THE DRAWING AND DESIGN HEREIN SHALL NOT BE DUPLICATED, USED OR DISCLOSED TO OTHERS FOR PROCUREMENT OR OTHER PURPOSE (EXCEPT AS OTHERWISE AUTHORIZED BY CONTRACT) WITHOUT WRITTEN PERMISSION OF SIEMENS BUILDING TECHNOLOGIES, INC., FIRE SAFETY DIVISION. ALL OTHER REPRODUCTIONS SHALL BEAR THIS NOTICE.

VESDA

Installation Data Pack for LBNL B74

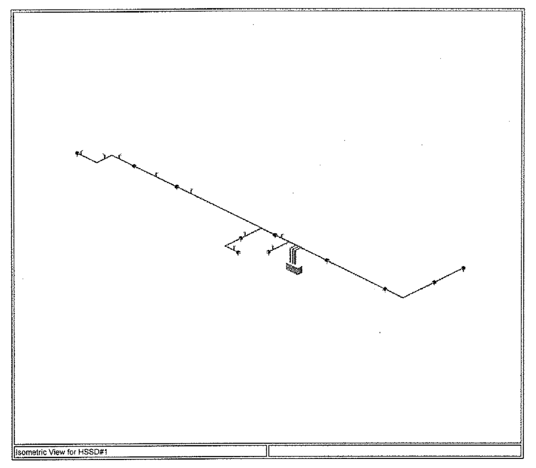
- Pipe Type: America
- Date: 3/6/10
- Units: US
- Altitude: 0'
- Designed with Hole Sizes: 1/8"

Detector : HSSD#1

- Type: VESDA LaserPLUS
- Endcap Usage: Create a Balanced Design
- Application: Default
- Aspirator Speed: 3900rpm
- Fire Threshold:
- Temperature: 68.0°F
- Absolute Pressure: 1013.5hPa
- System Flowrate: 104.5l/min
- Manifold Pressure: 143Pa
- Total Pipe Length: 271' 5"
- Number Of Sample Points: 24
- Maximum Transport Time: 30
- Minimum Hole Flow Rate: 2.0l/min
- Inverted Detector: No

Balance Data

Group name	Aggregate Sensitivity	Balance	Suction pressure (least)	Endcap Sensitivity Factor
(Default Group)	0.052%/ft	71%	70Pa	0.0



Isometric View for HSSD#1

Pipe:Pipe 1

- Total Pipe Length: 66' 4"
- Ambient Pressure: 0Pa
- Sector Pressure: 143Pa
- Number Of Sample Points: 10
- Pipe Flowrate: 44.8l/min

Section1

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	6' 6"	6' 6"	F	-	-	-	-	-	-	-	-	-
-	Elbow	9' 1"	2' 7"	L	-	-	-	-	-	-	-	-	-
-	Branch	12' 3"	3' 2"	B	-	-	-	-	-	-	-	-	-

Section1.1

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Branch	19' 4"	7' 1"	U	-	-	-	-	-	-	-	-	-

Section1.1.1

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	20' 11"	1' 7"	L	-	-	-	-	-	-	-	-	-
-	Elbow	21' 5"	6"	D	-	-	-	-	-	-	-	-	-
1	Endcap	21' 8"	3"	-	1/8"	-	9	114	4.7	10.6	1.371	0.874	-

Section1.1.2

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
2	Capillary	21' 4"	2'	-	1/8"	6'	8	101	4.6	10.3	1.402	0.874	0.375
3	Endcap	22'	8"	-	1/8"	-	8	113	4.7	10.5	1.373	0.874	-

Section1.2

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Branch	15' 6"	3' 3"	U	-	-	-	-	-	-	-	-	-

Section1.2.1

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	17' 1"	1' 7"	F	-	-	-	-	-	-	-	-	-
-	Elbow	17' 7"	6"	D	-	-	-	-	-	-	-	-	-
4	Endcap	17' 10"	3"	-	1/8"	-	7	111	4.7	10.4	1.388	0.874	-

Section1.2.2

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
5	Capillary	18' 6"	3'	-	1/8"	6'	6	98	4.5	10.1	1.425	0.874	0.375
-	Elbow	24' 8"	6' 2"	B	-	-	-	-	-	-	-	-	-
-	Branch	31' 9"	7' 1"	U	-	-	-	-	-	-	-	-	-

