	414
2	785000	795
3	785000	1225
4	785000	2061
5	785000	3249
6	785000	4713
7	785000	6877
8	785000	8763
9	785000	10869
10	785000	11384

Cage occupied zone average relative humidity (%) distribution



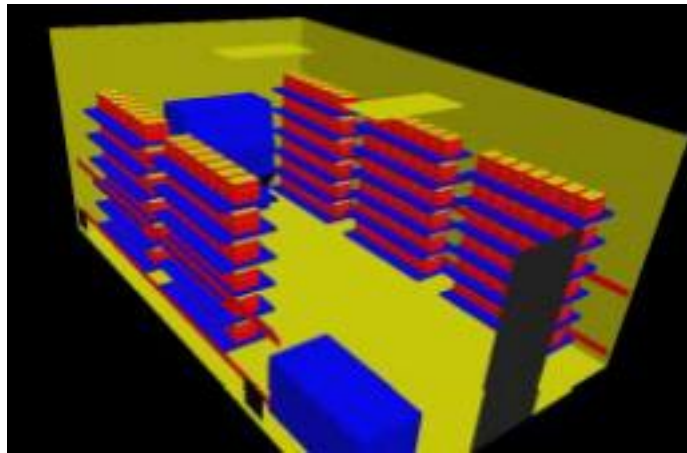
Casename **Case 15**

Description

Supply Configuration	Supply Discharge Temperature (°C)	Supply Discharge RH	Exhaust Configuration	Exhaust Temperature (°C)	Exhaust RH
Low Ind	20.7	54%	Low	22	50%
Change Station	Rack Orientation	Rack Density	Number of Mice in Room	Total mass of Mice in Room	Room Pressurisation
OFF	On wall	Single	1050	21000 gr	neg 100cfm

Room
ACH
15

Cage Condition
Top On



Analysis Results

Cage Occupied Zone

	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	23.24	73.84	2119	61.71%
S.D.	0.28	0.51	376	3.14%
Max.	23.88	74.98	3201	68.32%

Cage Occupied Zone NH3 (ppm)

Day	1	2	3	4	5	6	7	8	9	10
Mean	1.11	2.14	3.31	4.94	7.17	10.06	14.03	18.61	24.25	30.72
Max.	1.67	3.24	5.00	7.47	10.83	15.20	21.20	28.12	36.65	46.42

Room Breathing Zone

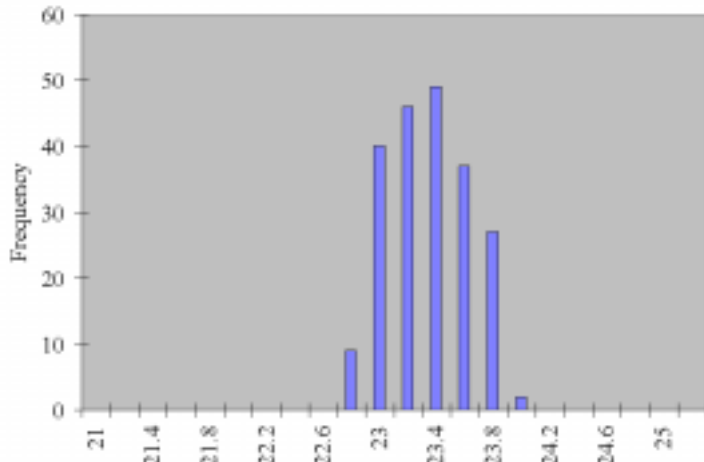
	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	21.21	70.19	48	52.32%
S.D.	0.16	0.29	44	
Max.	21.94	71.50	306	

Room Breathing Zone NH3 (ppm)

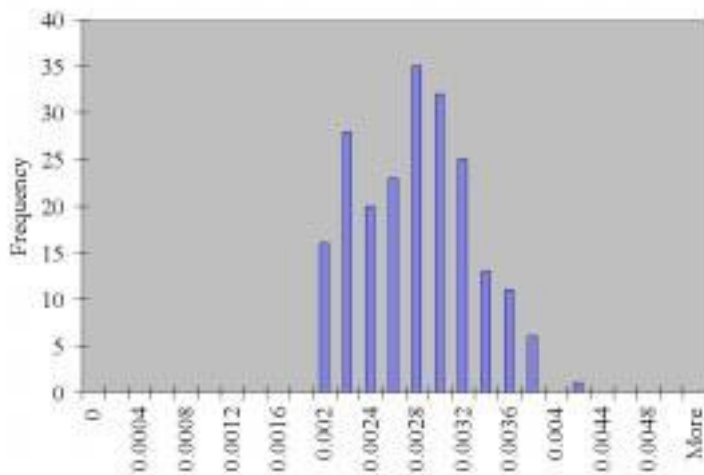
Day	1	2	3	4	5	6	7	8	9	10
Mean	0.03	0.05	0.07	0.11	0.16	0.23	0.32	0.42	0.55	0.70
Max.	0.16	0.31	0.48	0.71	1.03	1.45	2.02	2.69	3.50	4.43

Histogram Distributions

Cage occupied zone average temperature (°C) distribution



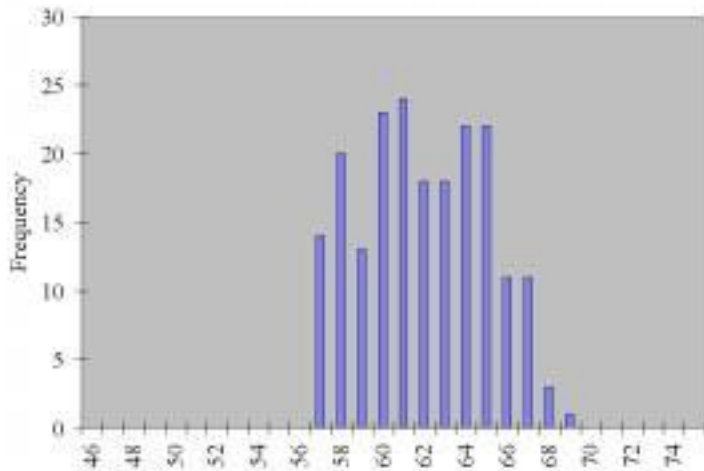
Cage occupied zone average contamination (kg/kg) distribution



Contamination conversion factors (kg/kg -7 ppm)

Day	CO ₂	NH ₃
1	785000	410
2	785000	795
3	785000	1225
4	785000	1832
5	785000	2655
6	785000	3728
7	785000	5198
8	785000	6897
9	785000	8987
10	785000	11384

Cage occupied zone average relative humidity (%) distribution



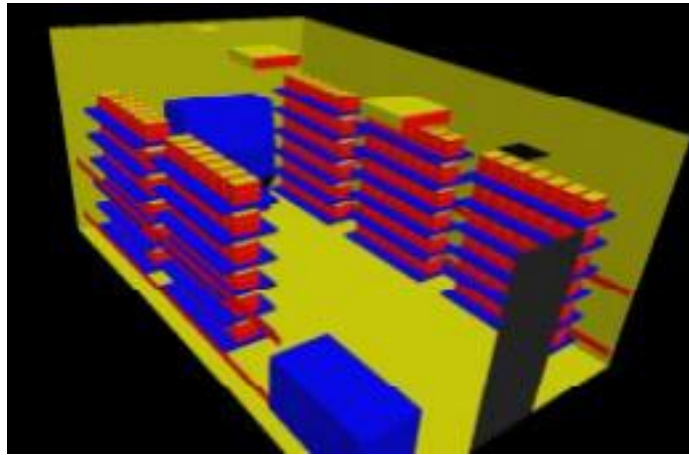
Casename **Case 16**

Description

Supply Configuration	Supply Discharge Temperature (°C)	Supply Discharge RH	Exhaust Configuration	Exhaust Temperature (°C)	Exhaust RH
Radial	18.8	61%	Ceiling	22	50%
Change Station	Rack Orientation	Rack Density	Number of Mice in Room	Total mass of Mice in Room	Room Pressurisation
ON	On wall	Single	1050	21000 gr	pos 100cfm

Room ACH
15

Cage Condition
Top On



Analysis Results

Cage Occupied Zone

	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	22.85	73.13	2213	63.97%
S.D.	0.81	1.45	450	3.43%
Max.	24.17	75.50	3126	74.23%

Cage Occupied Zone NH3 (ppm)

Day	1	2	3	4	5	6	7	8	9	10
Mean	1.17	2.24	3.45	5.76	9.02	13.05	18.99	24.26	30.19	35.20
Max.	1.65	3.16	4.88	8.13	12.74	18.43	26.82	34.26	42.65	49.71

Room Breathing Zone

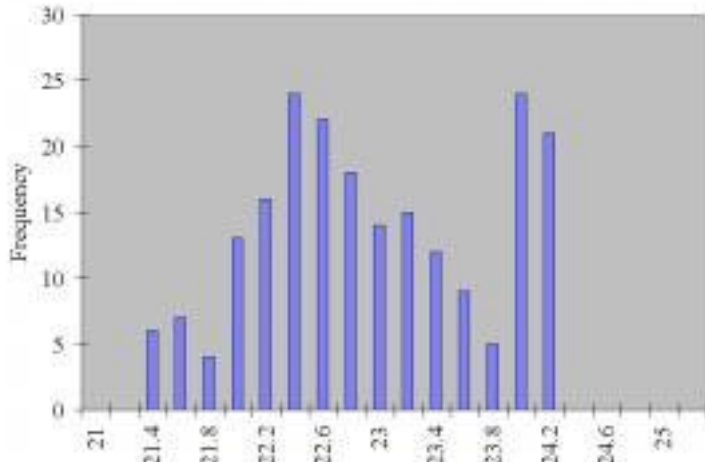
	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	20.07	68.12	37	56.18%
S.D.	1.29	2.33	47	
Max.	23.06	73.52	251	

Room Breathing Zone NH3 (ppm)

Day	1	2	3	4	5	6	7	8	9	10
Mean	0.02	0.04	0.06	0.10	0.15	0.22	0.31	0.40	0.50	0.58
Max.	0.13	0.25	0.39	0.65	1.02	1.48	2.16	2.76	3.43	4.00

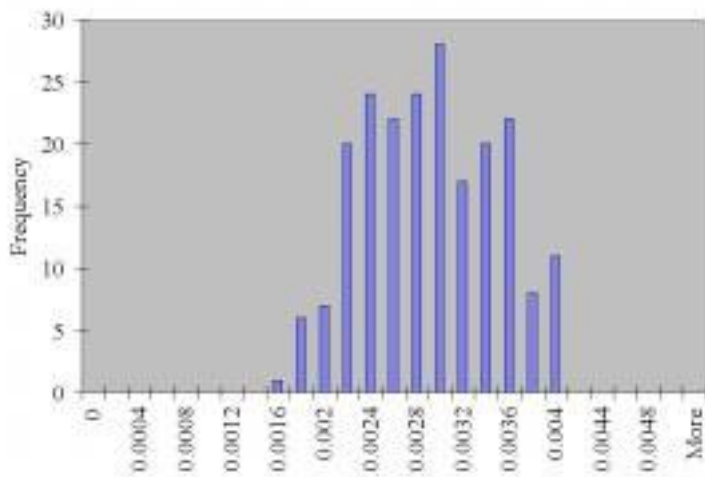
Histogram Distributions

Cage occupied zone average temperature (°C) distribution

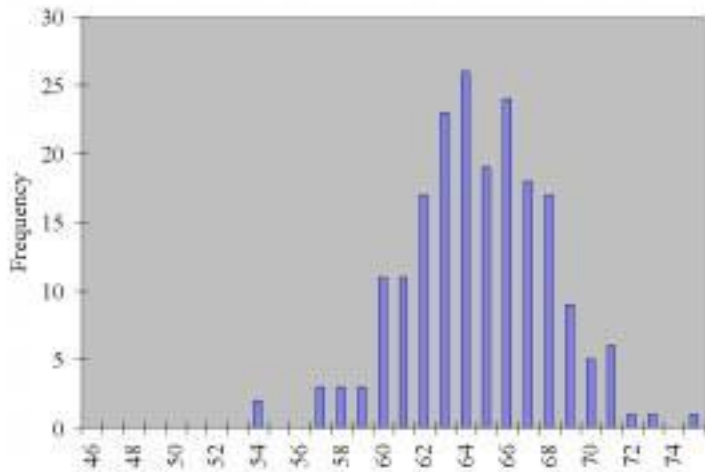


Cage occupied zone average contamination (kg/kg) distribution

Contamination conversion factors (kg/kg -7 ppm)



Cage occupied zone average relative humidity (%) distribution



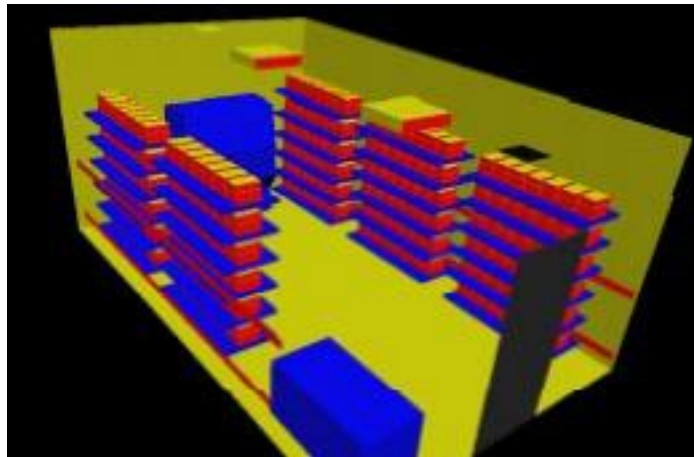
Casename **Case 17**

Description

Supply Configuration	Supply Discharge Temperature (°C)	Supply Discharge RH	Exhaust Configuration	Exhaust Temperature (°C)	Exhaust RH
Slot	18.8	61%	Ceiling	22	50%
Change Station	Rack Orientation	Rack Density	Number of Mice in Room	Total mass of Mice in Room	Room Pressurisation
ON	On wall	Single	1050	21000 gr	pos 100cfm

Room
ACH
15

Cage Condition
Top On



Analysis Results

Cage Occupied Zone

	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	22.07	71.73	1815	63.94%
S.D.	0.29	0.52	292	2.38%
Max.	23.08	73.55	2464	68.92%

Cage Occupied Zone NH3 (ppm)

