HVAC DUCT DESIGN

Duct Design Estimate

For

DEAD SEA COMPLEX RESTURANT-K

By

CC

01-03-2000

DUCT SIZING AND SIZING PARAMETERS

Duct Design Program Date : 01-03-00

6052290223

System name : DSC REST-KITCHEN

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7. Section Sizing Results

Section Number	From Section	Width (mm)	Hgt./Dia. (mm)	Volume (l/s)	Velocity (m/s)
1	Fan	1050.00	500.00	3137.60	6.97
2	1	700.00	500.00	2274.76	6.50
3	2	650.00	500.00	2117.88	6.52
4	3	600.00	500.00	1961.00	6.54
5	4	550.00	500.00	1804.12	6.56
6	5	550.00	500.00	1647.24	5.99
7	6	500.00	500.00	1568.80	6.27
8	7	550.00	450.00	1411.92	5.70
9	8	500.00	450.00	1255.04	5.58
10	9	500.00	400.00	1098.16	5.49
11	10	450.00	400.00	941.28	5.23
12	11	450.00	350.00	784.40	4.98
.3	12	350.00	350.00	627.52	5.12
14	13	350.00	300.00	470.64	4.48
15	14	300.00	250.00	313.76	4.18
16	1	400.00	400.00	862.84	5.39
17	16	400.00	350.00	705.96	5.04
18	17	400.00	300.00	549.08	4.57
19	18	300.00	300.00	392.20	4.36
20	19	300.00	250.00	313.76	4.18
21	20	----------	250.00	156.88	3.20
22	20	----------	250.00	156.88	3.20
23	19	----------	180.00	78.44	3.08
24	18	----------	250.00	156.88	3.20
25	17	----------	250.00	156.88	3.20
26	16	----------	250.00	156.88	3.20
27	2	----------	250.00	156.88	3.20
28	3	----------	250.00	156.88	3.20
29	4	----------	250.00	156.88	3.20
30	5	----------	250.00	156.88	3.20
31	6	----------	180.00	78.44	3.08
32	7	----------	250.00	156.88	3.20
33	8	----------	250.00	156.88	3.20
34	9	----------	250.00	156.88	3.20
35	10	----------	250.00	156.88	3.20
36	11	----------	250.00	156.88	3.20
37	12	----------	250.00	156.88	3.20
38	13	----------	250.00	156.88	3.20
39	14	----------	250.00	156.88	3.20
40	15	----------	250.00	156.88	3.20
41	15	----------	250.00	156.88	3.20

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8. Duct Sizing Parameters

Sizing Method : Equal Friction
Minimum Aspect Ratio : 1
Friction Rate : 0.82

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BILL OF MATERIALS PRINTOUT

Duct Design Program Date : 01-03-00

6052290223

System name : DSC REST-KITCHEN

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9. Bill of Materials

Section Number	Width (mm)	Hgt/Dia (mm)	Length (m)	Material	Area (m*2)	Junction Type	Junction No	Elbow Type
1	1050	500	4	Gal. Steel	12	A	0	----
2	700	500	2	Gal. Steel	4	D	0	----
3	650	500	1	Gal. Steel	3	D	0	----
4	600	500	1	Gal. Steel	3	D	0	----
5	550	500	1	Gal. Steel	3	D	0	----
6	550	500	1	Gal. Steel	2	D	0	----
7	500	500	3	Gal. Steel	5	D	1	CC
8	550	450	1	Gal. Steel	3	D	0	----
9	500	450	1	Gal. Steel	2	D	0	----
10	500	400	1	Gal. Steel	2	D	0	----
11	450	400	1	Gal. Steel	2	D	1	CC
12	450	350	1	Gal. Steel	2	D	0	----
	350	350	1	Gal. Steel	1	D	0	----
14	350	300	1	Gal. Steel	2	D	0	----
15	300	250	1	Gal. Steel	1	D	0	----
16	400	400	1	Gal. Steel	2	D	1	CC
17	400	350	1	Gal. Steel	1	D	0	----
18	400	300	1	Gal. Steel	1	D	0	----
19	300	300	2	Gal. Steel	2	D	0	----
20	300	250	1	Gal. Steel	1	D	0	----
21	------	250	1	Gal. Steel	1	H	1	CC
22	------	250	1	Gal. Steel	1	H	1	CC
23	------	180	1	Gal. Steel	0	H	0	----
24	------	250	1	Gal. Steel	1	H	0	----
25	------	250	1	Gal. Steel	1	H	0	----
26	------	250	1	Gal. Steel	1	H	0	----
27	------	250	1	Gal. Steel	1	H	0	----
28	------	250	1	Gal. Steel	1	H	0	----
29	------	250	1	Gal. Steel	1	H	0	----
30	------	250	1	Gal. Steel	1	H	0	----
31	------	180	1	Gal. Steel	0	H	0	----
32	------	250	1	Gal. Steel	1	H	0	----
33	------	250	1	Gal. Steel	1	H	0	----
34	------	250	1	Gal. Steel	1	H	0	----
35	------	250	1	Gal. Steel	1	H	0	----
36	------	250	1	Gal. Steel	1	H	0	----
37	------	250	1	Gal. Steel	1	H	0	----
38	------	250	1	Gal. Steel	1	H	0	----
39	------	250	1	Gal. Steel	1	H	0	----
40	------	250	1	Gal. Steel	1	H	0	----
41	------	250	2	Gal. Steel	2	H	1	CC

Total Area : 68

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PRESSURE CALCULATION PRINTOUT

Duct Design Program Date : 01-03-00

6052290223

System name : DSC REST-KITCHEN

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10. Section Pressure Calculation Results

Section Number	From Section	Velocity (m/s)	--- Pressure Loss -- Junction C-Value	Static (Pa)	Velocity (Pa)	Balance (Pa)
1	Fan	6.97	0.26	3.80	7.75	0.00
2	1	6.50	0.53	1.11	15.39	0.00
3	2	6.52	-0.01	0.85	-0.25	0.00
4	3	6.54	-0.01	0.98	-0.26	0.00
5	4	6.56	-0.01	1.03	-0.26	0.00
6	5	5.99	-0.01	0.80	-0.26	0.00
7	6	6.27	-0.01	2.10	4.76	0.00
8	7	5.70	-0.01	1.00	-0.24	0.13
9	8	5.58	-0.01	0.94	-0.24	0.00
10	9	5.49	-0.01	0.83	-0.28	0.00
11	10	5.23	-0.00	0.96	3.45	0.00
2	11	4.98	0.01	0.88	0.15	0.00
13	12	5.12	-0.01	0.81	-0.22	0.00
14	13	4.48	-0.04	0.93	-0.59	3.24
15	14	4.18	-0.03	1.01	-0.41	0.00
16	1	5.39	0.09	1.00	6.28	25.00
17	16	5.04	-0.00	0.56	-0.02	1.60
18	17	4.57	-0.03	0.67	-0.40	0.72
19	18	4.36	-0.04	1.45	-0.46	0.00
20	19	4.18	-0.01	0.75	-0.09	0.00
21	20	3.20	0.03	0.79	1.58	12.65
22	20	3.20	1.26	0.45	14.56	0.00
23	19	3.08	1.21	0.63	13.86	11.61
24	18	3.20	1.11	0.45	14.04	2.17
25	17	3.20	1.12	0.45	17.21	0.00
26	16	3.20	1.11	0.45	19.35	0.00
27	2	3.20	1.07	0.45	27.20	7.93
28	3	3.20	1.07	0.45	27.32	7.21
29	4	3.20	1.07	0.45	27.46	6.34
30	5	3.20	1.07	0.45	27.63	5.39
31	6	3.08	1.08	0.63	23.42	19.31
32	7	3.20	1.08	0.45	25.62	0.00
33	8	3.20	1.11	0.45	21.78	2.95
34	9	3.20	1.12	0.45	20.90	3.14
35	10	3.20	1.12	0.45	20.23	3.25
36	11	3.20	1.12	0.45	18.47	0.61
37	12	3.20	1.14	0.45	17.08	0.96
38	13	3.20	1.10	0.45	17.45	0.00
39	14	3.20	1.11	0.45	13.44	0.43
40	15	3.20	1.26	0.45	13.27	0.00
41	15	3.20	0.03	1.13	1.58	11.02

