

APPENDIX H
Summary of 14-Day Mean Daily Moisture
Changes

Exploratory Study of Basement Moisture During Operation of ASD
Radon Control Systems

Contractor Report to EPA

December 6, 2007

14-Day Mean Daily Moisture Changes

A 14-day trend analysis was performed on the moisture data from the basement air and wall and floor clusters at each house. Similar to the 7-day analysis, an auto-regression was performed on the first 14-days of cycles at least 14 days in length. Results are aggregated and reported in Figures H1 – H3. Compared with the 7-day analysis, these data typically show smaller rates of change, both during ASD Off (usually increasing) and ASD On (usually decreasing). This result reflects the pattern of moisture levels changing rapidly immediately after a change in ASD system operation followed by a gradually decreasing change over time as the house and materials try to reach a new moisture equilibrium.

Sealing of the perimeter wall/floor joint at PA01 appears to have diminished the effectiveness of the ASD system in reducing moisture (Figure H1), perhaps by limiting the amount of basement air passing through this crack and diluting the moisture levels in the surrounding materials.

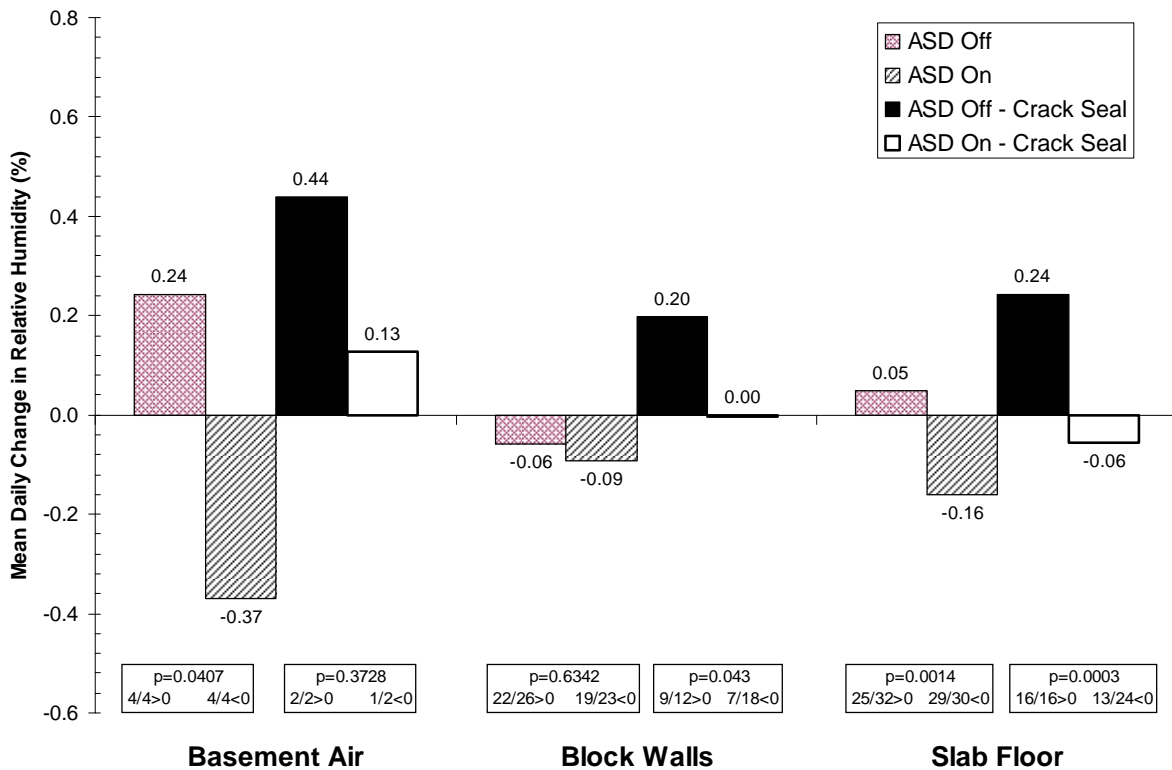


Figure H1. Summary of arithmetic mean daily change for first 14 days of period in basement moisture levels in the air, walls, and slab floor at house PA01 during ASD cycling. The statistical significance of the difference (p) between ‘off’ and ‘on’ is indicated in the box below, along with the number of ‘off’ and ‘on’ cycles (out of total) with a rate of change greater than and less than 0, respectively. For walls and floors, data from a number of different locations are aggregated, as reflected in the total number of cycles. Data include summer and non-summer periods from November 2005 through August 2006.

