

## Mechanical Engineering Specs

For

### Multi-Level Homes

America's #1 house-hold problem of uneven heating and cooling is historically identified by three obvious universal characteristics.

1. First the basement is cold and stagnated.
2. Second the main floor is mostly comfortable.
3. Third there are always seasonal discrepancies upstairs.

Therefore, the initial approach to rectify the variation in comfort levels is to diagnose the realistic needs of each individual level. Then, identify a program of compliance that, when implemented, fixes the uneven problem within reason.

The basement typically has 8" thick exterior walls. These walls are recessed into mother earth and capped with a conditioned ceiling. This lower level only needs about 10% of the conditioning available from the central HVAC system. The furnace and ductwork are typically located in the basement. The fact is, this level needs to be de-stagnated or evacuated more than it needs conditioning. The stable excess volume can then mix more evenly with the other two levels in the home. Ninety-nine percent of all basements are not engineered properly to accomplish this. Even finishing the basement doesn't guarantee it will become a comfortable living space.

The first floor main level needs about 30% of the available airflow. This floor has a conditioned floor and ceiling. Although it usually has four exposed outside walls, a portion of these walls are protected by garages and porches. The main level is right above the furnace and ductwork. Because of the proximity to the equipment, this level gets more than enough airflow. It's also typically where the thermostat is located. With this excess conditioning falsely triggering the thermostat, the central system doesn't usually cycle as properly as it should. This leaves the basement and second floor lacking in the right amount and length of treatment.

The upstairs has much more exposure than the other two levels. The second level of a home has only one conditioned surface: the floor. Second floors have four outside walls and a ceiling that are all exposed to the elements. This level is also the furthest away from the furnace and ductwork housed in the basement. The thermostat on the main level is rarely in sync with sensing the temperature extremes generally experienced in the bedrooms. As a result, this is the hardest level to satisfy. The upper level needs 60% of the BTU's and airflow available from the central system.

A "Program of Compliance" has been developed into the Powerzoning method. The first two priorities are to barometrically pressurize the structure plus the equipment

burners and flues through the existing ductwork. The final priority is to set up the existing system to produce the desired 10/30/60 100% balanced delivery.

The Powerzoning method will nearly even out the temperatures from bottom to top in all seasons. Powerzoning is guaranteed to correctly and safely maximize the potential of the existing system. Powerzoning was also developed to recycle any available seasonal latent indoor BTU's of energy thus, cutting back on the constant demand for using the furnace or air conditioner. Powerzoning can cut energy costs up to 35% or more. Powerzoning generates much more powerful airflow top to bottom and adds filters. This provides for accelerated mixing. The result is a much more pristine indoor environment thus improving indoor air quality.

Powerzoning is the greenest available method of moving air and energy around in a single family residence. It is also the #1 method of solving America's #1 household problems of uneven heating and cooling.

Contact us for any questions or comments about how Powerzoning can work for you and when it will be available in your area.

Thank you!  
The Folks @ Powerzoning  
[www.powerzoning.com](http://www.powerzoning.com)

