

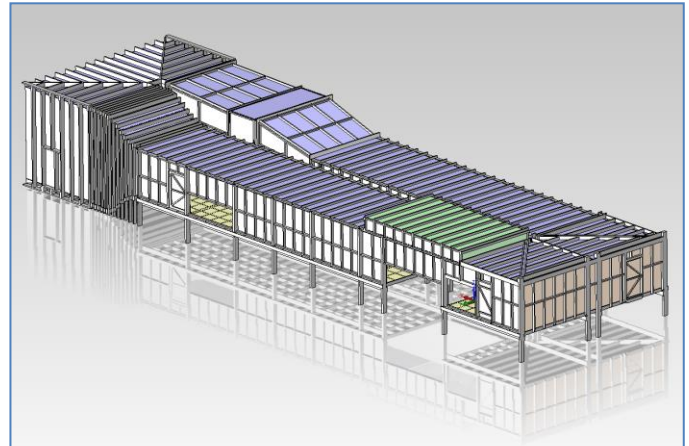
INDUSTRIAL WIND TUNNEL MODELING FOR WIND-GENERATED EMISSIONS

AP42 Chapters 13.2.4 (Aggregate Handling and Storage Piles) and 13.2.5 (Industrial Wind Erosion) have formulas for calculating particulate emissions that include the wind speed. CPP can provide more accurate wind speeds for these calculations by constructing a scale model of the site, placing the model in CPP's atmospheric boundary layer wind tunnel and measuring the local wind speed and/or friction velocity in areas where wind emission factors need to be determined.

The local speeds are related to a reference speed (i.e., typically an airport anemometer or site anemometer). The ratio of local speed to reference wind speed is determined for 16 wind directions for all locations of interest for use in calculating wind generated particulate emission rates.

An example wind tunnel modeling approach is provided in AP-42 Section 13.2.5.

In some situations, determining the threshold wind speeds on-site using CPP's portable wind tunnel may be the best approach.



State-of-the-art facilities & instrumentation

CPP HISTORY

Modern wind engineering began in the 1950s with the work of Dr. Jack Cermak and his colleagues. As a professor and researcher, Dr. Cermak pioneered the now-standard methods of modeling and testing the effects of wind on buildings and structures.

In 1981, Dr. Cermak and Dr. Jon Peterka cofounded America's first commercial wind engineering company. Three years later, Dr. Ron Petersen joined and the company became Cermak Peterka Petersen (CPP).

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

ABOUT DR. RON PETERSEN

Dr. Petersen has been practicing and refining the methods for modeling pollutant dispersion using wind tunnel modeling methods 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