System static pressure : 140.52 Pa
System total pressure : 169.78 Pa
Fan velocity : 6.97 m/s

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DETAILED PRESSURE CALCULATION PRINTOUT

Duct Design Program — Date : 01-03-00

RAE & ASSOC. / ENGINEERS — 6052290223

System name : [illegible] —

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11. Detailed Circuit Summary ---- Circuit number 21

Section Number	Width mm	Dia	Hgt mm	Air Flow l/s	Vel m/s	Max Press - Static Pa	Total Pa	Static Loss -- Fric Pa	Ftngs Pa	Total Pa	Bal Pa
21	-------		250	157	3	42.37	48.51	0.79	-15.46	-14.67	12.65
20	300		250	314	4	51.29	61.83	0.75	11.66	12.42	0.00
19	300		300	392	4	51.38	62.81	1.45	-1.63	-0.19	0.00
18	400		300	549	5	50.49	63.09	0.67	-3.82	-3.15	0.72
17	400		350	706	5	49.05	64.35	0.56	-3.09	-2.53	1.60
16	400		400	863	5	55.73	73.23	1.00	-28.88	-27.88	25.00
1	1050		500	3138	7	80.52	109.78	3.80	32.75	36.55	0.00

Static Total	0.55
Total balancing	39.97
Outlet loss	40.00
System effect	60.00
Circuit total	140.52

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Duct Design Estimate

For

DEAD SEA COMPLEX-EXHIBITION

By

CC

01-03-2000

7. Section Sizing Results

Section Number	From Section	Width (mm)	Hgt./Dia. (mm)	Volume (l/s)	Velocity (m/s)
1	Fan	750.00	700.00	3332.99	7.32
2	1	700.00	650.00	3265.76	7.18
3	2	700.00	650.00	3198.54	7.03
4	3	700.00	650.00	3131.31	6.88
5	4	700.00	650.00	3064.09	6.73
6	5	700.00	600.00	2996.87	7.13
7	6	700.00	600.00	2929.64	6.97
8	7	650.00	600.00	2862.42	7.34
9	8	650.00	600.00	2795.19	7.17
10	9	650.00	600.00	2727.97	6.99
11	10	650.00	600.00	2660.75	6.82
12	11	650.00	600.00	2593.52	6.65
.3	12	650.00	600.00	2526.30	6.48
14	13	650.00	550.00	2459.07	6.88
15	14	650.00	550.00	2391.85	6.69
16	15	650.00	550.00	2324.63	6.50
17	16	600.00	550.00	2257.40	6.84
18	17	600.00	550.00	2190.18	6.64
19	18	600.00	550.00	2122.95	6.43
20	19	550.00	550.00	2055.73	6.79
21	20	550.00	550.00	1988.51	6.57
22	21	550.00	550.00	1921.28	6.35
23	22	550.00	550.00	1854.06	6.13
24	23	550.00	500.00	1786.83	6.50
25	24	550.00	500.00	1719.61	6.25
26	25	550.00	500.00	1652.39	6.01
27	26	550.00	500.00	1613.38	5.87
28	27	500.00	500.00	1546.15	6.18
29	28	500.00	500.00	1478.93	5.91
30	29	500.00	500.00	1411.70	5.65
31	30	500.00	450.00	1344.48	5.97
32	31	500.00	450.00	1277.26	5.68
33	32	450.00	450.00	1210.03	5.97
34	33	450.00	450.00	1142.81	5.64
35	34	450.00	450.00	1075.58	5.31
36	35	450.00	400.00	1008.36	5.60
37	36	450.00	400.00	941.14	5.23
38	37	400.00	400.00	873.91	5.46
39	38	400.00	400.00	806.69	5.04
40	39	400.00	350.00	739.46	5.28
41	40	400.00	350.00	672.24	4.80
42	41	350.00	350.00	605.02	4.94
43	42	350.00	350.00	537.79	4.39
44	43	350.00	300.00	470.57	4.48
45	44	300.00	300.00	403.34	4.48
46	45	300.00	300.00	336.12	3.73
47	46	250.00	250.00	268.90	4.30
48	47	250.00	250.00	201.67	3.23
49	48	200.00	200.00	134.45	3.36
50	49	----------	180.00	67.22	2.64

7. Section Sizing Results

Section Number	From Section	Width (mm)	Hgt./Dia. (mm)	Volume (l/s)	Velocity (m/s)
51	49	----------	180.00	67.22	2.64
52	48	----------	180.00	67.22	2.64
53	47	----------	180.00	67.22	2.64
54	46	----------	180.00	67.22	2.64
55	45	----------	180.00	67.22	2.64
56	44	----------	180.00	67.22	2.64
57	43	----------	180.00	67.22	2.64
58	42	----------	180.00	67.22	2.64
59	41	----------	180.00	67.22	2.64
60	40	----------	180.00	67.22	2.64
61	39	----------	180.00	67.22	2.64
62	38	----------	180.00	67.22	2.64
63	37	----------	180.00	67.22	2.64
64	36	----------	180.00	67.22	2.64
65	35	----------	180.00	67.22	2.64
66	34	----------	180.00	67.22	2.64
67	33	----------	180.00	67.22	2.64
68	32	----------	180.00	67.22	2.64
69	31	----------	180.00	67.22	2.64
70	30	----------	180.00	67.22	2.64
71	29	----------	180.00	67.22	2.64
72	28	----------	180.00	67.22	2.64
73	27	----------	180.00	67.22	2.64
74	26	----------	140.00	39.01	2.53
75	25	----------	180.00	67.22	2.64
76	24	----------	180.00	67.22	2.64
77	23	----------	180.00	67.22	2.64
78	22	----------	180.00	67.22	2.64
79	21	----------	180.00	67.22	2.64
80	20	----------	180.00	67.22	2.64
81	19	----------	180.00	67.22	2.64
82	18	----------	180.00	67.22	2.64
83	17	----------	180.00	67.22	2.64
84	16	----------	180.00	67.22	2.64
85	15	----------	180.00	67.22	2.64
86	14	----------	180.00	67.22	2.64
87	13	----------	180.00	67.22	2.64
88	12	----------	180.00	67.22	2.64
89	11	----------	180.00	67.22	2.64
90	10	----------	180.00	67.22	2.64
91	9	----------	180.00	67.22	2.64
92	8	----------	180.00	67.22	2.64
93	7	----------	180.00	67.22	2.64
94	6	----------	180.00	67.22	2.64
95	5	----------	180.00	67.22	2.64
96	4	----------	180.00	67.22	2.64
97	3	----------	180.00	67.22	2.64
98	2	----------	180.00	67.22	2.64
99	1	----------	180.00	67.22	2.64

