

ASHRAE 90.1 & IECC CODE COMPARISON

Scope: All new commercial buildings, residential buildings more than 3 floors (in public spaces) AND all lighting renovations that affect more than 20% of lighting load in a space (90.1-2016) and 10% of number of luminaires in a space (IECC 2018). This includes lamp and ballast replacement. *NOTE: This is simply a code reference quick guide. Electrical Engineer is responsible for checking with local jurisdictions to confirm detailed code requirements.*

	ASHRAE 90.1 2016	IECC 2018	ASHRAE 90.1 2019	IECC 2021	ASHRAE 90.1 2022	IECC 2024	DC GREEN CODE	
Manual Control	Space Control (local override)	YES - all areas (remote location allowed; exceptions: restrooms, stairwells)	YES - all areas	YES - all areas (remote location allowed; exceptions: corridors, stairwells)	YES - all areas	YES - all areas Exceptions: restrooms, stairwells	YES - all areas	
Multi-Level	Multi-level Lighting (Dimming Control)	ALL spaces (exceptions: corridors, restroom, storage rooms)	ALL spaces (exceptions: corridors, storage rooms, mechanical room, lobbies, and any space that uses an occupancy sensor)	ALL spaces (exceptions: corridors, restroom, storage rooms)	ALL spaces (exceptions: corridors, storage rooms, mechanical room, lobbies, and any space that uses an occupancy sensor)	ALL spaces (exceptions: corridors, restrooms, storage rooms, lobbies)	Classroom/lecture hall/training room. Conference/multipurpose/meeting room. In a dining area for bar/lounge or leisure, family dining. Laboratory. Lobby. Lounge/break room. Offices. Gymnasium/fitness center. Library reading room. In a health care facility for imaging rooms, exam rooms, nursery and nurses' station. Spaces not provided with occupant sensor controls.	ALL spaces (exceptions: corridors, restrooms, storage rooms)
Automatic Shut-Off	Programmable Timeclock	Corridors, Restrooms, Stairwells	Atrium, Parking Garage, Restaurant	Scheduled off during non-business hours	Scheduled off during non-business hours	Any space not using occ sensors for automatic shutoff	Atrium, Parking Garage, Restaurant, and any space not using occ sensors	
	Occupancy Sensor (Full ON)	Required in nearly all spaces	Restrooms, Stairwells	Corridors, Restrooms, Stairwells	Restrooms, Stairwells	Corridors, Restrooms, and Stairwells	Full automatic-on controls with no manual control shall be permitted in corridors, interior parking areas, stairways, restrooms, locker rooms, lobbies, library, stacks and areas where manual operation would endanger occupant safety or security.	Corridors and Stairwells
	Vacancy Sensor (or Partial ON)	Corridors and Stairwells	Classroom, Conference, Private Office, Storage Rooms, Breakrooms, Lounges	Required in nearly all spaces	Classroom, Conference, Private Office, Storage Rooms, Atrium, Restaurant	Required in nearly all spaces	Required in nearly all spaces	Required in nearly all spaces
	Partial OFF (with Occ Sensor)		Open Office (600sf zones shall be reduced by 80% lighting power when zone is vacant. Full off when entire open office is vacant.)	Corridors and Stairwells	Open Office (600sf zones shall be reduced by 80% lighting power when zone is vacant. Full off when entire open office is vacant.)	Open Office, Corridors, Stairwells (600sf zones shall be reduced by 80% lighting power when zone is vacant. Full off when entire open office is vacant.) Lobby must be partially off by occ sensors during business hours.	Open Office, Corridors (600sf zones shall be reduced by 80% lighting power when zone is vacant. Full off when entire open office is vacant.)	Corridors and Stairwells
Exceptions: Patient care areas, 24/7 operation, and where it would endanger safety. →								
Daylight Harvesting	Daylight Control requirement	Automatic, multi-level with TWO interim levels (in addition to on/off)	Automatic, multi-level with 1 interim level between on/off)	Continuous dimming set to 20% or less or off	Continuous dimming set to 15% or less or off	Automatic, continuous dimming to OFF	Automatic, continuous dimming to OFF	Automatic, multi-level with TWO interim levels (in addition to on/off)
	Daylight Control Areas	>150W in all sidelighted and toplighted areas in a space (>300W must have TWO zones)	>150W Offices, labs, classrooms, and libraries REQUIRE DIMMING	>150W in all sidelighted and toplighted areas in a space (>300W must have TWO zones)	>150W Offices, labs, classrooms, and libraries REQUIRE DIMMING	>75W for primary daylight zone; >150W for primary and secondary daylight zone Exception: Glazing is less than 20 sq ft	>75W for primary daylight zone; >150W for secondary daylight zone EXCEPTION: Offices <250 sq ft	>150W in all sidelighted and >105W for toplighted areas in a space (>300W must have TWO zones)
Other	Receptacle Control	50% of receptacles in: Private Offices, Open Offices, Conference Rooms, copy rooms, breakrooms, and all classrooms	NONE	50% of receptacles in: Private Offices, Open Offices, Conference Rooms, copy rooms, breakrooms, and all classrooms	At least 50% of enclosed offices, workstations, and classrooms must be controlled. At least 25% of branch circuit feeders installed for modular furniture not shown on the plans must be controlled.	50% of receptacles in: Private Offices, Open Offices, Conference rooms, copy rooms, break rooms, and all classrooms	50% of receptacles in: Private Offices, Open Offices, Conference rooms, copy rooms, break rooms, and all classrooms	1 receptacle in each private office/individual workstation. At least 50% of receptacles in: Private Offices, Open Offices, Conference Rooms, copy rooms, breakrooms, and all classrooms
	Parking Garage	Occupancy sensors to reduce by at least 30% when unoccupied for 20 min. Ones no larger than 3600 sqft. Must daylight harvest if opening to wall ratio of more than 40%	Occupancy sensors or Timeclock for automatic shut off	Occupancy sensors to reduce by at least 50% when unoccupied for 10 min. Ones no larger than 3600 sqft. Continuous dimming in response to daylight within 20ft of perimeter wall.	Occupancy sensors or Timeclock for automatic shut off. Entrances and Exits with outdoor exposure must reduce lighting by at least 50% between sunset to sunrise.	Power shall be automatically reduced by a minimum of 50% when there is no activity detected within a lighting zone for 10 minutes (no larger than 3600sqft.) The power to any luminaire within 20 ft of perimeter wall openings totaling at least 24sqft shall be automatically reduced through continuous dimming in response to available daylight.	Lighting power of each luminaire shall be automatically reduced by 30% when there is no activity detected within a lighting zone for 20 minutes (3600sqft zone); must daylight harvest by 50% within 20ft of wall opening	Occupancy sensors to reduce by at least 30% when unoccupied for 20 min. Ones no larger than 3600sqft must daylight harvest if opening to wall ratio of more than 40%.