

TECH TIPS

Creating Lasting Impressions with Customer Mock-Ups

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In the HVAC design world there is some uncertainty about the application of new and existing air distribution technologies since codes change so quickly and sometimes drastically. Customer mock-ups of the proposed HVAC design for a specific space are a great way to help resolve design uncertainty! And of course, bringing customers to our facilities only helps them understand the wide range of solutions we offer. My ideal mock-up includes the representative, design engineer, architect, and owner. This diversity makes for a lasting impression and is more likely to lead to the design being based upon Price rather than a competitor. This impression can last a long time...some designers and contractors recall mock-ups from over ten years ago!

Our mock-ups are typically categorized as acoustical, energy or physical performance. Recent mock-ups of each include:

ACOUSTICAL

There are two types of acoustical mock-ups available: in-situ and reverberant.

An in-situ test (performed in Atlanta and shown in Figure 1) is a measurement of the radiated and discharge sound characteristics of a specific fan-powered device.

IN-SITU

We install the terminal in a ceiling cavity above a room that has an acoustical ceiling with no penetrations. This allows for direct measurement of radiated sound in a space that approximates the size and construction of a typical private office. The terminal has both primary and discharge air duct connections. Discharge air is passed through a divider section in the plenum,

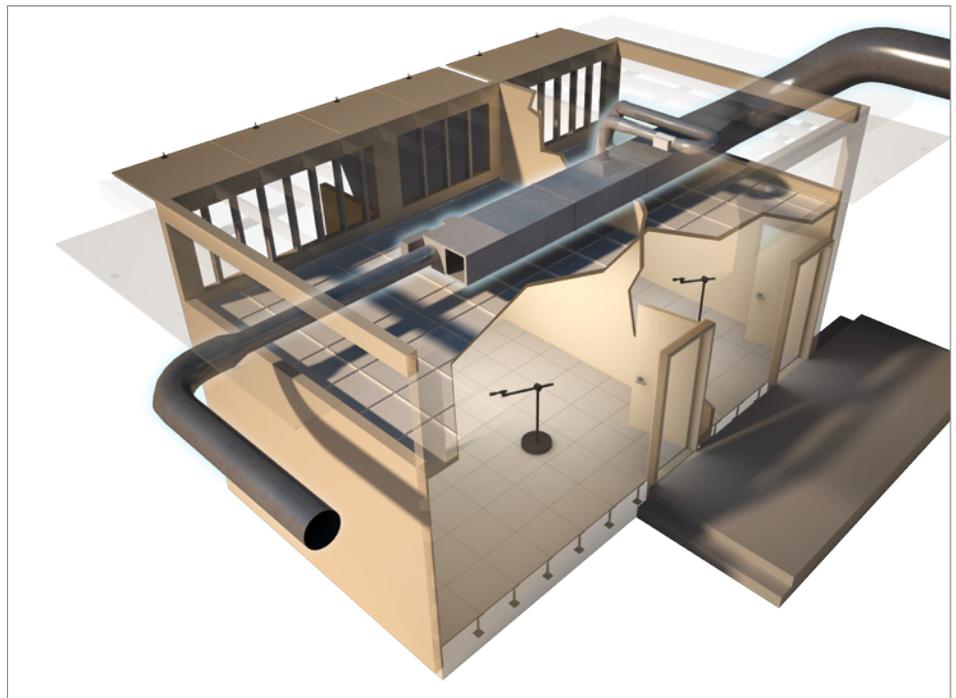


Figure 1: Atlanta's In-Situ Acoustical Test Chamber

allowing little or no radiated sound from the terminal to penetrate into the plenum over the discharge sound room. Then a specific amount of discharge air is directed through a diffuser in the ceiling of the discharge sound room, which allows direct measurement of discharge sound. This is great for educating on the two types of sound, radiated and discharge.

REVERBERANT

A Reverberant test (performed in Winnipeg and shown in Figure 2) is a measurement of the sound characteristics taken per a specific test standard such as ASHRAE Standard 70 or ASHRAE Standard 130. The results are a quantification of the sound power generated by the device in question.

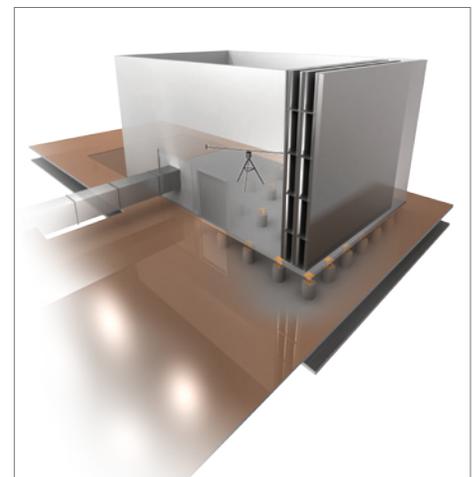


Figure 2: Winnipeg's Reverberant Room

ENERGY

One type of test for energy characteristics is a chilled beam test in the Hydronic Test Chamber located in Price Research Center North (PRCN) (Figure 3). This is one of my favorite tests as it highlights the unique testing capabilities of PRCN. There is no equivalent of this test chamber in North America—you would have to travel to Europe to find a chamber of similar accuracy.

Other types of energy tests include fan coil performance and fan energy consumption.

PHYSICAL

Physical tests include throw distance for a diffuser, pressure drop across a terminal unit primary valve, or temperature mixing characteristics of a dual duct terminal. These mock-ups can take place at either the Atlanta or Winnipeg location, depending on the measurements needed.

Often, a mock-up involves acoustical, energy, and physical aspects. One recent mock-up in Winnipeg explored the interaction between a displacement diffuser and chilled sails, studying the impact on the occupant predicted thermal comfort.

Our mock-up capabilities are perfect for unusual applications of a technology, or when the designer, owner or architect is uncertain how a system will operate. We have four excellent, ready-to-go mock-up facilities in Atlanta.

Mock-up room one (Figure 4) is a full-scale classroom that highlights displacement, chilled beams, and overhead air distribution and simulates loading for occupants, as well as shell gain or loss.

Mock-up room two (Figure 5) is a full-scale, single occupancy patient room that shows various methods of distributing air to meet the requirements of ASHRAE Standard 170, allowing us to discuss the advantages of each method.

Mock-up room three is a full-scale surgical space with operating table and surgical lights, capable of demonstrating the two common cleanroom air distribution methods: perimeter curtain and laminar flow.

Mock-up room four is a full-scale office that can show overhead, displacement, underfloor, and chilled beams in operation.

Please consider utilizing our mock-up services. You will be pleased with how well received they are by your clients.



Figure 3: Hydronic Test Chamber in Winnipeg



Figure 4: Classroom mock-up in Atlanta



Figure 5: Patient room mock-up in Atlanta

