



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

Date: \_\_\_\_\_

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Component/System	Requirement	Code Section	Plan Review Notes	Plan Review Items	Complies	N/A
<b>ENVELOPE REQUIREMENTS</b>						
<b>Certification</b>	Responsible design professional certification on plans	C103.1*		<input type="checkbox"/> Signed statement on plans	<input type="checkbox"/>	<input type="checkbox"/>
<b>Construction documents</b>	Include: <ul style="list-style-type: none"> <li>▪ Insulation R-values</li> <li>▪ Fenestration U-factors and solar heat gain coefficients (SHGCs)</li> </ul>	C103.2			<input type="checkbox"/>	<input type="checkbox"/>
<b>Roof – insulation above deck</b>	<b>R-25 or U-0.039</b> (group R) <b>R-20 or U-0.048</b> (others)	C402.1, C402.2	Typically foam board on the roof deck. If tapered, R-value in some areas can be lower than the requirement if designer shows that weighted-average U-factor complies.	<input type="checkbox"/> Insulation location on plans <input type="checkbox"/> Insulation R-value on plans	<input type="checkbox"/>	<input type="checkbox"/>
<b>Roof – metal building</b>	<b>R-19 + R-11 or U-0.044</b> (with thermal block and liner system)	C402.1, C402.2	Typically two layers of batt insulation. One parallel to and between purlins supported by fabric liner. The second draped over purlins and compressed when roof deck is installed. Also with R-5 foam block between purlins and metal roof deck.	<input type="checkbox"/> Insulation R-value on plans <input type="checkbox"/> Thermal block indicated on plans	<input type="checkbox"/>	<input type="checkbox"/>
<b>Roof – attic or other</b>	<b>R-38 or U-0.027</b>	C402.1, C402.2	This category includes attics, cathedral ceilings, and insulation installed under the roof deck. Insulation on top of suspended ceiling is not allowed for compliance.	<input type="checkbox"/> Insulation location on plans <input type="checkbox"/> Insulation R-value on plans	<input type="checkbox"/>	<input type="checkbox"/>
<b>Wall – mass (CMU or concrete)</b>	<b>R-5.7 or U-0.151</b>	C402.1, C402.2	Requires either exterior or interior insulation. CMU integral insulation does not comply.	<input type="checkbox"/> Insulation location on plans <input type="checkbox"/> Insulation R-value on plans	<input type="checkbox"/>	<input type="checkbox"/>

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Wall – metal building	<b>R-13 + R6.5 or U-0.079</b>	C402.1, C402.2	Typically two layers of batt insulation. One installed horizontally between girts. The second layer draped outside the girts and compressed as the wall panel is installed.	<input type="checkbox"/> Insulation shown on plans <input type="checkbox"/> Insulation R-value on plans	<input type="checkbox"/>	<input type="checkbox"/>
Wall – metal frame	<b>R-13 + R-5 or U-0.077</b> (R-5 not required with reflectance $\geq 0.64$ or shading $PF \geq 0.3$ )*	C402.1, C402.2*	Requires insulation in framing cavity plus a layer of continuous insulation (typically foam board). Cavity insulation complies on its own with shading or high reflectance.	<input type="checkbox"/> Insulation location on plans <input type="checkbox"/> Insulation R-value on plans <input type="checkbox"/> Shading or wall reflectance shown (if exception is applied)	<input type="checkbox"/>	<input type="checkbox"/>
Wall – wood frame and other	<b>R-13 + R3.8 or R-20 or U-0.064</b> (R-3.8 not required with reflectance $\geq 0.64$ or shading $PF \geq 0.3$ )*	C402.1, C402.2*	2x4 requires cavity insulation plus continuous insulation (with exception for shading or high reflectance). 2x6 OK with R-20 cavity insulation.	<input type="checkbox"/> Insulation location on plans <input type="checkbox"/> Insulation R-value on plans <input type="checkbox"/> Shading or wall reflectance shown (if exception is applied)	<input type="checkbox"/>	<input type="checkbox"/>
Door - swinging	<b>U-0.61</b>	C402.1	Most hollow or filled-core opaque metal or wood doors comply.		<input type="checkbox"/>	<input type="checkbox"/>
Door – non-swinging	<b>R-4.75</b>	C402.1	Insulated door required for roll-up and sliding applications.	<input type="checkbox"/> Insulated door shown on plans <input type="checkbox"/> Door R-value on plans or specs	<input type="checkbox"/>	<input type="checkbox"/>
Low-slope roof membrane	<b>Aged reflectance <math>\geq 0.55</math> + aged emittance <math>\geq 0.75</math>, or aged reflectance <math>\geq 0.64</math></b> (exceptions available)	C402.3	For roofs less than 2-in-12 slope and directly above conditioned space. Exceptions such as shaded roofs and portions covered by PV.	<input type="checkbox"/> Aged reflectance and emittance shown in plans or specs	<input type="checkbox"/>	<input type="checkbox"/>
Windows – maximum area	$\leq 30\%$ of gross wall area ( $\leq 40\%$ when meeting daylighting requirements)	C402.4.1	Daylighting requirements for 40%: <ul style="list-style-type: none"> <li>▪ <math>\geq 50\%</math> daylighted floor area (<math>\leq 2</math> stories) or <math>\geq 25\%</math> daylighted floor area (<math>&gt; 2</math> stories)</li> <li>▪ Daylight responsive lighting controls</li> <li>▪ Glazing visible transmittance <math>\geq 1.1</math>*SHGC</li> </ul> If the project cannot comply with the prescriptive limit on window area, then it must comply with Section C407 Total Building Performance.	<input type="checkbox"/> $\leq 30\%$ window area Or <input type="checkbox"/> $\leq 40\%$ window area, and <input type="checkbox"/> meets daylighting requirements	<input type="checkbox"/>	<input type="checkbox"/>
Windows – solar heat gain coefficient (SHGC)	$\leq 0.25$ if projection factor $< 0.2$ . $\leq 0.30$ if projection factor $0.2-0.5$ . $\leq 0.40$ if projection factor $\geq 0.5$ .	C402.4.3	Projection factor = horizontal projection of overhang $\div$ vertical distance from overhang to bottom of window. Area-weighted average SHGC allowed (by Hawaii amendment).	<input type="checkbox"/> SHGC indicated on plans <input type="checkbox"/> Overhang dimensions on plans, if applicable	<input type="checkbox"/>	<input type="checkbox"/>

