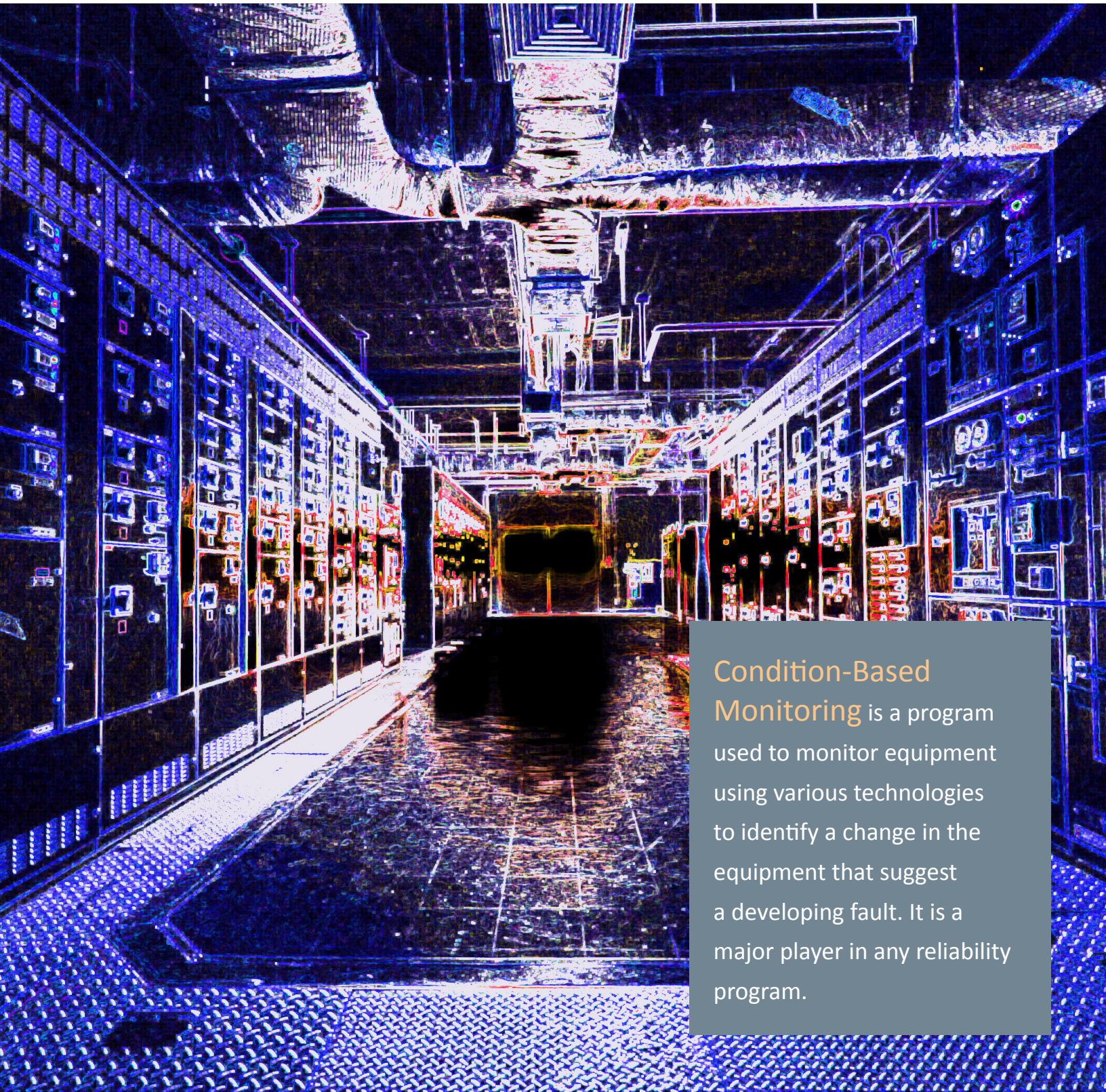


# CONDITION-BASED MONITORING AND TESTING SOLUTIONS



**Condition-Based Monitoring** is a program used to monitor equipment using various technologies to identify a change in the equipment that suggest a developing fault. It is a major player in any reliability program.





ESCO Group is a versatile company that provides electrical construction, electrical engineering, plant automation, arc flash incident energy analysis, and electrical safety training services to a wide variety of commercial and industrial clients, primarily within the food & beverage, manufacturing, agriculture, and municipal markets. By empowering people, providing exceptional services, and delivering on promises, ESCO is known for responsible and reliable support and excellent, custom-made solutions.

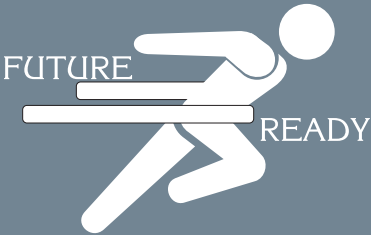
When you work with ESCO, you are working with a company that forms strong relationships with our clients which gives us in-depth knowledge of your systems, what your needs are, and how your process operates. It's a partner-ship approach, meaning we partner with our clients and become an integral part of their team.

