



Lendlease Building Energy Management System

Better Buildings Challenge Implementation Model Toolkit – BEMS Portal
April 2017

lendlease

The screenshot displays the BEMS web portal interface. On the left is a dark sidebar with a navigation menu. The top of the sidebar shows a 'Welcome' message, a 'Log Out' button, and the current user 'LL16167'. Below this is a search box for users and a 'Select' button. The navigation menu includes: Savings Dashboard, User Administration, Environmental Scorecard, Thermostat Settings (highlighted), Vacation Schedule, Water Heater Settings, and Energy Usage.

The main content area is titled 'Thermostat Settings' and features a large, circular virtual thermostat interface. The thermostat displays 'Room Temp' as 72.3°. It includes several controls: a power button, an 'Off' button, a 'Schedule' button, and a 'Setting' section with a text input field and up/down arrows. An 'Accept' button is located below the setting controls. A 'Thermostat' label with a thermometer icon is positioned above the thermostat graphic.

Residents are able to log in to the BEMS web portal through a username and password, which will navigate the user to the home they are currently residing in. This virtual thermostat allows the residents to monitor the current temperature of their home and adjust the HVAC settings remotely. By selecting the “Schedule” toggle button, the residents can customize their thermostat to pre-set temperature controls according to time of day, which is one of the main driver of energy savings.

The screenshot displays a web portal interface for energy monitoring. On the left is a dark sidebar with a 'Log Out' button and a menu of options: Savings Dashboard, User Administration, Environmental Scorecard, Thermostat Settings, Vacation Schedule, Water Heater Settings, Energy Usage, Energy Conservation Tips, and Home Audit (with a notification badge of 5). The main content area is titled 'April 2017 ESTIMATED' and includes navigation arrows. It features a 'My Electric Usage' gauge showing 77 kWh, with a legend for 'Excellent' (green), 'Average' (yellow), and 'Poor' (red). Below the gauge is a legend for energy sources: Cooling (blue), Heating (cyan), and Plug Loads (grey). Two pie charts, 'My Home' and 'Similar Homes', show the distribution of energy use among these three categories. In both charts, Plug Loads is the largest category, followed by Cooling, and Heating is the smallest.

This page allows the residents to understand their home's energy performance in comparison to other homes similar in size, year-built, and model within their neighborhood. Residents are empowered to understand and make changes based on whether the main source of energy consumption is derived from heating and cooling of the home, or other sources such as lighting, appliances, and electronics. This also allows the maintenance team to identify HVAC systems that may be underperforming, improving operational costs and management.

The screenshot displays the BEMS web portal interface. On the left is a dark sidebar with a navigation menu. The main content area is titled "Vacation Schedule" and features an airplane icon. It contains two rows of date and time pickers for "Start Date" and "End Date", both set to "04-05-2017" and "12:00 AM". Below these are two buttons: "Set Vacation" (green) and "Cancel Vacation" (red). A note at the bottom explains the system's behavior during vacation mode.

Current User: LL16167
Select User by Address Search:

Start Date: 04-05-2017 12:00 AM

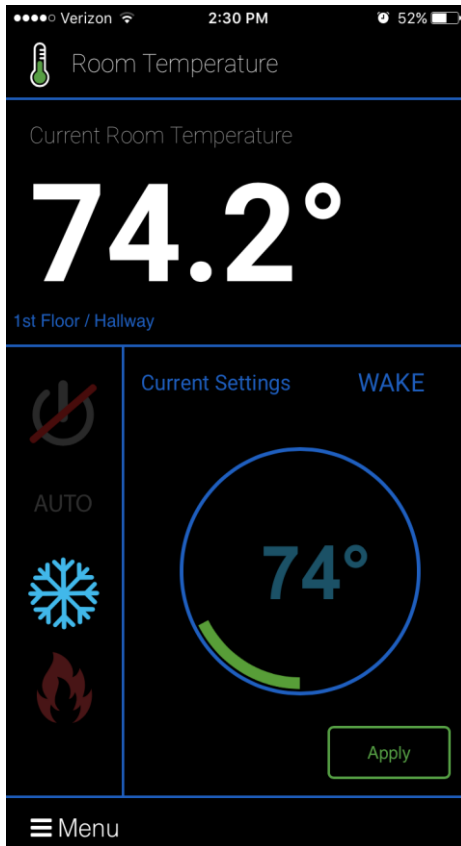
End Date: 04-05-2017 12:00 AM

[Set Vacation](#) [Cancel Vacation](#)

Note: When in Vacation Mode, heat will be set to 62°F, air conditioning will be set to 85°F and water heater will be run as little as possible.

