

Building Energy Performance Characteristics
 For Compliance with Commercial Provisions, Chapter 4 of 2012 IECC

Project:

Project Location:

See the instructions and disclaimer for this spreadsheet.

	Element	Commercial Chapter 4 [CE] 2012 IECC Requirement	Values Incorporated Into This Design
Section C401			
Application			
Compliance with C402, C403, C404 and C405 AND (either C406.2, C406.3 or C406.4)	New Construction		
Compliance with C402, C403, C404 or C405	Existing Building		
Section C402			
Building Envelope (Climate Zone 5A)			
Space-Conditioning Category (Nonresidential or Residential)			
Gross Roof Area			
Roofs: Maximum Assembly U-factor			
Minimum Insulation R-Value			
Walls: Above-Grade: Maximum Assembly U-factor			
Above-Grade: Minimum Insulation R-Value			
Below-Grade: Maximum Assembly C-factor			
Below-Grade: Minimum Insulation R-Value			
Floors: Maximum Assembly U-factor			
Minimum Insulation R-Value			
Slab-On-Grade - Maximum Assembly F-factor			
Slab-On-Grade - Minimum Insulation R-Value			
Opaque Doors:			
Maximum Assembly U-factor			
Maximum Assembly R-Value			
Radiant Heating System Insulation			
Gross Wall Area			
Total Vertical Fenestration Area			
Vertical Glazing: Percent of Wall Area			
Increased Vertical Fenestration Area with Daylighting Control			
Vertical Glazing			
Maximum Assembly U-factor			
Maximum Assembly Solar Heat Gain Coefficient			
Increased Skylight Area with Daylighting Controls			
Required Minimum Skylight Fenestration Area with Daylighting Control			
Total Skylight Area			
Skylight: Percent of Roof Area			
Skylight: Maximum Assembly U-factor			
Maximum Assembly Solar Heat Gain Coefficient			
Visible Transmittance (VT)			
Haze Factor			
Air Barriers:			
Construction			
Compliance Option (Materials, Assemblies or Building Testing)			
Penetration Sealing			
Maximum Assembly Air Leakage Rates			
Maximum Air Leakage Rates, Recessed Lighting Luminaires			
Damper, Maximum Leakage Rate			
Loading Dock Weatherseal			
Vestibule			
Section C403			
Heating, Ventilating and Air Conditioning			
Calculated Load	Heating		
	Cooling		

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	Element	Commercial Chapter 4 [CE] 2012 IECC Requirement	Values Incorporated Into This Design
Equipment Output Capacity	Heating		
	Cooling		
HVAC Equipment Performance			
Unitary Air Conditioners, Electrically Operated, Minimum Efficiency			
Condensing Units, Electrically Operated, Minimum Efficiency			
Unitary and Applied Heat Pumps, Electrically Operated, Minimum Cooling Mode Efficiency			
Unitary and Applied Heat Pumps, Electrically Operated, Minimum Heating Mode Efficiency			
Package Terminal Air Conditioners (Cooling Mode) Minimum Efficiency			
Package Terminal Heat Pumps (Cooling Mode) Minimum Efficiency			
Package Terminal Heat Pumps (Heating Mode) Minimum Efficiency			
Single Package Vertical Air Conditioners (Cooling Mode) Minimum Efficiency			
Single Package Vertical Heat Pumps (Cooling Mode) Minimum			
Single Package Vertical Heat Pumps (Heating Mode) Minimum			
Room Air Conditioners, Minimum Efficiency			
Room Air Conditioner Heat Pumps, Minimum Efficiency			
Warm Air Furnaces, Minimum Efficiency			
Boilers, Hot Water, Minimum Efficiency			
Boilers, Steam, Minimum Efficiency			
Condensing Units, Electrically Operated, Minimum Efficiency			
Water Chilling Package, Electrically Operated, Minimum Efficiency - Compliance Path (A or B)			
Water Chilling Package, Absorption, Minimum Efficiency - Compliance Path A			
Heat Rejection Equipment, Minimum Efficiency			
Plate-Type Liquid-to-Liquid Heat Exchanger			
Economizers			
Airside			
Waterside			
HVAC System Control			
Zone Thermostatic Control			
Independent Perimeter System Thermostatic Control			
Control Device for Each Humidification and/or Dehumidification System			
Heat Pump Supplementary Electric Resistance Heat Control			
Setpoint Deadband (Overlap Restriction)			
Automatic Off-Hour Setback and Shutdown Zone Control			
Automatic Start Control			
Automatic Zone Supply and Exhaust Damper Closure Control			
Economizer Cycle Controls			
Heat Rejection Equipment Fan Speed Control			
Ventilation System Controls			
Stair and Shaft Vent Motorized Damper Controls			
Ventilation Damper Controls			
Shutoff Damper Controls			
Motorized Damper Maximum Leakage Rate			
Demand Control Ventilation			
HVAC System Insulation and Sealing			
Insulation For Supply Duct, Minimum R-Value			
Insulation For Return Duct, Minimum R-Value			
Building Envelope and Duct Insulation Separating Duct or Plenum From Exterior, Minimum R-Value			