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<b>Windows – U-factor</b>	<p>≤ <b>0.50</b> fixed fenestration  ≤ <b>0.65</b> operable fenestration  ≤ <b>1.10</b> entrance doors</p>	C402.4.3	<p>U-factor must include glazing and frame, not just center-of-glass.  Typically requires dual-pane, low-e glazing.  Metal frame ok.  Entrance doors can be single-pane.</p>	<input type="checkbox"/> U-factor indicated on plans	<input type="checkbox"/>	<input type="checkbox"/>
<b>Skylights – minimum area</b>	<p>Skylights and daylight responsive controls required for certain spaces ≥2,500 ft<sup>2</sup> with ceiling height ≥15 ft.</p>	C402.4.2	<p>Required for following space types: office, lobby, atrium, concourse, corridor, storage space, gymnasium/exercise center, convention center, automotive service area, space where manufacturing occurs, nonrefrigerated warehouse, retail store, distribution/sorting area, transportation depot or workshop.  Several exceptions, including when lighting power &lt;0.5 W/sf.</p>	<input type="checkbox"/> Adequate skylight area shown on plans (if applicable) <input type="checkbox"/> Daylight responsive lighting controls shown on plans (if applicable)	<input type="checkbox"/>	<input type="checkbox"/>
<b>Skylights – maximum area</b>	<p>≤ <b>3%</b> of gross roof area (≤ 5% when meeting daylighting requirements)</p>	C402.4.1.2	<p>Up to 5% allowed when space under the skylight has daylight-responsive controls. If the project cannot comply with the prescriptive limit on skylight area, then it must comply with Section C407 Total Building Performance.</p>		<input type="checkbox"/>	<input type="checkbox"/>
<b>Skylights – solar heat gain coefficient (SHGC)</b>	<p>≤ <b>0.35</b> (≤ 0.60 with daylighting control)</p>	C402.4.3	<p>Area-weighted average SHGC allowed (by Hawaii amendment).  Higher SHGC allowed if space has daylight-responsive lighting control.</p>	<input type="checkbox"/> SHGC indicated on plans	<input type="checkbox"/>	<input type="checkbox"/>
<b>Skylights – U-factor</b>	<p>≤ <b>0.75</b> (≤ 0.90 with daylighting control)</p>	C402.4.3	<p>Higher U-factor allowed if space has daylight-responsive lighting control.</p>	<input type="checkbox"/> U-factor indicated on plans	<input type="checkbox"/>	<input type="checkbox"/>
<b>Air leakage</b>	<ul style="list-style-type: none"> <li>▪ Continuous air barrier</li> <li>▪ Fenestration air leakage</li> <li>▪ Openings to shafts, chutes, stairways and elevator lobbies</li> <li>▪ Air intakes, exhaust openings, stairways, and shafts.</li> <li>▪ Loading-dock weatherseals</li> <li>▪ Recessed lighting</li> </ul>	C402.5	<ul style="list-style-type: none"> <li>▪ Code includes a list of acceptable air barrier materials.</li> <li>▪ Max. fenestration leakage rates in Table C402.5.2.</li> <li>▪ Openings to shafts, chutes, stairways and elevator lobbies are gasketed, weather-stripped or sealed.</li> <li>▪ Air intakes, exhaust openings, stairways, and shafts have dampers.</li> <li>▪ Loading-dock doors have weatherseals.</li> <li>▪ Recessed lighting is IC rated and sealed.</li> </ul>		<input type="checkbox"/>	<input type="checkbox"/>

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<b>MECHANICAL SYSTEM REQUIREMENTS</b>						
<b>Certification</b>	Responsible design professional certification on plans	C103.1*		<input type="checkbox"/> Signed statement on plans	<input type="checkbox"/>	<input type="checkbox"/>
<b>Information on construction documents</b>	Include: <ul style="list-style-type: none"> <li>▪ System design criteria</li> <li>▪ Equipment type, capacity and efficiency</li> <li>▪ System controls</li> <li>▪ Fan motor hp and controls</li> <li>▪ Duct sealing</li> <li>▪ Duct and pipe insulation and location</li> </ul>	C103.2			<input type="checkbox"/>	<input type="checkbox"/>
<b>Mechanical system commissioning</b>	For buildings with $\geq 480$ kBtu/hr cooling capacity: <ul style="list-style-type: none"> <li>▪ Include construction document notes indicating commissioning requirements</li> <li>▪ Provide evidence of commissioning prior to final inspection.</li> </ul>	C408.2	Likely to apply to air-conditioned buildings of about 20,000 sf or larger. Plans may refer to specifications for detailed commissioning requirements. Requires a commissioning plan.	<input type="checkbox"/> Notes on plans indicate commissioning requirements	<input type="checkbox"/>	<input type="checkbox"/>
<b>HVAC equipment performance</b>	Tables C403.2.3(1) - C403.2.3(9)	C403.2.3	Cooling efficiency rated by SEER, EER, or kW/ton. Requirement varies by equipment type and cooling capacity.	<input type="checkbox"/> Cooling efficiency listed on plans <input type="checkbox"/> Cooling capacity listed on plans	<input type="checkbox"/>	<input type="checkbox"/>

