



Topic Areas & Learning Objectives

➤ **Safety on the Job Site** - assess the ability to:

- Maintain and wear personal protective equipment (PPE) such as safety shoes/boots, glasses, and hard hats
- Read and understand Material Safety Data Sheets (MSDS)
- Identify Lockout/Tagout procedures
- Check for egress
- Oversee rigging process and identify common hazards
- Understand basic safety standards for:
 - Lasers
 - Electrical
 - Hydraulics
 - Fluid power
 - Arc flash
 - Pneumatics/stored mechanical energy
 - Safeguarding
 - Metal materials
- Understand their accountability for their own safety and the safety of others

➤ **Project Management & Customer Service** - assess the ability to:

- Understand a project timeline, milestones, and responsibilities
- Prioritize tasks based on requirements and available resources
- Recommend infrastructure for:
 - Networking capabilities
 - IT addresses
- Apply flexibility to meet customer needs
- Use and develop problem resolution skills
- Develop “soft skills” for:
 - Professionalism
 - Code of conduct
 - Communication (written, phone, and in-person)
 - Hygiene and appearance

➤ **Electrical** - assess the ability to:

- Understand basic electrical requirements for installation
- Use a digital multimeter to read:
 - AC/DC
 - OHMs
 - Fuses
- Identify OHM out wires
- Read electrical diagrams, symbols, etc.
- Understand parallel and series circuitry
- Understand motor rotation and reverse rotation
- Measure electrical panel clearance



➤ **Foundation/Flooring** - assess the ability to:

- Read layout prints, and assess building structure for optimal installation placement
- Use a transit level
- Understand minimum foundation requirements for:
 - Subsoil
 - Rebar
 - Tensile strength
 - Solidity/presence of cracks
- Read foundation prints
- Identify joint types:
 - Control/dummy
 - Construction/keyed
 - Expansion
 - Natural joints
 - Separation cuts
- Identify floor slab types:
 - Elasticity cushioned
 - Ceiling plat
 - Heated
 - Suspended

➤ **Materials** - assess the ability to:

- Understand and identify grades and optimal applications for:
 - Steel
 - Stainless
 - Aluminum
- Understand material traceability
- Understand and identify steel sections:
 - Beams
 - Angle & plate
 - Common specs
 - Tubing

➤ **Hydraulics** - assess the ability to:

- Understand pump types and characteristics
- Read a hydraulics diagram
- Identify actuators, transducers, seals, and gaskets
- Identify valve types:
 - Flow control
 - Directional
 - Proportion
 - Check
- Use of Teflon tape and pipe dope
- Compare characteristics of flow vs. pressure

➤ **Gases** - assess the ability to:

- Understand CFM, kg, and bar
- Identify properties of N₂, O₂ and air
- Compare characteristics of inert gases and accelerants
- Read and identify color coding/symbols

➤ **Computer Numerical Controls (CNC)** - assess the ability to:

- Identify programmable logic controllers (PLC)
- Identify basic input/output (IO) structure
- Understand Servo motors
- Identify open-loop and closed-loop systems
- Understand basic G codes