

Sensitive Instrument Facility

Ames Laboratory, U.S. Department of Energy

Ames, Iowa



The Ames Laboratory is a government-owned, contractor-operated national laboratory of the U.S. Department of Energy (DOE), operated by and located on the campus of Iowa State University in Ames, Iowa.

In 2014, The Ames Laboratory broke ground for a new, state-of-the-art Sensitive Instrument Facility, which will house next generation electron microscopy equipment for characterization of materials at the atomic scale. While its exterior is a straight-forward, rectangular-shaped building, its design belies the complexity of creating interior space isolated from vibration or electrical interference. The structure contains thick concrete floors, walls and ceilings designed to minimize vibration and electromagnetic interference.

Moisture contained in a concrete deck poses significant risk and challenges for the roofing industry (loss of adhesion, facer delamination, curling, fastener deterioration, mold growth and R-value loss). Fortunately, the roof applicator, aware of the challenges and effects of applying industry standard roofs, provided an innovative solution to avoid such problems – wind-vented technology. This new construction roof was installed without adhesives or fasteners in the field of the roof. A key strategy is the engineering of low pressure air exchange to achieve moisture mitigation capabilities allowing for the venting of uncured concrete deck moisture. The roof assembly was cost effective, highly weather resistance and will allow for future recycling of roof components to minimizing waste streams.

In 2017, the WindSmart Approved Applicator cored the roof to verify that entrapped moisture had been removed.

The new roof assembly was designed and installed to achieve:

- Controlled low pressure air exchange with moisture venting capabilities
- IBC Code compliance for wind uplift resistance
- Longevity and Recyclability through continual moisture mitigation
- Minimize common risks associated with roofing new construction concrete decks

Owner:

United States Department of Energy

Designer:

Sears Gerbo Architecture, Tucson, Arizona

Roofing Contractor:

WindSmart Approved Applicator

Square Footage:

13,300 sq. ft.

Material and Technology:

60mil thermoplastic membrane,
Air-Sealed, Pressure-Equalized

Year Completed:

September 2015

Contact:

WindSmart, Technologically-Advanced Roofs
Des Moines, Iowa
(800) 474-8186 (toll free)
www.windsmartroofs.com



Technologically-Advanced
Air-Sealed, Pressure-Equalized Commercial Roof Systems®

Key Benefits of the WindSmart® Vented Roof System



Environmental Stewardship

A sustainable long term solution. Roof waste streams are a significant factor in the overloading of landfills. By keeping roof assemblies dry and in place long term, the normal practice of continual tear-off can be avoided.



High Weather Resistance

Greater protection from wind and weather elements. Highly weather resistant roofs require a combination of proper configuration, quality materials and professional installation. The WindSmart Vented Roof System can achieve the highest level of weather protection from wind, rain and hail.



Entrapped Moisture Removal

A roof which can remain dry – long term. The system is laboratory tested and field proven to remove any future entrapped moisture. Ensuring a dry roof is the key strategy for roof longevity, high thermal values and the ongoing recyclability of commercial roof assemblies.



Most Cost-Effective Solution

Lowest life-cycle costs. The WindSmart System can significantly lower initial roof replacement costs. With WindSmart, it is possible to produce the lowest life-cycle cost roof assembly in the marketplace.

WindSmart is driven to support your needs

■ Offering comprehensive technical support

We understand that every project is unique. WindSmart works to understand your needs. We utilizes standardized practices to deliver customized recommendations that are tailored to meet your specific project goals.

■ Making your job less difficult

WindSmart provides standardized drawings and value-added services to support the proper installation of the WindSmart system. Our goal is an installed system that performs to everyone's expectations.

WindSmart® Patented *WindForce 365®* Equalization Vent

WindSmart's patented WindForce 365® Equalization Vent offers the highest performing vented roof system in the industry. WindSmart's technical experience and expansive library of air seal techniques and options are designed to achieve superior performing vented roof assemblies.