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<b>HVAC system controls</b>	<ul style="list-style-type: none"> <li>▪ Thermostatic controls</li> <li>▪ Off-hour controls</li> <li>▪ Door switches for guest-rooms*</li> <li>▪ Shutoff dampers</li> <li>▪ Zone isolation</li> </ul>	C403.2.4	Automatic off-hour thermostat control required. Door switches for guest rooms required.	<input type="checkbox"/> Appropriate controls indicated on plans	<input type="checkbox"/>	<input type="checkbox"/>
<b>Ventilation</b>	<ul style="list-style-type: none"> <li>▪ Outdoor air ventilation per IMC</li> <li>▪ Demand controlled ventilation</li> <li>▪ Parking garage ventilation control</li> <li>▪ Energy recovery</li> <li>▪ Kitchen exhaust systems</li> </ul>	C403.2.6	<ul style="list-style-type: none"> <li>▪ Natural or mechanical ventilation required for all spaces.</li> <li>▪ Demand control ventilation required in certain cases for densely occupied spaces, to reduce ventilation when spaces are not fully occupied.</li> <li>▪ Automatic fan control required for enclosed parking garages in many cases.</li> <li>▪ Energy recovery required in many cases, depending on supply air flow and ventilation rate (Table C403.2.7)</li> <li>▪ Kitchen exhaust systems allowed ≤10% replacement air directly into hood.</li> <li>▪ For kitchens &gt; 5,000 cfm exhaust, one of the following is required: 1) transfer air ≥50%, 2) demand-control ventilation, or 3) energy recovery</li> </ul>	<input type="checkbox"/> Outdoor air ventilation rates listed on plans <input type="checkbox"/> Controls and heat recovery provided (if applicable)	<input type="checkbox"/>	<input type="checkbox"/>
<b>Duct and plenum insulation</b>	≥ R-6 in unconditioned space ≥ R-8 outdoors	C403.2.9		<input type="checkbox"/> Duct insulation R-value on plans	<input type="checkbox"/>	<input type="checkbox"/>
<b>Duct and plenum sealing</b>	Sealed per IMC	C403.2.9			<input type="checkbox"/>	<input type="checkbox"/>
<b>Piping insulation</b>	Minimum thickness per table C403.2.10	C403.2.10		<input type="checkbox"/> Pipe insulation thickness on plans	<input type="checkbox"/>	<input type="checkbox"/>
<b>HVAC fans</b>	When fan motors' total hp ≥ 5hp <ul style="list-style-type: none"> <li>▪ Allowable fan horsepower</li> <li>▪ Motor nameplate horsepower</li> <li>▪ Fan efficiency</li> </ul>	C403.2.12	Requires the designer to calculate allowed fan horsepower as a function of airflow.	<input type="checkbox"/> Hp or bhp for all supply, return, exhaust, and terminal-unit fans on plans. <input type="checkbox"/> Airflow for all fans on plans.	<input type="checkbox"/>	<input type="checkbox"/>

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<b>Refrigeration systems</b>	<ul style="list-style-type: none"> <li>▪ Refrigeration equipment performance</li> <li>▪ Walk-in coolers, walk-in freezers, refrigerated warehouse coolers and freezers</li> <li>▪ Refrigerated display cases</li> <li>▪ Condenser requirements</li> <li>▪ Compressor requirements</li> </ul>	C403.2.14, C403.2.15, C403.2.16, C403.5	See code for specific requirements for commercial refrigeration systems.	<input type="checkbox"/> Refrigeration equipment kWh/day rating on plans	<input type="checkbox"/>	<input type="checkbox"/>
<b>Multiple-zone system fan control</b>	<ul style="list-style-type: none"> <li>▪ Two-stage or variable airflow control</li> <li>▪ Static pressure sensor location</li> <li>▪ Static pressure reset control</li> </ul>	C403.4.1	At least 2-stage fan control required for DX cooling $\geq 65$ kBtu/hr and chilled water systems $\geq 1/4$ hp fan.	<input type="checkbox"/> Fan control on plans (if applicable)	<input type="checkbox"/>	<input type="checkbox"/>
<b>Hydronic system controls</b>	<ul style="list-style-type: none"> <li>▪ Part-load controls for systems <math>\geq 500</math>kBtu/hr</li> <li>▪ Pump isolation with multiple chillers or boilers</li> </ul>	C403.4.2	Variable-flow CHW loops and heat-rejection loops for unitary air conditioners are required if $\geq 500$ kBtu/hr capacity, $\geq 10$ hp combined pump power, and $\geq 3$ control valves. Variable-speed pumps or staged pumps required.	<input type="checkbox"/> Pump control on plans (if applicable)	<input type="checkbox"/>	<input type="checkbox"/>
<b>Heat rejection equipment fan speed control</b>	<ul style="list-style-type: none"> <li>▪ Speed control for cooling tower fans <math>\geq 7.5</math> hp</li> <li>▪ Multiple-cell cooling tower fan control</li> <li>▪ Limitation on centrifugal fan open-circuit cooling towers</li> <li>▪ Tower flow turndown</li> </ul>	C403.4.3	Cooling tower fans $\geq 7.5$ hp required to have multi-speed or variable-speed control.	<input type="checkbox"/> Cooling tower fan motor hp on plans <input type="checkbox"/> Fan control on plans (if applicable)	<input type="checkbox"/>	<input type="checkbox"/>
<b>Multiple-zone systems</b>	<ul style="list-style-type: none"> <li>▪ Variable air flow</li> <li>▪ ECM motors for 1/12 hp - 1 hp</li> <li>▪ Supply air temperature reset control</li> <li>▪ Ventilation optimization control</li> </ul>	C403.4.4	In variable air volume (VAV) systems, reheat is not permitted except when airflow is reduced to a minimum level specified in the code. Fan motors in fan-powered VAV boxes must be electronically commutated motors.	<input type="checkbox"/> VAV box max. and min. airflow shown on plans (if applicable)	<input type="checkbox"/>	<input type="checkbox"/>
<b>Heat recovery for service water heating</b>	Condenser heat recovery for systems operating 24 hr/day with water-cooled cooling capacity $\geq 6,000$ kBtu/hr and service water heating load $\geq 1,000$ kBtu/hr	C403.4.5	Most typically applies to hotels, high-rise residential buildings, and hospitals.		<input type="checkbox"/>	<input type="checkbox"/>

