

AES SKYNET™ PATENT PENDING

Complete Skylight Fall Protection System



AES SKYNET™ TESTING

The AES Raptor SKYNET™ is designed to provide fall protection for workers on a roof with skylights.



AES Raptor SKYNET System

The SKYNET frame is constructed of cold-rolled mild steel, powder-coated for corrosion resistance.

The SKYNET System comes unassembled with 4 corners and either 4 or 6 siderails, depending on the model. The small (3'x3') and medium (6'x6') SKYNETs come with 4 siderails, and the large (6'x12') model comes with 6 siderails and 2 siderail connector rails.

The netting used is military-grade airlift cargo netting. It is coated with a UV protectant for long life.

AES RAPTOR, LLC

> The SKYNET System is compliant with OSHA regulation 1926.501(b)(4)(i) for Skylight Fall Protection.

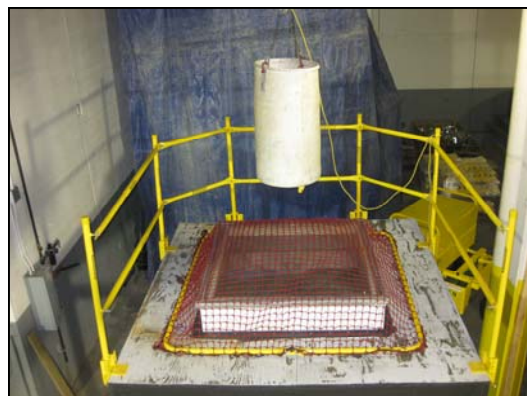
> The SKYNET System can be used on a curbed skylight or affixed with the Secure-Attach brackets..

Testing

The framework the SKYNET™ used for testing was a 2"x 8" frame with 3/4" plywood sheathing. This framework was built with a removable curb for testing both the unattached SKYNET (with curb) and attached SKYNET (without curb, using Secure-Attach brackets) methods of installation

The scale used was a Sherline Suspended Hydraulic Scale with a rating of up to 5,000 (five thousand) pounds. This scale is rated for use both vertically and

horizontally, with an error rate of no greater than 3% in any circumstances. In testing the SKYNET, weights were used far in excess of the OSHA requirements (200 lbs.) In the majority of tests, the weights used were more than 50% greater than the OSHA standards. The scale was "zeroed" before testing and confirmed "zeroed" before each test.



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**OSHA Information
and SKYNET Compliance**

**OSHA does not
“approve” any
product. They
only provide
rules and
guidance for
companies to
comply with.**

OSHA Compliance

The AES Raptor SKYNET™ System is compliant with OSHA Regulation 1926.501(b)(4)(i) for skylight fall protection. The Relevant portions of the Regulation state:

1926.501(b)(4)(i)

Each employee on walking/working surfaces shall be protected from falling through holes (including skylights) more than 6 feet (1.8 m) above lower levels, by personal fall arrest systems, covers, or guardrail systems erected around such holes.

1926.501(b)(4)(iii)

Each employee on a walking/working surface shall be protected from objects falling through holes (including skylights) by covers.

The SKYNET™ System provides a cover for a skylight with its' virtually impenetrable netting. This netting is used by the U.S. military for airlifting cargo.



The SKYNET, while designed as a cover and for personal fall arrest, also protects workers from falling objects in the case of an open skylight opening or hole.

The individual strands of the SKYNET can withstand 895 lbs. of breaking force. There are between 40-120 strands, depending on the model. The small (3'x3') SKYNET has approximately 40 strands, the medium (6'x6')model has approximately 80 strands, and the large (6'x12') model has approximately 120 strands. In any case, the strength of the netting far exceeds OSHA specifications of 200 lbs.



In fact, we tested the SKYNET all the way to a 500 (five hundred) pound drop from 36 inches. The SKYNET passed all the tests given it. In one series of tests, the same netting was used for over 15 drops, with weights ranging from 160 (one hundred sixty) pounds of weight, not including the barrel and connecting wires and brackets, to 497 (four hundred ninety seven) pounds, again not including the weight of the barrel and connecting wires and brackets.



1926.502(i)

"Covers." Covers for holes in floors, roofs, and other walking/working surfaces shall meet the following requirements:

1926.502(i)(2)

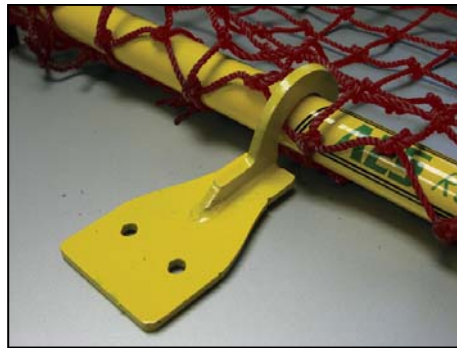
All other covers shall be capable of supporting, without failure, at least twice the weight of employees, equipment, and materials that may be imposed on the cover at any one time.



The SKYNET has been tested with up to 500 lb. drops from 36", which is more than twice the OSHA standard of 200 lbs.

1926.502(i)(3)

All covers shall be secured when installed so as to prevent accidental displacement by the wind, equipment, or employees.



Secure-Attach Bracket

The SKYNET can be equipped with the optional Secure-Attach Brackets, which prevent any accidental displacement of the SKYNET by wind, equipment, or employees.

The Secure-Attach Brackets are sold in sets of 2, 4, or 6, depending on intended usage. For maximum safety, a Secure-Attach Bracket is used on every siderail.

"OSHA specifies 200 lb. weights, but the AES SKYNET was tested up to 500 lbs."

Heat Testing

To test the effects of heat and direct flame on the SKYNET netting, a 3/8" steel piece of plate was heated to the below temperatures and placed on a suspended net.

Here are the results:

- **500 degrees:** Slight discoloration; material holds.
- **550 degrees:** Slow melt through; material holds 30 sec.
- **600 degrees:** Fast melt; 10 sec hold.

With **3,600 degree direct flame** applied, material will burn and shrivel. With **direct heat applied** (no flame) material will distort, but does not catch fire.





SKYNET over shattered skylight after drop



Cold Rolled Mild Steel/UV Protectant

The SKYNET™ frame is formed using 16 gauge steel tubing. The cold-rolled steel used in the SKYNET is finished using a manufacturing process called "Pickle-and-Oil".

In this process, the steel (already cooled to ambient temperature) is uncoiled and pulled through a bath of hydrochloric acid (typically about 30% hydrochloric acid and 70% water) to chemically remove the scale. Then, after the scale has been removed, the steel is washed, dried, and immediately "oiled" to protect it from rust damage. The oil provides an air barrier to shield the bare metal from exposure to air and moisture.

The "Pickle-and-Oil" process is effective in removing substantially all of the oxide layer, including the tightly bonded wustite layer, and results in a surface that is suitable for most coating applications. Powder coat paint process is then used as the preferred coating process.

The netting is coated with a UV protective coating. This coating is the same as that used in Shrimp boat nets that must withstand sun and salt and water, day in and day out. The UV protectant actually takes 30 days to dry on the netting.