Section1.2.2.1

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	33' 4"	1' 7"	L	-	-	-	-	-	-	-	-	-
-	Elbow	33' 10"	6"	D	-	-	-	-	-	-	-	-	-
6	Endcap	34' 1"	3"	-	1/8"	-	11	100	4.4	9.9	1.462	0.874	-

Section1.2.2.2

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
7	Capillary	33' 9"	2'	-	1/8"	6'	10	88	4.3	9.8	1.503	0.874	0.375
-	Elbow	40' 9"	7'	R	-	-	-	-	-	-	-	-	-
-	Branch	44' 7"	3' 10"	U	-	-	-	-	-	-	-	-	-

Section1.2.2.2.1

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	46' 2"	1' 7"	F	-	-	-	-	-	-	-	-	-
-	Elbow	46' 8"	6"	D	-	-	-	-	-	-	-	-	-
8	Endcap	46' 11"	3"	-	1/8"	-	17	94	4.3	9.6	1.507	0.874	-

Section1.2.2.2.2

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
9	Capillary	45' 7"	2'	-	1/8"	6'	16	83	4.2	9.3	1.550	0.874	0.375
10	Endcap	47' 3"	8"	-	1/8"	-	16	94	4.3	9.6	1.510	0.874	-

Pipe:Pipe 2

- Total Pipe Length: 83' 6"
- Ambient Pressure: 0Pa
- Sector Pressure: 143Pa
- Number Of Sample Points: 5
- Pipe Flowrate: 23.9l/min

Section1

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	6' 6"	6' 6"	F	-	-	-	-	-	-	-	-	-
-	Elbow	9' 1"	2' 7"	R	-	-	-	-	-	-	-	-	-
1	Capillary	21' 10"	12' 9"	-	1/8"	6'	7	119	5.0	21.0	1.294	0.874	0.375
2	Capillary	47' 10"	26'	-	1/8"	6'	13	110	4.8	20.2	1.342	0.874	0.375
-	Elbow	55' 10"	8'	F	-	-	-	-	-	-	-	-	-
3	Capillary	69' 10"	14'	-	1/8"	6'	21	104	4.7	19.7	1.380	0.874	0.375
4	Capillary	82' 10"	13'	-	1/8"	6'	27	101	4.6	19.4	1.399	0.874	0.375
5	Endcap	83' 6"	8"	-	1/8"	-	27	114	4.7	19.8	1.371	0.874	-

Pipe:Pipe 3

- Total Pipe Length: 121' 7"
- Ambient Pressure: 0Pa
- Sector Pressure: 143Pa
- Number Of Sample Points: 9
- Pipe Flowrate: 35.8l/min

Section1

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	6' 6"	6' 6"	F	-	-	-	-	-	-	-	-	-
-	Elbow	9' 3"	2' 9"	L	-	-	-	-	-	-	-	-	-
-	Branch	58' 7"	49' 4"	U	-	-	-	-	-	-	-	-	-

Section1.1

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	60' 2"	1' 7"	F	-	-	-	-	-	-	-	-	-
-	Elbow	60' 8"	6"	D	-	-	-	-	-	-	-	-	-
1	Endcap	60' 11"	3"	-	1/8"	-	14	102	4.5	12.5	1.448	0.874	-

Section1.2

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
2	Capillary	64' 10"	6' 3"	-	1/8"	6'	12	87	4.3	12.0	1.506	0.874	0.375
-	Branch	74'	9' 2"	U	-	-	-	-	-	-	-	-	-

Section1.2.1

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	75' 7"	1' 7"	F	-	-	-	-	-	-	-	-	-
-	Elbow	76' 1"	6"	R	-	-	-	-	-	-	-	-	-
3	Endcap	76' 4"	3"	-	1/8"	-	17	80	4.2	11.7	1.548	0.874	-

Section1.2.2

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
4	Capillary	83' 10"	9' 10"	-	1/8"	6'	17	75	4.0	11.1	1.623	0.874	0.375
-	Branch	90' 7"	6' 9"	U	-	-	-	-	-	-	-	-	-

Section1.2.2.1

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	92' 2"	1' 7"	F	-	-	-	-	-	-	-	-	-
-	Elbow	92' 8"	6"	D	-	-	-	-	-	-	-	-	-
5	Endcap	92' 11"	3"	-	1/8"	-	22	80	4.0	11.1	1.633	0.874	-

