



ASHRAE 90.1-2019 COMPLIANCE

The updated ASHRAE 90.1-2019 standard creates more stringent lighting and HVAC control requirements for commercial buildings than the previous 2013 version. The U.S. Department of Energy (DOE) has named ASHRAE 90.1 as the national energy reference standard. As such, all states in the United States must put into effect a commercial building energy code at least as stringent as the ASHRAE 90.1-2013 version by September 26, 2016. The updated standard still applies to all new construction projects and retrofit projects with alterations greater than or equal to 10% of the connected lighting load.

Changes in the ASHRAE/ANSI/IES 90.1-2019 pose a tougher stance on interior lighting power allowances, further tweaking of already stringent control requirements and integration of all commissioning activities into a series of building commissioning activities. Changes also offer a new, simplified Building Area Method which can be used for interior and exterior lighting calculations for new buildings and tenant improvements under 25,000 sq ft. To comply, the designer simply consults a series of tables listing various applications in office, retail, and school buildings along with maximum lighting power allowances and applicable mandatory control requirements. Some specific changes include:

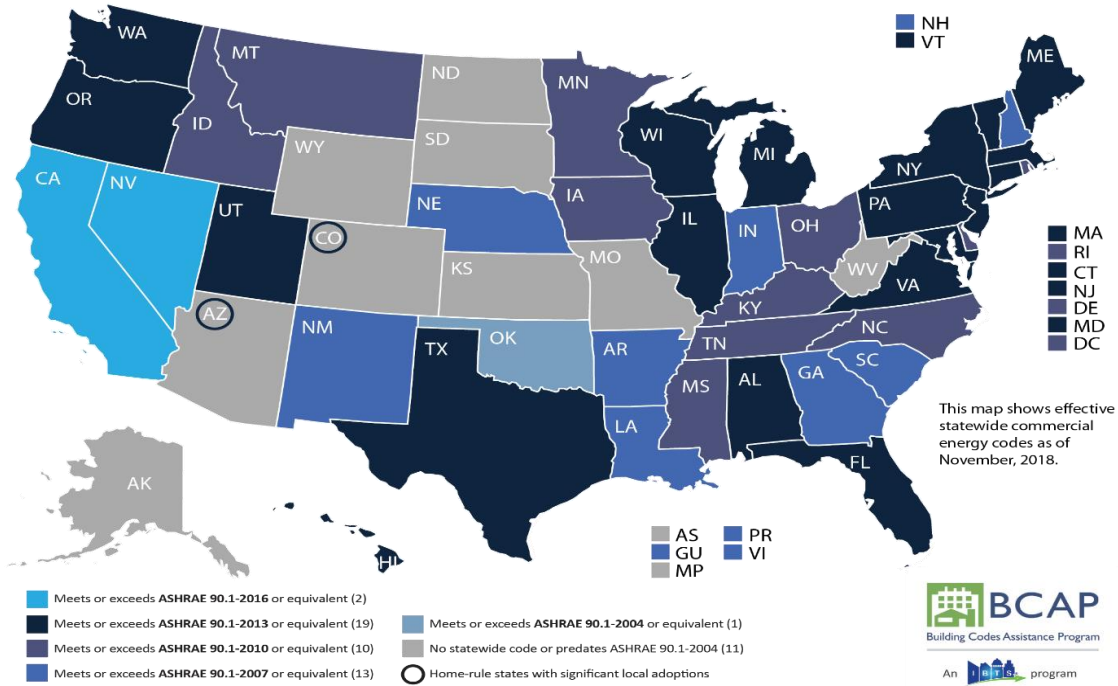
- General reduction in power allowances with exception for automotive, exercise centers, gyms, libraries, parking garages, and workshops which saw an increase in power allowance.

Building type	90.1-2016	90.1-2019	Change
Office	0.79W/sq.ft.	0.64W/sq.ft.	-19%
Retail	1.06W/sq.ft.	0.84W/sq.ft.	-21%
School/University	0.81W/sq.ft.	0.72W/sq.ft.	-11%
Hospital	1.05W/sq.ft.	0.96W/sq.ft.	-9%
Manufacturing	0.90W/sq.ft.	0.82W/sq.ft.	-9%
Warehouse	0.48W/sq.ft.	0.45W/sq.ft.	-6%

- Additional lighting control requirements for parking garages to account for the use of LED technology
- Updated daylight-responsive control requirements for sidelighting and toplighting
- Introduction of the definition for “continuous dimming” based on NEMA LSD-64-2014
- Commissioning changes depicted in subsections of Section 4.2.5, which now conform with ASHRAE/IES Standard 202.

Autani’s innovative EnergyCenter energy management solution provides you with a comprehensive, budget-friendly means to meet the updated ASHRAE 90.1-2019 standards.

COMMERCIAL ENERGY CODE ADOPTION



Are you ASHRAE Compliant?

To learn how Autani's innovative energy management products can help your facility become ASHRAE compliant, email sales@autani.com, call **443.320.2233**, or visit our website www.autani.com.

ASHRAE 90.1-2019 STANDARD

New construction projects and retrofit projects with alterations $\geq 10\%$ of the connected lighting load are subject to the ASHRAE/ANSI/IES 90.1-2019 Standard.

