

University of Illinois Department of Agricultural and Biological Engineering
Bioenvironmental and Structural Systems Lab
Final Report

Project Number: 06050
Test Date: March 2, 2006

Fan:

Make- *Valco*
 Model- *HPM50W340MSAT*
 Blade dia.- *50"*
 Orifice dia.- *51.6*

Blade:

Number- *3*
 Shape- *propeller*
 Material- *stainless steel*
 Pitch- *-*
 Clearance- *0.8"*

Drive Sheaves:

Drive dia.- *3.3" o.d.*
 Axle dia.- *9.3" o.d.*

Motor:

Make- *Raydot*
 Model- *K56B06D27*
 Hp- *1.0*
 RPM- *1725/1425*
 Volts- *115/230*
 Amps- *9.6/4.8*
 Hz- *60*
 Phase- *1*
 S. F.- *1.4*

Housing:

Material- *fiberglass*
 Intake area- *52.3" x 52.3"*
 Discharge- *51.6" dia.*
 Depth- *26" top*
 21.5" bottom

Shutter:

Material- *aluminum*
 # Doors- *14 per column*
 # Columns- *2*
 Door length *26.8"*
 Location- *intake*

Guards:

Description- *wire*
 Spacing- *2"*
 Location- *exhaust*

Discharge Cone:

Depth- *26.4"*
 Minor dia.- *51.6"*
 Major dia.- *60" dia.*

Notes:

Test Conditions:

T(wb):	55	Barometric pressure, recorded	29.40
T(db):	79	Barometric Pressure, corrected	29.27

Static Pressure (in.H2O)	Airflow (cfm)	rpm	Volts	Amps	Watts	cfm/Watt
0.00	26900	601	230.1	5.42	1115	24.1
0.05	25600	599	229.7	5.72	1183	21.6
0.10	24100	597	229.7	6.03	1246	19.4
0.15	22600	595	229.5	6.33	1311	17.3
0.20	21000	594	229.8	6.58	1367	15.3
0.25	18900	593	230.3	6.87	1438	13.1
0.30	16600	591	230.0	7.14	1482	11.2