Improving Savings, Health, and Happiness by Making Small Modifications to Your Home

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Quick Facts

- Mechanical upgrades can increase the overall performance of a house by as much as 40%–50%.
- The remaining 50%–60% inefficiency in the overall performance of a home is largely misunderstood.
- More than 14% of U.S. residents relocate on an annual basis (Avrick, 2011).
- The average cost to prepare a home for sale is approximately $2,000 (Manchester, 2011).
- U.S. families spend, on average, less than 15% of their time interacting together as a unit (Pope, 2012).
- U.S. divorce rates are 50% for first marriages, 67% for second marriages, and 74% for third marriages (Divorce Rate, 2011).

Terms to Help You Get Started

- Home: The house, the land where it is sited, and the occupants residing therein.
- Overall Home Performance: How well the house, its land, and its occupants function to maximize resources.
- Mechanical Upgrades: Largely related to higher-cost heating, ventilation, and air conditioning improvements.
- Minor Conservation Measures: Largely related to lower-cost mechanical upgrades and/or behavior modifications.
- Maintenance: Actions that are executed on a routine basis in order to prevent repairs from occurring.
- Family Operations: Routines and behaviors that are practiced at home by the occupants.

Keywords

Home performance, home-occupant behavior, home maintenance, family operations, home finances

What Is Overall Home Performance and How Might It Affect Your Family?

Modern technology has reached a level such that homes in the United States can be newly built or retrofitted to achieve a 40%–50% increase in overall performance (for example, through energy upgrades). However, the remaining 50%–60% presents a challenge because it continues to be operated ineffectively, and thus, is literally “robbing” potential savings from your family’s household (Taylor et al., 2008). This percentage can be impacted mostly by low-tech energy improvements and changes in daily living practices of home occupants. Until occupants more clearly understand these improvements and practices, there will...
remain a major hurdle in optimizing the overall performance of the home.

This EDIS series of publications introduces readers to the concept of overall home performance and offers suggestions of minor conservation measures, maintenance items, and family operations that could help the family improve the overall home performance. This publication is intended for an academic audience and condenses all the information into one publication, while the other three in the series contain information for a general audience. Other publications in the series include the following:

- **Improving Savings and Health through Minor Conservation Measures in the Home** ([http://edis.ifas.ufl.edu/fy1320](http://edis.ifas.ufl.edu/fy1320))
- **Improving Savings and Health by Maintaining Your Home at a Ready-to-Sell Level** ([http://edis.ifas.ufl.edu/fy1321](http://edis.ifas.ufl.edu/fy1321))
- **Improving Savings, Health, and Happiness by Modifying How the Family Operates the Home** ([http://edis.ifas.ufl.edu/fy1322](http://edis.ifas.ufl.edu/fy1322))

The home-performance energy literature comprehensively addresses high-tech mechanical upgrades that occupants can consider. However, there is a need to re-examine and expand the definition of what constitutes improvements in overall home performance. Specifically, items related to minor conservation measures, maintenance, and family operations need to be considered. Unfortunately, many of these types of items involve some element of comfort and routine, which is the reason that effecting change in home-occupant behavior continues to pose its own set of challenges. Figure 1 depicts a conceptual framework for overall home performance.

**Overall Home-Performance Framework:**

1. Two Inputs (causes) = Variation between homes and variation among occupants' behaviors

2. Three constructs for altering overall home performance = Minor Conservation Measures, Maintenance, and Family Operations

3. Two Outputs (results) = Improved financial and time savings, and stronger families and communities

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**Overall Home-Performance Framework**

- Variation Between Homes
- Variation Among Occupant Behavior
- Minor Conservation Measures
- Financial and Time Savings
- Stronger Families and Communities
- Improved financial and time savings, and stronger families and communities

**Figure 1.** Conceptual framework for overall home performance.
How Might Your Family Benefit by Improving Its Overall Home Performance?

The concept of overall home performance has much to do with re-thinking how we can be happier, which is not necessarily synonymous with being comfortable. Finding ways to keep our family members together under the same roof and in a relatively peaceful state is no easy task. Having extra money to spend on the family rather than paying for unnecessarily excessive costs of maintaining a home is a goal that is attainable and worthy of pursuit.