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8. Duct Sizing Parameters

Sizing Method : Equal Friction
Minimum Aspect Ratio : 1
Friction Rate : 0.82

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9. Bill of Materials

Section Number	Width (mm)	Hgt/Dia (mm)	Length (m)	Material	Area (m*2)	Junction Type	No	Elbow Type
1	750	700	13	Gal. Steel	36	A	1	CC
2	700	650	1	Gal. Steel	2	D	0	----
3	700	650	1	Gal. Steel	1	D	0	----
4	700	650	1	Gal. Steel	2	D	0	----
5	700	650	1	Gal. Steel	2	D	0	----
6	700	600	1	Gal. Steel	2	D	0	----
7	700	600	1	Gal. Steel	1	D	0	----
8	650	600	1	Gal. Steel	2	D	0	----
9	650	600	0	Gal. Steel	1	D	0	----
10	650	600	1	Gal. Steel	2	D	0	----
11	650	600	1	Gal. Steel	1	D	0	----
?	650	600	1	Gal. Steel	2	D	0	----
	650	600	1	Gal. Steel	1	D	0	----
14	650	550	1	Gal. Steel	2	D	0	----
15	650	550	1	Gal. Steel	1	D	0	----
16	650	550	1	Gal. Steel	2	D	0	----
17	600	550	0	Gal. Steel	1	D	0	----
18	600	550	1	Gal. Steel	2	D	0	----
19	600	550	1	Gal. Steel	1	D	0	----
20	550	550	1	Gal. Steel	2	D	0	----
21	550	550	1	Gal. Steel	1	D	0	----
22	550	550	1	Gal. Steel	2	D	0	----
23	550	550	1	Gal. Steel	1	D	0	----
24	550	500	1	Gal. Steel	2	D	0	----
25	550	500	1	Gal. Steel	1	D	0	----
26	550	500	2	Gal. Steel	5	D	1	CC
27	550	500	1	Gal. Steel	2	D	0	----
28	500	500	0	Gal. Steel	1	D	0	----
29	500	500	1	Gal. Steel	1	D	0	----
30	500	500	0	Gal. Steel	1	D	0	----
`1	500	450	1	Gal. Steel	2	D	0	----
,	500	450	1	Gal. Steel	1	D	0	----
33	450	450	1	Gal. Steel	2	D	0	----
34	450	450	1	Gal. Steel	1	D	0	----
35	450	450	1	Gal. Steel	2	D	0	----
36	450	400	1	Gal. Steel	1	D	0	----
37	450	400	1	Gal. Steel	1	D	0	----
38	400	400	1	Gal. Steel	1	D	0	----
39	400	400	1	Gal. Steel	2	D	0	----
40	400	350	1	Gal. Steel	1	D	0	----
41	400	350	1	Gal. Steel	1	D	0	----
42	350	350	1	Gal. Steel	1	D	0	----
43	350	350	1	Gal. Steel	1	D	0	----
44	350	300	1	Gal. Steel	1	D	0	----
45	300	300	1	Gal. Steel	1	D	0	----
46	300	300	1	Gal. Steel	1	D	0	----
47	250	250	1	Gal. Steel	1	D	0	----
48	250	250	1	Gal. Steel	1	D	0	----
49	200	200	1	Gal. Steel	1	D	0	----
50	------	180	1	Gal. Steel	0	H	1	CC

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9. Bill of Materials

Section Number	Width (mm)	Hgt/Dia (mm)	Length (m)	Material	Area (m*2)	Junction Type	Junction No	Elbow Type
51	------	180	0	Gal. Steel	0	H	0	----
52	------	180	0	Gal. Steel	0	H	0	----
53	------	180	0	Gal. Steel	0	H	0	----
54	------	180	0	Gal. Steel	0	H	0	----
55	------	180	0	Gal. Steel	0	H	0	----
56	------	180	0	Gal. Steel	0	H	0	----
57	------	180	0	Gal. Steel	0	H	0	----
58	------	180	0	Gal. Steel	0	H	0	----
59	------	180	0	Gal. Steel	0	H	0	----
60	------	180	0	Gal. Steel	0	H	0	----
61	------	180	0	Gal. Steel	0	H	0	----
62	------	180	0	Gal. Steel	0	H	0	----
63	------	180	0	Gal. Steel	0	H	0	----
64	------	180	0	Gal. Steel	0	H	0	----
65	------	180	0	Gal. Steel	0	H	0	----
66	------	180	0	Gal. Steel	0	H	0	----
67	------	180	0	Gal. Steel	0	H	0	----
68	------	180	0	Gal. Steel	0	H	0	----
69	------	180	0	Gal. Steel	0	H	0	----
70	------	180	0	Gal. Steel	0	H	0	----
71	------	180	0	Gal. Steel	0	H	0	----
72	------	180	0	Gal. Steel	0	H	0	----
73	------	180	0	Gal. Steel	0	H	0	----
74	------	140	0	Gal. Steel	0	H	0	----
75	------	180	0	Gal. Steel	0	H	0	----
76	------	180	0	Gal. Steel	0	H	0	----
77	------	180	0	Gal. Steel	0	H	0	----
78	------	180	0	Gal. Steel	0	H	0	----
79	------	180	0	Gal. Steel	0	H	0	----
80	------	180	0	Gal. Steel	0	H	0	----
81	------	180	0	Gal. Steel	0	H	0	----
82	------	180	0	Gal. Steel	0	H	0	----
83	------	180	0	Gal. Steel	0	H	0	----
84	------	180	0	Gal. Steel	0	H	0	----
85	------	180	0	Gal. Steel	0	H	0	----
86	------	180	0	Gal. Steel	0	H	0	----
87	------	180	0	Gal. Steel	0	H	0	----
88	------	180	0	Gal. Steel	0	H	0	----
89	------	180	0	Gal. Steel	0	H	0	----
90	------	180	0	Gal. Steel	0	H	0	----
91	------	180	0	Gal. Steel	0	H	0	----
92	------	180	0	Gal. Steel	0	H	0	----
93	------	180	0	Gal. Steel	0	H	0	----
94	------	180	0	Gal. Steel	0	H	0	----
95	------	180	0	Gal. Steel	0	H	0	----
96	------	180	0	Gal. Steel	0	H	0	----
97	------	180	0	Gal. Steel	0	H	0	----
98	------	180	0	Gal. Steel	0	H	0	----
99	------	180	0	Gal. Steel	0	H	0	----

BILL OF MATERIALS PRINTOUT

Duct Design Program Date : 01-03-00

6052290223

System name : DSC EXHIBITION

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Total Area : 112

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10. Section Pressure Calculation Results