Day	1	2	3	4	5	6	7	8	9	10
Mean	0.96	1.84	2.83	4.71	7.38	10.67	15.52	19.84	24.70	28.82
Max.	1.30	2.49	3.84	6.40	10.01	14.49	21.07	26.93	33.54	39.13

Room Breathing Zone

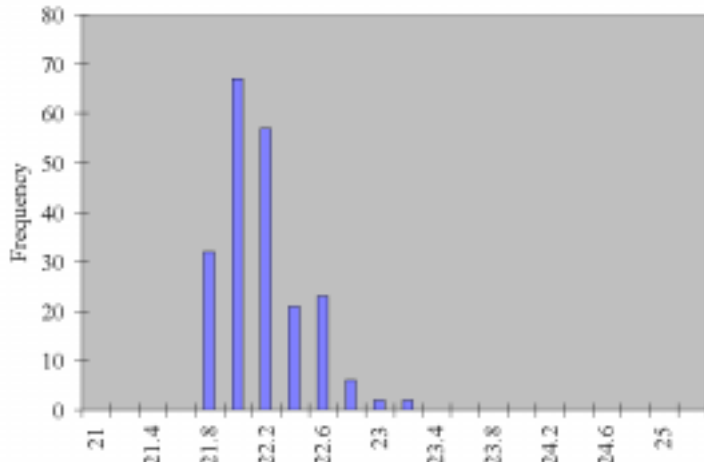
	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	20.23	68.41	78	55.99%
S.D.	0.13	0.23	28	
Max.	21.35	70.43	181	

Room Breathing Zone NH3 (ppm)

Day	1	2	3	4	5	6	7	8	9	10
Mean	0.04	0.08	0.12	0.20	0.32	0.46	0.66	0.85	1.06	1.23
Max.	0.10	0.18	0.28	0.47	0.73	1.06	1.54	1.97	2.46	2.87

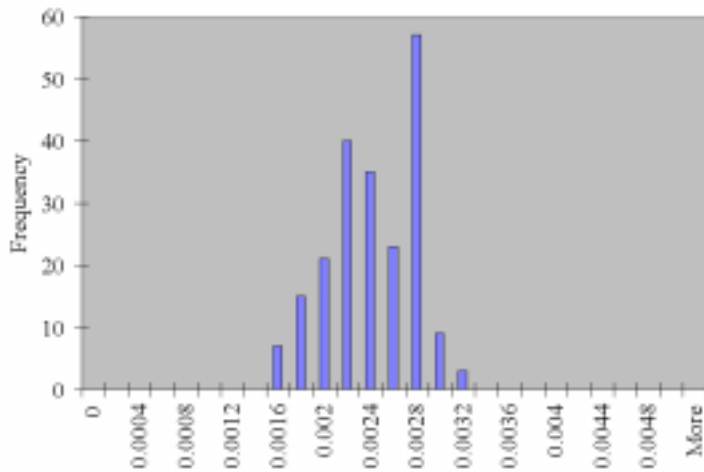
Histogram Distributions

Cage occupied zone average temperature (°C) distribution

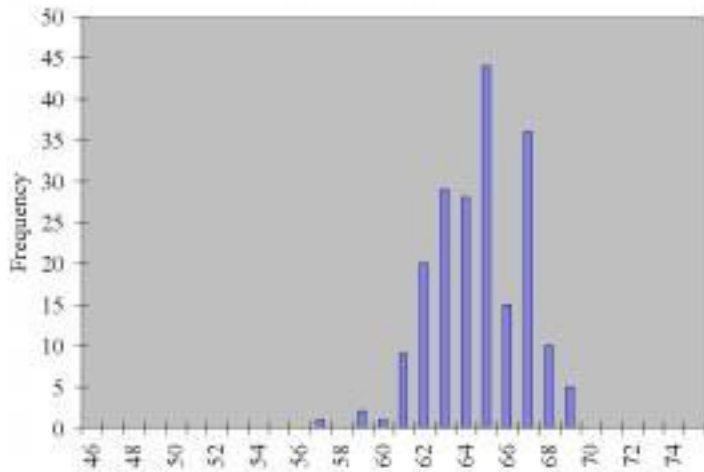


Cage occupied zone average contamination (kg/kg) distribution

Contamination conversion factors (kg/kg -7 ppm)



Cage occupied zone average relative humidity (%) distribution



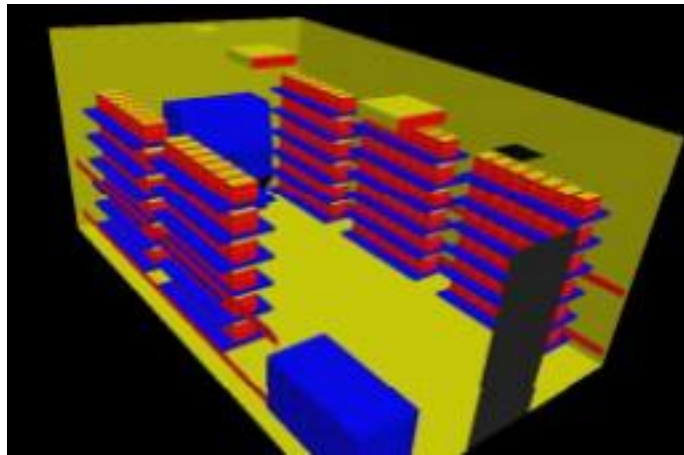
Casename **Case 18**

Description

Supply Configuration	Supply Discharge Temperature (°C)	Supply Discharge RH	Exhaust Configuration	Exhaust Temperature (°C)	Exhaust RH
Low Ind	18.8	61%	Ceiling	22	50%
Change Station	Rack Orientation	Rack Density	Number of Mice in Room	Total mass of Mice in Room	Room Pressurisation
ON	On wall	Single	1050	21000 gr	pos 100cfm

Room ACH
15

Cage Condition
Top On



Analysis Results

Cage Occupied Zone

	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	22.06	71.71	1791	63.78%
S.D.	0.29	0.52	287	2.35%
Max.	23.08	73.55	2435	68.75%

Cage Occupied Zone NH3 (ppm)

Day	1	2	3	4	5	6	7	8	9	10
Mean	0.94	1.81	2.79	4.62	7.19	10.39	15.07	19.30	24.10	28.27
Max.	1.28	2.47	3.80	6.28	9.78	14.12	20.48	26.24	32.77	38.44

Room Breathing Zone

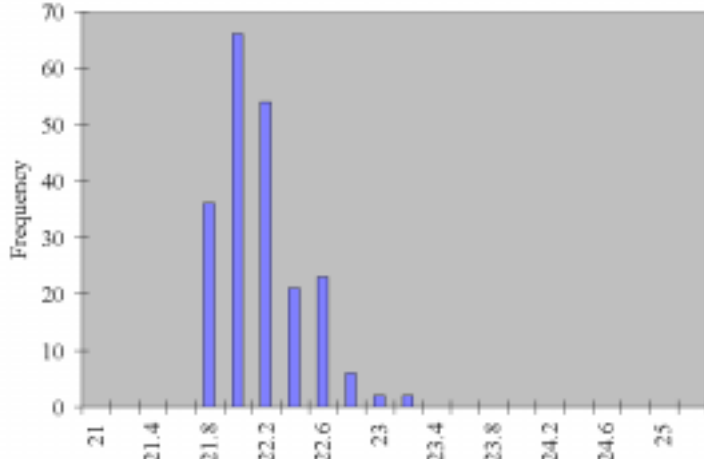
	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	20.22	68.40	79	56.00%
S.D.	0.13	0.24	28	
Max.	21.35	70.43	181	

Room Breathing Zone NH3 (ppm)

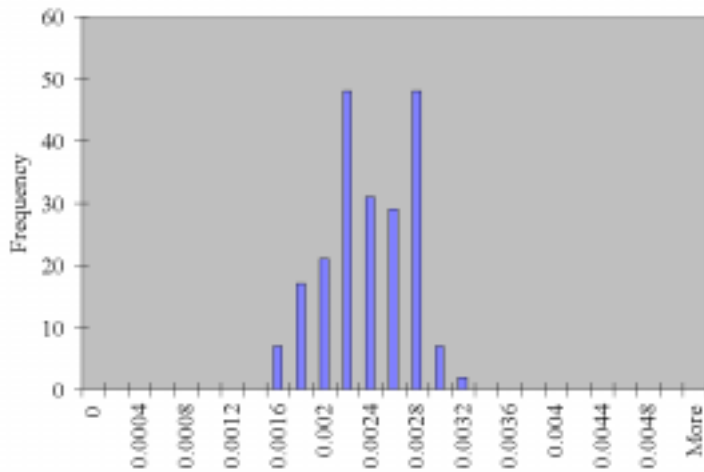
Day	1	2	3	4	5	6	7	8	9	10
Mean	0.04	0.08	0.12	0.20	0.32	0.46	0.67	0.85	1.06	1.25
Max.	0.10	0.18	0.28	0.47	0.73	1.05	1.53	1.96	2.44	2.86

Histogram Distributions

Cage occupied zone average temperature (°C) distribution



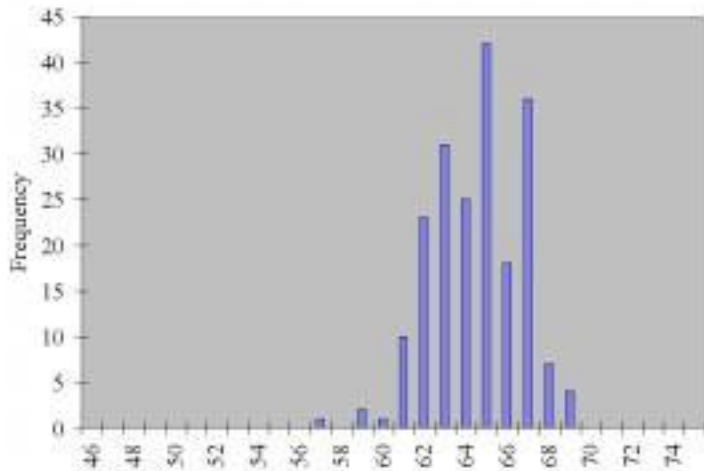
Cage occupied zone average contamination (kg/kg) distribution



Contamination conversion factors (kg/kg -7 ppm)

Day	CO ₂	NH ₃
1	785000	413
2	785000	795
3	785000	1225
4	785000	2024
5	785000	3152
6	785000	4552
7	785000	6603
8	785000	8458
9	785000	10562
10	785000	11384

Cage occupied zone average relative humidity (%) distribution



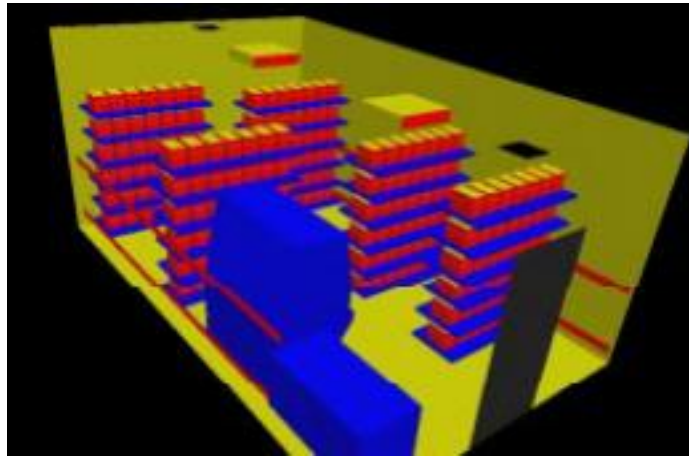
Casename **Case 19**

Description

Supply Configuration	Supply Discharge Temperature (°C)	Supply Discharge RH	Exhaust Configuration	Exhaust Temperature (°C)	Exhaust RH
Radial	18.8	61%	Ceiling	22	50%
Change Station	Rack Orientation	Rack Density	Number of Mice in Room	Total mass of Mice in Room	Room Pressurisation
ON	Perp	Single	1050	21000 gr	neg 100cfm

Room ACH
15

Cage Condition
Top On



Analysis Results

Cage Occupied Zone

	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	21.73	71.11	1725	64.59%
S.D.	0.20	0.37	346	2.80%
Max.	22.37	72.27	2353	69.85%

Cage Occupied Zone NH3 (ppm)

Day	1	2	3	4	5	6	7	8	9	10
Mean	0.91	1.75	2.69	4.61	7.36	10.72	15.74	19.95	24.59	28.11
Max.	1.24	2.38	3.67	6.29	10.04	14.63	21.46	27.21	33.53	38.34

Room Breathing Zone

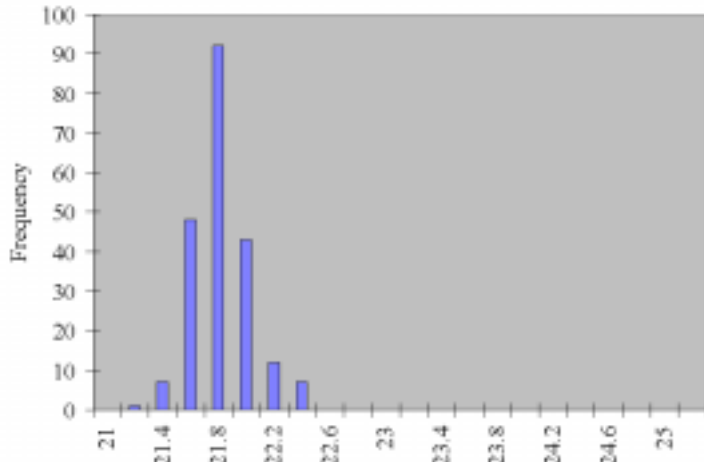
	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	20.20	68.36	59	55.90%
S.D.	0.57	1.03	20	
Max.	26.19	79.14	222	

Room Breathing Zone NH3 (ppm)

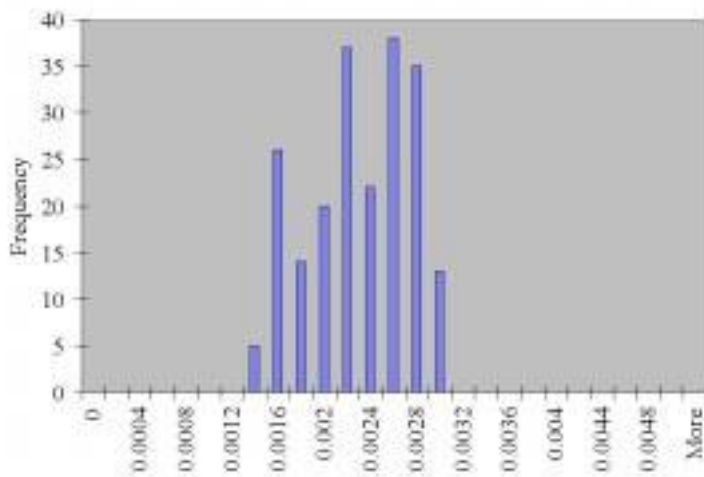
Day	1	2	3	4	5	6	7	8	9	10
Mean	0.03	0.06	0.09	0.16	0.25	0.36	0.54	0.68	0.84	0.96
Max.	0.12	0.22	0.35	0.59	0.95	1.38	2.03	2.57	3.16	3.62

