



CERMAK
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WIND ENGINEERING & AIR QUALITY CONSULTANTS

CPP History

Modern wind engineering began in the 1950s with the work of Dr. Jack Cermak and his colleagues. As a professor at Colorado State University, Dr. Cermak pioneered the now-standard methods of modelling the effects of wind on buildings, structures, and pollutant dispersion. In 1964, his laboratory tested the design of the World Trade Center Twin Towers in New York City, bringing wind engineering to the attention of architects and engineers around the world.

In 1981, Dr. Cermak and Dr. Jon Peterka co-founded America's first commercial wind engineering company. Three years later, they were joined by Dr. Ron Petersen and the company became Cermak Peterka Petersen (CPP). Since its founding, CPP has been led by the world's most experienced wind engineers.

CPP provides its full range of wind engineering services to clients around the world. Now CPP has leading experts in the United States, Australia, and the United Arab Emirates.

About Dr. Petersen

Dr. Ron Petersen has been practicing and refining the methods for modeling exhaust dispersion for over 30 years. He holds the prestigious title of Certified Consulting Meteorologist, which is conferred by the American Meteorological Society to only a small fraction of its most accomplished members.

Dr. Petersen is a pioneer of scaled physical modeling as it is applied to regulatory modeling. His knowledge and experience in plume behavior and modeling for regulated sources place him at the front of the field.

Contact Dr. Petersen at 970.221.3371 or rpetersen@cppwind.com

NAAQS COMPLIANCE AT OPTIMAL COST

Wind Tunnel Modeling for New & Existing Sources

By 2012, the new, more stringent National Ambient Air Quality Standards (NAAQS) will be in full effect. The changes will affect both new and existing sources.

New Sources

Using standard EPA modeling methods can lead to costly emission controls and/or taller-than-needed stacks. By using wind tunnel modeling early in the permitting process you can achieve the right balance between emission control and stack height.

Existing Sources

When standard EPA models show that a source does not meet the new standards you have three choices:

1. **Implement stricter, more costly emission controls** based on AERMOD.
2. **Increase stack height** using the standard GEP formula.
3. **Perform EPA-approved wind tunnel modeling** to create more accurate AERMOD inputs or to justify taller-than-formula GEP stack heights.

Why Use Wind Tunnel Modeling?

By using scale models of the actual site and its surroundings, pollutant dispersion is modeled more realistically and accurately than it is in Gaussian type models such as AERMOD.

Wind tunnel modeling:

- Incorporates unusual geometries and lattice structures
- Accounts for the effects of surrounding buildings and terrain
- Recreates the actual wind conditions at the project site

Because of this, wind tunnel testing can produce improved building dimension inputs (Equivalent Building Dimensions, or EBD) for use in AERMOD. These EBD inputs can provide more accurate, and often lower, concentration estimates. Because wind tunnel modeling incorporates nearby structures and terrain, it can also be used to justify stack heights taller than the standard formula heights.

