



*"Learning is an experience.  
Everything else is just information." - Albert Einstein*

# LUNCH & LEARN

## General

- 1-A Electric Heat for Industrial Processes 60 min**  
Introduction to types of heaters, thermal design, applications, basic tips and troubleshooting.
- 1-B Application Overviews 60 min**  
A deeper dive into common electric heat applications. This presentation can be tailored to specific applications upon request.
- 1-C Protecting Terminal End Seals from Overheating 30 min**  
Advise on selecting the best terminal end seals for air and liquid applications, focuses on balancing moisture resistance with cost and temperature limits. Includes a discussion of the impact of insulation, cold sections and stand offs on terminal temperatures.
- 1-D Maximizing Heater Life 50 min**  
Tips on prolonging heater life through regular maintenance, and starting your heater after long periods of inactivity or storage.
- 1-E Calculating kW for various applications 30 min**
- 1-F Using the Corrosion Guide for Watt Density & Material Selection 50 min**
- 1-G Basic Heater Troubleshooting Techniques 50 min**
- 1-H Considerations for Explosion Resistant Heater Applications 50 min**

## Process Air Heaters

- 2-A High Temperature Gas Heating 50 min**  
Selecting the best construction type (tubular, finned tubular, open coil) and control options for various applications.

## Impedance

- 3-A Understanding Impedance pipeline heating 50 min**  
A discussion of the benefits and advantages of impedance heating, touching on some of the common applications.

## Elements

- 4-A Introduction to Electric Heating Elements 30 min**  
Overview of the 3 primary types of elements (tubular, finned tubular, open coil) used in industrial applications, and how to select the best solution for your application.

## Circulation Heaters

- 5-A Minimizing the Cost of Your Circulation Heater 30 min**  
Balancing watt density vs. life expectancy, the role of baffles in a circulation heater system, material selection, and cost impact of these decisions.
- 5-B Testing and Agency Approvals 30 min**  
Presentation on Non-Destructive Testing (NDT), Positive Material Identification and ASME certification.
- 5-C Seismic and Wind Load Calculations 30 min**  
A brief introduction to design considerations.

## Immersion Heaters

- 6-A Freeze Protecting Water Tanks 30 min**
- 6-B Maintaining Oil Tank Temperatures 30 min**
- 6-C NEMA 7 Tank Heating 30 min**

## Controlling Electric Heaters

- 7-A Electric Heater Control Options 60 min**  
Introduction to control systems for electric heat including SCR, Vernier and basic on/off controls.
- 7-B Thermocouple Fundamentals 30 min**  
Examination of the standard types of thermocouples and selection criteria.