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

Project Number: 21082
Test Date: February 5, 2021

Fan:
Make- *Chore-Time*
Model- *54659-22*
Blade dia.- *56.8"*
Orifice dia.- *57.3"*

Blade:
Number- *3*
Shape- *propeller*
Material- *galvanized steel*
Pitch- -
Clearance- *0.2"*

Drive Sheaves:
Drive dia.- *3.05" o.d.*
Axle dia.- *9.8" o.d.*

Motor:
Make- *Marathon*
Model- *K56AD40C58*
Hp- *1.5*
RPM- *1725*
Volts- *230*
Amps *6*
Hz- *60*
Phase- *1*
S. F.- *1.2*

Housing:
Material- *Poly*
Intake area- *59" dia.*
Discharge- *56.6"*
Depth- *10.5" + 21.2" housing*

Shutter: Butterfly damper
Material- *Poly*
Doors- *2*
Columns- -
Door length- -
Location- *exhaust*

Guards:
Description- *wire*
Spacing- *2" x 4" / 5.5" concentric*
Location- *intake / exhaust*

Discharge Cone:
Depth- *34.8"*
Minor dia.- *56.6"*
Major dia.- *70"*

Notes: *0*

Test Conditions:

T(wb):	52.5	Barometric pressure, recorded	29.10
T(db):	75	Barometric Pressure, corrected	28.98

Static Pressure (in.H2O)	Airflow (cfm)	rpm	Volts	Amps	Watts	cfm/Watt	SI Units Static Pressure (Pa)	Airflow (m^3/hr.)	(m^3/hr)/W	W/1000m^3/hr
0.00	**29800**	544	229.8	5.01	1094	**27.2**	0	50600	46.2	22
0.05	**28100**	543	229.9	5.30	1169	**24.1**	12	47800	40.9	24
0.10	**26200**	541	229.7	5.56	1240	**21.2**	25	44600	36	28
0.15	**24200**	540	229.3	5.85	1312	**18.4**	37	41000	31.3	32
0.20	**21800**	539	229.9	6.10	1377	**15.8**	50	37100	26.9	37
0.25	**18900**	538	230.1	6.25	1415	**13.3**	62	32000	22.6	44
0.30	**14200**	537	229.9	6.37	1444	**9.8**	75	24100	16.7	60