ASHRAE/ANSI/IES 90.1-2019 Standard: Lighting Control Requirements		
LOCATION	REQUIREMENT	AUTANI SOLUTION
All Interior Spaces <i>except areas listed below</i>	Lighting system must be turned off when not in use.	Autani control solution allows for lighting system control via occupancy sensors, custom scheduling, and local overrides.
	Enclosed spaces must be independently controlled by manual control devices or occupancy sensors with Manual-On or Auto-On to no more than 50%.	Autani area controllers provide manual on/off and dimming override controls per individual zone or fixture. Occupancy sensors used with the Autani area controller can be configured to operate in occupancy or vacancy mode with adjustable time delays and dim levels.
	Occupancy sensors are required to turn off lights within 20 minutes after a space is vacated.	Autani control solution allows for programmable time delays for all occupancy control.
	Daylighting must be automatic and separately controlled by either step switch or continuous dimming controller (indoor sidelighted areas of 250 ft ² and larger, and indoor toplighted areas of 900 ft ² and larger).	Daylight sensors can be configured in the Autani control solution to allow for automatic dimming of lights based on desired target light level.
	In all daylight areas, the photocontrol must reduce lighting power via continuous dimming and in response to daylight by at least 80 percent, including OFF. If another partial-OFF control reduces lighting power, the daylight-responsive control can adjust in response to daylight but may not increase power above the partial-OFF control level.	Lighting can be adjusted for continuous dimming via the software (schedule or override) and local 0-10V dimmers.
	Daylight harvesting step-dimming control requires two control points between OFF and full-ON: one dim level between 50–70% of design power and one between 20–40%.	Autani control solution allows for dimming control points to be set as desired through the software.
	A second automatic lighting shutoff option is required for certain occupancy sensor installations: partial-OFF to 50% of design power within 10 minutes of the space being vacated; spaces where the lights are periodically not needed but must remain ON.	Autani control solution provides programmable time delays for all occupancy-based control.
	Automatic independent control is now required in secondary sidelighted daylight zones (covering additional luminaires farther from the windows) rather than just incentivized with a control credit.	Autani control solution provides independent individual fixture or circuit level zonal control for daylight areas.
50% of all receptacles must be automatically shut off when not in use (private office, open office, computer classrooms).	Autani's easy-to-install SmartLet controller allows for occupancy and/or schedule-based control of receptacles.	

ADDITIONAL LIGHTING AND HVAC CONTROL REQUIREMENTS

ASHRAE/ANSI/IES 90.1-2019 Standard: Lighting Control Requirements		
LOCATION	REQUIREMENT	AUTANI SOLUTION
Stairwell	Lighting must be controlled by occupancy sensors and power must be reduced by at least 50% within 20 minutes when space is unoccupied.	Autani control solution allows for dimmed lighting control via occupancy sensors and/or scheduling.
Public corridors, restrooms, primary building entrance areas, lobbies	These areas must have occupancy sensors or specially approved timer switches.	Autani control solution allows for light control via occupancy sensors and/or scheduling.
Outdoor	Lighting system turned off when not in use.	Autani control solution allows for light control via occupancy sensors and/or scheduling.
	Outdoor lighting must be controlled with a photosensor.	Autani control solution provides fixture level dimming and on/off control of outdoor lights with twist-on controller or circuit level on/off via outdoor photosensor; both of which are configurable to optional sunrise/sunset control.
	Building façade lighting and landscape lighting must have time switch or occupancy sensor.	Autani control solution allows for schedule and occupancy-based control of building façade and landscape lighting.
	Outside lighting (advertising signage) must be controlled either by midnight/ within 1 hour of the end of business operation (whichever is later) till 6 AM/ business opening (whichever is earlier); or when there is no occupancy for a maximum of 15 minutes.	Autani control solution allows for dimming light control via scheduling.
Parking Garage	After 10 minutes of inactivity, power must be reduced by at least 80%.	Autani control solution allows for dimming light control via occupancy sensors and/or scheduling.
	Lighting cannot be grouped in zones larger than 3600 ft ² .	Autani control solution allows for individual fixture or circuit level zone control based on requirements.
	Must have automatic daylighting control for transition zone (entrance/exit) and for fixtures within 20 feet of effective daylight openings.	Daylight sensors can be configured in the Autani control solution to allow for automatic dimming of lights to target light level.

ASHRAE/ANSI/IES 90.1-2019 Standard: HVAC Control Requirements		
CATEGORY	REQUIREMENT	AUTANI SOLUTION
Setback Controls	Heating systems shall be equipped with controls configured to automatically restart and temporarily operate the system as required to maintain zone temperatures above an adjustable heating setpoint at least 10°F below the occupied heating setpoint. Cooling systems shall be equipped with controls configured to automatically restart and temporarily operate the mechanical cooling systems as required to maintain zone temperatures below an adjustable cooling setpoint at least 5°F above the occupied cooling setpoint or to prevent high space humidity levels. (6.4.3.3.2)	The Autani HVAC control solution provides wirelessly adjustable temperature settings for occupied and unoccupied conditions. Zones can be set with heat and cool setpoints to automatically maintain desired temperature. Setpoints can also be programmed to run on a schedule basis.
Door Switches	Adds requirements for door switches to disable or reset mechanical heating or cooling when doors without automatic door closers are left open. (6.5.10)	The Autani HVAC control solution allows for door and window contacts to be used to adjust heating and cooling operation and setpoints.