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<b>Hot gas bypass</b>	Not allowed except under specific conditions	C403.4.6			<input type="checkbox"/>	<input type="checkbox"/>

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<b>SERVICE WATER HEATING REQUIREMENTS</b>						
<b>Certification</b>	Responsible design professional certification on plans	C103.1*		<input type="checkbox"/> Signed statement on plans	<input type="checkbox"/>	<input type="checkbox"/>
<b>Information on construction documents</b>	Include <ul style="list-style-type: none"> <li>▪ Water heating equipment type, size and efficiency</li> <li>▪ System controls</li> <li>▪ Pipe insulation and location</li> </ul>	C103.2			<input type="checkbox"/>	<input type="checkbox"/>
<b>System commissioning</b>	For buildings with $\geq 600\text{kBtu/hr}$ combined space heating and service water heating capacity: <ul style="list-style-type: none"> <li>▪ Include construction document notes indicating commissioning requirements</li> <li>▪ Provide evidence of commissioning prior to final inspection.</li> </ul>	C408.2	Likely to apply to buildings with significant hot water demand such as high-rise residential, hotels, and hospitals. Plans may refer to specifications for detailed commissioning requirements. Requires a commissioning plan.	<input type="checkbox"/> Notes on plans indicate commissioning requirements	<input type="checkbox"/>	<input type="checkbox"/>
<b>Service water-heating equipment efficiency</b>	Efficiency per Table C404.2	C404.2	Table covers electric resistance, heat pump, storage gas, instantaneous gas, and pool heaters.	<input type="checkbox"/> Equipment capacity and efficiency listed on plans	<input type="checkbox"/>	<input type="checkbox"/>



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<b>Heat traps</b>	For non-circulating systems provide equipment with integral heat traps or provide heat traps on supply and discharge piping.	C404.3	Intent is to prevent thermosiphoning in non-circulating systems. Heat trap may be integral to the water heater. May be a 180 degree bend in inlet and outlet pipe.	<input type="checkbox"/> Heat trap(s) indicated on plans (if applicable)	<input type="checkbox"/>	<input type="checkbox"/>
<b>Pipe insulation</b>	Insulation thickness per Table C403.2.10: <ul style="list-style-type: none"> <li>▪ 1" for pipes &lt;1½" diameter</li> <li>▪ 1½" for pipes ≥1½" diameter</li> </ul> Circulating systems: all supply pipe. Non-circulating storage systems: first 8 ft from tank (or from tank to heat trap) on inlet and outlet.	C404.4		<input type="checkbox"/> Insulation location and thickness indicated on plans	<input type="checkbox"/>	<input type="checkbox"/>
<b>Maximum supply pipe length/volume</b>	Table C404.5.1 lists maximum hot water supply pipe length or volume, which varies with pipe diameter.	C404.5	Allowed length for pipes to public lavatories is much shorter than for other fixtures, ranging from 6' for ¼" pipe to only 0.5' for ¾" or larger pipe.	<input type="checkbox"/> Maximum hot water pipe length indicated on plans	<input type="checkbox"/>	<input type="checkbox"/>
<b>Circulation system controls</b>	Automatic controls to start pump based on demand and to automatically shut off pump based on temperature and on lack of demand	C404.6.1	Automatic control turns on circulation pump based on demand, such as with a flow sensor. Automatic controls turn off circulation pump when water in the loop is at the desired temperature. Controls must be accessible.	<input type="checkbox"/> Automatic circulation controls indicated on plans	<input type="checkbox"/>	<input type="checkbox"/>
<b>Pool and spas</b>	Readily accessible on/off switch No continuous pilot light Time switch for heater and pumps Pool covers required, except with >70% site-recovered heat	C404.9		<input type="checkbox"/> Readily accessible pool heater on/off switch <input type="checkbox"/> Time switch on heater and pump <input type="checkbox"/> Pool cover or <input type="checkbox"/> site-recovered heat	<input type="checkbox"/>	<input type="checkbox"/>