Histogram Distributions

Cage occupied zone average temperature (°C) distribution



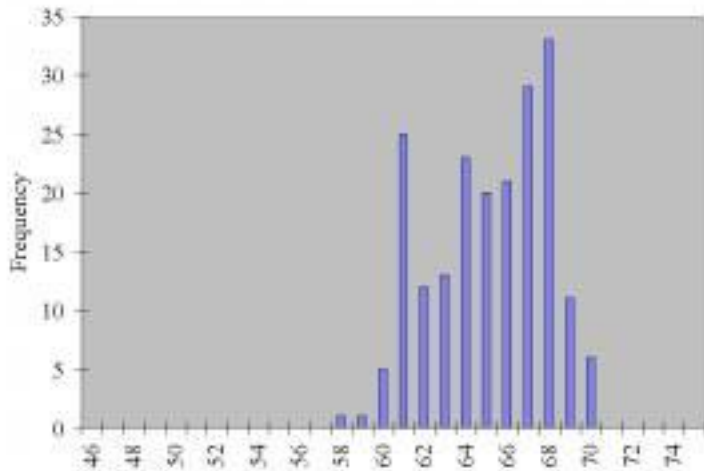
Cage occupied zone average contamination (kg/kg) distribution



Contamination conversion factors (kg/kg -7 ppm)

Day	CO ₂	NH ₃
1	785000	415
2	785000	795
3	785000	1225
4	785000	2100
5	785000	3349
6	785000	4879
7	785000	7160
8	785000	9078
9	785000	11186
10	785000	11384

Cage occupied zone average relative humidity (%) distribution



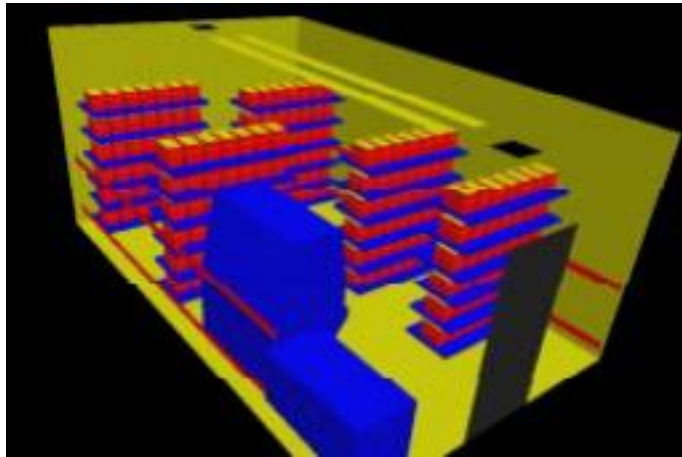
Casename **Case 20**

Description

Supply Configuration	Supply Discharge Temperature (°C)	Supply Discharge RH	Exhaust Configuration	Exhaust Temperature (°C)	Exhaust RH
Slot	18.8	61%	Ceiling	22	50%
Change Station	Rack Orientation	Rack Density	Number of Mice in Room	Total mass of Mice in Room	Room Pressurisation
ON	Perp	Single	1050	21000 gr	neg 100cfm

Room ACH
15

Cage Condition
Top On



Analysis Results

Cage Occupied Zone

	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	22.08	71.74	1656	62.61%
S.D.	0.29	0.52	296	2.07%
Max.	22.72	72.89	2352	67.60%

Cage Occupied Zone NH3 (ppm)

Day	1	2	3	4	5	6	7	8	9	10
Mean	0.87	1.68	2.58	4.04	6.06	8.62	12.26	15.98	20.40	24.94
Max.	1.23	2.38	3.67	5.74	8.60	12.25	17.41	22.70	28.98	35.42

Room Breathing Zone

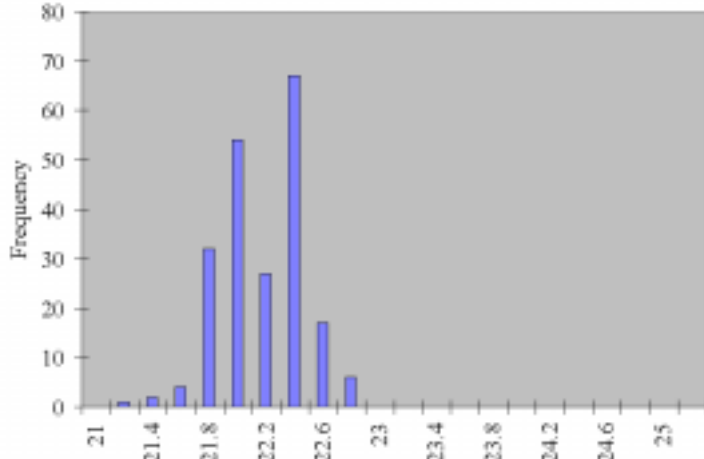
	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	20.56	69.00	75	54.79%
S.D.	0.58	1.05	28	
Max.	27.19	80.94	174	

Room Breathing Zone NH3 (ppm)

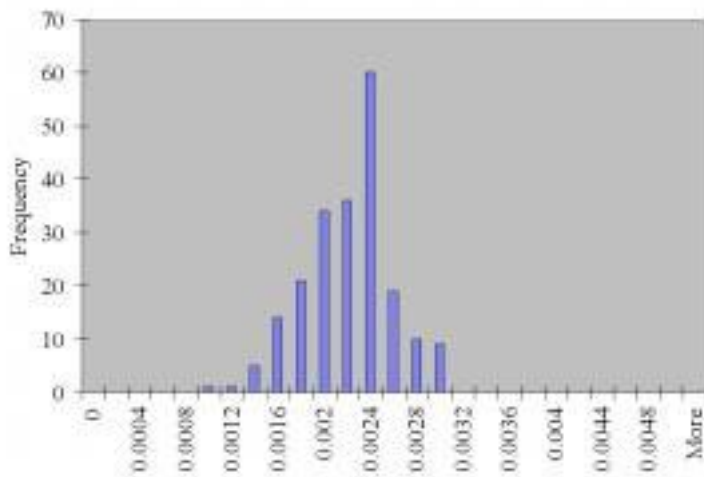
Day	1	2	3	4	5	6	7	8	9	10
Mean	0.04	0.08	0.12	0.18	0.27	0.39	0.55	0.72	0.92	1.13
Max.	0.09	0.18	0.27	0.43	0.64	0.91	1.29	1.68	2.15	2.62

Histogram Distributions

Cage occupied zone average temperature (°C) distribution



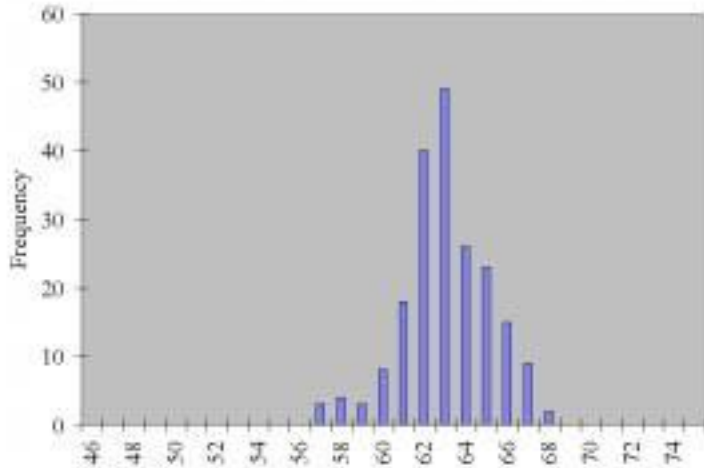
Cage occupied zone average contamination (kg/kg) distribution



Contamination conversion factors (kg/kg -7 ppm)

Day	CO ₂	NH ₃
1	785000	411
2	785000	795
3	785000	1225
4	785000	1915
5	785000	2871
6	785000	4087
7	785000	5810
8	785000	7576
9	785000	9672
10	785000	11384

Cage occupied zone average relative humidity (%) distribution



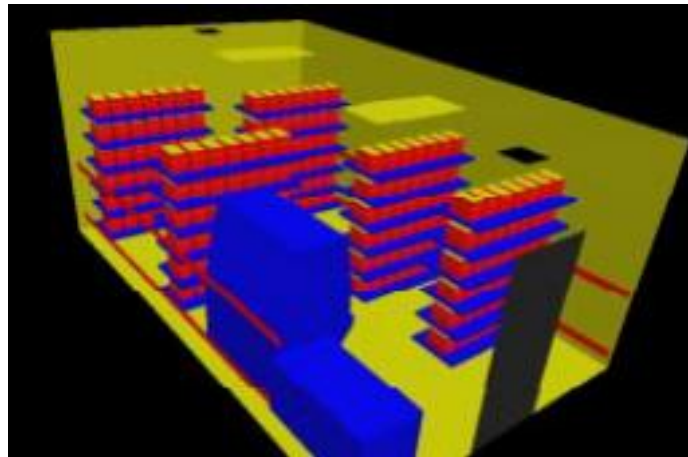
Casename **Case 21**

Description

Supply Configuration	Supply Discharge Temperature (°C)	Supply Discharge RH	Exhaust Configuration	Exhaust Temperature (°C)	Exhaust RH
Low Ind	18.8	61%	Ceiling	22	50%
Change Station	Rack Orientation	Rack Density	Number of Mice in Room	Total mass of Mice in Room	Room Pressurisation
ON	Perp	Single	1050	21000 gr	neg 100cfm

Room ACH
15

Cage Condition
Top On



Analysis Results

Cage Occupied Zone

	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	22.01	71.62	1808	64.10%
S.D.	0.23	0.42	309	2.32%
Max.	22.60	72.68	2555	69.39%

Cage Occupied Zone NH3 (ppm)

Day	1	2	3	4	5	6	7	8	9	10
Mean	0.95	1.83	2.82	4.73	7.44	10.79	15.72	20.05	24.90	28.90
Max.	1.35	2.59	3.99	6.69	10.52	15.24	22.22	28.34	35.20	40.85

Room Breathing Zone

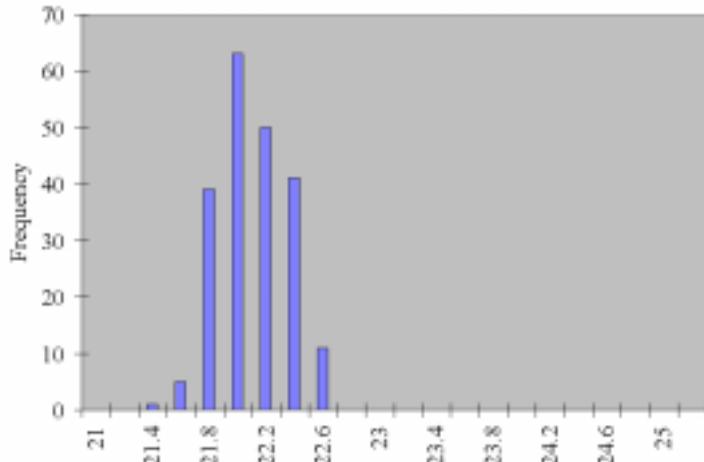
	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	20.40	68.71	62	55.24%
S.D.	0.60	1.08	24	
Max.	27.06	80.71	186	

Room Breathing Zone NH3 (ppm)

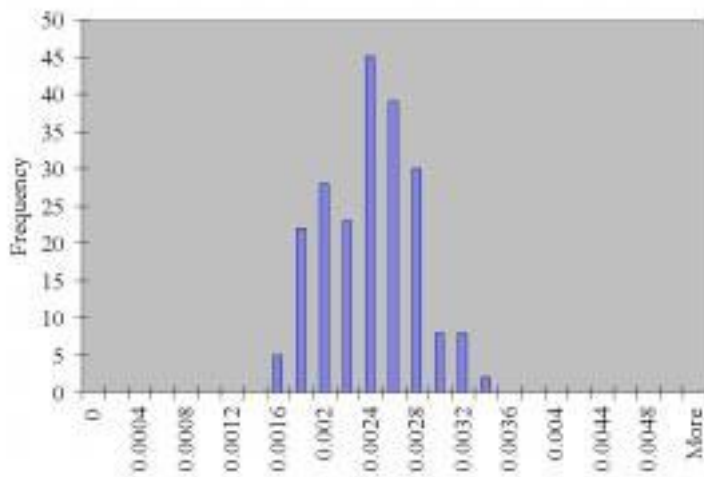
Day	1	2	3	4	5	6	7	8	9	10
Mean	0.03	0.06	0.10	0.16	0.26	0.37	0.54	0.69	0.85	0.99
Max.	0.10	0.19	0.29	0.49	0.77	1.11	1.62	2.06	2.56	2.98

Histogram Distributions

Cage occupied zone average temperature (°C) distribution



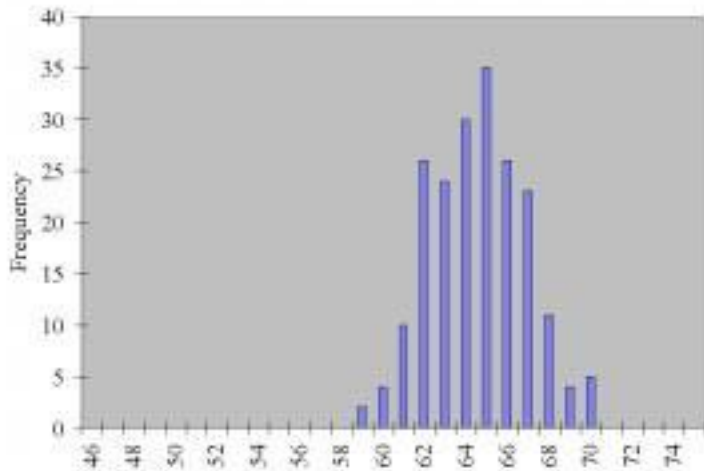
Cage occupied zone average contamination (kg/kg) distribution