Financial and Time Savings. If families focus on the various factors comprising their overall home performance, there exists the real possibility of creating financial savings for the family and having more discretionary time. Financial savings accrue sometimes in small increments and often require extended periods of time to accumulate.

Stronger Families and Communities. One of the goals of examining the concept of overall home performance is to develop a commonality where, eventually, data will be accumulated that enable researchers to show correlations between families’ overall home performance scores and such related outputs as divorce, dropout incidence, suicide rates, etc. A direct extension of this concept is to develop metrics that show correlations between a community’s overall home performance scores and the success of such items as a community’s school system, crime rates, property values, and overall quality-of-life measures.

How Are Items Chosen for Improving Overall Home Performance?

Respondents from a representative sample in the United States were asked to rate multiple items—as identified in the literature—that could improve the overall performance of a home (Cantrell, 2012). The goal was to determine which of 81 items the respondents thought had the greatest likelihood of improving the remaining 50%–60% of their home’s overall performance. Within the three categories identified for improving the overall performance of a home, respondents chose 25 of the 27 Minor Conservation Measures; 18 of the 27 Maintenance Practices; and 19 of the 27 Family Operations and daily routines. Although Maintenance Practices were categorically found to be a statistically non-significant factor for increasing the overall performance of the home, they are pivotal for saving time and money when a home must be prepared for sale. Perhaps because some home occupants believe they can deal with that scenario if it should occur, they are complacent in properly maintaining their home before some element of the home fails.

Minor Conservation Measures That Can Potentially Improve Savings and Health

Lists 1 through 3 show the Minor Conservation Measures that the sample participants felt could most likely improve the overall performance of their home (these modifications were most reflective of improvements to the family’s savings and health). Please note that all the items contained in the lists are unranked and not in any order of priority. The implementation timeframes are listed so that readers can gauge how soon they can hope to realistically make these types of modifications within their home.

List 1. Nine Minor Conservation Measures to Consider Implementing Immediately

- Unplug electronics when not in use. When you see a little red or green light lit on an appliance that is in the “off” position, keep in mind that it requires electricity for that little light to stay lit.

- Turn off fans when people are not using the room. Fans only cool skin temperature and do nothing to reduce the temperature of a room.

- Keep interior doors open when the rooms are unoccupied. Opened interior doors help to maintain balanced air pressure in the house. A home is designed to be tightly wrapped with a breathable membrane that allows air in but not water. This “tightness” of modern homes can sometimes trap undesirable gases from leaking out of the house like they did in the past. It is imperative that the house be properly ventilated, both mechanically (forced air) and passively (free-flowing air).

- Use detergents on clothes/dishes that have the least impact on pipes, the environment, etc. Some detergents are less damaging, especially for septic systems.

- Turn off water during activities such as shaving and brushing teeth in order to conserve water.

- Wash clothes at the coolest tolerable water temperature possible in order to conserve hot water (i.e., electricity).
• Avoid the pre-rinsing of dishes whenever possible in order to conserve water.

• Air dry dishes whenever possible in order to conserve electricity.

• Reduce the thermostat setting on the hot-water heater in order to conserve electricity.

List 2. Eight Minor Conservation Measures to Consider Implementing during the Short Term

• Install CFL or LED lighting throughout home. These types of lights use less energy, reduce the amount of heat emitted into the house, and last longer than standard incandescent bulbs used in the past.

• Make sure that the dryer vent is clear of any debris. Dryer-vent blockage can cause dryer fires and require more clothes-drying time.

• Wrap insulation around the hot-water heater tank. Insulation wrapped around the hot-water heater reduces heat loss to the atmosphere.

• Insulate behind electrical outlet boxes, and cap off ones not being used. Insulating behind electrical outlet boxes reduces air leakage.

• Trim ½” off the bottom of interior doors that do not have visible clearance, or install louvered doors. Sufficient clearance helps to maintain balanced air pressure in the house.

• Maintain unbroken weather stripping around windows and exterior doors. Weather stripping reduces air leakage.

• Ensure that the bathroom tub and sink drains do not leak. Leaking drains cause water to be continuously used during activities.

• Install a clean air-conditioning filter. Dirty AC filters require more suction and can cause strain on a compressor.