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<b>LIGHTING AND ELECTRICAL REQUIREMENTS</b>						
<b>Certification</b>	Responsible design professional certification on plans	C103.1*		<input type="checkbox"/> Signed statement on plans	<input type="checkbox"/>	<input type="checkbox"/>
<b>Information on construction documents</b>	Include <ul style="list-style-type: none"> <li>▪ Lighting fixture schedule with input power</li> <li>▪ Lighting control narrative</li> <li>▪ Location of daylight zones on floor plans</li> </ul>	C103.2			<input type="checkbox"/>	<input type="checkbox"/>
<b>Lighting system functional testing</b>	Prior to final inspection the registered design professional provides evidence of testing. <ul style="list-style-type: none"> <li>▪ Occupant sensor controls</li> <li>▪ Time-switch controls</li> <li>▪ Daylight responsive controls</li> </ul> Construction documents specify that certification documents be provided to the owner within 90 days of certificate of occupancy.	C408.3	Intent is that the lighting control systems have been tested to ensure that control hardware and software are calibrated, adjusted, programmed and in proper working condition in accordance with the construction documents and manufacturer's instructions	<input type="checkbox"/> Plans indicate that functional test certification documents will be provided to owner <input type="checkbox"/> Registered design professional provides evidence of testing	<input type="checkbox"/>	<input type="checkbox"/>

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<b>Dwelling unit lighting</b>	Lighting equipment $\geq 75\%$ high efficacy lamps	R404.1	<p>High efficacy lamps are defined as:</p> <ul style="list-style-type: none"> <li>▪ T-8 or smaller diameter fluorescent</li> <li>▪ Compact fluorescent</li> <li>▪ 60 lumens/watt if <math>&gt;40W</math></li> <li>▪ 50 lumens/watt if <math>&gt;15W</math> and <math>\leq 40W</math></li> <li>▪ 40 lumens/watt if <math>\leq 15W</math></li> </ul> <p>Applies to permanently-installed fixtures. Low-voltage lighting is exempt.</p>	<input type="checkbox"/> Lighting fixture locations on plans <input type="checkbox"/> Lighting fixture schedule includes input power and lumen output <input type="checkbox"/> Plans show $\geq 75\%$ high efficacy lamps	<input type="checkbox"/>	<input type="checkbox"/>
<b>Controls - occupant sensor</b>	Required in many specific spaces. Manual-on type required in most cases.	C405.2.1	<p>Required in these space types:</p> <ol style="list-style-type: none"> <li>1. Classrooms/lecture/training rooms.</li> <li>2. Conference/meeting/multipurpose rooms.</li> <li>3. Copy/print rooms.</li> <li>4. Lounges.</li> <li>5. Employee lunch and break rooms.</li> <li>6. Private offices.</li> <li>7. Restrooms.</li> <li>8. Storage rooms.</li> <li>9. Janitorial closets.</li> <li>10. Locker rooms.</li> <li>11. Other spaces 300 sf or less that are enclosed by floor-to-ceiling height partitions.</li> <li>12. Warehouses.</li> </ol>	<input type="checkbox"/> Occupant sensor controls on plans, where applicable	<input type="checkbox"/>	<input type="checkbox"/>
<b>Controls - time-switch</b>	Required where occupant sensors are not used. Specific spaces allowed to use light-reduction controls as an alternative.	C405.2.2	<p>Time switch controls not required in the following spaces if manual light-reduction controls are used:</p> <ol style="list-style-type: none"> <li>1. Sleeping units.</li> <li>2. Spaces where patient care is directly provided.</li> <li>3. Spaces where an automatic shutoff would endanger occupant safety or security.</li> <li>4. Lighting intended for continuous operation.</li> <li>5. Shop and laboratory classrooms.</li> </ol>	<input type="checkbox"/> Time switch controls on plans, where applicable	<input type="checkbox"/>	<input type="checkbox"/>

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<b>Controls - daylight-responsive</b>	Required in spaces with $\geq 150W$ of lighting within daylight zones. Some exceptions, such as patient care areas and dwelling units. Definitions provided for sidelight and toplight daylight zones.	C405.2.3	<b>Sidelight daylight zone</b> is the floor area adjacent to windows with a depth equal to the window head height and width equal to two feet to either side of the window. <b>Toplight daylight zone</b> is the floor area under a skylight extending to 0.7 times the ceiling height on all sides of the skylight. (See the code for further details and exceptions)	<input type="checkbox"/> Automatic daylight responsive lighting controls indicated, where applicable	<input type="checkbox"/>	<input type="checkbox"/>
<b>Controls – display &amp; accent lighting</b>	Display lighting, accent lighting and display-case lighting controlled separately from general lighting.	C405.2.4		<input type="checkbox"/> Controls indicated on plans	<input type="checkbox"/>	<input type="checkbox"/>
<b>Controls – guest rooms</b>	Hotel, motel, and timeshare sleeping units and guest suites have master control to automatically switch off luminaires and switched receptacles within 20 minutes after all occupants leave the room	C405.2.4*	Typically key-card or motion-sensor based controls. Hawaii amendment adds timeshare sleeping units.	<input type="checkbox"/> Controls indicated on plans	<input type="checkbox"/>	<input type="checkbox"/>
<b>Exit signs</b>	$\leq 5$ watts per face	C405.3		<input type="checkbox"/> Indicated in fixture schedule	<input type="checkbox"/>	<input type="checkbox"/>
<b>Total connected interior lighting power</b>	Includes input power for all proposed luminaires. Some exceptions apply. Special cases: <ul style="list-style-type: none"> <li>▪ Screw-in luminaires. Rated luminaire power (not the lamp power)</li> <li>▪ Low-voltage lighting. Power rating of the transformer (not the lamp power)</li> <li>▪ Line-voltage track lighting. Input power for the proposed luminaire power (but not less than 30 W/linear foot) or the power of the circuit breaker or other current-limiting device.</li> </ul>	C405.4.1	Note that luminaire input power is not necessarily equal to the rated watts of the lamps. Input power for fluorescent and HID fixtures depends on the lamp/ballast combination. The input power for the specified fixtures must be listed in the fixture schedule on the plans.  Pay special attention to the special cases such as screw-base fixtures as noted to the left.	<input type="checkbox"/> All fixtures located and identified on plans <input type="checkbox"/> Fixture schedule includes input power for each fixture	<input type="checkbox"/>	<input type="checkbox"/>