## FLEXIBLE SOLUTIONS FOR YOUR BUSINESS NEEDS

Condition-based monitoring allows for scheduling maintenance or other actions in order to avoid costly repairs, equipment downtime, and loss of production. Basically, it allows for potential failures to be identified early enough so maintenance can be preformed before catastrophic failure occurs.

The program:

- Can be accomplished while the equipment is in operation
- Ensures equipment reliability
- Enables better safety practices
- Reduces failure rates
- Allows for maintenance to be scheduled in advanced and is less costly than preventative maintenance



**ELECTRICAL AUDIT** is an inspection and evaluation of electrical systems in a home or business. It can help identify potential hazards and risks.

**What is included in an electrical audit?**

- Electrical Rooms
- Extension Cords
- Light Fixtures
- Receptacles
- Electrical enclosures & Junction boxes
- Flexiable cords & Motor connections
- Grounding
- Heat Trace
- Electrical & Portable hand tools

ESCO conducts audits using licensed electricians and can customize the process to fit your specific needs, allowing for the addition or removal of any components as required.

**NFPA 70B** outlines a preventive maintenance program for electrical, electronic, and communication systems and equipment. This includes those utilized in industrial facilities, institutional and commercial buildings, and large multi-family residential complexes. The objective is to mitigate equipment failures and enhance worker safety.

**Is NFPA 70B required by OSHA?**

OSHA does not directly enforce NFPA 70B but may cite it for violations. Recognized as an industry standard in 2023, it sets minimum requirements for electrical safety.

**What can ESCO do to help?**

We offer training on NFPA 70B requirements, assist in program development, and provide essential services for compliance.

Let ESCO assist you in deciding which steps are a good fit for your facility. Once we identify the appropriate steps, we can create your custom SPO's.



ESCO uses the following technologies: infrared thermography, motor circuit analysis, airborne ultrasound, and facility grounding/bonding surveys to accomplish condition based monitoring.



**INFRARED THERMOGRAPHY** is a thermal imaging technology that detects abnormal heating in electrical/mechanical systems that can't been see by the naked eye. This can cause damage to equipment components leading to unwanted downtimes and injury to personnel. Infrared thermography can save thousands of dollars in equipment repairs/replacement.



**MOTOR CIRCUIT ANALYSIS** is accomplished in two ways, energized and de-energized testing. Energized testing is done while the equipment is in operation and test the following areas: power quality, power circuit, rotor, stator, and air gap. De-energized testing is done with the equipment shutdown and test the following areas: insulation, rotor, stator, and air gap. Data collected from these tests are analyzed to assess the condition (health) of the motor and motor circuit.

**AIRBORNE ULTRASOUND** is used to detect compressed air leaks and check for corona, tracking, and arcing in electrical systems. Ultrasound can detect small leaks that can't be heard by the human ear and pinpoint their location. Air and vacuum leaks can be identified and tagged so maintenance can be performed to correct the issue. Compressed air leaks can be costly, and using ultrasound to locate leaks will add up in cost savings. Corona, tracking, and arcing can lead to catastrophic failure of components which can be costly to repair.



Performing these test as part of your condition based monitoring program can greatly aid in the reliability of your equipment by locating potential faults early so repairs can be made before catastrophic failures occur.



**GROUNDING/BONDING SURVEYS** are conducted using test equipment that evaluates the condition of the facility's earth grounding and bonding systems. Grounds are tested and evaluated as to their ability to provide a good path to ground in case of a ground fault. These tests are conducted on all grounding points. Earth ground rods and grids are used to determine their reliability.

Go to [www.theESCGroup.com](http://www.theESCGroup.com) for more information on all of our services!





[www.theESCOTGroup.com](http://www.theESCOTGroup.com)

Corporate Headquarters  
3450 Third Street  
P.O. Box 708  
Marion, Iowa 52302  
(319) 377-6655 phone  
(319) 377-9532 fax

Des Moines, Iowa  
(515) 263-8482 phone  
(515) 263-2773 fax

Denver, Colorado  
(303) 734-7144 phone  
(720) 874-9709 fax

Omaha, Nebraska  
(402) 979-8375 phone

St. Louis, Missouri  
(636) 389-2199 phone

Minneapolis, Minnesota  
(507) 403-2631 phone

## ESCO's Subject Matter Experts



**Mike Sampson**  
Manager, Field Services  
[MikeSampson@theESCOTGroup.com](mailto:MikeSampson@theESCOTGroup.com)  
(319) 213-4838



**Reggie Fett**  
Field Specialist  
[ReggieFett@theESCOTGroup.com](mailto:ReggieFett@theESCOTGroup.com)  
(319) 899-7575

©2025 ESCO Group. All Rights Reserved. ESCO Marketing.