Section Number	From Section	Velocity (m/s)	--- Pressure Loss -- Junction C-Value	Static (Pa)	Velocity (Pa)	Balance (Pa)
1	Fan	7.32	0.26	12.27	15.34	0.00
2	1	7.18	-0.01	0.67	-0.32	0.00
3	2	7.03	-0.01	0.36	-0.31	0.00
4	3	6.88	-0.01	0.55	-0.30	0.00
5	4	6.73	-0.01	0.40	-0.29	0.00
6	5	7.13	-0.01	0.62	-0.27	0.00
7	6	6.97	-0.01	0.37	-0.31	0.00
8	7	7.34	-0.01	0.68	-0.29	0.00
9	8	7.17	-0.01	0.33	-0.32	0.00
10	9	6.99	-0.01	0.63	-0.31	0.00
11	10	6.82	-0.01	0.37	-0.29	0.00
12	11	6.65	-0.01	0.57	-0.28	0.00
13	12	6.48	-0.01	0.34	-0.27	0.00
14	13	6.88	-0.01	0.64	-0.25	0.00
15	14	6.69	-0.01	0.38	-0.28	0.00
16	15	6.50	-0.01	0.58	-0.27	0.00
17	16	6.84	-0.01	0.33	-0.25	0.00
18	17	6.64	-0.01	0.71	-0.28	0.00
19	18	6.43	-0.01	0.37	-0.27	0.00
20	19	6.79	-0.01	0.69	-0.25	0.00
21	20	6.57	-0.01	0.41	-0.28	0.00
22	21	6.35	-0.01	0.61	-0.26	0.00
23	22	6.13	-0.01	0.43	-0.24	0.00
24	23	6.50	-0.01	0.68	-0.23	0.00
25	24	6.25	-0.01	0.39	-0.25	0.00
26	25	6.01	-0.01	1.68	4.33	0.00
27	26	5.87	-0.01	0.56	-0.22	0.00
28	27	6.18	-0.01	0.33	-0.21	0.00
29	28	5.91	-0.01	0.45	-0.23	0.00
30	29	5.65	-0.01	0.28	-0.21	0.00
31	30	5.97	-0.01	0.66	-0.19	0.00
32	31	5.68	-0.01	0.37	-0.21	0.00
33	32	5.97	-0.01	0.87	-0.19	0.00
34	33	5.64	-0.01	0.39	-0.21	1.40
35	34	5.31	-0.01	0.70	-0.19	0.00
36	35	5.60	-0.01	0.42	-0.17	0.00
37	36	5.23	-0.01	0.59	-0.19	0.18
38	37	5.46	-0.01	0.43	-0.16	0.00
39	38	5.04	-0.01	0.74	-0.18	0.22
40	39	5.28	-0.01	0.44	-0.15	0.00
41	40	4.80	-0.01	0.59	-0.17	1.17
42	41	4.94	-0.01	0.50	-0.14	0.00
43	42	4.39	-0.01	0.54	-0.18	1.27
44	43	4.48	-0.01	0.46	-0.17	0.00
45	44	4.48	0.01	0.68	0.09	0.00
46	45	3.73	-0.01	0.30	-0.11	0.36
47	46	4.30	-0.01	0.69	-0.07	0.00
48	47	3.23	-0.04	0.35	-0.43	3.36
49	48	3.36	-0.03	0.57	-0.18	0.00
50	49	2.64	0.02	0.30	1.04	7.41

10. Section Pressure Calculation Results

Section Number	From Section	Velocity (m/s)	--- Pressure Loss -- Junction C-Value	Static (Pa)	Velocity (Pa)	Balance (Pa)
51	49	2.64	1.26	0.18	8.57	0.00
52	48	2.64	1.13	0.18	7.09	1.87
53	47	2.64	1.10	0.18	12.24	0.00
54	46	2.64	1.21	0.18	10.18	2.68
55	45	2.64	1.11	0.18	13.42	0.00
56	44	2.64	1.12	0.18	13.52	0.67
57	43	2.64	1.13	0.18	13.12	1.36
58	42	2.64	1.10	0.18	16.10	0.00
59	41	2.64	1.11	0.18	15.37	1.10
60	40	2.64	1.08	0.18	18.05	0.00
61	39	2.64	1.09	0.18	16.69	1.65
2	38	2.64	1.06	0.18	19.11	0.00
63	37	2.64	1.08	0.18	17.74	1.63
64	36	2.64	1.06	0.18	19.96	0.00
65	35	2.64	1.07	0.18	18.23	1.98
66	34	2.64	1.05	0.18	20.21	0.51
67	33	2.64	1.04	0.18	22.29	0.00
68	32	2.64	1.05	0.18	20.41	2.56
69	31	2.64	1.04	0.18	22.29	0.84
70	30	2.64	1.05	0.18	20.23	3.37
71	29	2.64	1.04	0.18	21.91	1.75
72	28	2.64	1.03	0.18	23.66	0.23
73	27	2.64	1.04	0.18	21.60	2.40
74	26	2.53	1.02	0.22	22.26	2.38
75	25	2.64	1.02	0.18	24.11	6.25
76	24	2.64	1.01	0.18	25.77	4.73
77	23	2.64	1.03	0.18	23.29	7.66
78	22	2.64	1.02	0.18	24.77	6.36
79	21	2.64	1.01	0.18	26.30	5.19
80	20	2.64	1.01	0.18	28.06	3.56
1	19	2.64	1.02	0.18	25.33	6.73
82	18	2.64	1.01	0.18	26.78	5.39
83	17	2.64	1.01	0.18	28.43	4.17
84	16	2.64	1.01	0.18	25.81	6.86
85	15	2.64	1.01	0.18	27.21	5.77
86	14	2.64	1.01	0.18	28.74	4.34
87	13	2.64	1.02	0.18	25.64	7.83
88	12	2.64	1.01	0.18	26.88	6.66
89	11	2.64	1.01	0.18	28.28	5.55
90	10	2.64	1.01	0.18	29.71	4.20
91	9	2.64	1.01	0.18	31.18	3.04
92	8	2.64	1.01	0.18	32.68	1.54
93	7	2.64	1.01	0.18	29.55	5.07
94	6	2.64	1.01	0.18	30.91	3.78
95	5	2.64	1.01	0.18	27.56	7.47
96	4	2.64	1.01	0.18	28.77	6.37
97	3	2.64	1.01	0.18	30.01	5.39
98	2	2.64	1.01	0.18	31.27	4.18
99	1	2.64	1.01	0.18	32.56	3.24

PRESSURE CALCULATION PRINTOUT

Duct Design Program Date : 01-03-00

6052290223

System name : DSC EXHIBITION

****

System static pressure : 113.48 Pa
System total pressure : 145.78 Pa
Fan velocity : 7.32 m/s

