



Condition-Based Maintenance of Services Engineering in Complex Buildings

5 – Day Training Program

INTRODUCTION

This workshop addresses the appropriate application of Condition Based Maintenance (CBM) techniques which can be applied to services plants in complex building types such as hospitals, Office Buildings, supermarkets, IT Centers. It provides an in-depth understanding of the principles of condition monitoring of services plants in these buildings. The workshop will also provide further understanding on the techniques that are available to match particular services plants and refining a structured method for implementing and managing CBM as a cornerstone of a pro-active maintenance policy. Delegates will learn how to achieve these aims through a structured and interactive training course which includes both practical hands on sessions and opportunities to explore advanced no-destructive diagnosis techniques and web-based maintenance tools to facilitate the process of detecting and remote monitoring of various parameters in order to identify and diagnose problems at an early stage. These will have strategic and operational significance in locating any potential defects in services plant to avoid premature failure. Attendees will have the opportunity to explore the different problems in order to establish the best course of action to resolve conflicts in their own organization.

WHO SHOULD ATTEND

The course is aimed at all senior engineering personnel, engineers, facilities managers, Maintenance superintendents and technicians across the spectrum who is involved in setting up or improving Condition-Based Maintenance.



PROGRAM

Day One

Maintenance Objectives:

- Best Practice Maintenance.
- Mapping the Business Challenges to Asset Management Challenges.
- Identifying Key Asset Management Challenges.
- Relationship between Business and Asset Management Challenges.
- Identification of the Asset Management Enablers.

Day 1 focuses on providing a structured process for delegates to create a prioritized list of maintenance objectives, aligned with their organizations' business goals. Delegates are introduced to the Improvement process against business challenges and objectives of their own organization.

Day Two

Maintenance Strategies of Services Plant:

- Introduction of Maintenance Strategies:
- On-Failure.
- Fixed Time.
- Condition Based.
- Design Out.
- Advantages and Disadvantages for Each Strategy.
- Factors Affecting the Need for All Four Strategies.
- Maintenance Strategy vs. Equipment Failure.

Day 2 is designed as an introductory "set the scene" unit, although it can be used effectively for revision. Most delegates will have some pre-knowledge of the subject, and so the unit is structured to allow expression of their experience.

Day Three



Assessing Criticality of

Services Plant:

- Assessment of Criticality.
- Factors affecting Criticality
- Safety.
- Environment. • Cost of Downtime.
- Impact on Customers and Customer value.
- Cost of Repair and Secondary Damage.
- Workshop Case studies- Equipment Criticality at an Industrial Site, Hospital Buildings and Shopping Centers.

Day 3: provides a method to enable delegates to conduct an objective and rational Assessment of plant criticality. The results provide a prioritization of maintenance action that will be acceptable to all personnel.

Day Four

Condition Monitoring Techniques of Services Plant

- Condition Monitoring as the Facilitator for CBM
- Types of Measurement – Accuracy, Reliability and Frequency Considerations.
- Range and Availability of Condition Monitoring Techniques.
- Analysis of the Main Techniques in use today.
- Standards for Condition Monitoring.
- Fault Diagnosis for a Range of Machine Types.
- Non-destructive Techniques for Diagnosing Defects.
- Web Based Tools/ Techniques for Condition Monitoring.
- Reliability and Management of Tools.
- Case Studies (Unblocking Drainage System, Flood Detection Techniques)

Day 4- focuses on making delegates aware of what Condition Monitoring techniques are available, and to give an insight into what works and where the various techniques are best applied. The requirement to keep accurate and records of equipment type, operational and monitored parameters will be explored.



Day Five

Creating an Optimized Maintenance Plan: REM & RCM

- The Need for Optimizing Maintenance
- The Origins of RCM
- Reliability Centered Maintenance (RCM)
- Review of Equipment Maintenance (REM)
- RCM or REM? Case Study:
- Course overview