Section1.2.2.2

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	93' 10"	3' 3"	B	-	-	-	-	-	-	-	-	-
-	Branch	96' 11"	3' 1"	U	-	-	-	-	-	-	-	-	-

Section1.2.2.2.1

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	98' 6"	1' 7"	L	-	-	-	-	-	-	-	-	-
-	Elbow	99'	6"	D	-	-	-	-	-	-	-	-	-
6	Endcap	99' 3"	3"	-	1/8"	-	25	75	3.9	10.8	1.682	0.874	-

Section1.2.2.2.2

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	100' 6"	3' 7"	L	-	-	-	-	-	-	-	-	-
-	Branch	107' 7"	7' 1"	U	-	-	-	-	-	-	-	-	-

Section1.2.2.2.2.1

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	109' 2"	1' 7"	F	-	-	-	-	-	-	-	-	-
-	Elbow	109' 8"	6"	D	-	-	-	-	-	-	-	-	-
7	Endcap	109' 11"	3"	-	1/8"	-	30	70	3.7	10.4	1.738	0.874	-

Section1.2.2.2.2.2

Pipe Diameter 0.874in

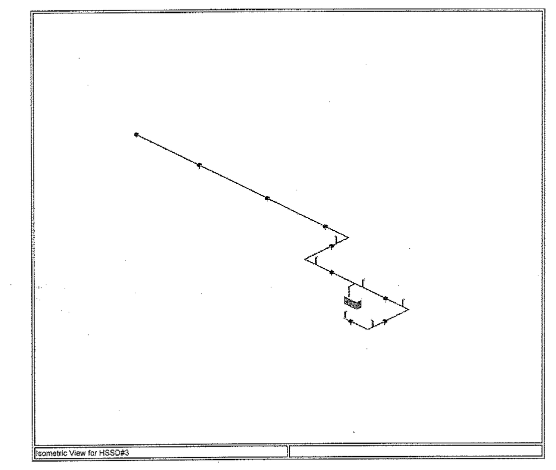
#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
8	Capillary	109' 3"	1' 8"	-	1/8"	6'	28	61	3.6	10.0	1.804	0.874	0.375
9	Endcap	109' 11"	8"	-	1/8"	-	28	70	3.7	10.4	1.741	0.874	-

Detector : HSSD#3

- Type: VESDA LaserPLUS
- Endcap Usage: Create a Balanced Design
- Application: Default
- Aspirator Speed: 3900rpm
- Fire Threshold:
- Temperature: 68.0°F
- Absolute Pressure: 1013.5hPa
- System Flowrate: 87.1l/min
- Manifold Pressure: 208Pa
- Total Pipe Length: 203' 4"
- Number Of Sample Points: 17
- Maximum Transport Time: 40
- Minimum Hole Flow Rate: 2.0l/min
- Inverted Detector: No

Balance Data

Group name	Aggregate Sensitivity	Balance	Suction pressure (least)	Endcap Sensitivity Factor
(Default Group)	0.062%/ft	80%	109Pa	0.0



Isometric View for HSSD#3

Pipe:Pipe 1

- Total Pipe Length: 203' 4"
- Ambient Pressure: 0Pa
- Sector Pressure: 208Pa
- Number Of Sample Points: 17
- Pipe Flowrate: 87.1l/min

Section1

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	4'	4'	F	-	-	-	-	-	-	-	-	-
-	Tee	6' 7"	2' 7"	L	-	-	-	-	-	-	-	-	-

Section1.1

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
1	Capillary	16' 3"	9' 8"	-	1/8"	6'	4	150	5.6	6.5	0.960	0.874	0.375
-	Branch	22' 10"	6' 7"	U	-	-	-	-	-	-	-	-	-

Section1.1.1

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	25' 7"	2' 9"	F	-	-	-	-	-	-	-	-	-
-	Elbow	26' 1"	6"	D	-	-	-	-	-	-	-	-	-
2	Endcap	26' 4"	3"	-	1/8"	-	8	151	5.4	6.2	0.992	0.874	-

Section1.1.2

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	27' 4"	4' 6"	F	-	-	-	-	-	-	-	-	-
3	Capillary	38' 4"	11'	-	1/8"	6'	6	128	5.2	6.0	1.037	0.874	0.375
-	Branch	40' 4"	2'	U	-	-	-	-	-	-	-	-	-

