

Manual D Calculations and Summary:

Project: _____

Friction Rate Worksheet

Step 1) **Manufacturer's Blower Data**

External static pressure (ESP)= _____ IWC CFM = _____

Step 2) **Device Pressure Losses**

Evaporator Coil	_____
Air Filter	_____
Supply Register	<u>0.03</u>
Return Grill	<u>0.03</u>
Other Device	_____

Total device losses (DPL) _____ IWC

Step 3) **Available Static Pressure**

ASP = (ESP - DPL) _____ IWC

Step 4) **Total Effective Length (TEL)**

Supply-side TEL + Return-side TEL = (_____ + _____) = _____ Feet

Step 5) **Friction Rate Design Value (FR)**

FR = (ASP X 100) ÷ TEL = (_____ X 100) ÷ _____ = _____ (IWC/100')

This friction rate (FR) calculated in Step 5 is the rate to be used with a duct calculator or a friction chart for the duct design on this project.

Attach at a minimum, a one line diagram showing the duct system with fittings, sizes and lengths.