INTERNATIONAL SAFETY EQUIPMENT ASSOCIATION

ANSI/ISEA 121-2018

American National Standard for Dropped Object Prevention Solutions

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Secretariat
International Safety Equipment Association

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American National Standard

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Foreword (This Foreword is not part of American National Standard ANSI/ISEA 121-2018)

The International Safety Equipment Association (ISEA), in conjunction with industry stakeholders, has developed this standard to establish design, testing and performance criteria for active systems used to prevent dropped objects in the workplace. This standard is the first of its kind to address equipment used to tether and/or contain hand tools, components, structure and other objects from falling from at-heights applications. This standard was prepared by members of ISEA's Dropped Objects working group with the following companies as members at the time of the approval of the standard: 3M Company, Ergodyne, Guardian Fall Protection, Hammerhead Industries, Ty-Flot and West Coast Corporation.

Struck-by falling objects kill hundreds of individuals each year and injure tens of thousands more. Increasing numbers of employees are finding themselves ascending to heights to complete their work often directly over or adjacent to their colleagues, by-standers and other individuals at lower levels. Protective equipment, such as hard hats, have long been available to minimize the effects of struck-by incidents only after an object has fallen. Preventative measures such as netting and toe boards are also a mitigating practice for this this risk, however there are challenges to these solutions and they do not entirely prevent incidents. Active controls utilized to prevent falling objects by tying them off or containing them while at heights are a rapidly growing practice. Recognizing the benefit of these active prevention practices, it is the mission of this group to create guidance for this equipment.

This standard refers to these active dropped object prevention controls and outlines four categories of equipment; Anchor Attachments, Tool Attachments, Tool Tethers, and Containers. The standard is limited to the identified scope as and offers further guidance in the appendices that follow. Utilization and use of the equipment outlined in this standard may differ between manufacturers offering it and employers using it.

Suggestions for the improvement of this standard are welcome. They should be sent to the ISEA, 1901 N. Moore Street, Suite 808, Arlington, VA 22209; e-mail standards@safetyequipment.org.

This standard was processed and approved using consensus procedures prescribed by the American National Standards Institute. The following organizations were contacted prior to the approval of this standard. Inclusion in this list does not necessarily imply that the organization concurred with the submittal of the proposed standard to ANSI.

American Wind Energy Association
CH2M
Chevron BP
Chevron Phillips Chemical Company
East Coast Communications
Hilti
iEnvizion
Intertek
Liberty Mutual Insurance Company
ORCO Engineering
Strobel Energy
Tape Craft Corporation
UGI Utilities, Inc.
United Steel
Vertical Limit Constructions
WDP & Associations
We-Energies
West Coast Corporation

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American National Standard for Dropped Object Prevention Solutions

1. Scope

This standard establishes minimum design, performance, testing and labeling requirements for solutions that reduce dropped objects incidents in industrial and occupational settings. Dropped objects include hand tools, instrumentation, small parts, structural components and other items that have to be transferred and used at heights. These objects have the opportunity of becoming dropped objects potentially resulting in struck-by injury or fatality or damage to equipment. This standard focuses on preventative solutions actively used by workers to mitigate these hazards.

The scope of this standard includes tethering systems subsequently installed to the tools and anchors after original manufacture. The primary tools (hand tools, fasteners, power tools) and primary anchors (human body, lifts, structure) are considered native ends to the system and are specifically excluded from this standard.

This standard does not address passive preventative solutions such as netting, barricades and toe boards, nor does this standard address protective solutions for dropped objects that minimize damage from falling objects including head protection, foot protection, and eye protection. This standard also does not address hoisting or lifting requirements for material handling. These solutions are described in other standards, if applicable.

2. Definitions

Anchor: The beginning point (human body or structure) at which a tether is attached and is relied upon to prevent a tool from dropping.

Anchor attachments: Solutions that are applied to anchors being used at height to create secure connection points for tool tethers and that which are not integral to that anchor. (See Appendix C)

Anchor system: Any product that contains an integral anchor point or group of products that can be assembled or installed together as an anchor attachment.

Captive eye: A feature of a carabiner or snaphook-type connector that prevents the connector from being removed.

Closure system: System designed to secure items from inadvertently being removed from the container.

Connector: A component or element that is used to couple parts of the system together.

Container: A bucket, tool bag or similar device used to hold or transport tools or other equipment. (See Appendix C)

Container static test plate: A fixture such as a steel plate that is smaller than the footprint of the bottom of the container.

Dynamic test: A test where a shock load is exerted by using a test weight falling from a specific height.

Extendable tether: A tether that extends without a distinct stopping point when stretching.

Fixed anchor point: The primary anchoring point in a tethering system used for static and dynamic testing.

Fixed length tether: Tether with a distinct stopping point when stretching.

Free fall distance: The vertical distance travelled by the tool or the test mass from the start of a fall to the initiation of an arrest force.

Fluid weight: A volume of nominal 1-inch steel ball bearings that is equivalent to the desired test weight.

Integral: Not removable from any component, subsystem, or system without damaging any of its elements or using a special tool.