Contamination conversion factors (kg/kg -7 ppm)

Day	CO ₂	NH ₃
1	785000	414
2	785000	795
3	785000	1225
4	785000	2054
5	785000	3231
6	785000	4683
7	785000	6826
8	785000	8706
9	785000	10811
10	785000	11384

Cage occupied zone average relative humidity (%) distribution



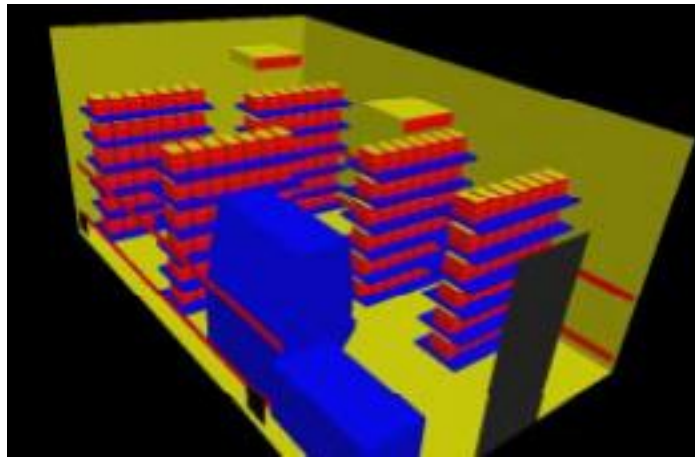
Casename **Case 22**

Description

Supply Configuration	Supply Discharge Temperature (°C)	Supply Discharge RH	Exhaust Configuration	Exhaust Temperature (°C)	Exhaust RH
Radial	18.8	61%	Low	22	50%
Change Station	Rack Orientation	Rack Density	Number of Mice in Room	Total mass of Mice in Room	Room Pressurisation
ON	Perp	Single	1050	21000 gr	neg 100cfm

Room ACH
15

Cage Condition
Top On



Analysis Results

Cage Occupied Zone

	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	22.47	72.45	1665	61.14%
S.D.	0.34	0.62	446	3.32%
Max.	23.41	74.13	2623	67.76%

Cage Occupied Zone NH3 (ppm)

Day	1	2	3	4	5	6	7	8	9	10
Mean	0.87	1.69	2.60	3.77	5.34	7.42	10.20	13.71	18.13	23.55
Max.	1.37	2.66	4.09	5.94	8.41	11.69	16.06	21.59	28.57	37.11

Room Breathing Zone

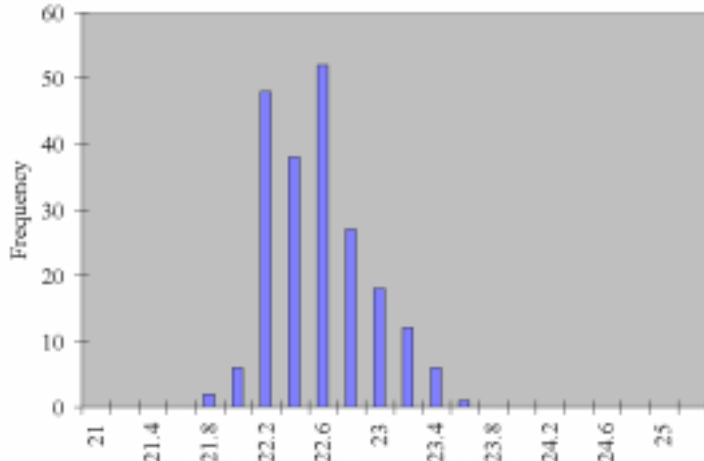
	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	21.24	70.24	61	52.34%
S.D.	0.71	1.27	28	
Max.	26.82	80.28	217	

Room Breathing Zone NH3 (ppm)

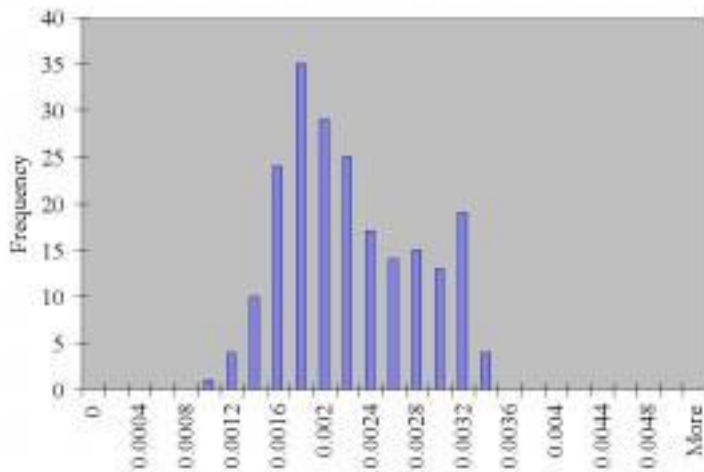
Day	1	2	3	4	5	6	7	8	9	10
Mean	0.03	0.06	0.10	0.14	0.20	0.27	0.37	0.50	0.66	0.86
Max.	0.11	0.22	0.34	0.49	0.69	0.97	1.33	1.78	2.36	3.06

Histogram Distributions

Cage occupied zone average temperature (°C) distribution



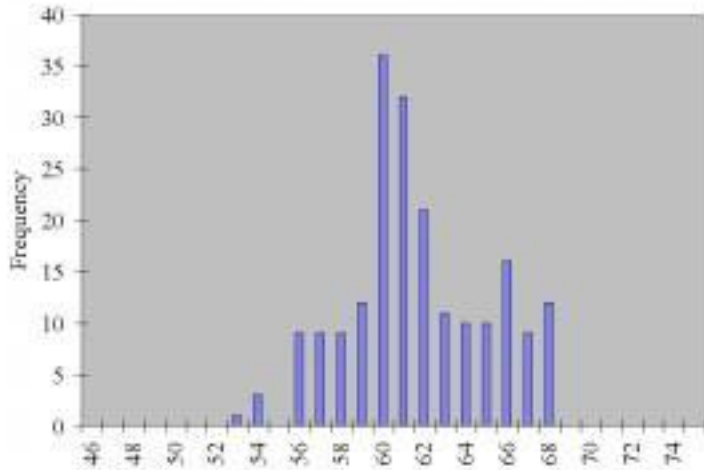
Cage occupied zone average contamination (kg/kg) distribution



Contamination conversion factors (kg/kg -7 ppm)

Day	CO ₂	NH ₃
1	785000	409
2	785000	795
3	785000	1225
4	785000	1779
5	785000	2516
6	785000	3498
7	785000	4807
8	785000	6461
9	785000	8548
10	785000	11384

Cage occupied zone average relative humidity (%) distribution



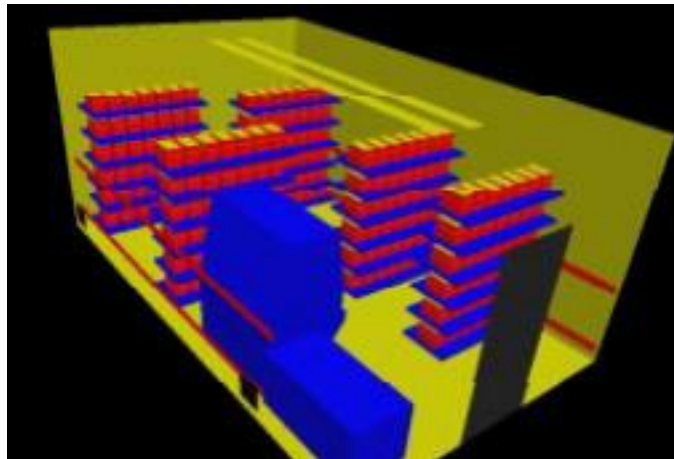
Casename **Case 23**

Description

Supply Configuration	Supply Discharge Temperature (°C)	Supply Discharge RH	Exhaust Configuration	Exhaust Temperature (°C)	Exhaust RH
Slot	18.8	61%	Low	22	50%
Change Station	Rack Orientation	Rack Density	Number of Mice in Room	Total mass of Mice in Room	Room Pressurisation
ON	Perp	Single	1050	21000 gr	neg 100cfm

Room ACH
15

Cage Condition
Top On



Analysis Results

Cage Occupied Zone

	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	22.70	72.86	1652	60.16%
S.D.	0.47	0.85	375	2.57%
Max.	23.54	74.38	2552	66.04%

Cage Occupied Zone NH3 (ppm)

Day	1	2	3	4	5	6	7	8	9	10
Mean	0.86	1.67	2.58	3.71	5.22	7.24	9.91	13.37	17.76	23.22
Max.	1.33	2.58	3.98	5.74	8.07	11.19	15.32	20.67	27.45	35.88

Room Breathing Zone

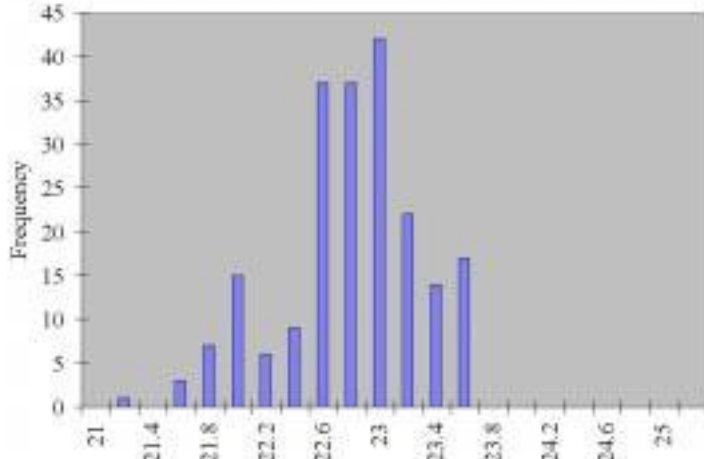
	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	21.76	71.17	63	50.67%
S.D.	0.64	1.15	26	
Max.	27.45	81.41	181	

Room Breathing Zone NH3 (ppm)

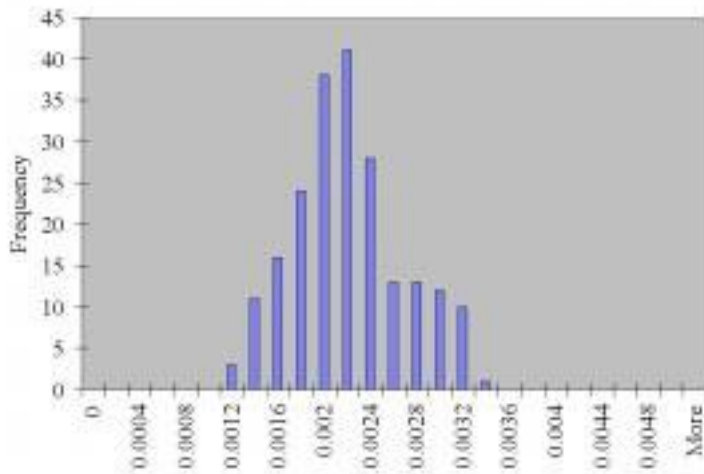
Day	1	2	3	4	5	6	7	8	9	10
Mean	0.03	0.06	0.10	0.14	0.20	0.28	0.38	0.51	0.68	0.89
Max.	0.09	0.18	0.28	0.41	0.57	0.79	1.08	1.46	1.94	2.54

Histogram Distributions

Cage occupied zone average temperature (°C) distribution



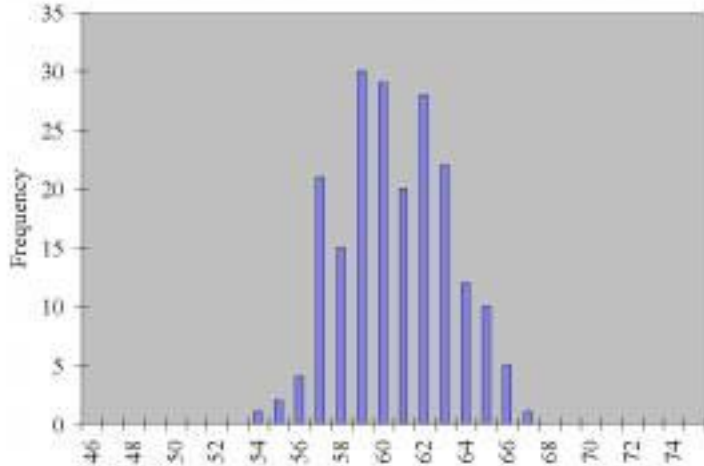
Cage occupied zone average contamination (kg/kg) distribution



Contamination conversion factors (kg/kg -7 ppm)

Day	CO ₂	NH ₃
1	785000	408
2	785000	795
3	785000	1225
4	785000	1766
5	785000	2483
6	785000	3443
7	785000	4712
8	785000	6356
9	785000	8442
10	785000	11384

Cage occupied zone average relative humidity (%) distribution



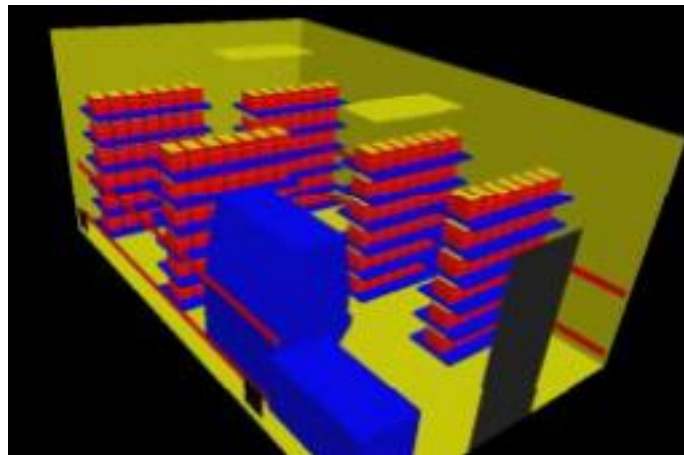
Casename **Case 24**

Description

Supply Configuration	Supply Discharge Temperature (°C)	Supply Discharge RH	Exhaust Configuration	Exhaust Temperature (°C)	Exhaust RH
Low Ind	18.8	61%	Low	22	50%
Change Station	Rack Orientation	Rack Density	Number of Mice in Room	Total mass of Mice in Room	Room Pressurisation
ON	Perp	Single	1050	21000 gr	neg 100cfm

