

# IECC 2009 with Hawaii Amendments

## COMMERCIAL DESIGN CHECKLIST

Project: \_\_\_\_\_

Code Section	Description	Documentation Requirement	NA	Complete
<b>GENERAL REQUIREMENTS</b>				
103.1	<b>Construction documents</b>	Signed statement on plans	<input type="checkbox"/>	<input type="checkbox"/>
<b>ENVELOPE REQUIREMENTS</b>				
502.1	<b>Roof – insulation entirely above deck</b> <b>Roof – metal building</b> <b>Roof – attic or other</b> <input type="checkbox"/> Table 502.2(1) insulation R-value <input type="checkbox"/> Table 502.1.2 U-factor <input type="checkbox"/> 502.2.1 Cool roof exception	Insulation location and R-value indicated on plans.  Cool roof specifications if applicable.	<input type="checkbox"/>	<input type="checkbox"/>
502.1	<b>Wall – mass</b> <b>Wall – metal building</b> <b>Wall – metal framed</b> <b>Wall – wood framed and other</b> <input type="checkbox"/> Table 502.2(1) insulation R-value <input type="checkbox"/> Table 502.1.2 U-factor	Insulation location and R-value indicated on plans.	<input type="checkbox"/>	<input type="checkbox"/>
502.3.1	<b>Windows – maximum area</b> <input type="checkbox"/> 40% of gross wall area		<input type="checkbox"/>	<input type="checkbox"/>
502.3.2	<b>Windows – solar heat gain</b> <input type="checkbox"/> SHGC $\leq 0.25$ if projection factor $< 0.25$ <input type="checkbox"/> SHGC $\leq 0.33$ if projection factor 0.25-0.50 <input type="checkbox"/> SHGC $\leq 0.40$ if projection factor $\geq 0.50$ <input type="checkbox"/> Area-weighted average	SHGC indicated on plans. Overhang dimensions on plans, if applicable.	<input type="checkbox"/>	<input type="checkbox"/>
502.3.1	<b>Skylights – maximum area</b> <input type="checkbox"/> 3% of gross roof area		<input type="checkbox"/>	<input type="checkbox"/>
502.3.2	<b>Skylights – solar heat gain</b> <input type="checkbox"/> SHGC $\leq 0.35$ <input type="checkbox"/> Area-weighted average	SHGC indicated on plans.	<input type="checkbox"/>	<input type="checkbox"/>
502.3.2	<b>Skylights – U-factor</b> <input type="checkbox"/> U-factor $\leq 0.75$	U-factor indicated on plans.	<input type="checkbox"/>	<input type="checkbox"/>
502.4	<b>Air leakage</b> <input type="checkbox"/> 502.4.1 Window and door assemblies <input type="checkbox"/> 502.4.2 Curtain wall, storefront glazing and commercial entrance doors <input type="checkbox"/> 502.4.3 Sealing of the building envelope <input type="checkbox"/> 502.4.4 Outdoor air intakes and exhaust openings <input type="checkbox"/> 502.4.6 Loading dock weatherseals <input type="checkbox"/> 502.4.8 Recessed lighting	Sealing requirements indicated on plans, if applicable.	<input type="checkbox"/>	<input type="checkbox"/>