****

DETAILED PRESSURE CALCULATION PRINTOUT

Duct Design Program Date : 01-03-00

6052290223

System name : DSC EXHIBITION

****

11. Detailed Circuit Summary ---- Circuit number 50

lection Number	Width Dia mm	Hgt mm	Air Flow l/s	Vel - Max Press - Static m/s	Total --- Pa	-- Static Loss -- Fric --	Ftngs ----- Pa	Total ----- Pa	Bal ----- Pa
50	-------	180	67	3 19.33	23.53	0.30	-8.97	-8.68	7.41
49	200	200	134	3 24.54	31.34	0.57	7.76	8.34	0.00
48	250	250	202	3 24.99	31.26	0.35	-8.66	-8.31	3.36
47	250	250	269	4 24.10	35.24	0.69	6.04	6.73	0.00
46	300	300	336	4 27.04	35.43	0.30	-4.17	-3.86	0.36
45	300	300	403	4 24.48	36.57	0.68	0.46	1.13	0.00
44	350	300	471	4 24.77	36.86	0.46	0.31	0.78	0.00
43	350	350	538	4 25.62	37.22	0.54	-4.53	-3.99	1.27
42	350	350	605	5 24.16	38.85	0.50	1.93	2.43	0.00
41	400	350	672	5 25.39	39.27	0.59	-4.25	-3.66	1.17
	400	350	739	5 23.92	40.72	0.44	2.50	2.94	0.00
	400	400	807	5 25.98	41.28	0.74	-3.05	-2.31	0.22
38	400	400	874	5 23.80	41.75	0.43	1.55	1.98	0.00
37	450	400	941	5 25.70	42.15	0.59	-2.80	-2.22	0.18
36	450	400	1008	6 23.69	42.58	0.42	1.92	2.34	0.00
35	450	450	1076	5 26.11	43.10	0.70	-2.38	-1.68	0.00
34	450	450	1143	6 24.10	43.27	0.39	-3.94	-3.54	1.40
33	450	450	1210	6 23.86	45.35	0.87	3.30	4.18	0.00
32	500	450	1277	6 26.12	45.51	0.37	-2.31	-1.94	0.00
31	500	450	1344	6 24.48	45.98	0.66	2.11	2.76	0.00
30	500	500	1412	6 26.85	46.04	0.28	-2.08	-1.81	0.00
29	500	500	1479	6 25.20	46.26	0.45	-2.19	-1.74	0.00
28	500	500	1546	6 23.36	46.38	0.33	2.10	2.43	0.00
27	550	500	1613	6 26.01	46.73	0.56	-1.23	-0.67	0.00
26	550	500	1652	6 31.01	52.74	1.68	2.52	4.21	0.00
25	550	500	1720	6 29.34	52.88	0.39	-2.13	-1.74	0.00
24	550	500	1787	6 27.92	53.33	0.68	2.57	3.25	0.00
23	550	550	1854	6 30.91	53.52	0.43	-1.91	-1.48	0.00
22	550	550	1921	6 29.59	53.87	0.61	-1.99	-1.38	0.00
	550	550	1989	7 27.99	54.00	0.41	-2.07	-1.66	0.00
	550	550	2056	7 26.64	54.44	0.69	2.64	3.33	0.00
19	600	550	2123	6 29.64	54.55	0.37	-1.87	-1.50	0.00
18	600	550	2190	7 28.46	54.97	0.71	-1.93	-1.23	0.00
17	600	550	2257	7 26.88	55.05	0.33	2.46	2.79	0.00
16	650	550	2325	7 29.91	55.36	0.58	-1.76	-1.18	0.00
15	650	550	2392	7 28.51	55.46	0.38	-1.82	-1.44	0.00
14	650	550	2459	7 27.37	55.84	0.64	2.97	3.61	0.00
13	650	600	2526	6 30.66	55.92	0.34	-1.63	-1.29	0.00
12	650	600	2594	7 29.59	56.21	0.57	-1.68	-1.11	0.00
11	650	600	2661	7 28.27	56.29	0.37	-1.73	-1.35	0.00
10	650	600	2728	7 27.15	56.60	0.63	-1.78	-1.15	0.00
9	650	600	2795	7 25.69	56.60	0.33	-1.83	-1.50	0.00
8	650	600	2862	7 24.57	56.99	0.68	2.85	3.53	0.00
7	700	600	2930	7 27.77	57.06	0.37	-1.67	-1.29	0.00
6	700	600	2997	7 26.76	57.41	0.62	3.08	3.70	0.00
5	700	650	3064	7 30.23	57.52	0.40	-1.50	-1.10	0.00
4	700	650	3131	7 29.27	57.78	0.55	-1.53	-0.98	0.00
3	700	650	3199	7 28.08	57.82	0.36	-1.57	-1.21	0.00
2	700	650	3266	7 27.16	58.17	0.67	-1.61	-0.94	0.00
1	750	700	3333	7 53.48	85.78	12.27	15.34	27.61	0.00

****

DETAILED PRESSURE CALCULATION PRINTOUT

Duct Design Program Date : 01-03-00

6052290223

System name : DSC EXHIBITION

****

11. Detailed Circuit Summary ---- Circuit number 50

Section Number	Width Dia mm	Hgt mm	Air Flow l/s	Vel - Max Press - Static Total m/s --- Pa	Fric --	Static Loss -- Ftngs ----- Pa	Total ----- Pa	Bal Pa
				Static Total			20.12	
				Total balancing			15.36	
				Outlet loss			18.00	
				System effect			60.00	
				Circuit total			113.48	

****

Duct Design Estimate

For

DEAD SEA COMPLEX-CONFERENCE

By

CC

02-03-2000

DUCT SIZING AND SIZING PARAMETERS

Duct Design Program Date : 01-03-00

6052290223

System name : DSC CONFERENCE

****

7. Section Sizing Results

Section Number	From Section	Width (mm)	Hgt./Dia. (mm)	Volume (l/s)	Velocity (m/s)
1	Fan	600.00	500.00	1535.00	6.20
2	1	550.00	450.00	1412.20	5.70
3	2	500.00	450.00	1289.40	5.73
4	3	450.00	450.00	1166.60	5.76
5	4	450.00	400.00	1043.80	5.80
6	5	450.00	400.00	921.00	5.12
7	6	450.00	350.00	798.20	5.07
8	7	400.00	350.00	736.80	5.26
9	8	350.00	350.00	614.00	5.01
10	9	350.00	300.00	491.20	4.68
11	10	350.00	250.00	368.40	4.21
12	11	250.00	250.00	245.60	3.93
13	12	----------	200.00	122.80	3.91
14	12	----------	200.00	122.80	3.91
15	11	----------	200.00	122.80	3.91
16	10	----------	200.00	122.80	3.91
17	9	----------	200.00	122.80	3.91
18	8	----------	200.00	122.80	3.91
19	7	----------	160.00	61.40	3.05
20	6	----------	200.00	122.80	3.91
21	5	----------	200.00	122.80	3.91
22	4	----------	200.00	122.80	3.91
23	3	----------	200.00	122.80	3.91
24	2	----------	200.00	122.80	3.91
25	1	----------	200.00	122.80	3.91