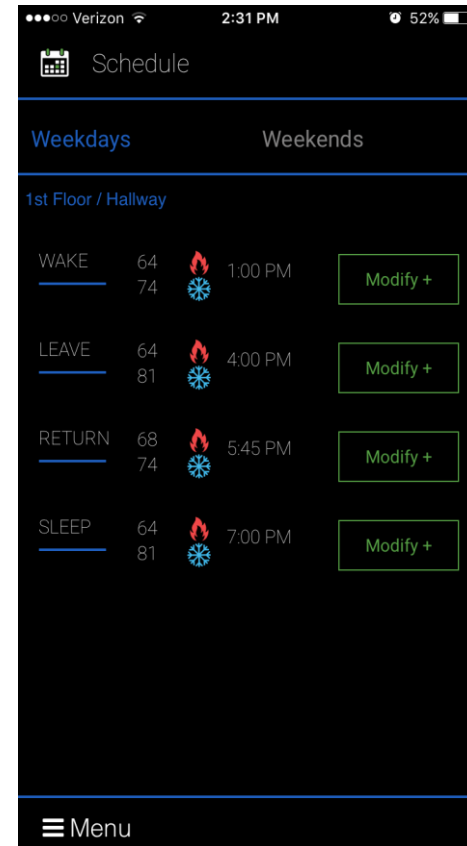
The BEMS features a Vacation Scheduler, which allows the residents to identify days their home will be unoccupied. Vacation Mode overrides the original thermostat settings to an aggressive energy saving settings of 62°F for heating, and 85°F for cooling for the set dates. Once the assigned time frame has passed, the thermostat settings revert back to the original settings, in time to make the home comfortable for its resident(s) return.

Mobile Application Interface



Mobile Thermostat

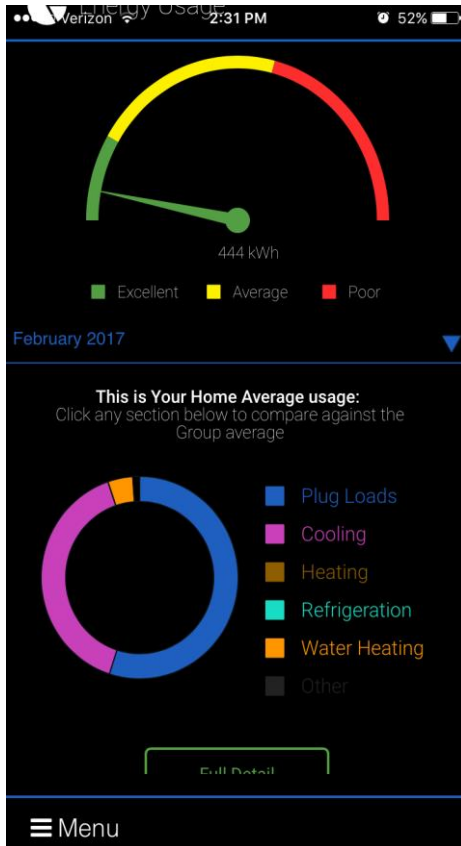
The BEMS solution also provides a mobile application, increasing its user-friendliness for residents. This interface allows basic control of the HVAC system to any user: current temperature of home, thermostat temperature setting, heating vs. cooling, fan on/auto.



Smart Temperature Setting

Residents are able to customize their temperature setting based on different times of the day. The four set points are: Wake, Leave, Return, and Sleep. By lowering the set point for heating and increasing it for cooling during the Leave – Return timeframe, residents can save energy while the home is unoccupied during the day.

Mobile Application Interface



Energy Use Monitor

Residents are able to monitor their energy consumption through the mobile app, which also breaks their consumption down by energy source and how they compare to other homes of similar size, year-built, and model.

The screenshot shows the 'Vacation Scheduler' screen. At the top, it displays 'Verizon', '2:31 PM', and '52%' battery. The title 'Vacation Scheduler' is at the top. The 'START DATE' section shows a calendar icon and the date 'Mar 30, 2017'. Below it is a 'Set Time' field with a clock icon and the time '12:00 AM'. The 'END DATE' section shows a calendar icon and the date 'Mar 30, 2017'. Below it is another 'Set Time' field with a clock icon and the time '12:00 AM'. A 'Save' button is at the bottom right. At the bottom, it displays 'Vacation setting - Heat 62°F, Cool 85°F, Water Heater Off.' and a 'Menu' icon in the bottom left corner.

Vacation Mode Scheduler

When a home will be unoccupied for longer period of time, the resident can choose to initiate "Vacation Mode" for their home for a specified time frame. This will temporarily suspend their original thermostat settings and maintain their home at 62°F for winters, and 85°F for summers, ensuring their homes are not heating/cooling unnecessarily.