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	Element	Commercial Chapter 4 [CE] 2012 IECC Requirement	Values Incorporated Into This Design
Duct Sealing			
Duct Testing Requirements			
Pipe Insulation for Heating Systems, Conductivity / Minimum Thickness			
Pipe Insulation for Cooling Systems, Conductivity / Minimum			
Pipe Insulation Protection			
Exhaust Air Energy Recovery System			
Percentage Outdoor Air at Full Design Supply Fan Airflow Rate			
Percentage Enthalpy Change Between Outdoor Air & Return Air			
Bypass or Control to Permit Economizer Operation			
Snow and Ice Melting System Control			
Maximum Allowable Fan Horsepower (Nameplate Horsepower Option or Break Horsepower Option)			
Variable Air Volume System Controls			
Variable Flow Control			
DDC Static Pressure Reset Control			
Supply Air Temperature Reset Control			
Air Reheating, Recooling and Mixing Limitations			
Hydronic System Controls			
Two Pipe Changeover Controls			
Variable Flow Controls			
Chiller Isolation Controls			
Boiler Isolation Controls			
Water Temperature Reset Controls			
Hydronic (Water Loop) Heat Pump and Water Cooled Unitary Air Conditioner System Controls			
Two Position Valve on Each Unit			
Automatic Isolation of Cooling Tower When Not Required			
Heat Recovery for Service Water Heating			
Cooling System Hot Gas Bypass Limitation: Maximum Percentage of Total Heating Outside Building			
Mechanical Systems Commissioning and Completion Requirements in Section C408.2			
Section C404			
Service Water Heating			
Water Heater Equipment, Minimum Performance			
Hot Water Supply Boiler Minimum Performance			
Pool Heater Minimum Performance			
Unfired Storage Tank Required Minimum Insulation R-Value			
Service Water Heater Equipment Temperature Control			
Service Water Heater Equipment Supply & Discharge Heat Traps			
Pipe Insulation for Service Hot-Water Systems, Conductivity / Thickness			
Circulating Service Hot Water System Pump Shut Off Control			
Pool and Spa Heater On-Off Switch			
Swimming Pool Heater and Pump Time Switch			
Pool Cover for Heated Pool			
Section C405			
Electrical Power and Lighting			
Gross Lighted Floor Area			
Interior Lighting Power	Allowance		
	Connected		
Equivalent Interior Lighting Power Density			

