

# Building Enclosure Testing: Spray Racks

## What is building enclosure testing?

Building enclosure testing allows for a more in-depth quality check of different elements of new or renovated construction that may otherwise be missed until well-after residents have moved in. For example, water intrusion through windows and other openings can result in extensive mold and structural damage.

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## How would you test for water intrusion?

At SK Collaborative, we perform ASTM E1105 testing, or "spray rack" testing, to ensure that there is no water penetration on exterior windows and skylights. We test a representative sample of windows and the mock-up wall through this method.

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## How is spray rack testing conducted?

We've made this handy guide for you to learn about our general process for spray-rack testing windows, step by step. Following the proper procedures is essential to making sure the test is performed accurately and provide our clients with the best feedback, after evaluation, on what to do in the case of a faulty window or installation issue.



# Step-by-Step Spray Rack Testing



First, we locate our sources of water and power to connect to our testing instruments.



We must check our testing and design pressures to calculate at what level the test should be conducted-- different windows have different specifications.



The window and testing site should also be inspected and adjusted to be able to properly set up our chamber. A chamber is a sealed area around the tested window.



Here, the window is being sealed so that we can depressurize the chamber and isolate the window. Depressurization testing is optional, but provides added assurance by simulating real-world scenarios. Structural support is added on the inside so it does not collapse, and the corners are securely taped.



We must also set up our fan. This is used to simulate the A/C and other mechanical equipment running within the unit.



Next, we connect the fan to the testing duct.



Insert the other end of the duct to the seal in the window. The green tube in the other opening is then connected to the pressure gauge.



Here's the tricky part: put together the spray rack pieces and set it up!



The spray rack should be 20" away from the window during all tests.



Now the test is up and running! Typically, we will run it about five times with breaks in between to check for leakage.



The air pressure gauge should be checked to make sure the right amount of air is being depressurized, which is calculated using the test and design pressure mentioned prior. For the spray rack, the pressure gauge should always read 12 PSI.



When we ran this test, the window was found to leak due to a manufacturer's issue. Good thing this was caught before construction was complete! This will give time for our client to take the next steps to ensuring better windows are installed