

## Heat Stress

Heat stress can occur in any work environment where operations are performed in hot, humid conditions, especially when physical labour is involved. This includes both indoor and outdoor settings. Protective clothing, such as PPE, can further exacerbate the risk. Heat stress causes the body's core temperature to rise, leading to a range of health issues—from discomfort (e.g., heat rash and heat cramps) to life-threatening conditions (e.g., heat exhaustion and heat stroke).

In Saudi Arabia, where high temperatures are common, heat stress is a significant concern for workers, particularly in industries like construction, electrical transmission, and maintenance. NCC T&D must take proactive measures to protect workers from heat-related illnesses, especially during extreme heat events or when working near heat-generating equipment.

### NCC T&D Project Leaders Key Responsibilities

NCC T&D Project Leaders must take every reasonable precaution to protect workers from heat stress. This includes developing and implementing a written health and safety policy specifically addressing heat stress. Key responsibilities include:

#### Adjust Work Practices:

- Modify work schedules to reduce exposure to heat, such as scheduling heavy work during cooler parts of the day.
- Implement a work/rest regime to allow workers to cool down periodically.

#### Provide Training and Education:

- Educate workers on the risks of heat stress, symptoms, and preventive measures.
- Train supervisors and workers on how to respond to heat-related illnesses.

#### Monitor Workplace Conditions:

- Regularly assess workplace conditions to identify when hot conditions arise.
- Use tools such as the Wet Bulb Globe Temperature (WBGT) index to measure heat stress risk.

#### Ensure Access to Drinking Water:

- Provide an adequate supply of cool drinking water at all worksites.
- Encourage workers to drink water regularly to stay hydrated.

#### First Aid Preparedness:

- Ensure a sufficient number of workers are trained in first aid to respond to heat-related emergencies.
- Maintain first aid kits with supplies for treating heat stress symptoms.

#### Acclimatization:

- Allow workers time to acclimatize to hot conditions, especially during the start of the hot season or for new workers.

### Worker Responsibilities

Workers are required to follow the training and instructions provided by NCC T&D Project Leaders. They can also take the following steps to protect themselves from heat stress:

- **Be Alert to Symptoms:** Recognize the signs of heat stress in themselves and their coworkers, such as dizziness, nausea, or excessive sweating.
- **Stay Hydrated:** Drink small amounts of water regularly to maintain fluid levels.
- **Avoid Harmful Substances:** Limit consumption of alcohol, illegal drugs, and excessive caffeine, as these can increase the risk of heat stress.

- **Medication Awareness:** Consult a healthcare provider to determine if any prescription medications may increase susceptibility to heat stress.
- **Rest and Sleep:** Ensure adequate rest and sleep to maintain overall health and resilience to heat.

### **Symptoms of Heat Stress**

Workers and supervisors should be aware of the following symptoms of heat-related illnesses:

#### **Heat Rash:**

- Red, itchy skin caused by excessive sweating.
- Common in hot, humid environments.

#### **Heat Cramps:**

- Painful muscle spasms due to dehydration and electrolyte loss.
- Often occurs during or after intense physical activity.

#### **Heat Exhaustion:**

- Symptoms include heavy sweating, weakness, dizziness, nausea, and headache.
- Requires immediate rest, hydration, and cooling.

#### **Heat Stroke:**

- A life-threatening condition characterized by a high body temperature (above 40°C or 104°F), confusion, and loss of consciousness.
- Requires emergency medical attention.

### **Preventive Measures**

To minimize the risk of heat stress, NCC T&D should implement the following measures:

#### **Engineering Controls:**

- Use fans, misting systems, or shade structures to reduce heat exposure.
- Provide air-conditioned rest areas for workers to cool down.

#### **Administrative Controls:**

- Rotate workers to reduce continuous exposure to heat.
- Implement a buddy system to monitor workers for signs of heat stress.

#### **Personal Protective Equipment (PPE):**

- Provide lightweight, breathable clothing and cooling vests where appropriate.
- Ensure workers wear wide-brimmed hats and sunglasses when working outdoors.

#### **Hydration Stations:**

- Set up hydration stations with cool water and electrolyte drinks at convenient locations.
- Encourage workers to drink at least one cup of water every 15-20 minutes.

### **Emergency Response**

In the event of a heat-related illness, the following steps should be taken:

#### **Heat Exhaustion:**

- Move the worker to a cool, shaded area.
- Provide water or electrolyte drinks.
- Loosen clothing and apply cool, wet cloths to the skin.
- Seek medical attention if symptoms persist.

### **Heat Stroke:**

- Call emergency services immediately.
- Move the worker to a cool area.
- Cool the worker rapidly using ice packs, cold water, or wet towels.
- Monitor the worker until medical help arrives.

### **Additional Considerations for NCC T&D Projects**

Given the high temperatures in Saudi Arabia, the following measures are recommended:

- **Heat Stress Monitoring:** Use wearable devices or environmental monitoring tools to track workers' exposure to heat.
- **Cultural Awareness:** Consider cultural practices, such as Ramadan, when planning work schedules and hydration strategies.
- **Client-Specific Requirements:** Ensure compliance with Saudi Electricity Company (SEC) and Saudi Aramco (SA) heat stress guidelines.

### **Key Takeaways**

- **Heat Stress Risks:** Heat stress can lead to serious health issues, including heat exhaustion and heat stroke.
- **Project Leader Duties:** NCC T&D Project Leaders must implement preventive measures, provide training, and ensure access to water and first aid.
- **Worker Duties:** Workers must stay hydrated, recognize symptoms, and follow safety protocols.
- **Emergency Response:** Prompt action is critical in treating heat-related illnesses.

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.