Room ACH
15

Cage Condition
Top On



Analysis Results

Cage Occupied Zone

	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	23.16	73.68	1883	60.24%
S.D.	0.46	0.83	495	3.53%
Max.	24.13	75.44	3022	67.04%

Cage Occupied Zone NH3 (ppm)

Day	1	2	3	4	5	6	7	8	9	10
Mean	0.98	1.91	2.94	4.24	5.96	8.26	11.30	15.25	20.25	26.47
Max.	1.57	3.06	4.72	6.80	9.56	13.26	18.14	24.47	32.50	42.49

Room Breathing Zone

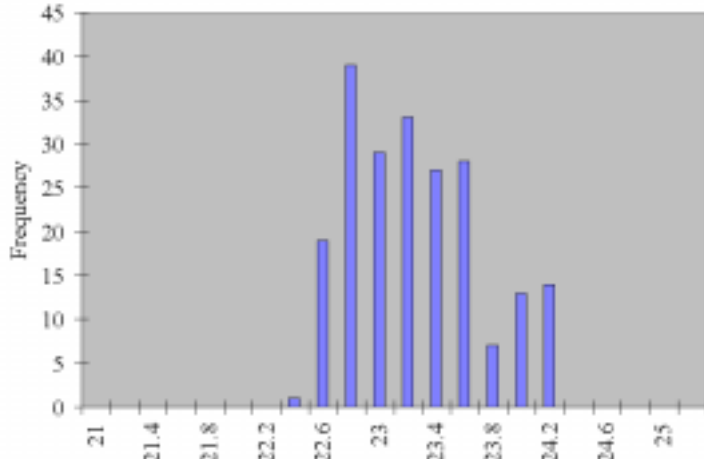
	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	22.10	71.78	81	49.75%
S.D.	0.78	1.41	47	
Max.	27.78	82.00	427	

Room Breathing Zone NH3 (ppm)

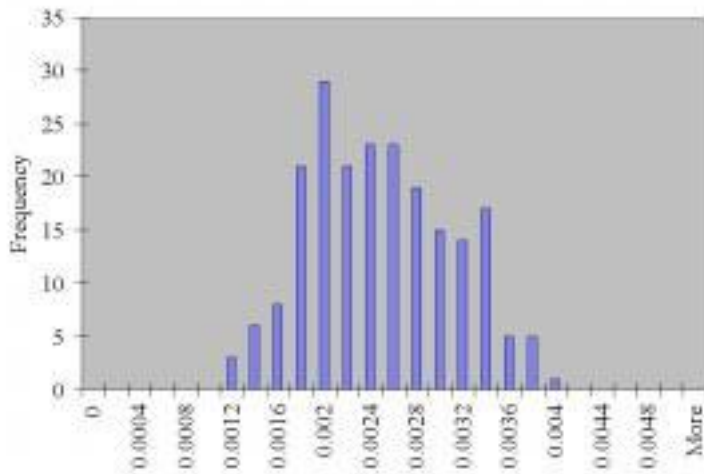
Day	1	2	3	4	5	6	7	8	9	10
Mean	0.04	0.08	0.13	0.18	0.26	0.36	0.49	0.66	0.88	1.15
Max.	0.22	0.43	0.67	0.96	1.35	1.87	2.56	3.46	4.59	6.00

Histogram Distributions

Cage occupied zone average temperature (°C) distribution



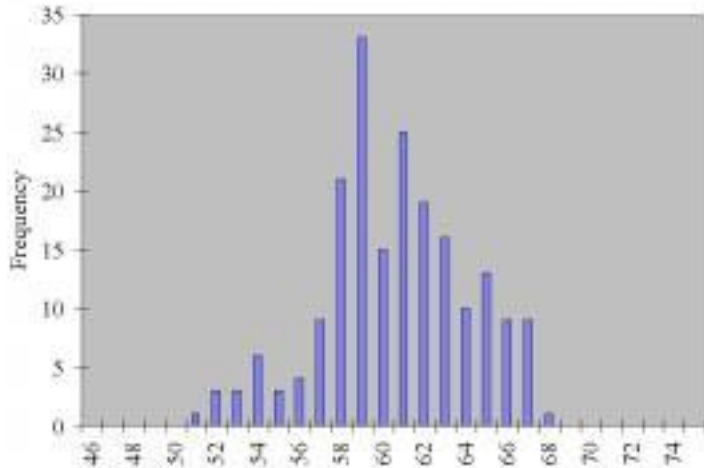
Cage occupied zone average contamination (kg/kg) distribution



Contamination conversion factors (kg/kg -7 ppm)

Day	CO ₂	NH ₃
1	785000	408
2	785000	795
3	785000	1225
4	785000	1766
5	785000	2483
6	785000	3443
7	785000	4712
8	785000	6356
9	785000	8442
10	785000	11384

Cage occupied zone average relative humidity (%) distribution



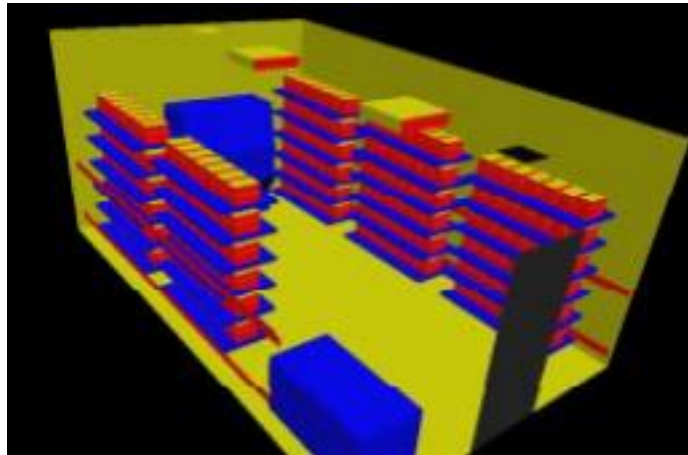
Casename **Case 25**

Description

Supply Configuration	Supply Discharge Temperature (°C)	Supply Discharge RH	Exhaust Configuration	Exhaust Temperature (°C)	Exhaust RH
Radial	18.8	61%	Ceiling	22	50%
Change Station	Rack Orientation	Rack Density	Number of Mice in Room	Total mass of Mice in Room	Room Pressurisation
ON	On wall	Single	1050	21000 gr	neg 100cfm

Room ACH
15

Cage Condition
Sealed



Analysis Results

Cage Occupied Zone

	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	22.20	71.96	3008	73.04%
S.D.	0.25	0.45	492	4.17%
Max.	23.07	73.52	3939	80.80%

Cage Occupied Zone NH3 (ppm)

Day	1	2	3	4	5	6	7	8	9	10
Mean	1.64	3.04	4.69	11.05	20.64	31.63	49.49	59.31	67.59	64.80
Max.	2.15	3.99	6.15	14.47	27.02	41.42	64.81	77.66	88.51	84.85

Room Breathing Zone

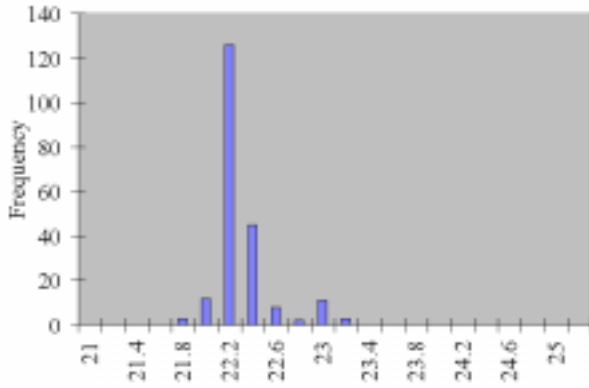
	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	20.30	68.53	60	55.58%
S.D.	0.22	0.40	24	
Max.	21.27	70.28	233	

Room Breathing Zone NH3 (ppm)

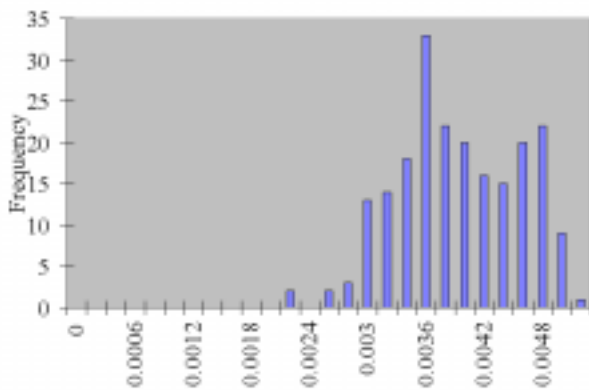
Day	1	2	3	4	5	6	7	8	9	10
Mean	0.03	0.06	0.09	0.22	0.41	0.63	0.99	1.19	1.36	1.30
Max.	0.13	0.24	0.36	0.86	1.60	2.45	3.83	4.59	5.23	5.01

Histogram Distributions

Cage occupied zone average temperature (°C) distribution



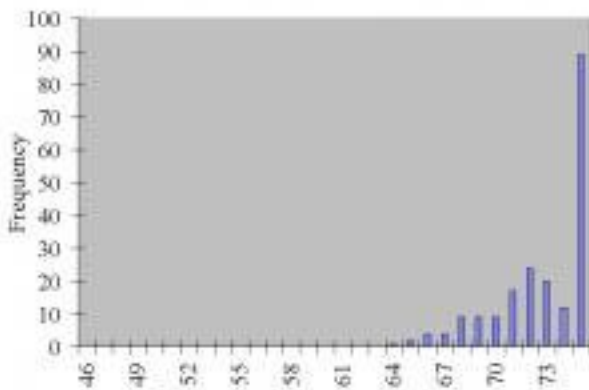
Cage occupied zone average contamination (kg/kg) distribution



Contamination conversion factors (kg/kg -7 ppm)

Day	CO ₂	NH ₃
1	785000	429
2	785000	795
3	785000	1225
4	785000	2885
5	785000	5386
6	785000	8256
7	785000	12918
8	785000	15479
9	785000	17641
10	785000	11384

Cage occupied zone average relative humidity (%) distribution



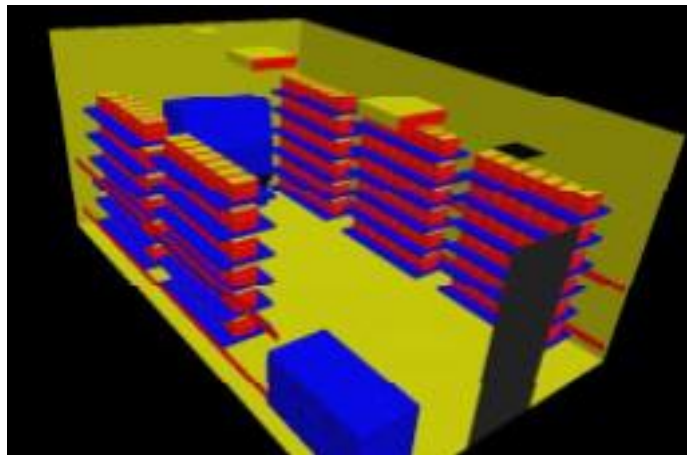
Casename **Case 26**

Description

Supply Configuration	Supply Discharge Temperature (°C)	Supply Discharge RH	Exhaust Configuration	Exhaust Temperature (°C)	Exhaust RH
Slot	18.8	61%	Ceiling	22	50%
Change Station	Rack Orientation	Rack Density	Number of Mice in Room	Total mass of Mice in Room	Room Pressurisation
ON	On wall	Single	1050	21000 gr	neg 100cfm

Room ACH
15

Cage Condition
Sealed



Analysis Results

Cage Occupied Zone

	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	22.14	71.85	3975	81.15%
S.D.	0.38	0.68	422	3.46%
Max.	23.03	73.45	4836	88.54%

Cage Occupied Zone NH3 (ppm)

Day	1	2	3	4	5	6	7	8	9	10
Mean	2.25	4.02	6.20	18.42	37.17	58.21	93.38	109.47	120.68	105.66
Max.	2.73	4.90	7.55	22.42	45.23	70.83	113.63	133.21	146.85	128.57

Room Breathing Zone

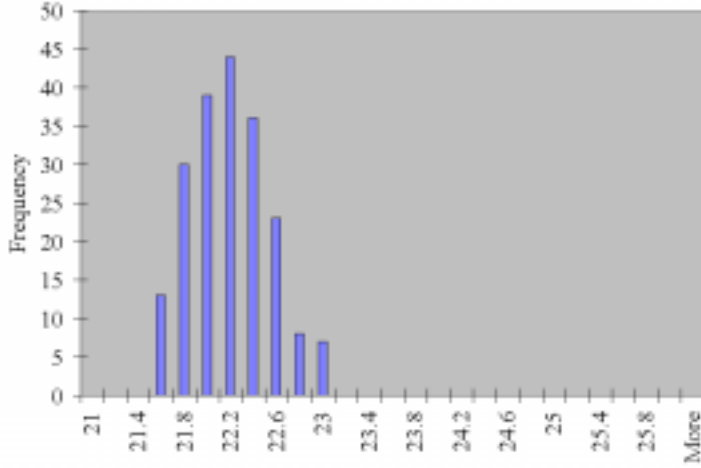
	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	20.40	68.72	35	54.98%
S.D.	0.55	0.99	28	
Max.	21.81	71.27	149	

Room Breathing Zone NH3 (ppm)

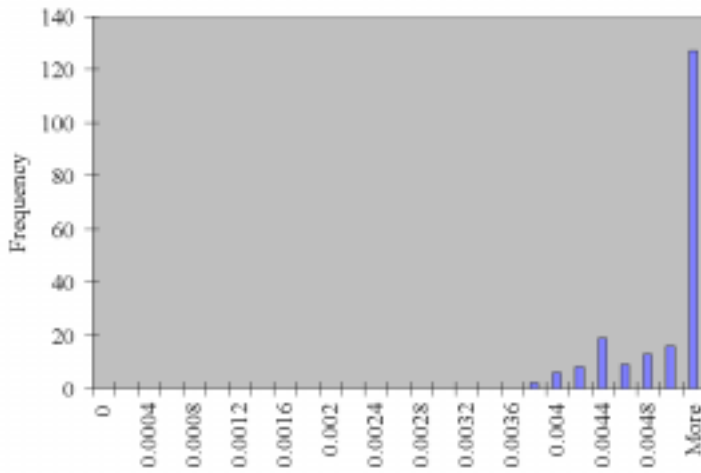
Day	1	2	3	4	5	6	7	8	9	10
Mean	0.02	0.04	0.05	0.16	0.32	0.51	0.81	0.95	1.05	0.92
Max.	0.08	0.15	0.23	0.69	1.39	2.18	3.50	4.10	4.52	3.96