Code Section	Description	Documentation Requirement	NA	Complete
<b>MECHANICAL SYSTEM REQUIREMENTS</b>				
503.2.1	<b>Calculation of heating and cooling loads</b>		<input type="checkbox"/>	<input type="checkbox"/>
503.2.2	<b>Equipment and system sizing</b>		<input type="checkbox"/>	<input type="checkbox"/>
503.2.3	<b>HVAC equipment performance requirements</b> <input type="checkbox"/> Tables 503.2.3(1)-(8)	Equipment capacity and efficiency indicated on plans.	<input type="checkbox"/>	<input type="checkbox"/>
503.2.4	<b>HVAC system controls</b> <input type="checkbox"/> 503.2.4.1 Thermostatic control <input type="checkbox"/> 503.2.4.3 Off-hour control <input type="checkbox"/> 503.2.4.4 Shutoff damper controls	Indicated on plans, if applicable.	<input type="checkbox"/>	<input type="checkbox"/>
503.2.5	<b>Ventilation</b> <input type="checkbox"/> Outdoor air ventilation per IMC <input type="checkbox"/> 503.2.5.1 Demand controlled ventilation	Outdoor air ventilation rate indicated on plans. Demand controlled ventilation indicated on plans, if applicable.	<input type="checkbox"/>	<input type="checkbox"/>
503.2.6	<b>Energy recovery ventilation systems</b> <input type="checkbox"/> Required for some systems <input type="checkbox"/> Exceptions	Energy recovery system indicated on plans if applicable.	<input type="checkbox"/>	<input type="checkbox"/>
503.2.7	<b>Duct and plenum insulation and sealing</b> <input type="checkbox"/> Exception for ducts in conditioned space <input type="checkbox"/> Exception for T difference ≤ 15F	Insulation R-value on plans, if applicable.	<input type="checkbox"/>	<input type="checkbox"/>
503.2.8	<b>Piping insulation</b> <input type="checkbox"/> Exception for piping within equipment <input type="checkbox"/> Exception for fluid T 55F to 105F	Insulation R-value on plans, if applicable.	<input type="checkbox"/>	<input type="checkbox"/>
503.2.9	<b>HVAC system completion</b> <input type="checkbox"/> System commissioning <input type="checkbox"/> Commissioning plan <input type="checkbox"/> Systems adjusting and balancing	Drawing notes include commissioning and completion requirements. Statement of completion required prior to certificate of occupancy.	<input type="checkbox"/>	<input type="checkbox"/>
503.2.10	<b>Air system design and control</b> <input type="checkbox"/> Allowable fan horsepower <input type="checkbox"/> Motor nameplate horsepower	Fan airflow and motor horsepower indicated on plans.	<input type="checkbox"/>	<input type="checkbox"/>

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<b>COMPLEX HVAC SYSTEMS REQUIREMENTS</b>			<input type="checkbox"/>	<input type="checkbox"/>
503.4.2	<b>VAV fan control</b> <input type="checkbox"/> VSD for fan motors $\geq$ 10 hp	Fan motor horsepower on plans. VSD control indicated on plans, if applicable.	<input type="checkbox"/>	<input type="checkbox"/>
503.4.3	<b>Hydronic system controls</b> <input type="checkbox"/> 503.4.3.4 Part load controls <input type="checkbox"/> 503.4.3.5 Pump isolation	Sequence of operations describes flow control method and pump isolation control, if applicable.	<input type="checkbox"/>	<input type="checkbox"/>
503.4.4	<b>Heat rejection equipment fan speed control</b> <input type="checkbox"/> Cooling tower fans $\geq$ 7.5 hp	Cooling tower fan motor horsepower on plans. Fan control method indicated on plans, if applicable	<input type="checkbox"/>	<input type="checkbox"/>
503.4.5	<b>Systems serving multiple zones</b> <input type="checkbox"/> Variable air flow <input type="checkbox"/> Supply air temperature reset control <input type="checkbox"/> Exceptions	Maximum and minimum flow for all variable-air-volume terminal units indicated on plans.	<input type="checkbox"/>	<input type="checkbox"/>
503.4.6	<b>Heat recovery for service water heating</b> <input type="checkbox"/> Where cooling $>6,000,000$ Btu/hr & water heating $>1,000,000$ Btu/hr <input type="checkbox"/> Exceptions		<input type="checkbox"/>	<input type="checkbox"/>
503.4.7	<b>Hot gas bypass limitation</b> <input type="checkbox"/> Exception for capacity $\leq 90,000$ Btu/hr	Hot-gas bypass limitation indicated on plans, if applicable	<input type="checkbox"/>	<input type="checkbox"/>
<b>SERVICE WATER HEATING REQUIREMENTS</b>				
504.2	<b>Service water-heating equipment efficiency</b> <input type="checkbox"/> Table 504.2	Equipment efficiency on plans.	<input type="checkbox"/>	<input type="checkbox"/>
504.3	<b>Temperature controls</b> <input type="checkbox"/> Dwelling units <input type="checkbox"/> Public lavatories <input type="checkbox"/> Other occupancies	Indicate temperature setpoint capability on plans.	<input type="checkbox"/>	<input type="checkbox"/>
504.4	<b>Heat traps</b> <input type="checkbox"/> Heat trap required, or <input type="checkbox"/> Integral heat trap	Indicate heat trap requirement on plans.	<input type="checkbox"/>	<input type="checkbox"/>
504.5	<b>Pipe insulation</b> <input type="checkbox"/> Circulating systems <input type="checkbox"/> Non-circulating systems	Indicate insulation location and R-value on plans.	<input type="checkbox"/>	<input type="checkbox"/>
504.6	<b>Heat water system controls</b> <input type="checkbox"/> Auto or manual control for circulators and heat trace	Indicate control capability on plans.	<input type="checkbox"/>	<input type="checkbox"/>
504.7.1	<b>Pool heaters</b> <input type="checkbox"/> Readily accessible switch <input type="checkbox"/> No continuous pilot light	Indicated on plans, if applicable.	<input type="checkbox"/>	<input type="checkbox"/>
504.7.2	<b>Pool time switch</b> <input type="checkbox"/> Exceptions	Indicated on plans, if applicable.	<input type="checkbox"/>	<input type="checkbox"/>
504.7.3	<b>Pool cover</b> <input type="checkbox"/> Required for all heated pools <input type="checkbox"/> Exception for solar and waste heat	Indicated on plans, if applicable.	<input type="checkbox"/>	<input type="checkbox"/>