List 3. Eight Minor Conservation Measures to Consider Implementing during the Long Term

• Ensure that properly sized exhaust-vent fans are installed in the kitchen and bathrooms. Exhaust fans that do not remove sufficient vapor can result in mold, while those removing too much can pull undesirable gases into the house’s airflow.

• Install a programmable thermostat. Programmable thermostats allow greater control over the time and temperature in which air is forced throughout the house, ultimately rendering reduced electricity use and costs.

• Install low-flow toilets and water fixtures. Low-flow toilets and water fixtures conserve water and electricity.

• Ensure that air ducts are sealed tightly at each joint. Sealed air ducts reduce air leakage.

• Ensure that attic space is filled with uncompressed insulation that is piled high. Insulation is designed to capture air and should never be compressed.

• Install a tankless hot-water heater. Tankless water heaters save electricity by only heating water when needed.

• Ensure that the home heating unit is inspected and that it displays an inspection-card history. Inspected heating units indicate that it is safe to operate the unit.

• Ensure that the electrical panel has its circuits/breakers clearly identified on the panel door. Identified circuits on the electric-panel door show which breaker to reset.

Maintenance Practices That Can Potentially Improve Savings and Health

Lists 4 and 5 show the Maintenance Practices that the sample participants felt could most likely improve the overall performance of their home (these practices were most reflective of improvements to the family’s savings and health). Please note that all the items contained in the lists are unranked and not in any order of priority. The implementation timeframes are listed so that readers can gauge how soon they can hope to realistically make these types of modifications within their home.

List 4. Nine Maintenance Practices to Consider Implementing during the Immediate to Short Term

• Ensure that the front entranceway is well lit and clear of obstructions, such as webs, nests, hives, etc. A clear front entranceway is inviting and safe.
• Provide a welcome mat at the front entrance to the house. Welcome mats keep people from slipping and floors clean, while also reflecting the character of the home. The character of the home often affects the unconscious first impressions that visitors to the property create and sometimes retain regardless of future improvements done to the property.

• Ensure that the mailbox displays the address with reflective numbers. A properly maintained mailbox can help the fire department verify the location of the house while also reflecting the home’s character.

• Ensure that parked cars appear neat, orderly, and well maintained. Disorderly parked cars can negatively affect curb appeal and can be unsafe. Curb appeal often affects the unconscious first impressions that potential visitors to the property create as they are driving by and observing the home. These impressions often determine whether or not they choose to visit the home.

• Ensure that trees, shrubs, and grass are trimmed. Landscaping keeps the lawn looking maintained, provides drainage (if vegetation is sloped away from the house), and gives the home curb appeal.

• Ensure that any fences are not broken, are painted, and have working gate latches. Working gates are for safety, privacy, and curb appeal.

• Ensure that any screen or storm door is in proper tension for opening and closing. Proper tension in screen and storm doors saves energy and can prevent injuries.

• Ensure that there is a doorbell in proper working order. Functioning doorbells help to ensure that adults can hear children who cannot knock hard enough to be heard.

• Ensure that there are doorstops behind doors. Doorstops prevent wall damage. (Be aware that doorstops can pose choking issues for infants.)

• If there is a deck, ensure that its boards are flipped, its screws are fastened, and it is sealed. Caring for deck boards can reduce wear and injuries caused by nail pops.

• If there are deck guardrails, ensure that they are spaced according to building codes. Properly spaced deck rails can reduce the chances of infant strangulation.

• Ensure that the roof is free of loose, wavy, streaked, or faded shingles. Caring for roof shingles can reduce the chances of roof damage and improves curb appeal.

• If there is a garage, ensure that its door is sturdy and clean. A strong garage door is safer during wind events and can improve curb appeal.

• Ensure that ceiling-fan blades are balanced and dusted. Balanced blades can reduce wear on the fan motor bearings, and clean blades can reduce the amount of dust particles emitted into the air.

• Ensure that trees are free of any dead branches or limbs. Trees and branches can be a safety hazard to the roof and occupants.

• Ensure that the back porch, patio, or lanai is uncluttered. Cluttered home recreation areas can be a safety hazard and lack curb appeal.

Ensure that exterior lights turn on and off automatically based on the level of daylight by installing photocell sensors, which enable the switch to be left in the “on” position at all times. This helps conserve electricity.

