



# DE – EE0003915

## Update June 26, 2012

Contributing to Net Zero Building:  
Highly Energy Efficient EIFS Wall Systems

**DOW CORNING**

*We help you invent the future.™*



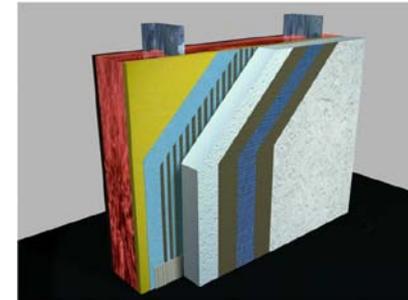
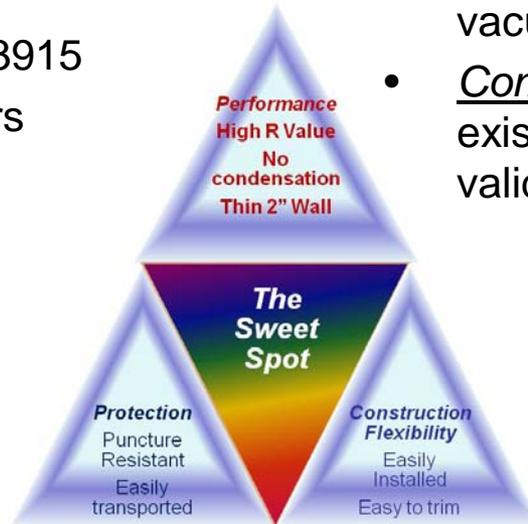
# Contributing to Net Zero Building: Highly Energy Efficient EIFS Wall System

## Objective

- To develop a wall system that integrates vacuum insulation technology with EIFS (Exterior Insulated Façade System) to deliver a commercially viable wall system up to R-40.

## Funding

- DoE grant DE-EE00003915
- 1,241,120 USD / 3 years



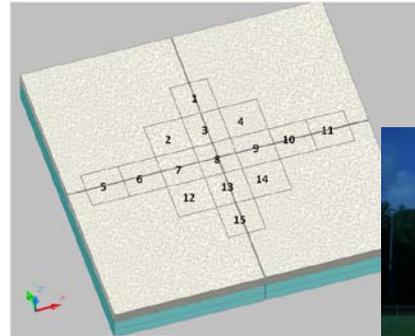
## Deliverables

- Performance – develop wall system configurations of EPS / VIP that can be specified for R values of 20, 30, 40.
- Protection – develop unitized protection system of VIP that can be handled by tradesmen without damaging and losing vacuum
- Compatibility – fully integrate with existing EIFS façade system including validation of current code compliance.

# Contributing to Net Zero Building: Highly Energy Efficient EIFS Wall System

## Progress to date:

- EIFS / VIP integration
  - Multiple configurations of 24x24 panels constructed from foam and VIPs, tested via ASTM C518, and used for wall / panel optimization.
  - 4 tests completed in 8x10' ASTM C1363 Hot box testing, results up to R32. Therm and Wufi validations ongoing.
  - Outdoor wall constructed at ORNL Outdoor Weathering facility in Charleston.
- Field Testing
  - Retrofit site selected in Brunswick Maine ~ 2000ft<sup>2</sup> façade
    - collaboration w/ Dow Corning, Dryvit, MRRA, Mathews Bros, Fraunhofer.
  - Initial construction details and instructions created.
  - Panel configuration and production complete
  - EIFS installation completion targeted June 20<sup>th</sup>.



DOW CORNING

*We help you invent the future.™*

# Contributing to Net Zero Building: Highly Energy Efficient EIFS Wall System

- Future Work
  - Monitoring and modeling of outdoor test wall.
  - Complete Brunswick field testing site and monitor for 1 yr
  - Code compliance testing
    - EIFS Performance:
      - ASTM E2568, E2570, E330, E331: Standard spec for EIFS, Structural wind load testing, Water infiltration
    - Fire:
      - ASTM E119 “Standard Test Methods for Fire Tests of Building Construction and Materials”
      - NFPA 268, 285: Ignitability and fire propagation characteristics of wall assemblies”
  - Complete configuration, installation, and quality control instructions for each wall system (R20, R30, R40).
  - Final Reporting

# Contributing to Net Zero Building: Highly Energy Efficient EIFS Wall System

- Acknowledgements:

- This material is based upon work supported by the Department of Energy under Award Number DE-EE0003915
- Oak Ridge National Laboratories
- Dryvit
- Fraunhofer CSE
- Midcoast Regional Redevelopment Authority
- Smithgroup

- Disclaimer:

- This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.