P E D C O
Process & Equipment Development Corporation

Process & Equipment Development Corporation (PEDCO) has developed industrial equipment and processes for clients since 1998. PEDCO's core expertise is in thermal-fluid science (heat transfer, mass transfer, fluid dynamics, and thermodynamics), equipment design, and controls. Extensive academic and practical experience from designing products and processes for diverse markets assures that PEDCO developed processes and products possess unique features providing that advantage required to be competitive in today's markets. PEDCO can support the client's staff by executing a complete turnkey development project or any phase of a development project.

T E C H N I C A L E X P E R T I S E

OWNERS

Jim and Greg Black own and operate PEDCO. Jim has a Ph.D. in Mechanical Engineering and over 40 years of experience. Greg has a degree in Advanced Manufacturing and Robotics and over 10 years of experience. Their experiences have involved working with manufacturing, research, utility, government, construction and academic organizations.

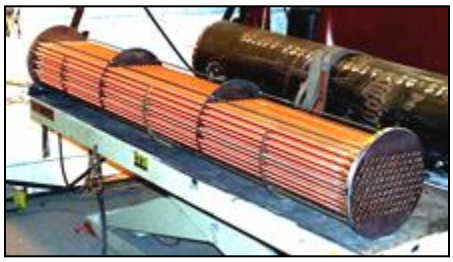
Dr. Black's area of technical expertise is thermal-fluid science, specializing in the application of theory and experience to the design and development of industrial equipment and processes. He has a PE license, been awarded several patents and published numerous technical papers.

Greg's areas of expertise include 3D modeling of equipment and systems, PLC and display programming and manufacturing methods.

Following are specific technical areas that PEDCO has utilized in the execution of projects for clients.

HEAT TRANSFER

- Gas and liquid
- Boiling and condensing
- Heat transfer augmentation
- Compact heat exchangers



Heat Exchanger Bundle at Client's Shop

FLUID MECHANICS

- Incompressible flow
- Compressible flow
- Two-phase flow
- Flow through porous media

MASS TRANSFER

- Condensing from an inert gas
- Gas-liquid contactors

THERMODYNAMICS

- Refrigeration cycles
- Psychrometrics
- Power cycles

MECHANICAL EQUIPMENT

- Heat exchangers
- Pressure vessels
- Vapor compression refrigeration units
- Packed columns and fluidized beds
- Centrifugal separators and fabric filters
- Pneumatic solid conveying systems
- Compressors, blowers, fans and pumps
- Valves and dampers
- Piping and ductwork

HEATING AND COOLING

- Mechanical refrigeration
- Thermoelectrics
- Vortex tube
- Evaporative cooling
- Electric resistance, gas and steam heaters

1,000 hp Glycol Chiller at Client's Site

ADSORPTIVE GAS-DRYER SIMULATION SOFTWARE

- Predicts performance of gas dryers based on user specified variables and conditions
- 0.5 scfm to 300,000+ scfm sized dryers
- Pressure swing, thermal swing, single tower regenerative dryers and batch dryer types
- Detailed outputs based on inlet and dryer conditions

CODE COMPLIANCE

- Mechanical - ASME and TEMA
- Electrical - NEC, NEMA and NFPA

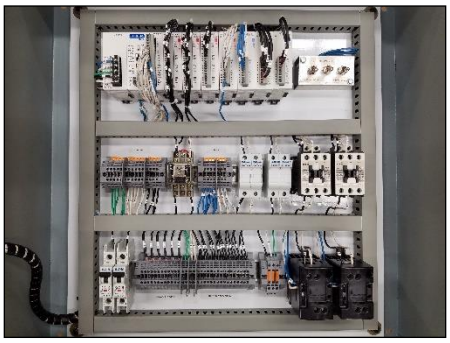
DEHUMIDIFICATION AND HUMIDIFICATION

- Adsorption/desorption
- Absorption
- Membranes
- Cooling/condensing

Arnold Air Force Base
320,000 cfm Low-Pressure
Refrigerated/Desiccant Air Dryer

PROCESS CONTROL AND MEASUREMENT

- Flow rate, temperature, pressure, dewpoint and gas composition
- PLC and HMI screen programming
- Allen Bradley, Siemens, GE and Automation Direct hardware
- Variable frequency drives
- Programmable relays
- Data logging



PLC and Dryer Controls