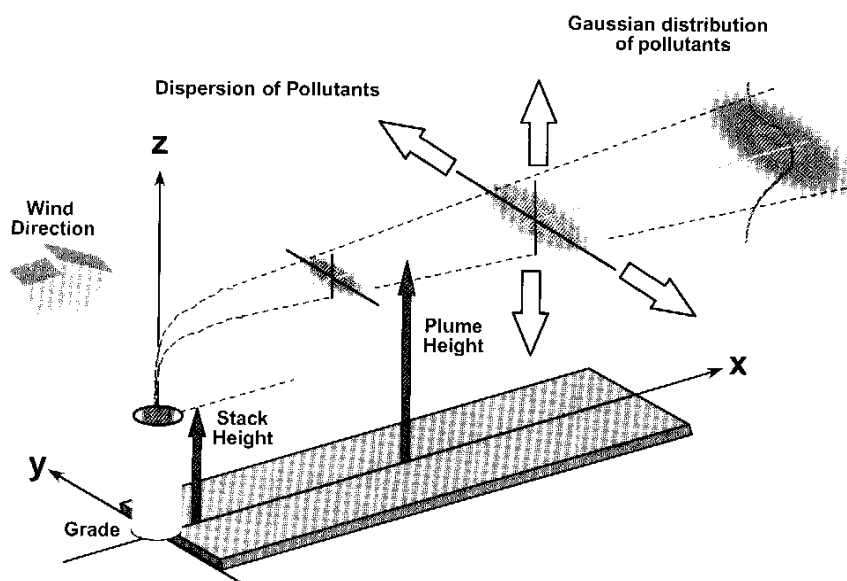


## Atmospheric Dispersion

The traditional approach to the dispersion of pollutants in combustion flue gases is to emit them at as high a velocity as possible (say up to 15 m/s) from a stack built fairly tall to improve the dispersion of the pollutants before they return to ground level. This approach can, in theory, reduce downwind ground level concentrations to any specified level although, in practice, physical and economic constraints upon stack height and the power costs associated with high exit velocities provide a limit to what can be achieved. Hence it is vitally important to have techniques for the prediction of downwind ground level concentrations in order to ensure that the proposed combination of stack height and exit velocity will achieve a low enough downwind ground level concentration **under all likely wind speeds, directions and prevailing weather conditions.**



One important fact which is often forgotten is that the likely downwind

concentration, at any point and for any wind conditions, is the sum of the background concentration of the pollutant ignoring the emissions from the stack and the ground level concentration predicted by the model as being produced at the point and at the prevailing wind conditions due to the emissions from the stack. Hence, if the pollutant is likely to have any significant background level without the stack operating, then this background level will need to be known or measured. Local authorities often have a database of measured background levels of common atmospheric pollutants but often exercises such as IPC/IPPC authorisations may need some measurements to be taken of the background level. If you need assistance with organising such a programme for measuring the background levels of pollutants downwind of the stack, then contact Rowan **House** Ltd.

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