



Process Control & Engineering, Inc.
Monarch Design Company

Turn Key Solutions

PCE Monarch will provide turn-key solutions for your industrial facility/process upgrades and enhancements and energy conservation. We undertake turn-key projects for new as well as existing systems, either as competitively bid to customer specifications or created as energy/cost savings projects by utilizing our extensive engineering knowledge and experience.

Our turn-key projects cover wide spectrum, inclusive of, but not limited to:

- Regenerative Thermal Oxidizer (RTO) and abatement system refurbishment, relocation and new installation
- Paint Spraybooth and Bake Oven upgrades
- Miscellaneous booths: Repair, Water Test, Roll Test, Sanding booths.
- Fluid Delivery Systems
- Dynamometers: Airflow and VOC emission control

Our typical turn-key project lifecycle includes:

- Field Assessment
- Engineering Design: Mechanical, Electrical, Instrumentation and Controls
- Scope of Work, Installation Supervision and Project Management
- Debug, Testing and Launch
- Training

Typical Turn-Key Projects:

Abatement System and RTO Refurbishments (Various): PCE Monarch has done upgrades of the rotary carbon systems and RTO's and associated mechanical equipment such as valves, actuators, hydraulic systems, electrical equipment such as instrumentation, PLC based control systems and Human Machine Interfaces (HMI's).

Refurbishment, Relocation & Re-utilization of De-commissioned Equipment: PCE Monarch relocated an RTO from a decommissioned facility in Illinois and after necessary refurbishments and upgrades, installed the RTO at a facility in Mississippi to control emissions from a larger process.

Upgrades to Spraybooths and Ovens (Various): These upgrades were designed to overcome deficiencies of the existing process/equipment or accommodate changes to the process. Invariably, the net result was improved quality, increased throughput and reduced energy usage.

Energy Savings Projects (Various): Through application of our engineering and process knowledge and airflow expertise, PCE Monarch has implemented numerous energy savings projects through optimization of spraybooth and oven airflows. These solutions include system modifications, new equipment and controls.

Dynamometer Airflow and VOC Emission Control: PCE Monarch has done projects for climate control systems for chassis dynamometers and a proprietary VOC emission control system for engine dynamometer facility.



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Equipment Refurbishment and Upgrades



New PLC control system with a Human Machine Interface (HMI)



Upgrades to Mechanical Dampers and Hydraulic Actuation System

1091 Centre Rd., Suite 160 Auburn Hills, MI 48326
Phone 248-340-1888. Fax 248-340-1848 www.pce-monarch.com
MBE CERTIFIED – ISO 9001:2000 REGISTERED



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Refurbishment, Relocation & Re-utilization of De-commissioned Equipment:



Equipment dismantling and preparing for shipment to new location



Assembled system at new site with new ductwork and controls

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Ovens Upgrades



New smoke hoods installed at the exit of an Oven to eliminate creosol drips on the finished product

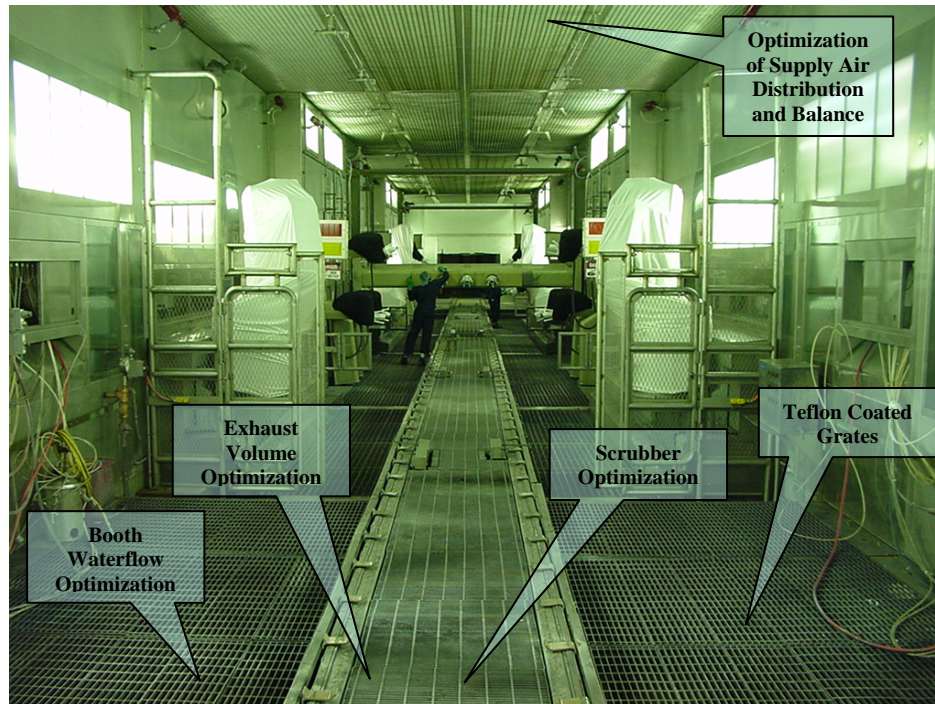


New ductwork for proper distribution of exhaust for a three-pass oven



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Paint Spray Booth Upgrades



Paint Spraybooth's Airflow & Waterflow Optimization & Teflon Coated Grates



Air Handling Units Replacement & Air House Equipment Upgrades

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Engine Dynamometer Emissions Control

Increasingly stringent environmental regulations require engine dynamometer laboratories to control engine exhaust emissions. The traditional solutions for this have been recuperative or regenerative thermal oxidizers mounted on a concrete pad some distance from the engine test cell. PCE Monarch has replaced the traditional end-of-pipe technologies with our proprietary pressure controlled catalytic oxidizer (PCCO) which uses no burners, and has a small footprint. Long duct runs, concrete pads, and piping costs are eliminated.

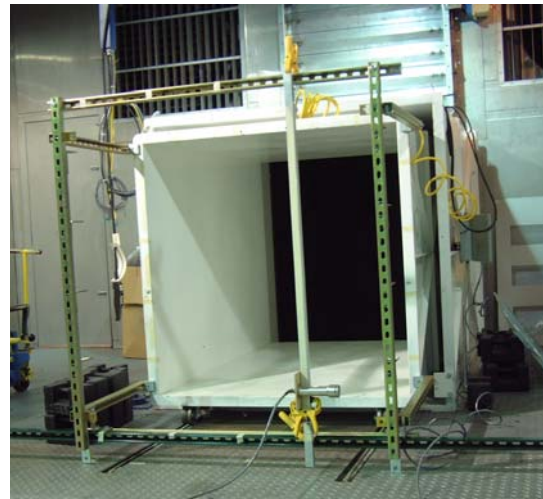
Each standard PCCO can typically control emissions from six production engines at a fraction of the capital and operating costs associated with the traditional oxidizer technologies.



PCCO emission control system

Wind Tunnel and Chassis Dynamometer with Laminar Airflow

In a chassis dynamometer system, PCE Monarch upgraded an existing 50,000 CFM system with a new 100,000 CFM system to meet the new speed and climate control requirements. The airflow control system for the wind tunnel was designed to simulate speeds between 0 to 60 mph, while maintaining a constant laminar airflow on a 4'x4' surface. The climate control system was designed to handle extreme temperature changes between 0°F and 140°F.



Airflow Uniformity Test