

NCI FAN SELECTION PROCEDURE



PREPARATION

- This procedure is one of the required tasks to select a system fan and when using the NCI Duct Design Process.
- The procedure also requires manufacturer's engineering data for fan performance, coil and filter pressure drop adjusted for maximum system design airflow.

SELECT APPROPRIATE PRESSURE DROP FACTORS

- Use the following NCI Duct Pressure Drop Factors Table to determine the pressure drop of the duct system in the NCI Fan Sizing Table below based on the field conditions the duct system is, or will be installed into.

NCI Duct Pressure Drop Factors					
Duct Material	Pressure Drop Factor	Duct Installation Conditions	Pressure Drop Factor	Total Length of the Duct System	Pressure Drop Factor
Rectangular Metal	.05"	Ample Installation Access	.05"	100 feet to 200 feet	.05"
Round Metal	.10"	Typical Installation Access	.10"	100 feet to 200 feet	.10"
Duct Board	.10"	Restricted Installation	.15"	100 feet to 200 feet	.15"
Flexible Duct	.15"	Very Restricted Installation	.20"	Additional 100 feet	.05"

DETERMINE THE MINIMUM SYSTEM FAN RATED PRESSURE

- Insert the appropriate Duct Pressure Drop Factors from the table above into the first three rows of the table below. **If the system includes more than one type of duct material, use the greater pressure drop factor.**
- The insert the pressure drops of the wet cooling coil and the filter (adjusted for maximum rated design airflow) in the third and fourth rows.
- Total the system pressure drops together to identify the minimum rated fan capacity of the system fan.
- Select a system fan that can easily overcome the minimum fan rated capacity.

NCI Fan Sizing Table	Pressure
Duct Material Pressure Drop Factor	
Duct Installation Conditions Pressure Drop Factor	
Total Length of Duct System Pressure Drop Factor	
Wet Coil Pressure Drop at Maximum Design Airflow	
Filter Pressure Drop at Maximum Design Airflow	
Equals Minimum Fan Rated Total External Static Pressure	

- Completion of this worksheet is the initial and essential step in the NCI Duct Design Process and is a prerequisite before using the NCI Duct Sizing Tables.

VERIFICATION

- Measure the actual operating total external static pressure of the system once the system is built and verify that the actual system performance matches the system design.
-