****

8. Duct Sizing Parameters

Sizing Method : Equal Friction

Minimum Aspect Ratio : 1

ction Rate : 0.82

****

BILL OF MATERIALS PRINTOUT

Duct Design Program Date : 01-03-00

6052290223

System name : DSC CONFERENCE

****

9. Bill of Materials

Section Number	Width (mm)	Hgt/Dia (mm)	Length (m)	Material	Area (m*2)	Junction Type	No	Elbow Type
1	600	500	12	Gal. Steel	25	A	1	CC
2	550	450	1	Gal. Steel	3	D	0	----
3	500	450	1	Gal. Steel	2	D	0	----
4	450	450	1	Gal. Steel	2	D	0	----
5	450	400	1	Gal. Steel	2	D	0	----
6	450	400	1	Gal. Steel	2	D	0	----
7	450	350	3	Gal. Steel	5	D	1	CC
8	400	350	1	Gal. Steel	1	D	0	----
9	350	350	1	Gal. Steel	2	D	0	----
10	350	300	1	Gal. Steel	2	D	0	----
11	350	250	1	Gal. Steel	1	D	0	----
12	250	250	1	Gal. Steel	1	D	0	----
	------	200	2	Gal. Steel	1	H	1	CC
14	------	200	1	Gal. Steel	0	H	0	----
15	------	200	1	Gal. Steel	0	H	0	----
16	------	200	1	Gal. Steel	0	H	0	----
17	------	200	1	Gal. Steel	0	H	0	----
18	------	200	1	Gal. Steel	0	H	0	----
19	------	160	1	Gal. Steel	0	H	0	----
20	------	200	1	Gal. Steel	0	H	0	----
21	------	200	1	Gal. Steel	0	H	0	----
22	------	200	1	Gal. Steel	0	H	0	----
23	------	200	1	Gal. Steel	0	H	0	----
24	------	200	1	Gal. Steel	0	H	0	----
25	------	200	1	Gal. Steel	0	H	0	----

Total Area : 54

****

PRESSURE CALCULATION PRINTOUT

Duct Design Program Date : 01-03-00

6052290223

System name : DSC CONFERENCE

****

10. Section Pressure Calculation Results

Section Number	From Section	Velocity (m/s)	--- Pressure Loss -- Junction C-Value	Static (Pa)	Velocity (Pa)	Balance (Pa)
1	Fan	6.20	0.26	10.84	11.00	0.00
2	1	5.70	-0.01	0.93	-0.23	0.00
3	2	5.73	-0.01	0.76	-0.20	0.00
4	3	5.76	-0.01	0.98	-0.20	0.00
5	4	5.80	-0.01	1.16	-0.22	0.00
6	5	5.12	-0.01	0.99	-0.27	0.00
7	6	5.07	-0.02	2.51	2.98	0.00
8	7	5.26	-0.01	0.70	-0.15	0.00
9	8	5.01	-0.02	1.03	-0.32	0.18
10	9	4.68	-0.01	1.00	-0.19	2.50
11	10	4.21	-0.02	0.94	-0.25	2.91
12	11	3.93	-0.02	1.08	-0.26	0.04
13	12	3.91	0.00	1.93	1.94	8.38
14	12	3.91	1.26	0.54	11.71	0.00
15	11	3.91	1.18	0.54	12.58	0.00
16	10	3.91	1.23	0.54	16.18	0.00
17	9	3.91	1.29	0.54	19.49	0.00
18	8	3.91	1.22	0.54	20.39	0.00
19	7	3.05	1.14	0.45	17.63	6.97
20	6	3.91	1.21	0.54	19.00	7.41
21	5	3.91	1.16	0.54	23.46	3.68
22	4	3.91	1.16	0.54	23.12	4.96
23	3	3.91	1.16	0.54	22.86	5.99
24	2	3.91	1.16	0.54	22.67	6.74
25	1	3.91	1.15	0.54	26.53	3.58

System static pressure : 127.54 Pa
System total pressure : 150.69 Pa
Fan velocity : 6.20 m/s

****

DETAILED PRESSURE CALCULATION PRINTOUT

Duct Design Program Date : 01-03-00

6052290223

System name : DSC CONFERENCE

****

11. Detailed Circuit Summary ---- Circuit number 13

ection Number	Width Dia mm	Hgt mm	Air Flow l/s	Vel m/s	Max Press - Static Pa	Total Pa	Static Loss -- Fric --	Ftngs ----- Pa	Total ----- Pa	Bal Pa
13	-------	200	123	4	32.87	42.07	1.93	-6.54	-4.61	8.38
12	250	250	246	4	41.97	51.27	1.08	6.70	7.78	0.04
11	350	250	368	4	41.33	52.00	0.94	-5.62	-4.68	2.91
10	350	300	491	5	42.55	55.72	1.00	-1.73	-0.73	2.50
9	350	350	614	5	43.81	58.93	1.03	0.44	1.48	0.18
8	400	350	737	5	42.99	59.66	0.70	1.24	1.94	0.00
7	450	350	798	5	49.69	65.15	2.51	2.69	5.19	0.00
6	450	400	921	5	50.11	65.87	0.99	-4.76	-3.77	0.00
5	450	400	1044	6	46.56	66.80	1.16	0.04	1.20	0.00
4	450	450	1167	6	47.61	67.59	0.98	0.01	0.99	0.00
^	500	450	1289	6	48.38	68.15	0.76	-0.03	0.73	0.00
	550	450	1412	6	49.25	68.85	0.93	-3.79	-2.86	0.00
1	600	500	1535	6	67.54	90.69	10.84	11.00	21.84	0.00

Static Total	24.52
Total balancing	14.02
Outlet loss	29.00
System effect	60.00
Circuit total	127.54

****

Duct Design Estimate

For

DSC CORRIDOR

By

CC

04-03-2000

DUCT SIZING AND SIZING PARAMETERS

Duct Design Program Date : 04-03-00

6052290223

System name : CORRID0R

****

7. Section Sizing Results

Section Number	From Section	Width (mm)	Hgt./Dia. (mm)	Volume (l/s)	Velocity (m/s)
1	Fan	450.00	400.00	943.22	5.24
2	1	400.00	400.00	838.40	5.24
3	2	350.00	350.00	628.80	5.13
4	3	300.00	300.00	419.20	4.66
5	4	----------	250.00	209.60	4.27
6	4	----------	250.00	209.60	4.27
7	3	----------	250.00	209.60	4.27
8	2	----------	250.00	209.60	4.27
9	1	----------	200.00	104.82	3.34

****

Duct Sizing Parameters

Sizing Method : Equal Friction

Minimum Aspect Ratio : 1

Friction Rate : 0.82

****

BILL OF MATERIALS PRINTOUT

Duct Design Program Date : 04-03-00

6052290223

System name : CORRIDOR

****

9. Bill of Materials

Section Number	Width (mm)	Hgt/Dia (mm)	Length (m)	Material	Area (m*2)	Junction Type	Junction No	Elbow Type
1	450	400	1	Gal. Steel	2	A	0	----
2	400	400	1	Gal. Steel	2	D	0	----
3	350	350	1	Gal. Steel	2	D	0	----
4	300	300	1	Gal. Steel	2	D	0	----
5	------	250	1	Gal. Steel	1	H	1	CC
6	------	250	1	Gal. Steel	0	H	0	----
7	------	250	1	Gal. Steel	0	H	0	----
8	------	250	1	Gal. Steel	0	H	0	----
9	------	200	1	Gal. Steel	0	H	0	----

Total Area : 10

****

PRESSURE CALCULATION PRINTOUT

Duct Design Program Date : 04-03-00

6052290223

System name : CORRID0R

****

10. Section Pressure Calculation Results

Section Number	From Section	Velocity (m/s)	--- Pressure Loss -- Junction C-Value	Static (Pa)	Velocity (Pa)	Balance (Pa)
1	Fan	5.24	0.26	0.96	4.38	0.00
2	1	5.24	-0.01	0.79	-0.20	0.00
3	2	5.13	-0.02	0.99	-0.33	1.48
4	3	4.66	-0.03	1.18	-0.43	0.83
5	4	4.27	0.01	1.35	2.41	13.17
6	4	4.27	1.26	0.48	16.45	0.00
7	3	4.27	1.14	0.48	18.03	0.00
8	2	4.27	1.22	0.48	20.17	0.00
9	1	3.34	1.15	0.40	18.95	6.17

