

## Placement – The NJK Difference

NJK sensors are ideal for new construction and renovations. Designing the duct system around physical constraints while maintaining the required “Equivalent Duct Length” (EDL) for air flow measurement can be challenging and job site installation constraints are common. As things change (as they often do), our placement flexibility allows engineers and installers the ability to adapt to the field conditions, without compromising sensor accuracy and the benefit that accurate data contributes to optimum building performance. Our patented NJK sensors design utilizes mass air flow technology and our proprietary flow sampling and measuring hardware to provide accurate airflow measurements in extremely challenging locations, like rain hoods and plenum’s.



ASHRAE Standard 111 describes the log-T and “Equal Area Rule” as providing reliable and mathematically sound guidance for measuring air-flow when conditions (EDL’s) exist. The size of the duct (Figure 1) dictates the minimum number of readings necessary to calculate the air flow. These guidelines assume that these measurements will be taken at a location where a uniform velocity profile exists.

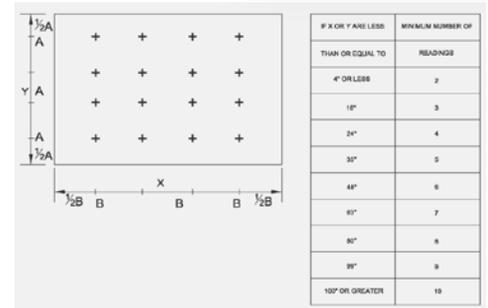


Figure #1

ASHRAE Standard 111 illustrates (Figure 2) the relationship of EDL and a uniform velocity profile. It also outlines various non-uniform velocity profiles (Figure 3) and cautions against measuring at a location where these exist. Since NJK sensor technology does not utilize the “log-T” and “Equal Area Rule” to govern its measurement point (as do other leading air flow measuring devices), it can measure air flow in most of the profiles shown.

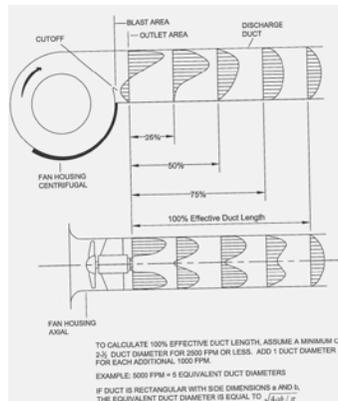


Figure #2

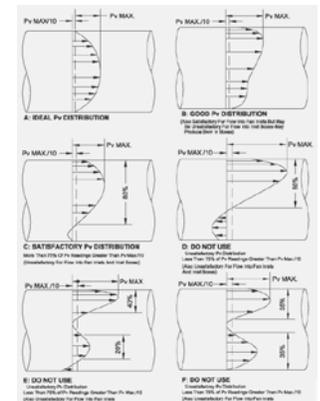


Figure #3

Air, whether laminar or turbulent that flows thru the ductwork will be sampled through our dual-chambered rectangular air-foil Sensor Flow Frame (SFF). This flow generates a proportional air flow that passes thru the NJK 7.5 EDL tube, state-of-the-art thin film resistor, and integrated circuitry contained in the “Flow Measuring Module” (FMM).

Similar mass air flow (MAF) sensor technology is widely used in the automotive industry to deliver accurate air flow measurements that support the precise air/fuel ratios necessary to achieve maximum power, efficiency with minimal emissions. There are however, certain conditions (Figure 4) which create a profile which even the NJK technology cannot measure correctly. Our placement guidelines provide tremendous location flexibility, however, we will not state that you can put them anywhere.

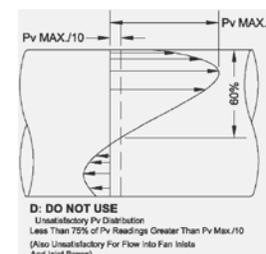


Figure #4