**Family Operations That Can Potentially Improve Savings, Health, and Happiness**

Lists 6 and 7 show the Family Operations that the sample participants felt could most likely improve the overall performance of their home (these practices were most reflective of improvements to the family’s savings, health, and happiness). Please note that all of the items contained in the lists are unranked and not in any order of priority. The implementation timeframes are listed so that readers can gauge how soon they can hope to realistically make these types of modifications within their home.

**List 5. Nine Maintenance Practices to Consider Implementing during the Short to Long Term**

• Ensure that there are minimal amounts of green grassy areas. Minimizing green grassy areas can reduce the need to use pesticides, fertilizers, and/or irrigation (which consumes drinking water in many instances).
**List 6. Nine Family Operations to Consider Implementing during the Immediate to Short Term**

- Ensure that tasks are accomplished around the home on a routine schedule. Staying “on top of things” can reduce frustration and the need to obligate time that could otherwise be spent with the family.

- Ensure that there are well-organized storage areas. Organized storage can reduce frustration, offer time savings, and be safer because of the reduced need for unpacking and re-packing.

- Ensure that there is a designated work area where items can be assembled and repaired. Designated work areas can reduce frustration and the risk of injury and damage to items.

- Ensure that the correct tools are easily accessible in order to accomplish specific tasks. Accessing correct tools for the task can reduce frustration, re-work, and injury.

- Do not attempt repairs and upgrades without first gaining proper knowledge. Proper training about home improvements can reduce frustration, re-work, and injuries.

- Do not use furniture for more than one purpose (e.g., table as a desk, etc.). Repurposing furniture can be frustrating, time-consuming, and disorganized.

- Ensure that there is a designated office space where files can be accessed readily. Having a defined office space can reduce frustration and save time.

- Ensure that there is a computer area visible from the main rooms in the house (living room, kitchen, etc.). Overseeing the computing/web-browsing area protects the safety of minors while also increasing family interaction.

- Ensure that there is a designated payment book (for Home Owner Association dues/tax escrow accounts/maintenance, etc.). A payment notebook can reduce frustration and late charges while also saving time.

**List 7. Ten Family Operations to Consider Implementing during the Short to Long Term**

- Have pre-made, pre-ordered, or pre-purchased dinners. Prepared dinners can allow for more, healthier family meals while also saving time.

- Ingest edible foods that are produced at home (on your property). Ingesting foods prepared on the property can foster a sense of well-being while also educating children about agricultural lessons no longer taught in most schools.

- Ensure that all communication devices (TVs, computers, cell phones, etc.) are silenced and not allowed at the dinner table. Silencing communication devices and not allowing them at the dinner table can enable focused ingestion, communication, and digestion.

- Do not offer second portions or rich desserts at dinner. Not offering second portions or rich desserts during dinner helps enforce portion control.

- Ensure that everyone takes a 15-minute walk together or stretches after dinner. Family walking/stretching after dinner can foster improved digestion/health.

- Ensure that adults view at least 15 minutes of commercial-free international news after dinner. International news viewing can foster a more informed, less-biased opinion.

- Ensure that all communication devices are surrendered to a “safe” place for the night. Silencing communication devices and putting them out of reach for the night helps to enable full focus on preparing for and receiving uninterrupted rest.

- Ensure that all lights are turned off for the night no later than 9 p.m. Turning lights off by 9 p.m. can help to ensure that everyone will have adequate time to be well-rested during the following day.

- Ensure that 30 minutes are taken to slowly wake the family in the morning. Waking up slowly during a 30-minute period can reduce stress associated with having to get out of bed and start the day.

- Ensure that everyone stretches for at least 15 minutes after awakening. Stretching in the morning can increase blood flow and oxygen while reducing the chances of muscle injury.

**Summary**

When considered individually, none of the three categories (i.e., Minor Conservation Measures, Maintenance Practices, or Family Operations) will necessarily result in instant improvements in overall savings, health, and happiness. However, when considered collectively, the results will
become more noticeable over time. The point is not to seek instant results but rather to establish a lifestyle that naturally gravitates toward conserving and optimizing resources.

References and Resources


Cantrell, R. (Forthcoming). The introduction and development of the homeflow measurement instrument. Journal of Housing and the Built Environment.


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