Section1.1.2.1

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	43' 1"	2' 9"	L	-	-	-	-	-	-	-	-	-
-	Elbow	43' 7"	6"	D	-	-	-	-	-	-	-	-	-
4	Endcap	43' 10"	3"	-	1/8"	-	11	136	5.2	5.9	1.046	0.874	-

Section1.1.2.2

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	45' 4"	5'	L	-	-	-	-	-	-	-	-	-
5	Capillary	54' 10"	9' 6"	-	1/8"	6'	11	116	5.0	5.7	1.089	0.874	0.375
6	Capillary	78' 10"	24'	-	1/8"	6'	17	109	4.8	5.5	1.127	0.874	0.375
7	Capillary	106' 10"	28'	-	1/8"	6'	27	102	4.6	5.3	1.164	0.874	0.375
8	Capillary	132' 10"	26'	-	1/8"	6'	40	97	4.5	5.2	1.191	0.874	0.375
9	Endcap	133' 6"	8"	-	1/8"	-	40	109	4.6	5.3	1.166	0.874	-

Section1.2

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Branch	9' 7"	3'	U	-	-	-	-	-	-	-	-	-

Section1.2.1

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	12' 4"	2' 9"	F	-	-	-	-	-	-	-	-	-
-	Elbow	12' 10"	6"	D	-	-	-	-	-	-	-	-	-
10	Endcap	13' 1"	3"	-	1/8"	-	8	162	5.5	6.5	0.958	0.874	-

Section1.2.2

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
11	Capillary	19' 1"	9' 6"	-	1/8"	6'	5	143	5.5	6.3	0.984	0.874	0.375
-	Branch	26' 1"	7'	U	-	-	-	-	-	-	-	-	-

Section1.2.2.1

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	28' 10"	2' 9"	F	-	-	-	-	-	-	-	-	-
-	Elbow	29' 4"	6"	D	-	-	-	-	-	-	-	-	-

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
12	Endcap	29' 7"	3"	-	1/8"	-	9	147	5.4	6.2	1.006	0.874	-

Section1.2.2.2

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	28' 7"	2' 6"	B	-	-	-	-	-	-	-	-	-
13	Capillary	38' 5"	9' 10"	-	1/8"	6'	9	129	5.2	6.0	1.037	0.874	0.375
-	Branch	43' 5"	5'	U	-	-	-	-	-	-	-	-	-

Section1.2.2.2.1

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	46' 2"	2' 9"	L	-	-	-	-	-	-	-	-	-
-	Elbow	46' 8"	6"	D	-	-	-	-	-	-	-	-	-
14	Endcap	46' 11"	3"	-	1/8"	-	14	136	5.2	5.9	1.044	0.874	-

Section1.2.2.2.2

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	45' 5"	2'	L	-	-	-	-	-	-	-	-	-
15	Capillary	52' 5"	7'	-	1/8"	6'	14	121	5.1	5.8	1.059	0.874	0.375
-	Branch	54' 9"	2' 4"	U	-	-	-	-	-	-	-	-	-

Section1.2.2.2.2.1

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	57' 6"	2' 9"	F	-	-	-	-	-	-	-	-	-
-	Elbow	58'	6"	D	-	-	-	-	-	-	-	-	-
16	Endcap	58' 3"	3"	-	1/8"	-	20	131	5.1	5.8	1.063	0.874	-

Section1.2.2.2.2.2

Pipe Diameter 0.874in

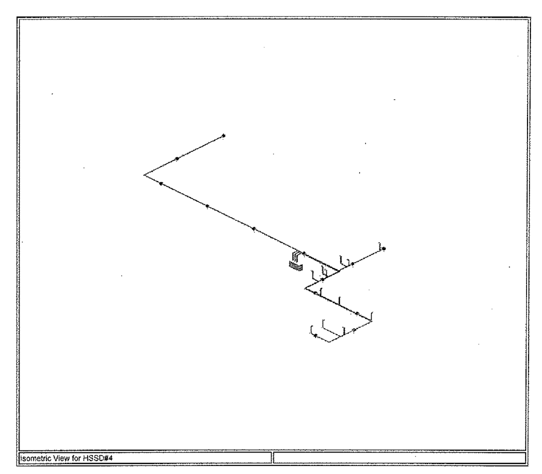
#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
17	Endcap	55' 5"	8"	-	1/8"	-	16	132	5.1	5.9	1.059	0.874	-

