Occupational Risks Associated with Solar Installations: A Review

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INTRODUCTION

There is a core need to review and assess the occupational risks associated with rooftop and ground- mount photovoltaic (PV) installations within the Engineering, Procurement and Construction (EPC) sector of the U.S. Solar industry. This poster presents the health and safety impact, and the means (Controls and Personal Protective Equipment [PPE]) to mitigate the effects of the following risks on PV Installers:

1. Falls from elevated working surfaces [1]
2. Musculoskeletal disorder (MSD) risks [2]
3. Electrical risks and hazards [1]
4. Heat stress [2,3]

SIGNIFICANCE

- Occupational injuries result in loss of income, productivity, discomfort, pain, and death [1, 4].
- The volume of PV installations has increased by 48% annually in the last decade [5].
- Current literature that addresses the effects of occupational risks directly on PV installers is limited.

CONCLUSION

This research can aid occupational safety and health professionals to develop safety protocols based on the hierarchy of controls (i.e., risk elimination, substitution, administrative and engineering controls, and PPE) that reduce occupational hazards, increase productivity on-site and provide an overall safe environment for PV installers.

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REFERENCES


CONTROLS AND PPE

- Sprains, strains, soft tissue injuries and Hand Arm Vibration syndrome [4,12,13].

Electrical Risks and Hazards

- Exposure to shocks, burns and arc flash from electrical components and wiring [17,18].

Musculoskeletal Disorder (MSD) Risks

- Site-specific lifting programs [14]
- Manual handling tools and equipment [4]
- Breaks and stretching sessions [15]
- Use reduced vibration tools [13]
- Anti-vibration gloves [13,16]

Falls from Elevated Working Surfaces

- 75 % of fatal falls in construction involve ladders, roofs and scaffolding [7].

Heat Stress

- Heat stress can result in heat related illnesses such as cramps, exhaustion, and strokes [19].

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Controls and PPE

- Shade, rest stations, fluids [2,20]
- Work-rest schedule based on wet bulb globe temperature [21,22,23]
- Monitor workers for symptoms [20]

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