Ontario Air and Noise Best Practices		
Topic	**Secondary Noise Screening Report**	**Date: October 2, 2009** **Version 1.0**
Purpose	**To provide guidance on how and when to apply the Secondary Noise Screening Report**	**Page 1 of 3**

Critical Information Required to Prepare a Secondary Noise Screening Report:

1. Zoning map
2. Scaled site plan
3. Applicant and technical contact statements completed
4. Provide a rational for using screening document
5. Summary of noise sources(s) and POR(s)
6. Summary of historical noise issues
7. Summary table showing noise impact calculations and total impact with PASS/FAIL compliance
8. Applicable noise limit must be respective of source operation – i.e. Auto Parts Manufacturing, if a source runs twenty-four (24) hours per day, seven (7) days per week it must be evaluated to the most stringent nighttime noise limit

* No measurements are to be taken, only use manufacturer specifications or MOE Red Flag Tables

TYPES OF EVALUATION CALCULATIONS REQUIRED FOR ASSESSMENT

Type 1 Evaluation – MOE Red Flag Table (Centrifugal Fan Source)

If the MOE Red Flag Table is the source data then the following is required for evaluation:

- Actual separation distance from the POR to the noise source
- Flow rate (cfm) and pressure (in. of water)
- Red Flag Table minimum setback distant corresponding to the dBA criteria column

Sample Calculation for a Centrifugal Fan Type Using the MOE Red Flag Tables

$SPL = 50 - 20 \times LOG_{10} (D_A/D_{50}) -$ Barrier Adjustment + Tonality Adjustment

Where:
D_A= Actual separation distance from the POR to the noise source (158m)
D_{50} = found by multiplying the flow rate of the fan by the pressure ($cfm*p^2$) and matching it up with the corresponding distance in the 50 dBA criteria column (41m) of the MOE Red flag table
Apply barrier adjustment only if barrier is present. Tonality adjustment only applies if source is tonal (assume 0 for this example).

SPL = =50-20*(LOG10(158/41))– 0 + 0
SPL = 38.28 dBA

Type 2 Evaluation – Manufacturer's Specifications of Sound Power Levels (Transformer Noise Source)

If Manufacturer specifications are the source data then the following is required for evaluation:

- Sound power level in dBA
- Actual separation distance from the POR to the noise source

Type 3 Evaluation – On-Site Trucks (Transport Truck Noise Source)

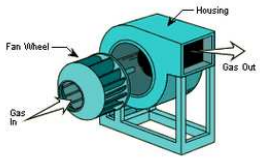
If evaluating Truck traffic on-site then the following is required for evaluation:

- The maximum number of trucks on-site within one (1) hour
- Actual separation distance from the POR to the noise source

Common Types of Fans

Identifying fan types can often be difficult, here are examples of the basic fan types:

Centrifugal Fans



A centrifugal fan (also squirrel-cage fan, as it looks like a hamster wheel) is a mechanical device for moving air or gases. It has a fan wheel composed of a number of fan blades, or ribs, mounted around a hub. The gas enters from the side of the fan wheel, turns 90 degrees and accelerates due to centrifugal force as it flows over the fan blades and exits the fan housing.

Vaneaxial Fans

In an axial fan the air flows in parallel to the shaft. This type of fan is used in a wide variety of applications, ranging from dust collectors to the giant fans used in wind tunnels. Heavy duty industrial solid welded Axial fans incorporating very high efficiency cast aluminum airfoil and fabricated steel impellers.

Tubeaxial

Tube-axial fans are similar to propeller fans except they are mounted in a tube or cylinder. Therefore, they are more efficient than propeller fans and can develop up to 3 to 4 in. wg (743.3 to 995 Pa). They are best suited for moving air containing substances such as condensible fumes or pigments. Consists of an impeller rotating within a cylindrical housing, more efficient than a Propeller alone.

Propeller Fans

Propeller fans usually consist of only a motor and propeller and therefore are the simplest among all. Primarily used as heavy duty exhaust and supply air fans, for high volume low pressure and are generally wall mounted installations.

Existing fans typically don't have pressure drops readily available. Although pressure drop is specific to the fan type and manufacturer, generic fan curves can be found on the internet and vary depending on type of fan, flow rate and diameter.

Links to Typical Pressure Drop Charts:

Centrifugal - http://www.ritme.com/tech/origin/resources/casestudies/images/greenheck_fanplot_500px.gif

Vaneaxial - http://www.ces.purdue.edu/extmedia/AE/images/AE-106.fig5.jpg

If further assistance is required please contact the Air and /or Noise Duty Officers at the Environmental Assessment and Approvals Branch at 1-800-461-6290.

Best Practice developed by Tim Wiens, Conestoga-Rovers & Associates.