Histogram Distributions

Cage occupied zone average temperature (°C) distribution



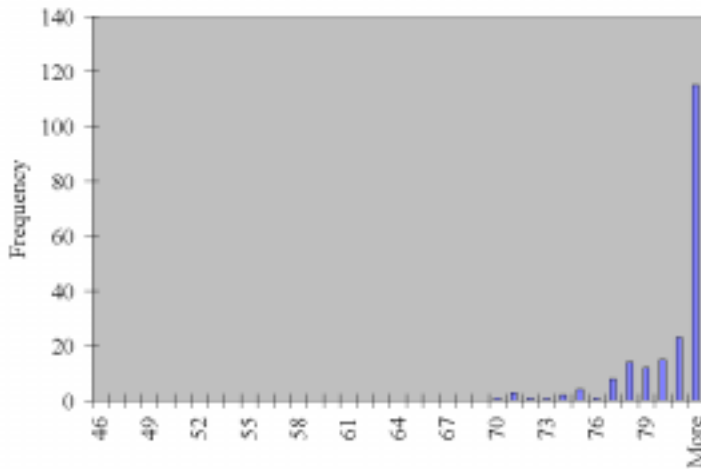
Cage occupied zone average contamination (kg/kg) distribution



Contamination conversion factors (kg/kg -7 ppm)

Day	CO ₂	NH ₃
1	785000	443
2	785000	795
3	785000	1225
4	785000	3639
5	785000	7341
6	785000	11497
7	785000	18443
8	785000	21621
9	785000	23835
10	785000	11384

Cage occupied zone average relative humidity (%) distribution



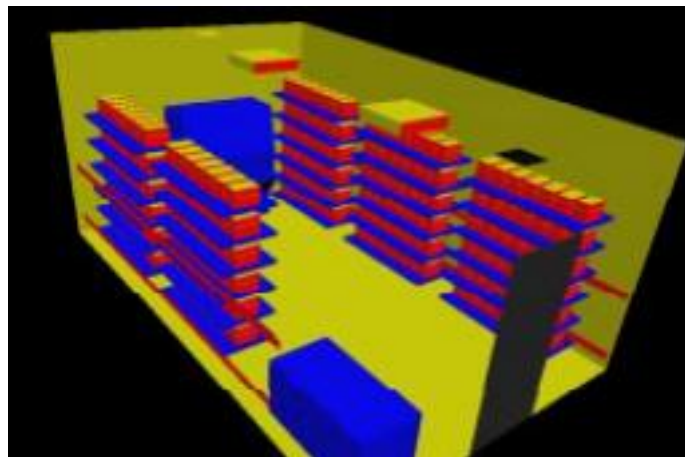
Casename **Case 27**

Description

Supply Configuration	Supply Discharge Temperature (°C)	Supply Discharge RH	Exhaust Configuration	Exhaust Temperature (°C)	Exhaust RH
Low Ind	18.8	61%	Ceiling	22	50%
Change Station	Rack Orientation	Rack Density	Number of Mice in Room	Total mass of Mice in Room	Room Pressurisation
ON	On wall	Single	1050	21000 gr	neg 100cfm

Room ACH
15

Cage Condition
Sealed



Analysis Results

Cage Occupied Zone

	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	22.10	71.79	3171	74.81%
S.D.	0.24	0.43	569	4.79%
Max.	23.12	73.62	4558	86.18%

Cage Occupied Zone NH3 (ppm)

Day	1	2	3	4	5	6	7	8	9	10
Mean	1.75	3.21	4.95	12.31	23.47	36.19	57.03	67.91	76.69	71.78
Max.	2.51	4.61	7.11	17.70	33.74	52.03	81.98	97.63	110.26	103.19

Room Breathing Zone

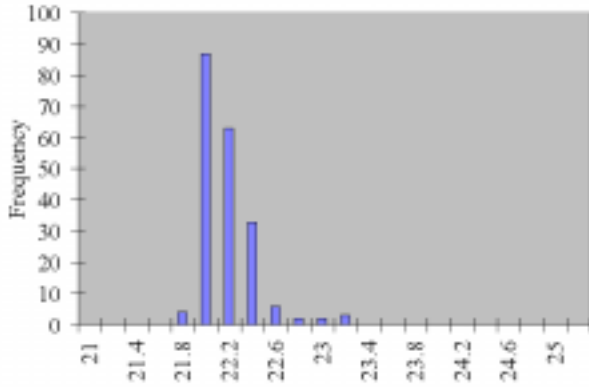
	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	20.31	68.56	61	55.54%
S.D.	0.25	0.46	26	
Max.	21.95	71.51	239	

Room Breathing Zone NH3 (ppm)

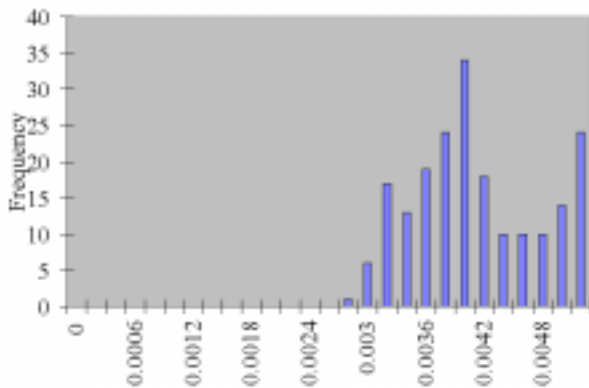
Day	1	2	3	4	5	6	7	8	9	10
Mean	0.03	0.06	0.10	0.24	0.45	0.70	1.10	1.31	1.48	1.39
Max.	0.13	0.24	0.37	0.93	1.77	2.72	4.29	5.11	5.77	5.40

Histogram Distributions

Cage occupied zone average temperature (°C) distribution



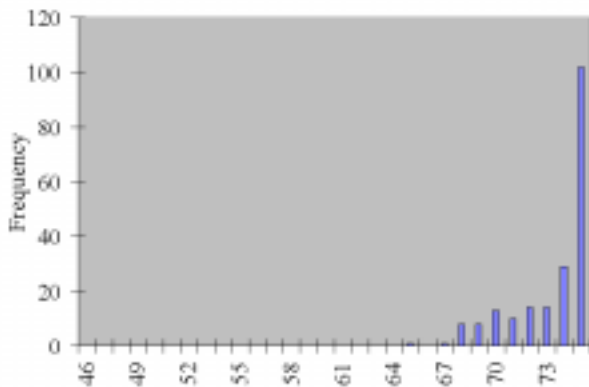
Cage occupied zone average contamination (kg/kg) distribution



Contamination conversion factors (kg/kg -7 ppm)

Day	CO ₂	NH ₃
1	785000	432
2	785000	795
3	785000	1225
4	785000	3049
5	785000	5811
6	785000	8960
7	785000	14119
8	785000	16814
9	785000	18988
10	785000	11384

Cage occupied zone average relative humidity (%) distribution



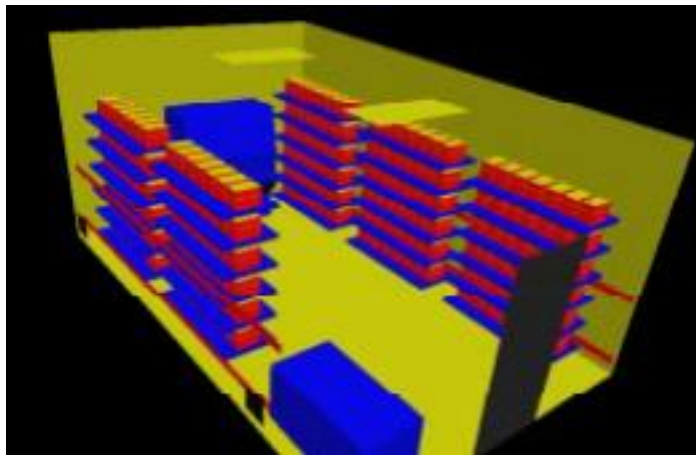
Casename **Case 28**

Description

Supply Configuration	Supply Discharge Temperature (°C)	Supply Discharge RH	Exhaust Configuration	Exhaust Temperature (°C)	Exhaust RH
Low Ind	16.8	69%	Low	22	50%
Change Station	Rack Orientation	Rack Density	Number of Mice in Room	Total mass of Mice in Room	Room Pressurisation
ON	On wall	Single	1050	21000 gr	neg 100cfm

Room ACH
10

Cage Condition
Top On



Analysis Results

Cage Occupied Zone

	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	23.32	73.97	1749	58.69%
S.D.	0.60	1.08	333	3.37%
Max.	24.56	76.21	2705	65.58%

Cage Occupied Zone NH3 (ppm)

Day	1	2	3	4	5	6	7	8	9	10
Mean	0.91	1.77	2.73	3.93	5.53	7.67	10.50	14.16	18.81	24.59
Max.	1.41	2.74	4.22	6.08	8.56	11.86	16.24	21.90	29.09	38.02

Room Breathing Zone

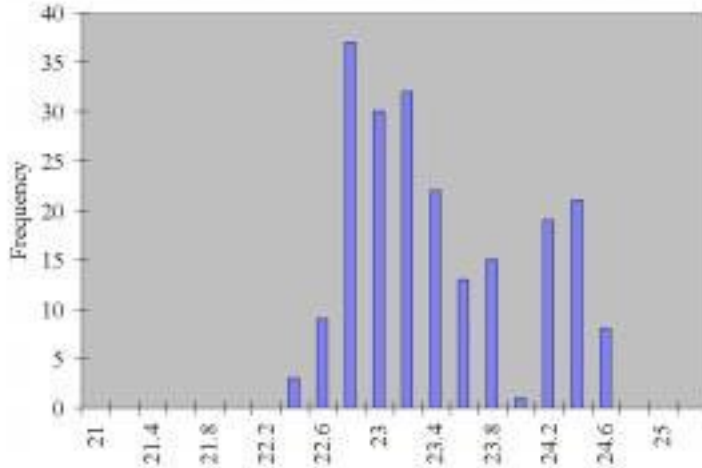
	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	22.28	72.10	113	49.45%
S.D.	0.61	1.10	29	
Max.	23.38	74.09	307	

Room Breathing Zone NH3 (ppm)

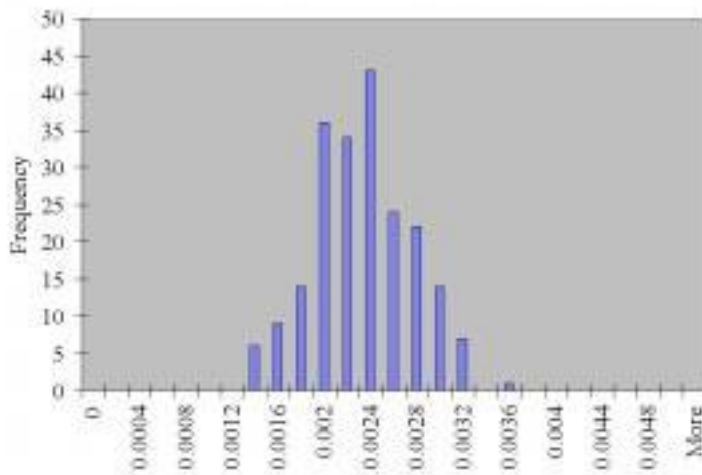
Day	1	2	3	4	5	6	7	8	9	10
Mean	0.06	0.11	0.18	0.25	0.36	0.50	0.68	0.92	1.22	1.59
Max.	0.16	0.31	0.48	0.69	0.97	1.35	1.84	2.48	3.30	4.31

Histogram Distributions

Cage occupied zone average temperature (°C) distribution



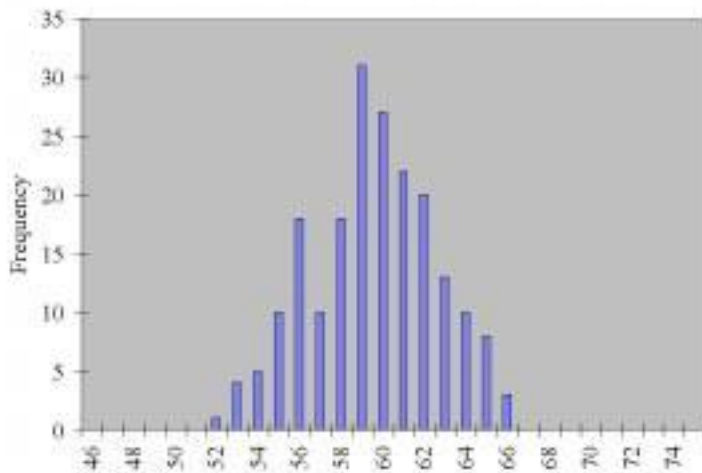
Cage occupied zone average contamination (kg/kg) distribution



Contamination conversion factors (kg/kg -7 ppm)

Day	CO ₂	NH ₃
1	785000	408
2	785000	795
3	785000	1225
4	785000	1766
5	785000	2483
6	785000	3443
7	785000	4712
8	785000	6356
9	785000	8442
10	785000	11384

Cage occupied zone average relative humidity (%) distribution



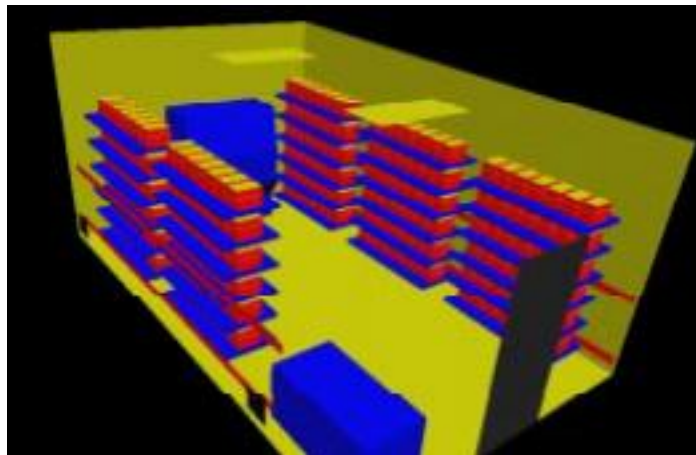
Casename **Case 29**

Description

Supply Configuration	Supply Discharge Temperature (°C)	Supply Discharge RH	Exhaust Configuration	Exhaust Temperature (°C)	Exhaust RH
Low Ind	11	65%	Low	22	50%
Change Station	Rack Orientation	Rack Density	Number of Mice in Room	Total mass of Mice in Room	Room Pressurisation
ON	On wall	Single	1050	21000 gr	neg 100cfm

