

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

Project Number: 07474
 Test Date: November 20, 2007

Fan:
 Make- *Better Air*
 Model- *LPF-1600C*
 Blade dia.- *16.4"*
 Orifice dia.- *16.7"*

Blade:
 Number- *6*
 Shape- *propeller*
 Material- *plastic*
 Pitch- *-*
 Clearance- *0.2"*

Drive Sheaves:
 Drive dia.- *direct*
 Axle dia.- *drive*

Motor:
 Make- *FHP*
 Model- *M099905*
 Hp- *1/4*
 RPM- *1625*
 Volts- *115/230*
 Amps- *2.6/1.3*
 Hz- *60*
 Phase- *1*
 S. F.- *1.0*

Housing:
 Material- *plastic*
 Intake area- *16.5" x 16.5"*
 Discharge- *16.7" dia.*
 Depth- *21" top*
 19.3" bottom

Shutter:
 Material- *plastic*
 # Doors- *5*
 # Columns- *1*
 Door length- *17.2*
 Location- *intake*

Guards:
 Description- *wire*
 Spacing- *2" concentric*
 Location- *exhaust*

Discharge Cone:
 Depth- *18.8"*
 Minor dia.- *16.7"*
 Major dia.- *20.8"*

Notes:

Test Conditions:

T(wb): 65 Barometric pressure, recorded 29.36
 T(db): 80.5 Barometric Pressure, corrected 29.22

| # Open Nozzle | Noz. Dia. (inch) | Pressure | | Airflow (cfm) | rpm | Volts | Amps | Watts | cfm/Watt |
|------------------|---------------------|------------------|--------------------|------------------|------|-------|------|-------|----------|
| | | Drop (in.H2O) | Static (in.H2O) | | | | | | |
| 2 | 8 | 1.17 | 0.00 | 3049 | 1651 | 230.0 | 1.06 | 242 | 12.6 |
| 2 | 8 | 1.09 | 0.04 | 2942 | 1642 | 230.2 | 1.10 | 247 | 11.9 |
| 2 | 8 | 1.07 | 0.05 | 2922 | 1641 | 229.9 | 1.09 | 251 | 11.6 |
| 2 | 8 | 0.99 | 0.10 | 2810 | 1633 | 230.1 | 1.14 | 257 | 10.9 |
| 2 | 8 | 0.90 | 0.15 | 2679 | 1624 | 230.0 | 1.15 | 265 | 10.1 |
| 2 | 8 | 0.81 | 0.20 | 2541 | 1617 | 230.2 | 1.19 | 265 | 9.6 |
| 2 | 8 | 0.72 | 0.25 | 2395 | 1610 | 229.8 | 1.20 | 272 | 8.8 |
| 2 | 8 | 0.61 | 0.30 | 2203 | 1604 | 230.0 | 1.22 | 273 | 8.1 |