

WHAT IS A 1" STRUCTURAL REINFORCED IMPACT MULL RATING?

Available on Custom impact products, the 1" reinforced mull is a rated impact system. This rating can only be achieved as a factory applied mull. The entire system is tested for Air, Water, and Structural pressures. The mull is then given a "system" rating based on the lowest achieved rating from the three pressure tests (Air, Water, and Structural) required by AAMA 450. All 1" reinforced mull systems meet ASTM E-283 standard for Air, ASTM E-547 & E-331 for Water and ASTM E-330 for positive and negative structural loads. Impact was tested to the ASTM standard E1886/E1996 and to the Dade County standard TAS201/202/203. Impact mulls incorporate an end clip attachment system.

WHY DO YOU TEST THE UNITS SYSTEM BASED ON THE THREE PRESSURE TESTS?

Several reasons. The first is to be reliable. Because JELD-WEN tests its units for Air, Water and Structural ratings and takes the lowest rating of the three, JELD-WEN lets its customers know how the window would perform in all three conditions. Let's say a window had a structural rating of a DP-100 but a water rating of DP-15. Many windy areas receive a lot of rain. If a window company just mentions a Structural DP of 100 but not the water DP of 15 the window would not perform in rainy and windy conditions. JELD-WEN would rate this window at a DP-15 as the 15 was the lowest rating. The Window and Door Manufacturing Association (WDMA) and several other window and door certifiers have seen the difference in presenting performance values and are in the process of approving a new window rating standard called Performance Grade or PG by 2009. PG tests the window for Air, Water and Structural applications and uses the lowest rating just like JELD-WEN does today! It is very important you ask your window manufacturer how they achieved their DP ratings for mull and non-mull systems and if they tested the unit to an Air, Water, and Structural certification.

HOW IS THE MULL SYSTEM TESTED?

The system is tested in JELD-WEN's state-of-the-art R&D facility and verified through an independent third party. The system tests the reinforced 1" mull by completing the Air test for air infiltration; the Water test for water infiltration; the Structural test for positive and negative structural loads, and then completes a rigorous impact and cycling test.

WHAT ARE THE MULL PARAMETERS?

- Mulls must lie within the four parameters to qualify for the system rating.
- Units must be factory mull
- The system configuration cannot exceed
 - » Five wide one high
 - » Five high one wide
 - » Three wide by three high
- The mull system cannot exceed widths or heights of 12'
- The mull opening cannot exceed 75 square feet

DOES A 4 WIDE 2 HIGH MULL FALL WITHIN THE MULL PARAMETERS?

No, based on the second rule of the mull parameters the system cannot exceed a 3 wide stacked configuration.

WHAT IS THE ASTM E-283 STANDARD FOR AIR?

"Test Method for Determining the Rate of Air Leakage through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen." The Air Infiltration is determined in basically the same manner used to determine the "tare weight" of a truck. First, the truck is weighed empty and then truck is weighed full. The "tare weight" is the difference between the two weights, which is the weight of the cargo load. For the window, the entire sample is sealed, the air pressure is applied, and the leakage rate is measured. This is to determine the "Extraneous Air Leakage". The purpose of this is to determine all of the excess air leakage caused by the test apparatus and installation (Empty Truck). Once this reading has been taken, the sample is then unsealed and the air pressure is applied again (Full Truck). The difference between the two readings, the "tare", is the actual rate of air flowing through the window mullion assembly – the total air infiltration. This result is factored using the actual barometric pressure and temperature of the air, to normalize the results for standard comparison. This result is divided by the square footage of the sample to give you a rate in cubic feet per minute per square foot (CFM/ft²). The air infiltration is rated on a Pass/Fail basis. The maximum allowable air infiltration rate through the test sample is 0.3 CFM/ft².

WHAT IS THE ASTM E-547 STANDARD FOR WATER?