Room ACH
5

Cage Condition
Top On



Analysis Results

Cage Occupied Zone

	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	22.64	72.75	1764	44.37%
S.D.	0.54	0.97	314	2.89%
Max.	23.83	74.89	2556	50.77%

Cage Occupied Zone NH3 (ppm)

Day	1	2	3	4	5	6	7	8	9	10
Mean	0.92	1.79	2.75	3.97	5.58	7.74	10.59	14.28	18.97	24.80
Max.	1.33	2.59	3.99	5.75	8.08	11.21	15.34	20.70	27.49	35.93

Room Breathing Zone

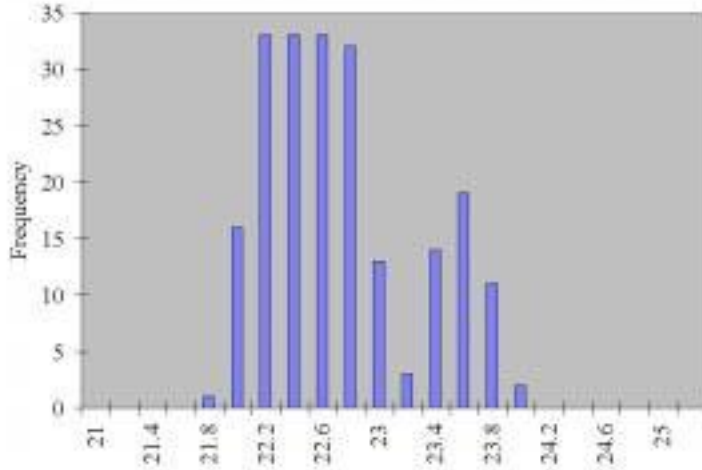
	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	21.19	70.14	140	53.19%
S.D.	0.53	0.96	33	
Max.	22.18	71.93	267	

Room Breathing Zone NH3 (ppm)

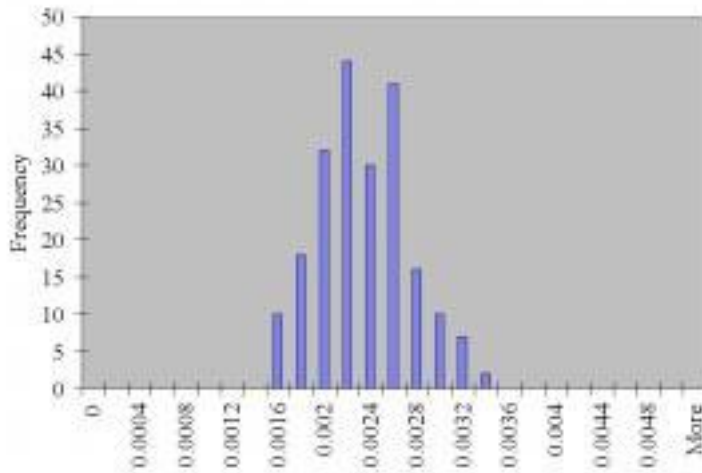
Day	1	2	3	4	5	6	7	8	9	10
Mean	0.07	0.14	0.22	0.32	0.44	0.62	0.84	1.14	1.51	1.97
Max.	0.14	0.27	0.42	0.60	0.85	1.17	1.60	2.16	2.88	3.76

Histogram Distributions

Cage occupied zone average temperature (°C) distribution



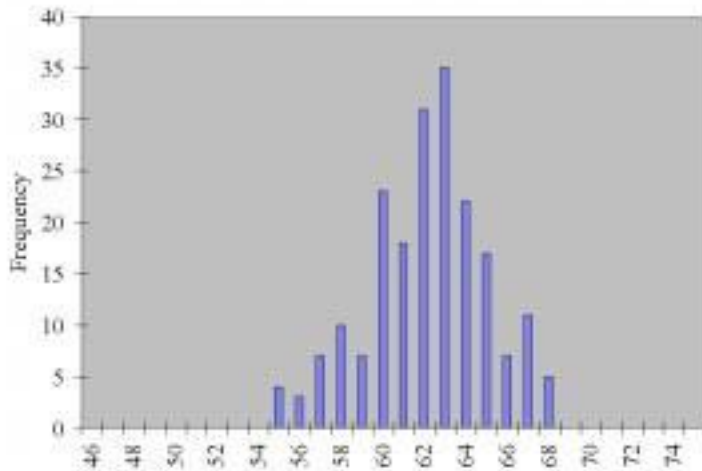
Cage occupied zone average contamination (kg/kg) distribution



Contamination conversion factors (kg/kg -7 ppm)

Day	CO ₂	NH ₃
1	785000	408
2	785000	795
3	785000	1225
4	785000	1766
5	785000	2483
6	785000	3443
7	785000	4712
8	785000	6356
9	785000	8442
10	785000	11384

Cage occupied zone average relative humidity (%) distribution



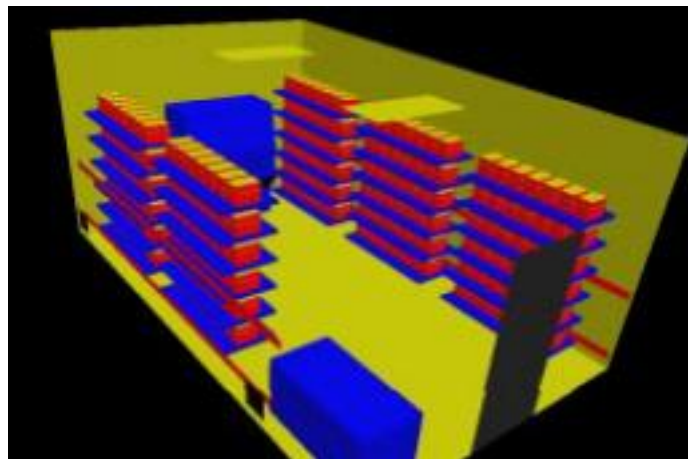
Casename **Case 30**

Description

Supply Configuration	Supply Discharge Temperature (°C)	Supply Discharge RH	Exhaust Configuration	Exhaust Temperature (°C)	Exhaust RH
Low Ind	19.8	57%	Low	22	50%
Change Station	Rack Orientation	Rack Density	Number of Mice in Room	Total mass of Mice in Room	Room Pressurisation
ON	On wall	Single	1050	21000 gr	neg 100cfm

Room
ACH
20

Cage Condition
Top On



Analysis Results

Cage Occupied Zone

	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	23.64	74.56	1667	56.87%
S.D.	0.47	0.84	386	3.17%
Max.	24.70	76.47	2576	63.64%

Cage Occupied Zone NH3 (ppm)

Day	1	2	3	4	5	6	7	8	9	10
Mean	0.87	1.69	2.60	3.75	5.27	7.31	10.01	13.50	17.93	23.44
Max.	1.34	2.61	4.02	5.79	8.15	11.30	15.47	20.86	27.71	36.22

Room Breathing Zone

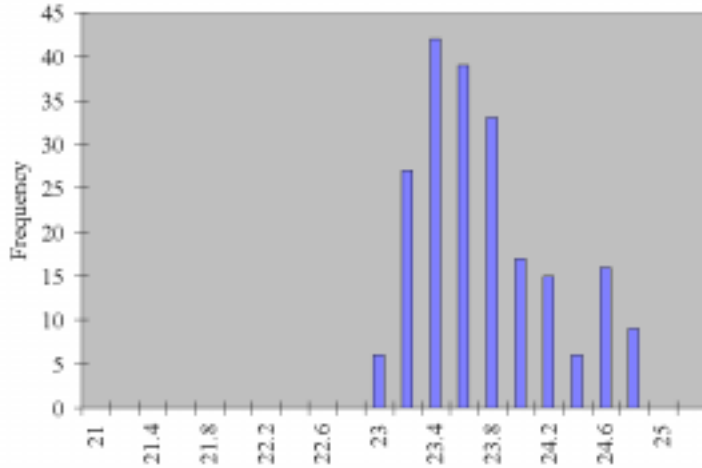
	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	22.57	72.63	64	48.16%
S.D.	0.49	0.89	26	
Max.	24.17	75.50	252	

Room Breathing Zone NH3 (ppm)

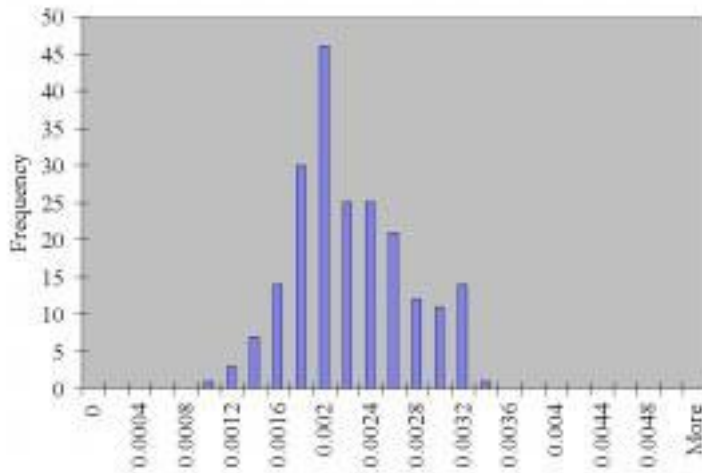
Day	1	2	3	4	5	6	7	8	9	10
Mean	0.03	0.06	0.10	0.14	0.20	0.28	0.38	0.52	0.68	0.89
Max.	0.13	0.25	0.39	0.57	0.80	1.10	1.51	2.04	2.71	3.54

Histogram Distributions

Cage occupied zone average temperature (°C) distribution



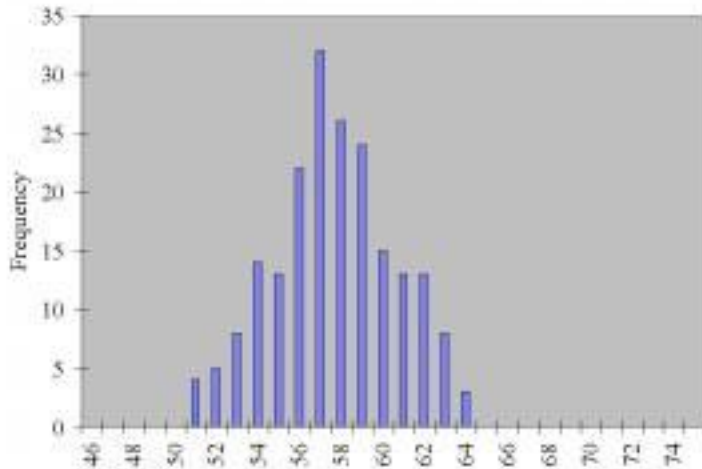
Cage occupied zone average contamination (kg/kg) distribution



Contamination conversion factors (kg/kg -7 ppm)

Day	CO ₂	NH ₃
1	785000	408
2	785000	795
3	785000	1225
4	785000	1766
5	785000	2483
6	785000	3443
7	785000	4712
8	785000	6356
9	785000	8442
10	785000	11384

Cage occupied zone average relative humidity (%) distribution



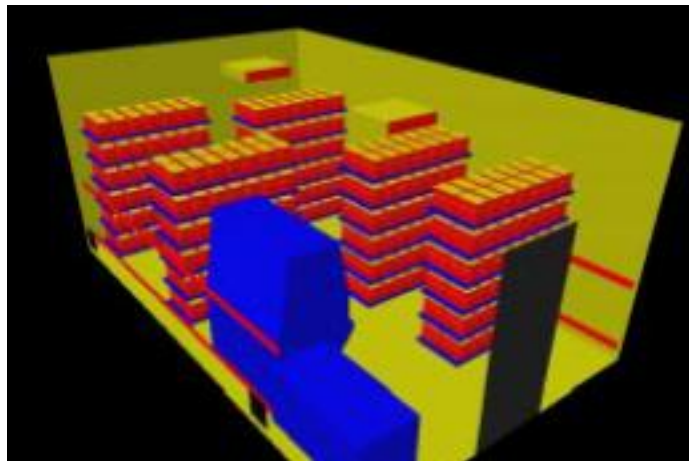
Casename **Case 31**

Description

Supply Configuration	Supply Discharge Temperature (°C)	Supply Discharge RH	Exhaust Configuration	Exhaust Temperature (°C)	Exhaust RH
Radial	17.5	66%	Low	22	50%
Change Station	Rack Orientation	Rack Density	Number of Mice in Room	Total mass of Mice in Room	Room Pressurisation
ON	Perp	Double	2100	42000 gr	neg 100cfm

Room
ACH
15

Cage Condition
Top On



Analysis Results

Cage Occupied Zone

	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	22.67	72.80	1938	61.40%
S.D.	0.28	0.50	465	3.41%
Max.	23.39	74.09	2839	67.52%

Cage Occupied Zone NH3 (ppm)

Day	1	2	3	4	5	6	7	8	9	10
Mean	1.01	1.96	3.02	4.45	6.37	8.89	12.30	16.44	21.59	27.73
Max.	1.48	2.87	4.43	6.52	9.33	13.03	18.02	24.08	31.63	40.61

Room Breathing Zone

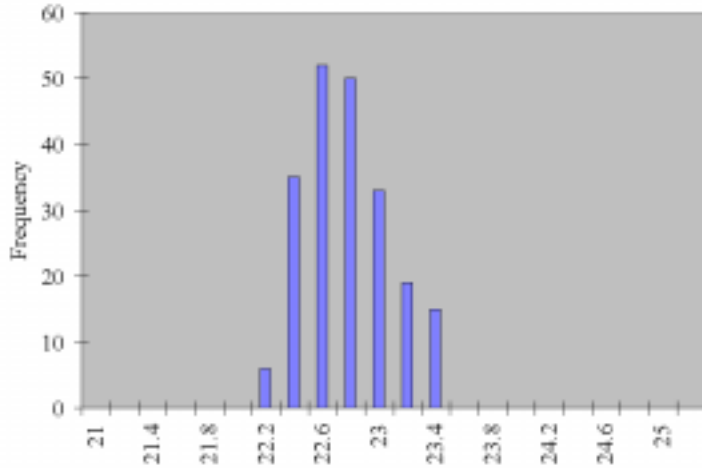
	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	21.37	70.46	107	52.32%
S.D.	0.73	1.31	43	
Max.	28.10	82.59	315	

