

# STUDY SUMMARY

## MOISTURE NO. 105

### In-Situ Water Absorption of XPS.

The impact of moisture absorption on the performance of polystyrene foam insulations used for construction applications is an important design consideration. It is known that water absorption into extruded polystyrene (XPS) foam insulations will diminish their R-values. Any change in R-value due to water absorption should be accounted for in the design of construction applications.

This Study Summary provides the results of independent testing of XPS which was removed from four different locations and tested immediately for R-value and moisture content.

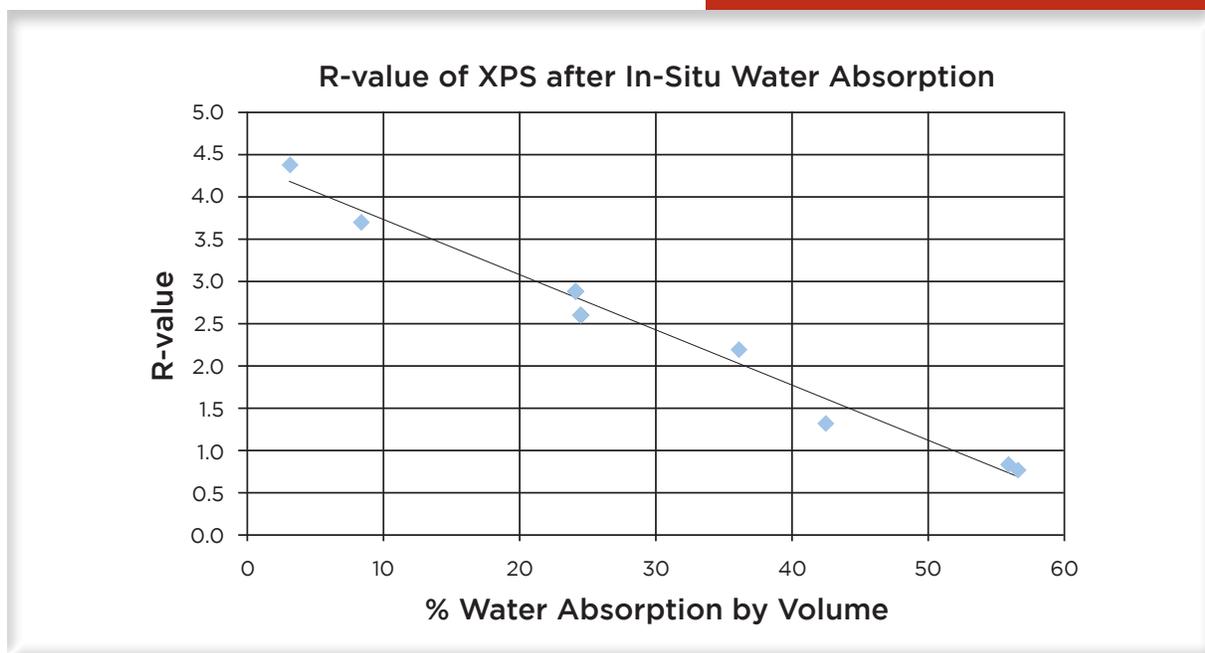
The results of the independent testing are dramatic.

- The water absorption of the XPS was significant, ranging from approximately 5% to 60%.
- The in-situ water absorption of XPS far exceeds the XPS referenced water absorption of 0.3% from laboratory testing.
- The R-value of the XPS is decreased drastically from the claimed R-value of 5.0 down to 0.7 to 4.5, depending on moisture content.
- There is a clear trend in decreasing R-value of XPS with moisture content in XPS even though the samples were removed from four different locations and applications.

See "XPS Insulation Extracted After Field Exposure Confirms High Water Absorption & Diminished R-value" published by expanded polystyrene Industry Alliance in 2014 for additional details.



## FOAM FACTS: XPS R-value and Water Absorption.



<sup>1</sup>Testing was conducted by Element, an independent, accredited Third Party Laboratory.