"Test Method for Water Penetration of Exterior Windows, Curtain Walls and Doors by Cyclic Static Air Pressure Difference." The ASTM E-547 Water Resistance Test consists of four test cycles. Each cycle consists of five minutes with pressure applied and one minute with pressure released, during which the water spray is continuously applied. Both water tests check the products ability to resist water penetration. The components of the product that are being tested include: The weather seals, the water drainage system (including any weep slots), and the joint construction including any sealant. All test samples receive the required water application of at least 5 gallons per square foot per hour (equal to an 8 inch per hour rainfall). The definition of failure during a water test is when water penetrates past the innermost plane of the product or when water penetrates into the wall cavity.

WHAT IS THE ASTM E-331 STANDARD FOR WATER AND WHY DID JELD-WEN ALSO TEST TO THIS STANDARD FOR THEIR 1" IMPACT MULLION?

Test Method for Water Penetration of Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Difference." This test is required to meet the Dade County protocol. The ASTM E-331 Water Resistance Test consists of one 15 minute cycle, meaning both the water and the air pressure is applied for 15 minutes continuously. All test samples receive the required water application of at least 5 gallons per square foot per hour (equal to an 8 inch per hour rainfall). The definition of failure during a water test is when water penetrates past the innermost plane of the product or when water penetrates into the wall cavity.

AAMA 450/DADE

The impact testing done on the window mullions was performed to two different standards.

1. AAMA 450 and the specific impact and cycling test standards followed were ASTM E 1886 and ASTM E 1996.
2. Dade County protocol and the following test standards, TAS 201, 202, & 203. For additional information on testing standards visit <http://www.jeld-wenresearch.com/>

IF YOU CHOOSE DIFFERENT STYLES OF WINDOWS LIKE A PICTURE MULLED TO A CASEMENT, WHAT RATING WOULD YOU HAVE FOR THE MULLED SYSTEM?

Like the Air, Water, and Structural tests that JELD-WEN does today, you would have the lowest rating of the two windows not to exceed the mull parameters.

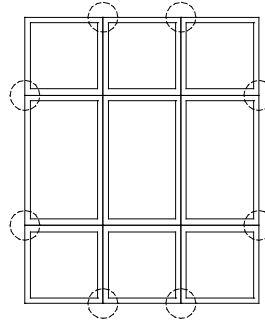
IF YOU HAVE A SINGLE WINDOW MULLED TO A WINDOW OF THE SAME SIZE, WOULD THE SYSTEMS MULL BE THE SAME AS THE SINGLE UNIT?

No; this is very important. Mulls must be tested based on their configuration and you should never assume a single window rated at a DP-50 would be a DP-50 as a mull. Many window manufactures today do not have rated mull systems.

CAN YOU HAVE A MULL RATED SYSTEM WITHOUT THE 1" REINFORCED IMPACT MULL?

Currently JELD-WEN's mull system applies to a Custom 1" reinforced impact mull. There testing is underway to have factory applied non-impact and jamb to jamb mulls certified in the Custom, Premium, and Builders products in the fourth quarter of 2008.

WHAT IS AN END CLIP ATTACHMENT SYSTEM?



Metal end clips are factory applied to the ends of the 1" mullion. These clips help the builder to secure the mull to the specified opening. An example of a clipped system is below.

JELD-WEN Wood Window Clad Impact 1" Reinforced Mulls

Product Type	Securing Application	Casements	Awnings	Pictures	Double Hung	Direct Sets
Water Approvals	Clipped	Meets E-547 and E-331 Standard	Meets E-547 and E-331 Standard	Meets E-547 and E-331 Standard	Meets E-547 and E-331 Standard	Meets E-547 and E-331 Standard
Air Approvals	Clipped	Meets ASTM E-283 Standard	Meets ASTM E-283 Standard	Meets ASTM E-283 Standard	Meets ASTM E-283 Standard	Meets ASTM E-283 Standard
Water Infiltration	Clipped	DP 65	DP 65	DP 65	DP 65	DP 65 at 12' span DP100 at 8' span
Structural	Clipped	DP 75	DP 75	DP 75	DP 75	DP 65 at 12' span DP100 at 8' span
DP Achieved*	Clipped	DP 65	DP 65	DP 65	DP 65	DP 65 at 12' span DP100 at 8' span

* Takes the lowest ratings of Air, Water and Structural ratings which calculates the total systems Design Pressure.