Component/System	Requirement	Code Section	Plan Review Notes	Plan Review Items	Complies	N/A
<b>Interior lighting power allowance</b>	Total connected power shall be no greater than allowance. Two calculation methods for allowance: <ul style="list-style-type: none"> <li>▪ Building area method</li> <li>▪ Space-by-space method (includes extra allowance for retail and decorative lighting)</li> </ul>	C405.4.2	Though not required by code, ideally the designer includes a table on the plans showing the allowed lighting power calculation (listing space types and floor areas) along with a total of the connected lighting power.		<input type="checkbox"/>	<input type="checkbox"/>
<b>Exterior lighting controls</b>	Photo cell and time-based control required. <ul style="list-style-type: none"> <li>▪ For façade and landscape lighting, automatic on/off off-hour required.</li> <li>▪ Otherwise, automatic reduction ≥30% required during off-hours.</li> <li>▪ Some exceptions apply.</li> </ul>	C405.2.5	Automatically turn off lights as a function of daylight. In addition: <ul style="list-style-type: none"> <li>▪ Façade and landscape lighting controlled to a set opening and closing time</li> <li>▪ For all others controls automatically reduce lighting power by ≥30% from midnight to 6am (or longer).</li> </ul>	<input type="checkbox"/> Controls indicated on plans	<input type="checkbox"/>	<input type="checkbox"/>
<b>Exterior building lighting power</b>	Maximum allowed power listed in Table C405.5.2(2) includes: <ul style="list-style-type: none"> <li>▪ Base allowance</li> <li>▪ Tradeable allowance</li> <li>▪ Non-tradeable allowance</li> </ul> Allowances vary by lighting zone per Table C405.5.2(1)	C405.5	Though not required by code, ideally the designer includes a table on the plans showing the allowed lighting power calculation for both tradeable and non-tradeable exterior lighting areas along with a total of the connected exterior lighting power.	<input type="checkbox"/> All fixtures located and identified on plans <input type="checkbox"/> Fixture schedule includes input power for each fixture	<input type="checkbox"/>	<input type="checkbox"/>
<b>Electricity meters</b>	Each dwelling unit in R-2 building has a separate electric meter.	C405.6		<input type="checkbox"/> Meters indicated on plans	<input type="checkbox"/>	<input type="checkbox"/>
<b>Electrical transformers</b>	Electric transformers meet efficiency requirements of Table C405.7. Some exceptions apply.	C405.7	See code for list of exempted types of transformers.	<input type="checkbox"/> Transformer efficiency indicated on plans	<input type="checkbox"/>	<input type="checkbox"/>
<b>Electrical motors</b>	Electric motors meet the efficiency requirements of Tables C405.8(1)-(4)	C405.8		<input type="checkbox"/> Electric motor efficiency indicated on plans	<input type="checkbox"/>	<input type="checkbox"/>
<b>Vertical and horizontal transportation systems</b>	<ul style="list-style-type: none"> <li>▪ Elevator cab lighting ≥35 lumens/watt.</li> <li>▪ Elevator cab fan ≤0.33 W/cfm.</li> <li>▪ Escalator and moving walkway automatic speed control.</li> <li>▪ Escalator regenerative drive.</li> </ul>	C405.9	Elevator cab lighting will need to be fluorescent or LED.		<input type="checkbox"/>	<input type="checkbox"/>

Component/System	Requirement	Code Section	Plan Review Notes	Plan Review Items	Complies	N/A
<b>Electrical sub-metering</b>	In new buildings with tenants, metering shall be collected for the entire building and individually for each tenant occupying $\geq 1,000$ ft <sup>2</sup> (total enclosed and unenclosed). Tenants shall have access to data collected for their space.	C405.10*	Hawaii amendment.	<input type="checkbox"/> Meters indicated on plans	<input type="checkbox"/>	<input type="checkbox"/>

\* Code section added or modified by Hawaii amendment



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

Date: \_\_\_\_\_

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<b>ADDITIONAL EFFICIENCY REQUIREMENTS</b>						
<b>Requirements</b>	Project must meet at least one of the following requirements.	C406.1	This is a new requirement. New construction projects must meet at least one of these additional efficiency requirements.		<input type="checkbox"/>	<input type="checkbox"/>
<b>More efficient HVAC equipment</b>	<ul style="list-style-type: none"> <li>▪ 10% better than minimum efficiency</li> </ul>	C406.2	Requires cooling efficiency at least 10% better than code. In the case of EER, a higher value is better. For example, if the Table C403.2.3 requirement is 10.0 EER, then the project would need $\geq 11.0$ EER. For water cooled chillers the requirement is in kW/ton and lower is better. If the requirement is 0.660 kW/ton, then the proposed chiller must be $\leq 0.594$ kW/ton.		<input type="checkbox"/>	<input type="checkbox"/>
<b>Reduced lighting power density</b>	<ul style="list-style-type: none"> <li>▪ 10% lower allowed lighting power</li> </ul>	C406.3	The connected interior lighting power for the proposed design must be at least 10% lower than the allowed interior lighting power.		<input type="checkbox"/>	<input type="checkbox"/>

