

# Tech Note

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## Design wind speed vs. warranted wind speed

So, what is the difference between a *design wind speed* and a *warranted wind speed*?

The simple answer is, Time.

A design wind speed is based on testing, which takes place over the course of minutes.

A warranted wind speed must last the term of the warranty, which can be decades.

Occasionally there is confusion between 'design wind speed' and 'warranted wind speed'. A design wind speed for a roofing system is often required by local building codes, insurance requirements or designers. While codes do not mandate warranties, they do set the minimum design standards for the roofing system. In response, manufacturers have their products tested to meet those design requirements. Thus testing is the basis for proving a product's performance.

While the typical requirement is for a 'design wind speed', testing is commonly based on 'uplift pressures'. One example is a Factory Mutual 1-90 rating; this is a static test that subjects the roof assembly to a maximum pressure of 90 pounds per square foot over the course of six minutes. When a design wind speed is required, the equivalent uplift pressure is then calculated using the design wind speed and other factors such as roof height and surrounding terrain.

The required uplift pressure is then matched to tested roof assemblies that can meet this uplift pressure. Thus, a roofing system that meets the required design wind speed is determined by a test lasting minutes.

For a warranted wind speed, the roofing system is first designed to meet the required wind speed, and then enhancements are made to compensate for normal wear and tear during the term of the warranty. These enhancements will increase the cost of the roofing system.

Normal wear and tear factors can include:

- Foot traffic
- Daily wind gusts
- Snow load
- Heavy rain fall
- Hail

In summary, a roof meeting a design wind speed is based on a test lasting minutes. In contrast, a warranted wind speed roof has been enhanced (increased number of fasteners, use of stronger insulations, narrower sheets widths, etc.) to withstand the test of time over the length of the warranty, usually measured in decades.

Complete specifications and details are available on the Mule-Hide Products Co., Inc website at [www.mulehide.com](http://www.mulehide.com). If you have any questions or require further assistance, please contact the Mule-Hide Technical Department at (800) 786-1492.