Detector : HSSD#4

- Type: VESDA LaserPLUS
- Endcap Usage: Create a Balanced Design
- Application: Default
- Aspirator Speed: 3900rpm
- Fire Threshold:
- Temperature: 68.0°F
- Absolute Pressure: 1013.5hPa
- System Flowrate: 112.9l/min
- Manifold Pressure: 118Pa
- Total Pipe Length: 436' 4"
- Number Of Sample Points: 30
- Maximum Transport Time: 50
- Minimum Hole Flow Rate: 2.0l/min
- Inverted Detector: No

Balance Data

Group name	Aggregate Sensitivity	Balance	Suction pressure (least)	Endcap Sensitivity Factor
(Default Group)	0.062%/ft	80%	60Pa	0.0



Isometric View for HSSD#4

Pipe:Pipe 1

- Total Pipe Length: 189' 2"
- Ambient Pressure: 0Pa
- Sector Pressure: 118Pa
- Number Of Sample Points: 13
- Pipe Flowrate: 49.7l/min

Section1

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	4'	4'	F	-	-	-	-	-	-	-	-	-
-	Tee	6' 7"	2' 7"	L	-	-	-	-	-	-	-	-	-

Section1.1

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
1	Capillary	29' 6"	22' 11"	-	1/8"	6'	8	79	4.1	8.2	1.715	0.874	0.375
2	Capillary	53' 6"	24'	-	1/8"	6'	14	71	3.9	7.8	1.801	0.874	0.375
3	Capillary	77' 6"	24'	-	1/8"	6'	22	65	3.7	7.5	1.880	0.874	0.375
-	Elbow	86' 5"	8' 11"	F	-	-	-	-	-	-	-	-	-
4	Capillary	103' 6"	17' 1"	-	1/8"	6'	34	60	3.6	7.2	1.956	0.874	0.375
5	Capillary	127' 6"	24'	-	1/8"	6'	50	57	3.5	7.0	2.011	0.874	0.375
6	Endcap	128' 2"	8"	-	1/8"	-	50	68	3.6	7.3	1.937	0.874	-

Section1.2

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
7	Capillary	9' 9"	3' 2"	-	1/8"	6'	4	85	4.2	8.5	1.649	0.874	0.375
-	Elbow	27' 9"	18'	F	-	-	-	-	-	-	-	-	-
-	Branch	31' 11"	4' 2"	L	-	-	-	-	-	-	-	-	-

Section1.2.1

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	34' 11"	3'	U	-	-	-	-	-	-	-	-	-
-	Elbow	38' 9"	3' 10"	L	-	-	-	-	-	-	-	-	-
-	Elbow	39' 3"	6"	D	-	-	-	-	-	-	-	-	-
8	Endcap	39' 6"	3"	-	1/8"	-	19	82	4.0	8.1	1.741	0.874	-

Section1.2.2

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Branch	32' 11"	1'	U	-	-	-	-	-	-	-	-	-

Section1.2.2.1

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	35' 11"	3'	L	-	-	-	-	-	-	-	-	-
-	Elbow	36' 5"	6"	D	-	-	-	-	-	-	-	-	-
9	Endcap	36' 8"	3"	-	1/8"	-	14	80	4.0	8.0	1.762	0.874	-

Section1.2.2.2

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
10	Capillary	34' 11"	2'	-	1/8"	6'	10	70	3.8	7.7	1.822	0.874	0.375
-	Branch	49'	14' 1"	U	-	-	-	-	-	-	-	-	-

Section1.2.2.2.1

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	52' 10"	3' 10"	L	-	-	-	-	-	-	-	-	-
-	Elbow	53' 4"	6"	D	-	-	-	-	-	-	-	-	-
11	Endcap	53' 7"	3"	-	1/8"	-	22	74	3.8	7.7	1.839	0.874	-

Section1.2.2.2.2

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
12	Capillary	51'	2'	-	1/8"	6'	18	64	3.7	7.4	1.903	0.874	0.375
13	Endcap	51' 8"	8"	-	1/8"	-	18	73	3.8	7.7	1.840	0.874	-

Pipe:Pipe 2

- Total Pipe Length: 113' 3"
- Ambient Pressure: 0Pa
- Sector Pressure: 118Pa
- Number Of Sample Points: 10
- Pipe Flowrate: 37.3l/min

Section1

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	4'	4'	F	-	-	-	-	-	-	-	-	-
-	Elbow	6' 5"	2' 5"	R	-	-	-	-	-	-	-	-	-
-	Elbow	27'	20' 7"	B	-	-	-	-	-	-	-	-	-
-	Branch	32' 8"	5' 8"	L	-	-	-	-	-	-	-	-	-

