

## Ladders – Set Up

Falls from ladders are a common cause of serious injuries and fatalities in construction and maintenance projects, including NCC T&D's operations involving substations, transmission lines, and underground cables. Proper ladder setup and use are critical to preventing accidents. This section outlines the requirements and best practices for setting up ladders, tailored to Saudi Arabian regulations and client-specific standards.

### Regulatory and Safety Standards

In Saudi Arabia, the use of ladders must comply with relevant HSE regulations and, where applicable, the specific standards of clients such as Saudi Electricity Company (SEC) and Saudi Aramco (SA). These regulations require:

- Ladders to be free from defects and maintained in good condition.
- Proper setup and securing of ladders to prevent movement or slippage.
- Compliance with NCC T&D IMS HSE standards and any additional client-specific requirements.

### Portable Ladder Setup Requirements

When using portable ladders, NCC T&D must ensure the following:

#### Condition of the Ladder:

- The ladder must be free from defective or loose rungs.
- Inspect the ladder before each use to ensure it is in good working condition.

#### Placement of the Ladder:

- The ladder must be placed on a firm, level footing or support surface.
- Avoid placing ladders on unstable or slippery surfaces, such as loose gravel or mud, which are common in construction sites.

#### Positioning the Ladder:

- For non-self-supporting portable ladders, the base should be positioned between one-quarter (1/4) to one-third (1/3) of the ladder's length from the vertical support point.
- Ensure the ladder is not tied or fastened to another ladder to increase its length unless explicitly allowed by the manufacturer.

#### Securing the Ladder:

- The ladder must be secured at the top and bottom to prevent movement, especially when used for access to elevated work areas such as transmission towers or substation platforms.
- Use non-slip feet, nails, cleats, or other anchoring methods to secure the base.

#### Access and Egress:

- When used as a means of access between levels, the ladder must extend at least 90 cm above the landing surface.
- Ensure the landing areas at the top and bottom are clear of obstructions.

### Step-Ladder Setup Requirements

Step-ladders must be used as follows:

#### Legs and Spreaders:

- Fully spread open the legs and lock the spreaders before use.
- Ensure the ladder is stable and on a level surface.

#### Prohibited Use:

- Workers must not stand or step on the top cap, top step, or pail shelf of a step-ladder.
- Avoid using the top step of extension or trestle ladders.

## Recommended Procedures for Setting Up Ladders

To ensure safe ladder use, NCC T&D recommends the following procedures:

### Pre-Use Inspection:

- Check the ladder for defects, such as cracks, loose rungs, or damaged feet.
- Inspect the surrounding area for trash, materials, or obstructions that could interfere with ladder setup or use.
- Avoid setting up ladders near power lines, especially during overhead transmission line work.

### Proper Setup:

- Set the ladder on a firm, level surface. If the ground is uneven, use a ladder leveling device.
- Secure the base of the ladder to prevent movement, using non-slip feet, nails, or cleats.
- Tie off the top of the ladder or use a ladder stabilizer to prevent slipping.

### Safe Use:

- Use a ladder of the appropriate length for the task, ensuring workers can perform their duties while standing on the fourth rung from the top.
- Maintain three points of contact (two hands and one foot, or two feet and one hand) while climbing.
- Keep your center of gravity within the ladder's side rails to avoid tipping.

### Prohibited Practices:

- Do not use ladders horizontally as platforms or walkways.
- Do not tie ladders together to create a longer ladder unless permitted by the manufacturer.

## NCC T&D Project Leaders Key Responsibilities

Under NCC T&D IMS HSE and client-specific requirements, Project Leaders must:

- Ensure all ladders used on-site are inspected, maintained, and free from defects.
- Provide training to workers on the proper setup, use, and inspection of ladders.
- Ensure ladders are secured and used in accordance with Saudi Arabian HSE standards and manufacturer instructions.
- Conduct regular inspections of ladder setups, particularly in high-risk areas such as transmission towers and substation platforms.

## Training Requirements

Workers who use ladders must receive training that includes:

- The hazards of working with ladders, particularly in NCC T&D's operational context (e.g., transmission towers, substations).
- Proper setup, use, and inspection of ladders.
- Safe climbing techniques, including maintaining three points of contact.
- Emergency procedures in case of a fall or ladder failure.

## Additional Considerations for NCC T&D Projects

Given the high-risk nature of NCC T&D's operations, the following measures are recommended:

- Conduct pre-work hazard assessments to identify ladder-related risks, particularly during maintenance of overhead transmission lines or work in substations.
- Use ladder stabilizers or stand-offs when working near power lines or other obstructions.
- Ensure all workers are equipped with appropriate PPE, including slip-resistant footwear and fall protection harnesses when necessary.

For more information, refer to NCC T&D's relevant IMS procedures or consult our HSE Department for expert guidance and training resources aligned with Saudi Arabian regulatory requirements.

