

# **Fiber and 5G Network Deployment Workforce Roles**

## **Base Understanding of Fiber Optics**

- Introductory level understanding of fiber and cable properties
- Introductory level understanding of the various types of network components
- Introductory level understanding of network protocols and architectures
- Basic fiber and cable “hygiene” – dos and don’ts for fiber optic networks
  - Personal safety
  - Fiber and cable coiling and grooming
  - Observing fiber and cable installation restrictions (bending, tension, etc)
- Basic understanding of typical installation environments
  - Aerial, underground, in-home, in-building, on-building
- Basic Network Functionality
  - Backhaul, PON, Point-to-point
  - Relationship to wireless networks

## **Roles Working Directly with Fiber**

- Underground Splicing Technician- performs splicing operations for underground deployments
- Aerial Fiber Technician- performs splicing operations for fiber assets on Utility/Telephone Poles.
- Lead Splicer- Top splicer usually determines company practice with foreman
- Splicing Foreman- Manages Splicing operations in the field
- Lead Technician- Capable of performing inside and outside fiber installation practices
- Premise Installation Technician- Routes the fiber from outside of the home to the inside and Installs network equipment in the home.

Splicing and connectorization skills required for people focused on splicing/testing

- Ability to interpret network prints and correlate to network splicing requirements
- Understanding of fiber and/or ribbon color and ID codes
- Understanding of mid-span and butt splicing
- Ability to strip and clean a cable
  - Accessing a cable mid-span
- Ability to splice fiber or add a field-installable connector onto a bare fiber or cord
- Ability to groom fibers in a splice tray
- Ability to groom buffer tubes in a closure
- Ability to properly seal a closure

Testing – for people focused on splicing/testing

- Ability to use common fiber cleaning equipment
- Ability to use common network characterization and troubleshooting tools
  - Visual fault locator (red light)
  - Light source and power meter
  - OTDR
- Introductory troubleshooting techniques

## End customer and in-building installation techniques

- End customer service basics
- Appropriate splicing and testing items from above
- Appropriate aerial and underground installation items from above
- In-home and building installation basics
- Troubleshooting techniques (as applicable)

### **Roles Involved with Fiber Cable Placement**

- Aerial Lineman- Deploys fiber optic cable and/or conduit in an aerial environment, pole to pole or pole to premise applications most typical
- Underground Lineman- Deploys fiber optic cable and/or conduit in an underground environment utilizing special equipment
- Site Safety- makes sure that all OSHA Safety regulations are adhered to on site
- Safety Lead- Oversees all project safety personnel
- Flag Person- Responsible for Routing Traffic around a project obstructing a roadway
- Field Engineer- Responsible for ensuring that the Fiber Cable deployment is consistent with the engineering schematic for the project
- Inspector- Reviews placement practices to determine that all operations are being properly adhered to

## Underground installation techniques – for people focused on installation

- Common cable location technique understanding
- Ability to operate common trenching/boring/digging equipment
- Introductory understanding of cable pulling techniques
- Introductory understanding of cable blowing techniques
- Bonding and grounding techniques
- Spare cable management

## Aerial installation techniques – for people focused on installation

- Introductory understanding of sections of a pole with applicable sections of the National Electric Safety Code
- Pole climbing and bucket truck operation skills
- Metallic strand installation techniques – cable and hardware
- Cable lashing techniques
- All-dielectric, self-supporting (ADSS) installation techniques
- Bonding and grounding techniques
- Spare cable management

### **Roles Involved with Cell Site Installation**

- Tower Tech 1

- Tower Tech 2
- Top Hand
- Crew Lead
- Foreman
- General Construction
  - Installation of Pole Foundation
  - Installation of steel, concrete, and wood poles (foundation mounted or direct bury)
  - Concrete pads for equipment cabinets
- Electrician
  - Installation of power meter, power disconnect, power routing, etc.
  - Permitting and electrical inspection
- Wireless Technician
  - Installation of wireless equipment
  - Bucket truck operation
  - Antenna alignment
  - Connectorizing coax jumpers
  - PIM and Sweep Testing
  - Basic traffic control in ROW
- Fiber Splicer
  - Splicing and testing of fiber to small cell site

#### **Roles Required for Network Operations**

- Project Manager- Oversees the overall Project to make sure that all personnel and materials are being utilized to their fullest potential
- Project Foreman- Responsible for keeping all Field Personnel on schedule and materials utilized properly
- Warehouseman- Manages Inventory to keep project operations moving forward by avoiding material shortages
- Dispatcher- Responsible for sending crews into the field to fulfill required field operation
- Estimator- Ensures that Job 'Units" are properly priced so the project stays within its required budget

Network design and layout – Requires introductory level of understanding from various modules above

- Designing and costing a network
- Network design decisions