Section1.1

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	35' 8"	3'	U	-	-	-	-	-	-	-	-	-
-	Elbow	39' 6"	3' 10"	L	-	-	-	-	-	-	-	-	-
-	Elbow	40'	6"	D	-	-	-	-	-	-	-	-	-
1	Endcap	40' 3"	3"	-	1/8"	-	17	87	4.1	11.1	1.687	0.874	-

Section1.2

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Branch	33' 8"	1'	U	-	-	-	-	-	-	-	-	-

Section1.2.1

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	37' 6"	3' 10"	L	-	-	-	-	-	-	-	-	-
-	Elbow	38'	6"	D	-	-	-	-	-	-	-	-	-
2	Endcap	38' 3"	3"	-	1/8"	-	13	84	4.1	10.9	1.724	0.874	-

Section1.2.2

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
3	Capillary	35' 9"	2' 1"	-	1/8"	6'	8	73	3.9	10.5	1.783	0.874	0.375
-	Branch	37' 9"	2'	L	-	-	-	-	-	-	-	-	-

Section1.2.2.1

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	40' 9"	3'	U	-	-	-	-	-	-	-	-	-
-	Elbow	44' 7"	3' 10"	L	-	-	-	-	-	-	-	-	-
-	Elbow	45' 1"	6"	D	-	-	-	-	-	-	-	-	-
4	Endcap	45' 4"	3"	-	1/8"	-	19	77	3.9	10.5	1.792	0.874	-

Section1.2.2.2

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	44' 9"	7'	R	-	-	-	-	-	-	-	-	-
5	Capillary	50' 1"	5' 4"	-	1/8"	6'	12	64	3.7	9.9	1.896	0.874	0.375
-	Branch	52' 10"	2' 9"	U	-	-	-	-	-	-	-	-	-

Section1.2.2.2.1

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	56' 8"	3' 10"	F	-	-	-	-	-	-	-	-	-
-	Elbow	57' 2"	6"	D	-	-	-	-	-	-	-	-	-
6	Endcap	57' 5"	3"	-	1/8"	-	19	70	3.7	9.9	1.868	0.874	-

Section1.2.2.2.2

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Branch	62' 7"	9' 9"	U	-	-	-	-	-	-	-	-	-

Section1.2.2.2.2.1

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	66' 5"	3' 10"	F	-	-	-	-	-	-	-	-	-
-	Elbow	66' 11"	6"	D	-	-	-	-	-	-	-	-	-

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
7	Endcap	67' 2"	3"	-	1/8"	-	24	65	3.6	9.6	1.957	0.874	-

Section1.2.2.2.2.2

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
8	Capillary	71' 9"	9' 2"	-	1/8"	6'	22	54	3.4	9.1	2.060	0.874	0.375
-	Branch	79' 1"	7' 4"	U	-	-	-	-	-	-	-	-	-

Section1.2.2.2.2.2.1

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	82' 11"	3' 10"	F	-	-	-	-	-	-	-	-	-
-	Elbow	83' 5"	6"	D	-	-	-	-	-	-	-	-	-
9	Endcap	83' 8"	3"	-	1/8"	-	34	60	3.4	9.2	2.034	0.874	-

Section1.2.2.2.2.2.2

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
10	Endcap	79' 9"	8"	-	1/8"	-	27	61	3.5	9.3	2.022	0.874	-

Pipe:Pipe 3

- Total Pipe Length: 133' 11"
- Ambient Pressure: 0Pa
- Sector Pressure: 118Pa
- Number Of Sample Points: 7
- Pipe Flowrate: 25.9l/min

Section1

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	3' 10"	3' 10"	F	-	-	-	-	-	-	-	-	-
-	Elbow	6' 1"	2' 3"	R	-	-	-	-	-	-	-	-	-
-	Elbow	25' 7"	19' 6"	B	-	-	-	-	-	-	-	-	-
-	Elbow	43' 4"	17' 9"	R	-	-	-	-	-	-	-	-	-
-	Elbow	78' 2"	34' 10"	B	-	-	-	-	-	-	-	-	-
1	Capillary	87' 4"	9' 2"	-	1/8"	6'	20	71	3.9	15.0	1.800	0.874	0.375
-	Branch	92' 5"	5' 1"	U	-	-	-	-	-	-	-	-	-