System static pressure : 118.13 Pa

System total pressure : 134.66 Pa

Fan velocity : 5.24 m/s

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DETAILED PRESSURE CALCULATION PRINTOUT

Duct Design Program Date : 04-03-00

6052290223

System name : CORRID0R Page 4

****

11. Detailed Circuit Summary ---- Circuit number 5

Section Number	Width mm	Hgt Dia mm	Air Flow l/s	Vel m/s	Max Press - Static Pa	Total Pa	Static Loss -- Fric --	Ftngs ----- Pa	Total ----- Pa	Bal ----- Pa
5	-------	250	210	4	40.86	51.83	1.35	-12.85	-11.50	13.17
4	300	300	419	5	52.70	65.76	1.18	9.11	10.29	0.83
3	350	350	629	5	51.38	67.24	0.99	-1.65	-0.66	1.48
2	400	400	838	5	52.79	69.32	0.79	1.28	2.07	0.00
1	450	400	943	5	58.13	74.66	0.96	4.38	5.34	0.00

Static Total	5.54
Total balancing	15.49
Outlet loss	37.10
System effect	60.00
Circuit total	118.13

****

Duct Design Estimate

For

DSC LABORATORY

By

CC

04-03-2000

DUCT SIZING AND SIZING PARAMETERS

Duct Design Program Date : 04-03-00

6052290223

System name : DSC LABORATORY Page 1

****

7. Section Sizing Results

Section Number	From Section	Width (mm)	Hgt./Dia. (mm)	Volume (l/s)	Velocity (m/s)
1	Fan	350.00	250.00	377.10	4.31
2	1	250.00	250.00	251.40	4.02
3	2	----------	200.00	125.70	4.00
4	2	----------	200.00	125.70	4.00
5	1	----------	200.00	125.70	4.00

****

8. Duct Sizing Parameters

Sizing Method : Equal Friction

Minimum Aspect Ratio : 1

Friction Rate : 0.82

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BILL OF MATERIALS PRINTOUT

Duct Design Program Date : 04-03-00

6052290223

System name : DSC LABORATORY

****

9. Bill of Materials

Section Number	Width (mm)	Hgt/Dia (mm)	Length (m)	Material	Area (m*2)	Junction Type	Junction No	Elbow Type
1	350	250	2	Gal. Steel	2	A	1	CC
2	250	250	2	Gal. Steel	2	D	0	----
3	------	200	1	Gal. Steel	1	H	1	CC
4	------	200	0	Gal. Steel	0	H	0	----
5	------	200	0	Gal. Steel	0	H	0	----

Total Area : 6

****

PRESSURE CALCULATION PRINTOUT

Duct Design Program Date : 04-03-00

6052290223

System name : DSC LABORATORY

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10. Section Pressure Calculation Results

Section Number	From Section	Velocity (m/s)	--- Pressure Loss -- Junction C-Value	Static (Pa)	Velocity (Pa)	Balance (Pa)
1	Fan	4.31	0.26	1.63	5.31	0.00
2	1	4.02	-0.02	1.73	-0.27	0.00
3	2	4.00	0.00	1.35	2.03	0.00
4	2	4.00	0.00	0.45	0.01	2.92
5	1	4.00	0.01	0.45	0.08	4.31

System static pressure : 114.04 Pa
System total pressure : 125.22 Pa
Fan velocity : 4.31 m/s

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DETAILED PRESSURE CALCULATION PRINTOUT

Duct Design Program Date : 04-03-00

6052290223

System name : DSC LABORATORY

****

11. Detailed Circuit Summary ---- Circuit number 3

Section Number	Width Dia mm	Hgt mm	Air Flow l/s	Vel m/s	Max Press - Static Pa	Total Pa	Static Loss -- Fric --	Ftngs Pa	Total Pa	Bal Pa
3	-------	200	126	4	47.18	56.81	1.35	1.93	3.27	0.00
2	250	250	251	4	48.54	58.28	1.73	-1.71	0.03	0.00
1	350	250	377	4	54.04	65.22	1.63	5.31	6.94	0.00

Static Total	10.24
Total balancing	0.00
Outlet loss	43.80
System effect	60.00
Circuit total	114.04

****

Duct Design Estimate

For

DEAD SEA COMPLEX RESTURANT-T

By

CC

01-03-2000

DUCT SIZING AND SIZING PARAMETERS

Duct Design Program Date : 01-03-00

6052290223

System name : DSC REST-TOILETS

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7. Section Sizing Results

Section Number	From Section	Width (mm)	Hgt./Dia. (mm)	Volume (l/s)	Velocity (m/s)
1	Fan	1000.00	500.00	2980.72	6.97
2	1	500.00	400.00	1098.16	5.49
3	8	350.00	350.00	627.52	5.12
4	3	350.00	300.00	470.64	4.48
5	4	300.00	250.00	313.76	4.18
6	1	600.00	500.00	1882.56	6.27
7	2	450.00	400.00	941.28	5.23
8	7	450.00	350.00	784.40	4.98
9	6	550.00	500.00	1725.68	6.27
10	9	500.00	500.00	1568.80	6.27
11	10	550.00	450.00	1490.36	6.02
12	11	550.00	450.00	1411.92	5.70
3	12	500.00	450.00	1255.04	5.58
14	13	500.00	400.00	1098.16	5.49
15	14	450.00	400.00	941.28	5.23
16	15	450.00	350.00	784.40	4.98
17	16	350.00	350.00	627.52	5.12
18	17	350.00	300.00	470.64	4.48
19	18	300.00	250.00	313.76	4.18
20	19	250.00	200.00	156.88	3.14
21	20	----------	250.00	156.88	3.20
22	5	----------	250.00	156.88	3.20
23	5	----------	250.00	156.88	3.20
24	4	----------	250.00	156.88	3.20
25	3	----------	250.00	156.88	3.20
26	8	----------	250.00	156.88	3.20
27	7	----------	250.00	156.88	3.20
28	2	----------	250.00	156.88	3.20
29	6	----------	250.00	156.88	3.20
30	9	----------	250.00	156.88	3.20
31	10	----------	180.00	78.44	3.08
`2	11	----------	180.00	78.44	3.08
33	12	----------	250.00	156.88	3.20
34	13	----------	250.00	156.88	3.20
35	14	----------	250.00	156.88	3.20
36	15	----------	250.00	156.88	3.20
37	16	----------	250.00	156.88	3.20
38	17	----------	250.00	156.88	3.20
39	18	----------	250.00	156.88	3.20
40	19	----------	250.00	156.88	3.20

