

The Façade Evaluation Facility



Exterior of the Façade Facility

The UNLV Center for Energy Research has developed a facility that can be used to evaluate the thermal and optical performance – if the latter is pertinent – of façade elements, also known as fenestration. This facility is located at UNLV's Solar Site on Flamingo Road in Las Vegas.

This facility (Fig. 1) is a heavily insulated structure that enables the evaluation of various performance aspects of façades, ranging from for common windows to building integrated photovoltaic elements.

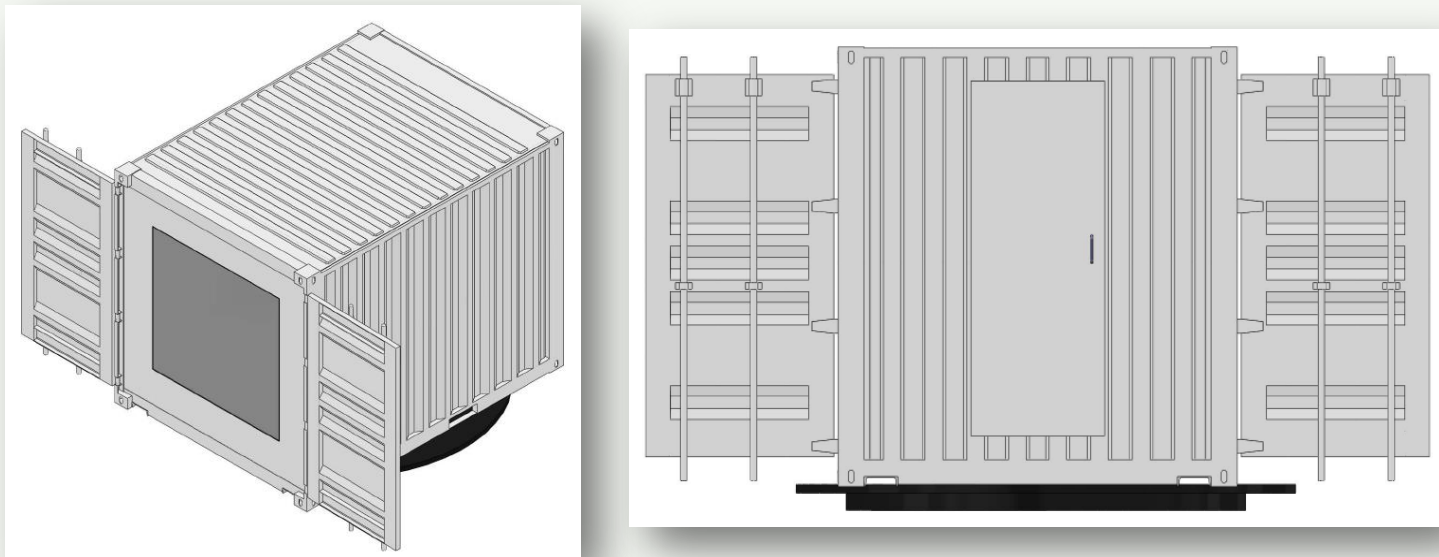


Figure 1. An isometric view of the active area of the facility is shown on at left. A view of the entrance area is shown at right. The black area is a base upon which the unit can be oriented in any desired direction.

Exterior of the Façade Facility

One side, the 'active' side, is designed so that various façade elements can be installed and evaluated, as shown in Fig. 2.

The active side has protective doors that can be closed when the test is not in operation. This side of the structure can be reconfigured very easily to fit various sizes of façade elements.

On the opposite side of this facility, the 'entrance' side, personnel can enter into the structure.



Figure 2. This photo shows the active side of the facility when a fenestration – the openings in the facility's walls – is being tested.

Interior of the Façade Facility

Inside, the structure is outfitted with a variety of thermal and optical instrumentation. The ambient conditions inside the facility can be controlled for temperature set point. The energy required to cool or heat the inner space to maintain this temperature is determined from a calibrated heat pump system.

The unit is mounted on a rotation base (Fig. 3) so that the entire assembly can be set with any desired orientation of the active side.

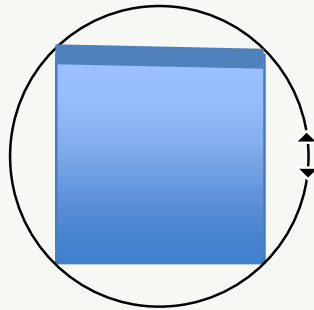


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