Section1.1

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	96' 3"	3' 10"	L	-	-	-	-	-	-	-	-	-
-	Elbow	96' 9"	6"	D	-	-	-	-	-	-	-	-	-
2	Endcap	97'	3"	-	1/8"	-	27	74	3.8	14.8	1.830	0.874	-

Section1.2

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Branch	94' 4"	1' 11"	L	-	-	-	-	-	-	-	-	-

Section1.2.1

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Branch	103' 7"	9' 3"	U	-	-	-	-	-	-	-	-	-

Section1.2.1.1

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	107' 5"	3' 10"	F	-	-	-	-	-	-	-	-	-
-	Elbow	107' 11"	6"	D	-	-	-	-	-	-	-	-	-
3	Endcap	108' 2"	3"	-	1/8"	-	34	68	3.7	14.2	1.911	0.874	-

Section1.2.1.2

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
4	Endcap	104' 3"	8"	-	1/8"	-	28	69	3.7	14.3	1.900	0.874	-

Section1.2.2

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	100' 4"	6'	L	-	-	-	-	-	-	-	-	-
5	Capillary	107' 4"	7'	-	1/8"	6'	28	59	3.5	13.7	1.974	0.874	0.375
-	Branch	109' 7"	2' 3"	U	-	-	-	-	-	-	-	-	-

Section1.2.2.1

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
-	Elbow	113' 5"	3' 10"	F	-	-	-	-	-	-	-	-	-
-	Elbow	113' 11"	6"	D	-	-	-	-	-	-	-	-	-
6	Endcap	114' 2"	3"	-	1/8"	-	36	66	3.6	14.0	1.938	0.874	-

Section1.2.2.2

Pipe Diameter 0.874in

#	-	Distance ft	Relative ft	Direction	Hole Diameter in	Capillary Length ft	Transport Time sec	Pressure Pa	Flow l/min	Flow %	Hole Sensitivity %/ft	Diameter in	Capillary Diameter in
7	Endcap	110' 3"	8"	-	1/8"	-	36	67	3.6	14.1	1.927	0.874	-

VESDA

REVISIONS

No.	Revision	By	Date	Appr.
5	BULLETIN 5	JPM	9/20/10	KW
5A	RESPONSE TO HYT BULLETIN 5 REVIEW COMMENTS	JPM	10/19/10	KW
	AS-BUILT	JPM	9/20/12	KW

AS-BUILT

C-10 APPROVAL STAMP:

DESIGNER OF CONTRACT DOCUMENTS:

HYT Corporation
Fire Protection Engineers and Consultants
3498 Clayton Road - Suite 101 Concord, California 94519
Phone: (925) 681-2731 FAX: (925) 681-2733

INSTALLATION CONTRACTORS NAME & ADDRESS:

W. BRADLEY ELECTRIC, INC.
90 Hill Road,
Novato, CA 94945
Tel (415) 898-1400 Fax (415) 898-5991

PRODUCT MANUFACTURER:

Siemens Industry, Inc.
Fire Safety Division
25821 Industrial Boulevard, Suite 300
Hayward, California 94545-2991
Tel (510) 783-6000 Fax (510) 293-2100
California State C10 License No. 758796
U.L. Certificate ID No. 324787-001

JOB NAME & LOCATION (STREET ADDRESS):

UNIVERSITY OF CALIFORNIA
LAWRENCE BERKELEY NATIONAL LABORATORY
BERKELEY LAB FACILITIES DIVISION

BUILDING 74
FIRE ALARM

LBNL SEISMIC
PHASE 2

One Cyclotron Road,
Berkeley, California 94720

SHEET CONTENTS:

ASPIRE 2 INSTALLATION DATA PACK

INSTALLATION TYPE

- ☐ NEW INSTALLATION
- ☐ DESIGN/BUILD
- ☐ PER CONTRACT DOCUMENT
- ☐ EXISTING BASE JOB # N/A
- ☐ OTHERS

SYSTEM SALES REP.:	Kevin Waxman
PROJECT MANAGER:	Mark Millard
DRAWN BY:	JPM
CAD FILENAME:	FA-21
SCALE:	Not Applicable
DATE DRAWN: March 15, 2010	PLOT DATE: March 27, 2014
SHEET: FA-21	JOB NUMBER: 44OP-069681

DRAWING NO. 6N74E346

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