

## ***Appendix B***

### Survey Sample Selection and Data Collection Procedures

#### ***Sample Selection Procedures***

The project intent is to collect data from a total of 70 homes; at least 20 in each of three different climatic regions - the cold/humid Pacific Northwest, the cold Midwest, and the hot/humid Southeast. The following is an outline of the selection process:

1. Develop lists of candidate households using industry contacts including ASHRAE Committee members, state and local agency staff, utility staff, home builders and contractors.
2. Conduct pre-screening telephone calls using the Recruitment Script document (Appendix C).
3. Obtain signed agreements from participants using the Monitoring Agreement attached.

A convenience sample, including a few quota samples to capture a range of conditions, will be utilized. It is important to have a range of household characteristics including high occupancy (6 occupants/1000 square feet) households. And, it is important to have a variety in types of housing (size, configuration, age, etc.)

Some effort will be made to consolidate the sites to a focused area within each climate region, but only if this can be accomplished without compromising the selection goals.

#### ***Data Collection Procedures***

##### **Initial Visit**

An initial field visit will be made to each participant site to complete the attached Field Data Collection Form (Appendix D) and install the data loggers for long-term monitoring of temperature and relative humidity. It is anticipated that this visit will require approximately two hours.

Completion of the Data Collection form will involve a brief in-person survey (1<sup>st</sup> page), observations of construction and mechanical equipment characteristics (1<sup>st</sup> and 2<sup>nd</sup> pages), and testing of the building envelope and duct system(s) (3<sup>rd</sup> page). Bath exhaust fan air flows will be measured with an Alnor LoFlo Balometer or Energy Conservatory Exhaust Fan Flow Meter. A blower door test will be used to quantify envelope tightness. A duct blaster or Delta-Q test will be performed to quantify duct leakage.

Subsequent to this short-term assessment, SWA field technicians will install five data loggers at each site for long-term monitoring of temperature and relative humidity. The following collection data is planned:

- o outdoor temperature and relative humidity
- o primary living space (family/great room) temperature and relative humidity
- o master bedroom temperature and relative humidity (If master bedroom is on the first floor of a two-story home, a second floor bedroom will be substituted.)
- o primary use bathroom temperature and relative humidity
- o basement or crawlspace temperature and relative humidity
- o for slab construction, attic temperature and relative humidity

We currently plan to use HOBO dataloggers by Onset Computer unless a more appropriate product becomes available. These loggers are low cost, nonintrusive, and relatively simple to use. These loggers will record the surrounding temperature and relative humidity every 15 minutes. These data will be averaged during post-processing to provide hourly data for model input.

We anticipate using the Pro v2 U23-002 for outdoor and attic measurements and the U12-011 for indoor measurements. Technicians will secure the loggers in locations that are appropriate for the desired measurement as well as acceptable to the homeowners. Homeowners will be instructed to not move or tamper with the loggers.

### **Interim Visit**

Approximately six months after the initial visit, a second visit to each site will be made. The primary objective of this visit is to check on and download data from the loggers. The loggers have the capacity to hold more than 200 days of readings as 15-minute intervals. It is believed that this interim visit will help assure the integrity and reliability of the data.

### **Final Visit**

Upon one year of data collection, the sites will be visited again to remove and download data from the loggers.

