COMMERCIAL RETAIL GUIDE

2015 Hawai'i Energy Code Compliance

October 2017

The 2015 Hawai'i Energy Code (HEC) supports Hawai'i's journey to 100% clean energy by updating the existing conservation code to provide greater energy savings. This document highlights the key elements in the code for commercial for retail spaces. The HEC is modeled on the 2015 International Energy Conservation Code (IECC), with amendments unique to Hawai'i. This new code is expected to be adopted by all counties by early 2018.

This guide reviews the commercial HEC covering the building envelope, HVAC, and lighting provisions pertinent to either designing a new retail building, or altering a building or approving a tenant buildout. Code requirements that are new or substantially changed in the 2015 HEC are highlighted in light blue.

For further code compliance guidance, checklists, and resources, and for access to the 2015 IECC and the Hawai'i amendments, please visit hawaiienergy.com/resources.

Building Alteration/Tenant Buildout. Alterations or repairs requiring a building permit must conform to the applicable energy provisions. When unconditioned space becomes a conditioned space, all of the new 2015 HEC construction requirements applying to the envelope and systems must be met.

New Building. If you are designing a new retail building or space, the building envelope, lighting, and HVAC system must comply with the 2015 HEC.

Energy Code Provision	Provision Number	Summary	New Building	Alteration / Buildout	Why it Matters
RETAIL ENVELOPE					
Building Envelope Requirements	C402	All of the building envelope requirements must be met, including fenestration, daylighting, insulation, and air sealing	●		New increased envelope requirements reduce the cooling load for the space.
RETAIL MECHANICAL (SINGLE ZONE UNITARY SYSTEMS)					
Cooling Load Calculations	C403.2.1	All cooling loads must be calculated to have a properly designed system	●	●	Performing cooling load calculations ensures that the system is "right sized" for the building's needs.
Equipment Sizing	C403.2.2	The HVAC equipment installed must be sized correctly to meet the cooling loads	●	●	Sizing the HVAC system based on the cooling load calculations reduces energy waste.
Equipment Efficiency	C403.2.3	The HVAC equipment must meet the federal minimum standards for equipment efficiencies	●	●	An increase in cooling equipment efficiency results in lower energy use for the cooling system.
Thermostats	C403.2.4.1	Thermostat controls must be installed for all HVAC equipment	●	●	Thermostats allow a specific temperature setpoint to be selected to ensure occupant comfort.
Off-hour Controls	C403.2.4.2	There must be equipment controls installed that function for off-hour operations.	●	●	Controls that turn the system off or set the system up saves energy during times when the building is unoccupied.
Demand Control Ventilation	C403.2.6.1	Demand control ventilation must be installed to regulate fresh air intake	●	●	Decreases energy use from ventilation load by reducing ventilation during periods with low occupancy.
Ducts	C403.2.9	All ducts and plenums must be sealed and insulated to maintain proper air temperatures and facilitate the design load	●	●	Sealing and insulating ductwork located in unconditioned space and outside of the building will increase the efficiency of the air distribution system.

2015 Hawai'i Energy Code Compliance for Retail

Energy Code Provision	Provision Number	Summary	New Building	Alteration / Buildout	Why it Matters
RETAIL LIGHTING					
Interior Controls	C405.2.1	Occupany sensors must be installed for all interior lighting	●	●	Occupancy sensors reduce wasted lighting energy as well as reduce the HVAC load.
Automatic Time Switch	C405.2.2	Time switch controls must be installed for all interior lighting (except for emergency egress lighting)	●	●	Automatic time switch controls installed in spaces not containing occupancy sensors saves lighting energy.
Lighting Reduction Controls	C405.2.2.2	Light-reduction controls must be installed with the capabilities of reducing the lighting load by 50%	●	●	Controls allow the occupant to dim the lights by at least 50% when full lighting is not needed, saving lighting energy as well as HVAC cooling load.
Manual Controls	C405.2.2.3	Manual controls must be installed for certain occupancies	●	●	Manual controls allow spaces to be independently lit, reducing lighting load and HVAC cooling load.
Daylighting Controls	C405.2.3	Controls must be installed that will reduce light emission when daylight is detected	●	●	Automatic daylighting controls enable natural light from windows or skylights to replace general lighting, reducing the lighting load as well as the HVAC cooling load.
Specific Application Controls	C405.2.4	Independent lighting controls must be installed for display and accent lighting as well as lighting equipment that is used for marketing purposes	●	●	Independent lighting controls allows more focused illumination, decreasing the lighting load.
Exterior Controls	C405.2.5	Exterior lighting must have independent lighting controls	●	●	Exterior lighting controls ensure lights are only on during specific periods and lighting for signage can be turned off when not needed, reducing lighting load.
Interior Lighting Power	C405.4.2.1	The interior lighting power must be calculated to comply with lighting power density (LPD) requirements—either the space-by-space method or the building area method can be used	●	●	Limiting LPD reduces the required electrical load and HVAC cooling load.
Space-By-Space Method	C405.4.2.2	The lighting power allowance is determined by specific space occupancy—typically used when a building has multiple occupancies	●	●	Limiting LPD reduces the required electrical load and HVAC cooling load.
Building Area Method	C405.4.2.1	The lighting power allowance is determined by whole building occupancy type—typically used when a building has a single occupancy type	●	●	Limiting LPD reduces the required electrical load and HVAC cooling load.
Additional Lighting Power	C405.4.2.2.1	For retail spaces, an additional lighting power allowance accounts for different display types	●	●	Additional lighting power provides the lighting designer with a budget for display lighting that can be used in addition to the general lighting allowance.
Exterior Lighting Power	C405.5.1	Exterior building lighting power must be calculated by building zone type per Table C405.6.2(1)	●	●	Exterior lighting power allowances limits the total wattage of the lighting system, reducing electrical load.
REQUIRED ADDITIONAL EFFICIENCY PACKAGE					
Additional Efficiency	C406	Select an additional energy efficiency item in addition to complying with the prescriptive requirements	●		The additional efficiency packages provide an additional 3% to 4% savings over the prescriptive requirements of the code, resulting in a building that uses less energy that the 2006 IECC.