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8. Duct Sizing Parameters

Sizing Method : Equal Friction
Minimum Aspect Ratio : 1
Friction Rate : 0.82

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BILL OF MATERIALS PRINTOUT

Duct Design Program Date : 01-03-00

6052290223

System name : DSC REST-TOILETS

****

9. Bill of Materials

Section Number	Width (mm)	Hgt/Dia (mm)	Length (m)	Material	Area (m*2)	Junction Type	No	Elbow Type
1	1000	500	4	Gal. Steel	12	A	0	----
2	500	400	1	Gal. Steel	1	D	0	----
3	350	350	1	Gal. Steel	1	H	0	----
4	350	300	1	Gal. Steel	2	H	0	----
5	300	250	2	Gal. Steel	3	H	1	CC
6	600	500	1	Gal. Steel	2	D	1	CC
7	450	400	1	Gal. Steel	2	H	0	----
8	450	350	1	Gal. Steel	2	H	0	----
9	550	500	1	Gal. Steel	3	H	0	----
10	500	500	1	Gal. Steel	2	H	0	----
11	550	450	2	Gal. Steel	4	H	1	CC
12	550	450	1	Gal. Steel	2	H	0	----
13	500	450	1	Gal. Steel	2	H	0	----
14	500	400	1	Gal. Steel	3	H	0	----
15	450	400	1	Gal. Steel	2	H	0	----
16	450	350	1	Gal. Steel	2	H	0	----
17	350	350	1	Gal. Steel	2	H	0	----
18	350	300	1	Gal. Steel	2	H	0	----
19	300	250	1	Gal. Steel	1	H	0	----
20	250	200	1	Gal. Steel	1	H	0	----
21	------	250	1	Gal. Steel	1	H	1	CC
22	------	250	1	Gal. Steel	1	H	1	CC
23	------	250	1	Gal. Steel	1	H	0	----
24	------	250	1	Gal. Steel	1	H	0	----
25	------	250	1	Gal. Steel	1	H	0	----
26	------	250	1	Gal. Steel	1	H	0	----
27	------	250	1	Gal. Steel	1	H	0	----
28	------	250	1	Gal. Steel	1	H	0	----
29	------	250	1	Gal. Steel	1	H	0	----
30	------	250	1	Gal. Steel	1	H	0	----
31	------	180	1	Gal. Steel	0	H	0	----
32	------	180	1	Gal. Steel	0	H	0	----
33	------	250	1	Gal. Steel	1	H	0	----
34	------	250	1	Gal. Steel	1	H	0	----
35	------	250	1	Gal. Steel	1	H	0	----
36	------	250	1	Gal. Steel	1	H	0	----
37	------	250	1	Gal. Steel	1	H	0	----
38	------	250	1	Gal. Steel	1	H	0	----
39	------	250	1	Gal. Steel	1	H	0	----
40	------	250	1	Gal. Steel	1	H	0	----

Total Area : 63

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PRESSURE CALCULATION PRINTOUT

Duct Design Program Date : 01-03-00

6052290223

System name : DSC REST-TOILETS

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10. Section Pressure Calculation Results

Section Number	From Section	Velocity (m/s)	--- Pressure Loss -- Junction C-Value	Static (Pa)	Velocity (Pa)	Balance (Pa)
1	Fan	6.97	0.26	3.87	7.75	0.00
2	1	5.49	0.36	0.38	10.51	3.91
3	8	5.12	0.00	0.63	0.00	0.00
4	3	4.48	0.01	1.00	0.20	0.00
5	4	4.18	0.01	1.93	2.29	0.00
6	1	6.27	-0.03	0.68	4.09	0.00
7	2	5.23	0.00	1.03	0.09	0.00
8	7	4.98	0.00	1.03	0.08	0.00
9	6	6.27	0.00	0.95	0.00	0.00
10	9	6.27	0.00	0.84	0.00	0.00
11	10	6.02	0.00	1.73	4.68	0.00
12	11	5.70	0.01	0.71	0.11	0.00
13	12	5.58	0.00	0.87	0.04	0.00
14	13	5.49	0.00	1.06	0.03	0.00
15	14	5.23	0.00	0.88	0.09	0.00
16	15	4.98	0.00	0.88	0.08	0.00
17	16	5.12	0.00	1.16	0.00	0.00
18	17	4.48	0.01	0.93	0.20	1.97
19	18	4.18	0.01	1.01	0.08	0.00
20	19	3.14	0.03	0.76	0.32	10.57
21	20	3.20	0.00	0.79	1.29	0.00
22	5	3.20	0.03	0.79	1.58	11.36
23	5	3.20	1.26	0.45	13.27	0.00
24	4	3.20	1.11	0.45	13.44	4.05
25	3	3.20	1.10	0.45	17.45	1.24
26	8	3.20	1.14	0.45	17.08	2.25
27	7	3.20	1.12	0.45	18.47	1.96
28	2	3.20	1.12	0.45	20.23	1.31
29	6	3.20	1.08	0.45	25.62	5.96
30	9	3.20	1.08	0.45	25.62	5.01
31	10	3.08	1.07	0.63	25.34	14.70
32	11	3.08	1.08	0.63	23.63	10.00
33	12	3.20	1.11	0.45	21.78	0.77
34	13	3.20	1.12	0.45	20.90	0.74
35	14	3.20	1.12	0.45	20.23	0.31
36	15	3.20	1.12	0.45	18.47	1.11
37	16	3.20	1.14	0.45	17.08	1.54
38	17	3.20	1.10	0.45	17.45	0.00
39	18	3.20	1.11	0.45	13.44	0.92
40	19	3.20	1.26	0.45	13.27	0.00

System static pressure : 125.31 Pa
System total pressure : 154.57 Pa
Fan velocity : 6.97 m/s

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DETAILED PRESSURE CALCULATION PRINTOUT

Duct Design Program Date : 01-03-00

6052290223

System name : DSC REST-TOILETS

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11. Detailed Circuit Summary ---- Circuit number 20

Section Number	Width Dia mm	Hgt mm	Air Flow l/s	Vel - Max Press - Static m/s	Total --- Pa	-- Static Loss -- Fric --	Ftngs ----- Pa	Total ----- Pa	Bal ----- Pa
20	250	200	157	3 43.38	49.30	0.76	27.44	28.20	10.57
19	300	250	314	4 50.42	60.96	1.01	9.09	10.09	0.00
18	350	300	471	4 49.99	62.08	0.93	-5.47	-4.55	1.97
17	350	350	628	5 49.42	65.22	1.16	2.83	4.00	0.00
16	450	350	784	5 51.25	66.18	0.88	-1.45	-0.57	0.00
15	450	400	941	5 50.69	67.15	0.88	-1.60	-0.72	0.00
14	500	400	1098	5 50.09	68.24	1.06	-0.55	0.51	0.00
13	500	450	1255	6 50.42	69.15	0.87	-0.82	0.05	0.00
12	550	450	1412	6 50.39	69.98	0.71	-2.12	-1.41	0.00
11	550	450	1490	6 54.56	76.39	1.73	2.80	4.54	0.00
10	500	500	1569	6 53.53	77.23	0.84	-0.00	0.84	0.00
	550	500	1726	6 54.48	78.18	0.95	0.00	0.95	0.00
6	600	500	1883	6 59.25	82.95	0.68	-1.47	-0.79	0.00
1	1000	500	2981	7 65.31	94.57	3.87	7.75	11.62	0.00

Static Total	52.77
Total balancing	12.54
Outlet loss	0.00
System effect	60.00
Circuit total	125.31

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