Room Breathing Zone NH3 (ppm)

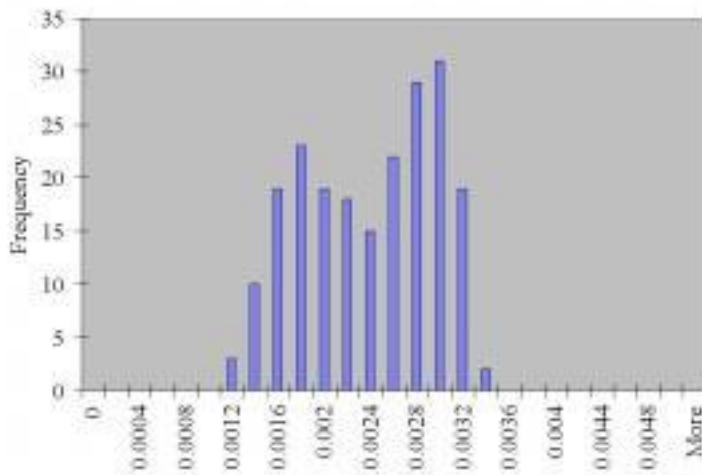
Day	1	2	3	4	5	6	7	8	9	10
Mean	0.06	0.11	0.17	0.24	0.35	0.49	0.68	0.90	1.19	1.52
Max.	0.16	0.32	0.49	0.72	1.04	1.45	2.00	2.68	3.51	4.51

Histogram Distributions

Cage occupied zone average temperature (°C) distribution



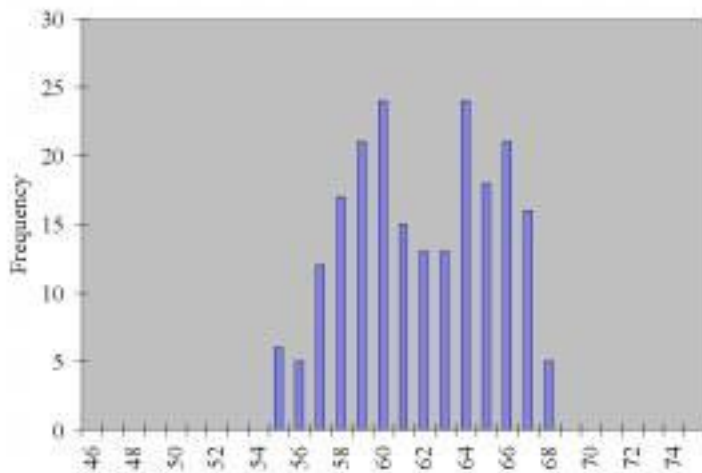
Cage occupied zone average contamination (kg/kg) distribution



Contamination conversion factors (kg/kg -7 ppm)

Day	CO ₂	NH ₃
1	785000	409
2	785000	795
3	785000	1225
4	785000	1803
5	785000	2579
6	785000	3602
7	785000	4984
8	785000	6658
9	785000	8747
10	785000	11384

Cage occupied zone average relative humidity (%) distribution



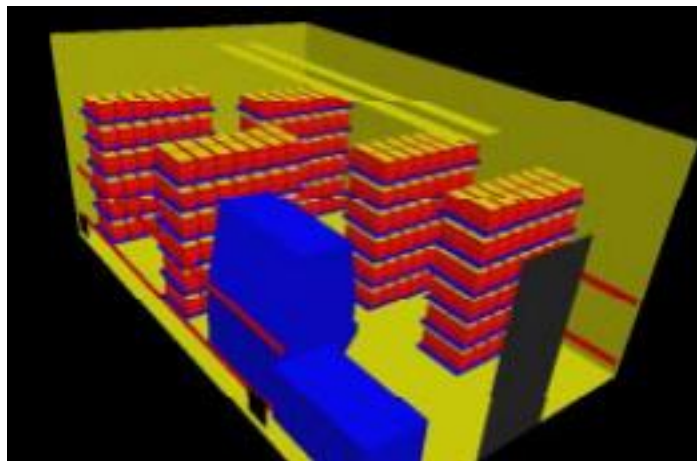
Casename **Case 32**

Description

Supply Configuration	Supply Discharge Temperature (°C)	Supply Discharge RH	Exhaust Configuration	Exhaust Temperature (°C)	Exhaust RH
Slot	17.5	66%	Low	22	50%
Change Station	Rack Orientation	Rack Density	Number of Mice in Room	Total mass of Mice in Room	Room Pressurisation
ON	Perp	Double	2100	42000 gr	neg 100cfm

Room
ACH
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Cage Condition
Top On



Analysis Results

Cage Occupied Zone

	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	22.90	73.22	1747	59.10%
S.D.	0.52	0.93	426	2.60%
Max.	23.96	75.12	2789	65.01%

Cage Occupied Zone NH3 (ppm)

Day	1	2	3	4	5	6	7	8	9	10
Mean	0.91	1.77	2.73	3.93	5.53	7.66	10.49	14.15	18.79	24.57
Max.	1.45	2.82	4.35	6.27	8.82	12.23	16.74	22.59	30.00	39.21

Room Breathing Zone

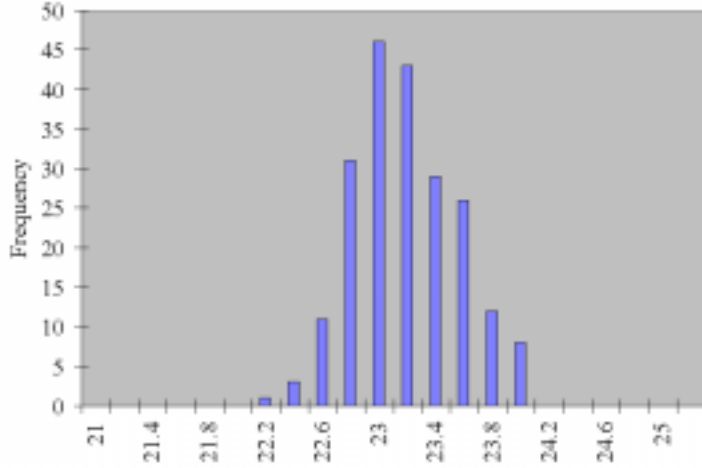
	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	21.96	71.54	125	50.53%
S.D.	0.66	1.19	51	
Max.	27.92	82.26	337	

Room Breathing Zone NH3 (ppm)

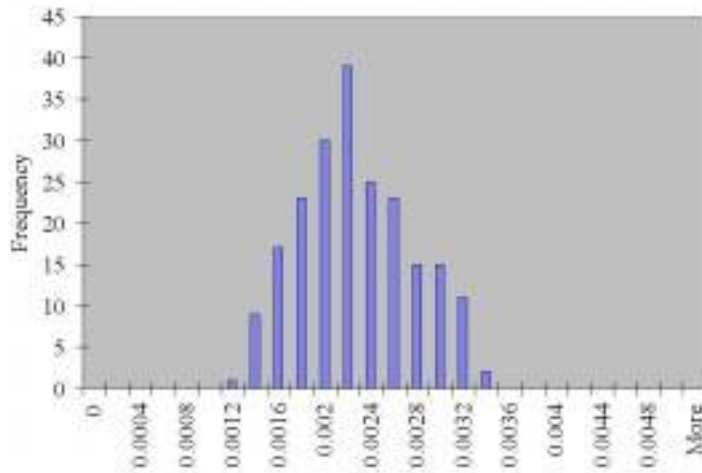
Day	1	2	3	4	5	6	7	8	9	10
Mean	0.06	0.13	0.19	0.28	0.39	0.55	0.75	1.01	1.34	1.75
Max.	0.18	0.34	0.53	0.76	1.07	1.48	2.02	2.73	3.63	4.74

Histogram Distributions

Cage occupied zone average temperature (°C) distribution



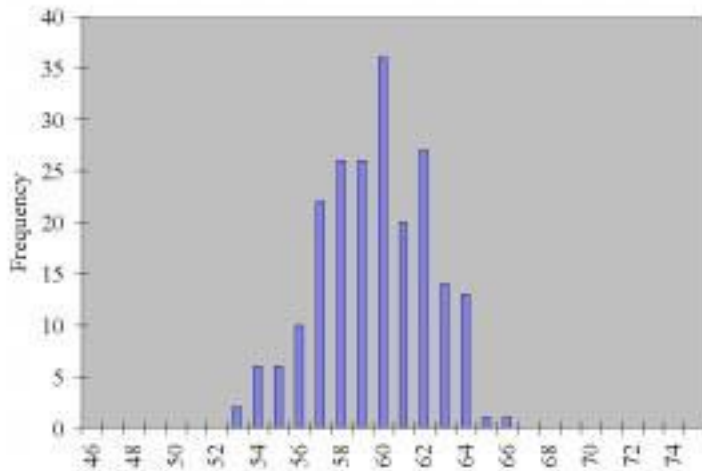
Cage occupied zone average contamination (kg/kg) distribution



Contamination conversion factors (kg/kg -7 ppm)

Day	CO ₂	NH ₃
1	785000	408
2	785000	795
3	785000	1225
4	785000	1766
5	785000	2483
6	785000	3443
7	785000	4712
8	785000	6356
9	785000	8442
10	785000	11384

Cage occupied zone average relative humidity (%) distribution



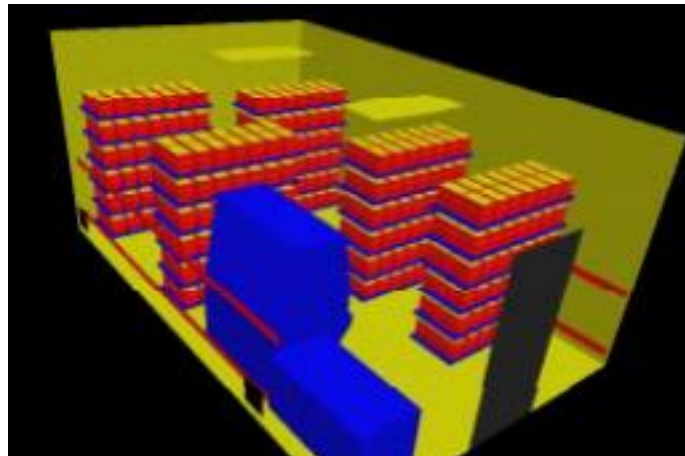
Casename **Case 33**

Description

Supply Configuration	Supply Discharge Temperature (°C)	Supply Discharge RH	Exhaust Configuration	Exhaust Temperature (°C)	Exhaust RH
Low Ind	17.5	66%	Low	22	50%
Change Station	Rack Orientation	Rack Density	Number of Mice in Room	Total mass of Mice in Room	Room Pressurisation
ON	Perp	Double	2100	42000 gr	neg 100cfm

Room ACH
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Cage Condition
Top On



Analysis Results

Cage Occupied Zone

	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	23.16	73.68	1974	59.06%
S.D.	0.36	0.64	485	2.81%
Max.	24.12	75.41	3133	65.78%

Cage Occupied Zone NH3 (ppm)

Day	1	2	3	4	5	6	7	8	9	10
Mean	1.03	2.00	3.08	4.44	6.24	8.66	11.85	15.98	21.23	27.75
Max.	1.63	3.17	4.89	7.05	9.91	13.74	18.81	25.37	33.69	44.04

Room Breathing Zone

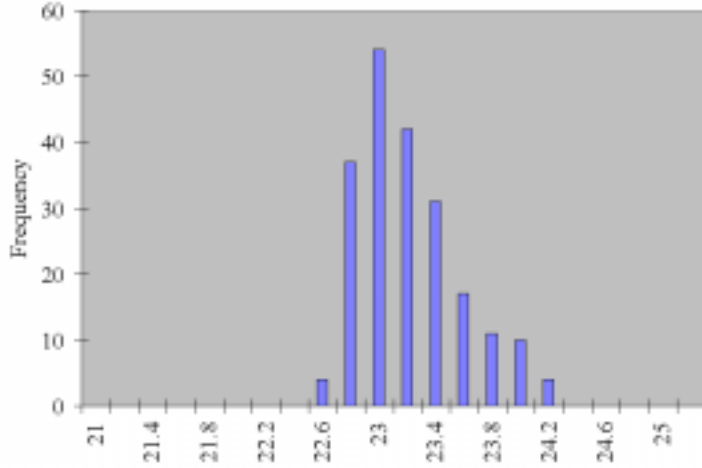
	Temperature		CO ₂ (ppm)	RH
	°C	°F		
Mean	21.97	71.54	143	50.67%
S.D.	0.74	1.33	67	
Max.	27.68	81.82	433	

Room Breathing Zone NH3 (ppm)

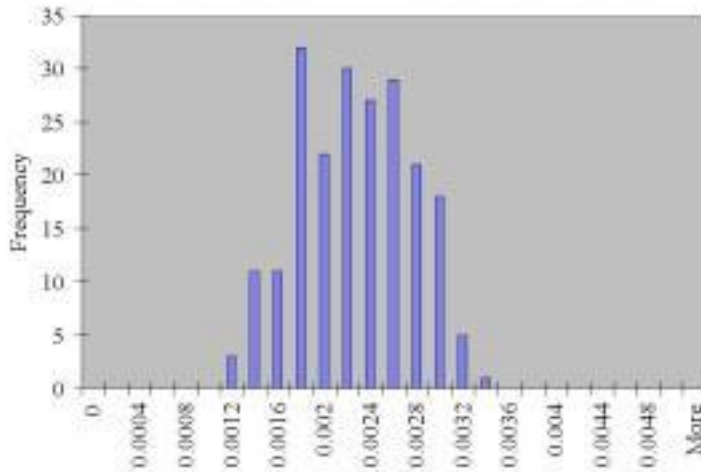
Day	1	2	3	4	5	6	7	8	9	10
Mean	0.07	0.14	0.22	0.32	0.45	0.63	0.86	1.16	1.54	2.01
Max.	0.22	0.44	0.67	0.97	1.37	1.90	2.60	3.50	4.65	6.08

Histogram Distributions

Cage occupied zone average temperature (°C) distribution



Cage occupied zone average contamination (kg/kg) distribution



Contamination conversion factors (kg/kg -7 ppm)

1	785000	408
2	785000	795
3	785000	1225
4	785000	1766
5	785000	2483
6	785000	3443
7	785000	4712
8	785000	6356
9	785000	8442
10	785000	11384

Cage occupied zone average relative humidity (%) distribution