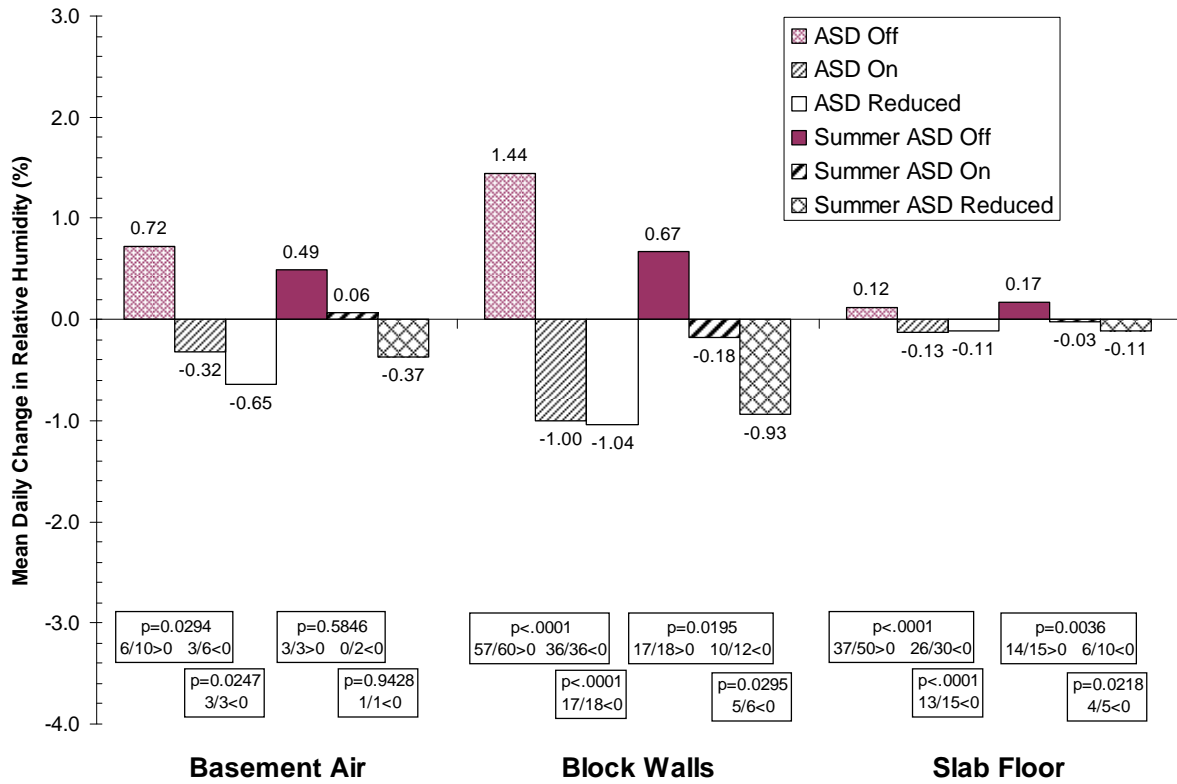


Figure H2. Mean daily changes for first 14 days of period in basement moisture at house PA02 for air, block walls, and slab floors. These data are for December 2005 through January 2007, and include periods when the ASD operation was reduced to a single pipe. Note the change in scale for the y-axis as compared with house PA01.

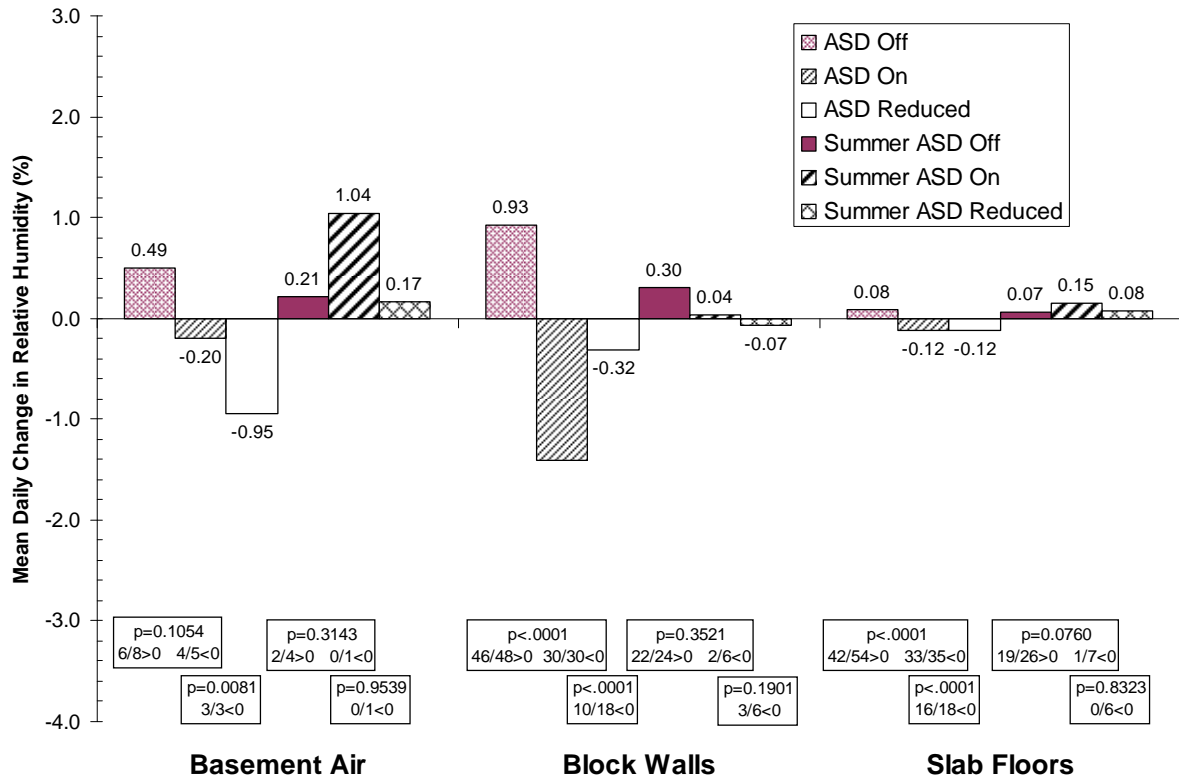


Figure H3. Mean daily changes for first 14 days of period in basement moisture at PA03 for December 2005 through January 2007, where single-pipe, reduced ASD operation is included.