



ASHRAE 90.1-2010 vs. ASHRAE 90.1-2007 — what’s changed and how to ensure code compliance

ASHRAE 90.1-2010 includes significantly more lighting control provisions than earlier code revisions. This Sales411 summarizes the major control provisions of the 2010 revision side by side with the 2007 revision, so professionals can quickly see where changes have occurred. As always, design professionals should review specific code language to ensure project compliance.

1. Threshold for triggering code compliance

CHANGE>>>>> ASHRAE 90.1-2010 <<<<<<CHANGE	vs.	ASHRAE 90.1-2007
Any new construction projects and Retrofit projects involving alteration of ≥ 10% of connected lighting load		Any new construction projects and Retrofit projects involving alteration of ≥ 50% of connected lighting load
What does this mean? The drastic reduction of the threshold for triggering code compliance on retrofit projects means that even a relatively modest lighting upgrade may trigger code compliance requirements.		

2. Automatic Lighting Shutoff Requirement

CHANGE>>>>> ASHRAE 90.1-2010 <<<<<<CHANGE	vs.	ASHRAE 90.1-2007
Required in all spaces		Required in buildings > 5,000 ft²
What does this mean? All buildings, regardless of size, are required to comply with the automatic lighting shutoff provisions of the code. There are several ways to meet this requirement including: <ul style="list-style-type: none"> • Scheduled shutoff (time-of-day) • Occupancy sensor (time delay: 30 min max) • Signal from another control or alarm system (BAS) 		

3. Additional Control Requirement

CHANGE>>>>> ASHRAE 90.1-2010 <<<<<<CHANGE	vs.	ASHRAE 90.1-2007
All spaces must have a control device to control the lighting in the space. These devices must be either: <ul style="list-style-type: none"> - Manual-on or - Auto-on to 50% or less 		Enclosed spaces (individual rooms, areas enclosed by ceiling height partitions) must have a control device to control the general lighting in the space. This device can be either manual (e.g. switch) or automatic.
What does this mean? Lighting controls must be configured to manual-on operation or, if automatic-on is desired, the room must be wired and controlled such that no more than 50% of the general lighting will turn on automatically.		

4. Space Controls – more space types require automatic-off within 30 minutes

CHANGE>>>>> ASHRAE 90.1-2010 <<<<<<CHANGE	vs.	ASHRAE 90.1-2007
<p>The following spaces require the installation of an occupancy sensor or a time switch that turns lighting off within 30 minutes after the last occupant leaves the space:</p> <ul style="list-style-type: none"> • Classrooms • Lecture halls • Conference and meeting rooms • Training rooms • Employee lunch & break rooms • All storage and supply rooms between 50-1000 ft² • Rooms used for document copying and printing • All offices 250 ft² or less • Restrooms • Dressing, locker, and fitting rooms 	vs.	<p>The following spaces require the installation of an occupancy sensor or a time switch that turns lighting off within 30 minutes after the last occupant leaves the space:</p> <ul style="list-style-type: none"> • Classrooms • Conference and meeting rooms • Employee lunch and break rooms
<p>What does this mean? Occupancy sensors and time switches are the ONLY devices that comply, and these must be configured to either manual-on or auto-on to 50% or less to comply with the 'Additional Control Requirements' provision.</p>		

5. Light Level Reduction

NEW>>>>> ASHRAE 90.1-2010 <<<<<<NEW	vs.	ASHRAE 90.1-2007
<p>Enclosed spaces must have controls that reduce the power level by 30-70% of full connected load in addition to turning off all lighting.</p>	vs.	<p>None</p>
<p>What does this mean? The type of lighting control that is installed and/or the way that the space is wired must allow for a reduction of 30-70% of the connected lighting power in addition to turning off lights.</p>		

6. Lighting in Daylit Zones

NEW>>>>> ASHRAE 90.1-2010 <<<<<<NEW	vs.	ASHRAE 90.1-2007
<p>Automatic, multi-level daylighting controls must be installed in enclosed spaces with sidelit areas 250 sq ft or more and all toplit areas greater than 900 sq ft</p>	vs.	<p>None</p>
<p>What does this mean? All daylighting controls must be automatic – meaning that the control will automatically adjust the light level in the space based on the daylight contribution. These controls must be installed in spaces with windows or skylights that allow a certain amount of daylight into the space.</p>		

7. Parking Garage Lighting Control

NEW>>>>> ASHRAE 90.1-2010 <<<<<<NEW		ASHRAE 90.1-2007
<ul style="list-style-type: none"> Lighting in parking garages must be automatically shut off Reduce lighting automatically by at least 30% of connected power when motion is not detected within 30 minutes Automatic daylighting control requirement for lighting close to the perimeter 	vs.	None
<p>What does this mean? ASHRAE 90.1 has taken some of the provisions for interior lighting - automatic shutoff, light level reduction, and lighting in daylight zone - and incorporated them into new requirements for parking garage lighting.</p>		

8. Exterior Lighting

CHANGE>>>>> ASHRAE 90.1-2010 <<<<<<CHANGE		ASHRAE 90.1-2007
<ul style="list-style-type: none"> Lighting must be off during the day (when daylight available) Lighting is regulated during the night so it is either off or operating at a reduced level depending on the purpose of the lighting 	vs.	<ul style="list-style-type: none"> Lighting must be off during the day (when daylight available) Lighting must be controlled by a photosensor, time switch, or astronomical time switch depending on the function
<p>What does this mean? Exterior lighting has more stringent new requirements to ensure that it is off or operating at a reduced level at nighttime allowing for increased energy savings.</p>		

9. Automatic Receptacle Control

NEW>>>>> ASHRAE 90.1-2010 <<<<<<NEW		ASHRAE 90.1-2007
50% of all receptacles in private offices, open offices, and computer classrooms must be automatically shut off	vs.	None
<p>What does this mean? Plug load control must be incorporated into the design of certain spaces to ensure that plug loads can be turned off when not in use.</p>		

10. System Commissioning

NEW>>>>> ASHRAE 90.1-2010 <<<<<<NEW		ASHRAE 90.1-2007
All installed lighting controls must be tested and documentation must be submitted certifying compliance	vs.	None
<p>What does this mean? A third party not involved with the design or construction of the project must test and verify that the lighting controls are calibrated, adjusted, programmed and functioning per the manufacturer's installation instructions. The party responsible for this must submit documentation certifying that the lighting controls meet or exceed the required performance criteria.</p>		