Code Section	Description	Documentation Requirement	NA	Complete
<b>LIGHTING REQUIREMENTS</b>				
505.1	<b>Dwelling unit lighting</b> <input type="checkbox"/> Lighting equipment $\geq 50\%$ high efficacy	Lighting fixture locations included on plans. Lighting fixture schedule indicating lamp and ballast type on plans.	<input type="checkbox"/>	<input type="checkbox"/>
505.2.2.1	<b>Interior lighting controls</b> <input type="checkbox"/> Manual control for each space <input type="checkbox"/> Exceptions	Controls for each space indicated on plans.	<input type="checkbox"/>	<input type="checkbox"/>
505.2.2.1	<b>Light reduction controls</b> <input type="checkbox"/> Reduce by $\geq 50\%$ <input type="checkbox"/> Exceptions	Controls for each space indicated on plans.	<input type="checkbox"/>	<input type="checkbox"/>
505.2.2.2	<b>Automatic shutoff</b> <input type="checkbox"/> Time of day or motion sensor <input type="checkbox"/> Exceptions	Controls indicated on plans.	<input type="checkbox"/>	<input type="checkbox"/>
505.2.2.3	<b>Daylight zone control</b> <input type="checkbox"/> Adjacent to vertical fenestration <input type="checkbox"/> Under skylights <input type="checkbox"/> Exceptions	Lighting circuiting and control indicated on plans.	<input type="checkbox"/>	<input type="checkbox"/>
505.2.3	<b>Sleeping unit controls</b> <input type="checkbox"/> Control of t-stat, lights, outlets <input type="checkbox"/> Keycard, sensor or electronic control <input type="checkbox"/> Cooling interlock for balcony or patio doors	Controls indicated on plans.	<input type="checkbox"/>	<input type="checkbox"/>
505.2.4	<b>Exterior lighting controls</b> <input type="checkbox"/> Dawn-to-dusk lighting <input type="checkbox"/> Other lighting	Controls indicated on plans.	<input type="checkbox"/>	<input type="checkbox"/>
505.3	<b>Tandem wiring</b> <input type="checkbox"/> Applies to fixtures with both magnetic ballasts and odd number of lamps	Indicated on plans, if applicable.	<input type="checkbox"/>	<input type="checkbox"/>
505.4	<b>Exit signs</b> <input type="checkbox"/> $\leq 5$ watts per face	Indicated in fixture schedule.	<input type="checkbox"/>	<input type="checkbox"/>
505.5	<b>Interior lighting power requirements</b> <input type="checkbox"/> 505.5.1 Connected lighting power <input type="checkbox"/> 505.5.2 Allowed lighting power	All fixtures located and identified on plans. Fixture schedule includes input power for each fixture.	<input type="checkbox"/>	<input type="checkbox"/>
505.6.1	<b>Exterior building grounds lighting</b> <input type="checkbox"/> Efficacy $\geq 60$ lumens/watt for fixtures $>100$ watts	Fixture schedule includes input power and lamp lumen output	<input type="checkbox"/>	<input type="checkbox"/>
505.6.2	<b>Exterior building lighting power</b> <input type="checkbox"/> Allowance per Table 505.6.2(2) <input type="checkbox"/> Exceptions	All fixtures located and identified on plans. Fixture schedule includes input power for each fixture.	<input type="checkbox"/>	<input type="checkbox"/>

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