Component/System	Requirement	Code Section	Plan Review Notes	Plan Review Items	Complies	N/A
<b>Enhanced digital lighting controls</b>	<ul style="list-style-type: none"> <li>▪ Continuous dimming and digitally-addressable luminaires</li> </ul>	C406.4	<p>In this type of lighting control system each luminaire, or small group of luminaires, is connected via a digital network. Luminaires can be dimmed and turned on/off individually or in small groups based on signals from networked sensors.</p> <p>Sequence of operations must be included in the construction documents.</p>		<input type="checkbox"/>	<input type="checkbox"/>
<b>On-site renewable energy</b>	<ul style="list-style-type: none"> <li>▪ <math>\geq 0.5</math> W/ft<sup>2</sup>, or <math>\geq 3\%</math> of mechanical, water heating and lighting energy.</li> </ul>	C406.5	<p>Two options. An on-site renewable energy system provides:</p> <ol style="list-style-type: none"> <li>1. <math>\geq 0.50</math> watts per sf of conditioned floor area.</li> <li>2. <math>\geq 3\%</math> of the energy required for HVAC, water heating and lighting.</li> </ol> <p>Very roughly, the area of PV panels required to meet #1 would be 1 sf per every 20-30 sf of conditioned floor area.</p>		<input type="checkbox"/>	<input type="checkbox"/>
<b>Dedicated outdoor air system</b>	<ul style="list-style-type: none"> <li>▪ For multiple-zone systems, include independent system with total heat recovery to condition ventilation air.</li> </ul>	C406.6	<p>To meet this requirement, a separate system provides 100% conditioned outdoor air to each space. Energy recovery from exhaust air is also required.</p> <p>An example of a typical system is fan-coils serving individual zones, with conditioned outdoor air delivered from a central air handler to each fan coil. Exhaust air is ducted back to the air handler for energy recovery.</p>		<input type="checkbox"/>	<input type="checkbox"/>



Component/System	Requirement	Code Section	Plan Review Notes	Plan Review Items	Complies	N/A
<b>Reduced energy in service water heating system</b>	<ul style="list-style-type: none"> <li>▪ For specific building types, ≥60% solar or waste heat recovery for water heating.</li> </ul>	C406.7	<p>Applies to the following building types:</p> <ol style="list-style-type: none"> <li>1. Group R-1: Boarding houses, hotels or motels.</li> <li>2. Group I-2: Hospitals, psychiatric hospitals and nursing homes.</li> <li>3. Group A-2: Restaurants and banquet halls or buildings containing food preparation areas.</li> <li>4. Group F: Laundries.</li> <li>5. Group R-2: Buildings with residential occupancies.</li> <li>6. Group A-3: Health clubs and spas.</li> <li>7. Buildings showing a service hot water load of 10 percent or more of total building energy loads.</li> </ol>		<input type="checkbox"/>	<input type="checkbox"/>



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Component/System	Requirement	Code Section	Plan Review Notes	Plan Review Items	Complies	N/A
<b>ADDITIONS</b>						
<b>General</b>	Requirements for new construction apply to additions. Unaltered portions of the existing building are not required to comply.	C502.1	There are two general compliance options: 1. The addition alone 2. The addition + existing building as one building		<input type="checkbox"/>	<input type="checkbox"/>
<b>Windows – maximum area</b>	<ul style="list-style-type: none"> <li>▪ Total building window area including addition ≤ 30% of gross wall area</li> <li>▪ Or, window area in addition alone ≤ 30% of gross added wall area (≤ 40% when meeting daylighting requirements)</li> </ul>	C502.2.1	If the project cannot comply with the prescriptive limit on window area, then it must comply with Section C407 Total Building Performance.		<input type="checkbox"/>	<input type="checkbox"/>
<b>Window – U-factor and SHGC</b>	Same as new construction. See envelope checklist	C502.2.1	Requirements do not apply when glass is replaced in an existing sash (C504.2).		<input type="checkbox"/>	<input type="checkbox"/>
<b>Skylights – maximum area</b>	<ul style="list-style-type: none"> <li>▪ Total building skylight area including addition ≤ 3% of gross roof area</li> <li>▪ Or, skylight area in addition alone ≤ 3% of gross roof area (≤ 5% when meeting daylighting requirements)</li> </ul>	C502.2.2	If the project cannot comply with the prescriptive limit on skylight area, then it must comply with Section C407 Total Building Performance.		<input type="checkbox"/>	<input type="checkbox"/>

Component/System	Requirement	Code Section	Plan Review Notes	Plan Review Items	Complies	N/A
<b>Skylight – U-factor and SHGC</b>	Same as new construction. See envelope checklist	C502.2.2			<input type="checkbox"/>	<input type="checkbox"/>
<b>Mechanical systems</b>	Requirements for new systems and equipment serving additions are the same as for new construction. See the mechanical checklist.	C502.2.3	Unaltered portions are not required to comply.		<input type="checkbox"/>	<input type="checkbox"/>
<b>Service water heating</b>	Requirements for new equipment, controls and piping serving additions are the same as for new construction. See the service water heating checklist.	C502.2.4	Unaltered portions are not required to comply.		<input type="checkbox"/>	<input type="checkbox"/>
<b>Pools and spas</b>	Requirements for new pools and in-ground spas are the same as for new construction. See the service water heating checklist.	C502.2.5			<input type="checkbox"/>	<input type="checkbox"/>
<b>Interior lighting</b>	Requirements for lighting systems in additions are the same as for new construction. See the lighting checklist. <b>Interior lighting power options:</b> <ul style="list-style-type: none"> <li>▪ Addition alone complies</li> <li>▪ Addition + existing building complies</li> </ul>	C502.2.6 C502.2.6.1	Requirements do not apply when bulbs and/or ballasts are replaced within existing luminaires (C504.2)		<input type="checkbox"/>	<input type="checkbox"/>
<b>Exterior lighting</b>	Requirements for exterior lighting systems for additions are the same as for new construction. See the lighting checklist. <b>Exterior lighting power options:</b> <ul style="list-style-type: none"> <li>▪ Addition alone complies</li> <li>▪ Addition + existing building complies</li> </ul>	C502.2.6 C502.2.6.1	Requirements do not apply when bulbs and/or ballasts are replaced within existing luminaires (C504.2)		<input type="checkbox"/>	<input type="checkbox"/>



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

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Component/System	Requirement	Code Section	Plan Review Notes	Plan Review Items	Complies	N/A
<b>ALTERATIONS</b>						
<b>General</b>	New-construction requirements apply to altered portions of the building. Unaltered portions are not required to comply.	C503.1			<input type="checkbox"/>	<input type="checkbox"/>
<b>Change in space conditioning</b>	Full compliance is required for previously unconditioned spaces that are altered to become conditioned	C503.2			<input type="checkbox"/>	<input type="checkbox"/>
<b>Roof</b>	No requirement: <ul style="list-style-type: none"> <li>▪ Roof recover</li> <li>▪ Ceiling/roof cavity not exposed</li> </ul> New-construction requirements: <ul style="list-style-type: none"> <li>▪ New roof</li> <li>▪ Roof replacement where insulation is above deck</li> <li>▪ Alteration where ceiling/roof cavity is exposed (exception if cavity is filled with insulation)</li> </ul>	C503.1 C503.3.1	<ul style="list-style-type: none"> <li>• Any new roof must meet the requirements for a new roof.</li> <li>• Roof replacement where the roof is part of the thermal envelope and insulation is above deck must be brought up to compliance with the insulation requirements.</li> <li>• Roof alterations that expose the ceiling or roof cavity where that cavity is part of the thermal envelope shall meet the R-value requirement for new roofs, except a lower R-value is allowed if the cavity is filled with insulation.</li> </ul>		<input type="checkbox"/>	<input type="checkbox"/>

Component/System	Requirement	Code Section	Plan Review Notes	Plan Review Items	Complies	N/A
<b>Wall</b>	No requirement: <ul style="list-style-type: none"> <li>Wall cavity is not exposed</li> </ul> New-construction requirements: <ul style="list-style-type: none"> <li>Wall cavity is exposed (exception if cavity is filled with insulation)</li> </ul>	C503.1	If a wall cavity is exposed during alteration, then it shall be insulated to meet the new-construction requirement. However, it is acceptable to install a lower R-value if the cavity is filled (i.e. not deep enough to meet the code requirement).		<input type="checkbox"/>	<input type="checkbox"/>
<b>Windows – maximum area</b>	<ul style="list-style-type: none"> <li>Total building window area after added windows <math>\leq</math> 30% of gross wall area</li> <li>Or, window area in space with added windows alone <math>\leq</math> 30% of gross wall area (<math>\leq</math> 40% when meeting daylighting requirements)</li> </ul>	C503.3.2	If the project cannot comply with the prescriptive limit on window area when new windows are added, then it must comply with Section C407 Total Building Performance.		<input type="checkbox"/>	<input type="checkbox"/>
<b>Window – U-factor and SHGC</b>	Same as new construction. See envelope checklist	C503.3.2 C401.2.1	Requirements do not apply when glass is replaced in an existing sash (C504.2).		<input type="checkbox"/>	<input type="checkbox"/>
<b>Skylights – maximum area</b>	<ul style="list-style-type: none"> <li>Total building skylight area after added skylights <math>\leq</math> 3% of gross roof area</li> <li>Or, skylight area in space with added skylight(s) alone <math>\leq</math> 3% of gross roof area (<math>\leq</math> 5% when meeting daylighting requirements)</li> </ul>	C503.3.3	If the project cannot comply with the prescriptive limit on skylight area when new skylights are added, then it must comply with Section C407 Total Building Performance.		<input type="checkbox"/>	<input type="checkbox"/>
<b>Skylight – U-factor and SHGC</b>	Same as new construction. See envelope checklist	C503.3.3			<input type="checkbox"/>	<input type="checkbox"/>
<b>Mechanical systems</b>	New heating, cooling and duct systems are required to meet new construction requirements.	C503.4	For example, replacement air conditioners must meet the efficiency requirements, and new ducts must meet the insulation requirements. Unaltered portions of the system are not required to comply.		<input type="checkbox"/>	<input type="checkbox"/>
<b>Service water heating systems</b>	New water heating systems are required to meet new construction requirements.	C503.5	Unaltered portions of the system are not required to comply.		<input type="checkbox"/>	<input type="checkbox"/>

Component/System	Requirement	Code Section	Plan Review Notes	Plan Review Items	Complies	N/A
<b>Lighting systems</b>	New lighting systems that are part of an alteration are required to meet new construction requirements. <ul style="list-style-type: none"> <li>▪ Exception if less than 10% of luminaires in a space are replaced and installed lighting power does not increase</li> </ul>		Requirements do not apply when bulbs and/or ballasts are replaced within existing luminaires (C504.2)		<input type="checkbox"/>	<input type="checkbox"/>