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	Element	Commercial Chapter 4 [CE] 2012 IECC Requirement	Values Incorporated Into This Design
Percentage of Fixtures with High Efficacy Lamps in Dwelling Units			
Interior Lighting Controls			
Enclosed Area Lighting Controls			
Light Reduction Controls			
Automatic Building Shutoff Controls			
Occupancy Sensors in Required Areas (Manual On or Automatic On to 50% Power)			
Daylight Zone Controls			
Specific Application Controls			
Luminaire Tandem Wiring			
Exit Sign: Maximum Wattage per Face			
Exterior Lighting Zone (1, 2, 3, or 4)			
Exterior Lighting Power			
Total Exterior Lighting Power	Allowance		
	Connected		
Tradable Surface Exterior Lighting Power Allowance	Allowance		
	Connected		
Non-Tradable Surface Exterior Lighting Power Allowance	Allowance		
	Connected		
Exterior Lighting			
Automatic Exterior Lighting Control			
Minimum Lamp Efficacy			
Separately Metered Individual Dwelling Units			
Section C406			
Additional Efficiency Package Options			
Efficient HVAC Performance Option in Addition to Section C403 Requirements			
Unitary Air Conditioners, Electrically Operated, Minimum Efficiency			
Unitary and Applied Heat Pumps, Electrically Operated, Minimum Cooling Mode Efficiency			
Unitary and Applied Heat Pumps, Electrically Operated, Minimum Heating Mode Efficiency			
Package Terminal Air Conditioners (Cooling Mode,) Minimum Efficiency			
Package Terminal Heat Pumps (Cooling Mode,) Minimum Efficiency			
Warm Air Furnaces, Minimum Efficiency			
Boilers, Hot Water and Steam, Minimum Efficiency			
Water Chilling Package, Electrically Operated, Maximum Efficiency - Compliance Path (A or B)			
Water Chilling Package, Absorption, Minimum Efficiency - Compliance Path A			
Efficient Lighting System Option			
Equivalent Interior Lighting Power Density (Building Area Method)			
On-site Renewable Energy Option			
Total Minimum Ratings			
Section C408			
System Commissioning			
Mechanical Systems Commissioning and Completion Requirements			
Commissioning Plan			
Air System Balancing			
Hydronic System Balancing			
Functional Performance Testing			

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	Element	Commercial Chapter 4 [CE] 2012 IECC Requirement	Values Incorporated Into This Design
Preliminary Commissioning Report			
Record Drawings			
Equipment Capacity Lists			
Operation Manuals			
Maintenance Manuals			
System Control Information			
System Narrative for Each System			
Systems Balancing Reports			
Final Commissioning Report			
Lighting Systems Commissioning and Completing Requirements			
Functional Testing of Automatic Controls			
Occupant Sensor Testing Procedures			
Time Switches Testing Procedures			
Programmable Schedule Control Testing Procedures			
Photosensors or Daylighting Control Testing Procedures			

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Application			
Compliance with C402, C403, C404 and C405 AND (either C406.2, C406.3 or C406.4)	New Construction		
Compliance with C402, C403, C404 or C405	Existing Building		
Section C402			
Building Envelope (Climate Zone 5A)			
Space-Conditioning Category (Nonresidential or Residential)			
Gross Roof Area			
Roofs: Maximum Assembly U-factor	Insulation Entirely Above Deck		
	Metal Building		
	Attic & Other		
Minimum Insulation R-Value	Insulation Entirely Above Deck		
	Metal Building		
	Attic & Other		
Walls: Above-Grade: Maximum Assembly U-factor	Mass		
	Metal Buildings		
	Metal Framed		
	Wood Framed & Other		
Above-Grade: Minimum Insulation R-Value	Mass		
	Metal Building		
	Metal Framed		
	Wood Framed & Other		
Below-Grade: Maximum Assembly C-factor			
Below-Grade: Minimum Insulation R-Value			
Floors: Maximum Assembly U-factor	Mass		
	Joist/Framing		
Minimum Insulation R-Value	Mass		
	Joist/Framing		
Slab-On-Grade, Maximum Assembly F-factor	Unheated Slab		
	Heated Slab		
Slab-On-Grade, Minimum Insulation R-Value	Unheated Slab		
	Heated Slab		
Opaque Doors:			
Maximum Assembly U-factor	Swinging		
Minimum Insulation R-Value	Roll-Up or Sliding		
Radiant Heating System Insulation			
Gross Wall Area			
Total Vertical Fenestration Area			
Vertical Glazing: Percent of Wall Area			
Increased Vertical Fenestration Area Requirements			
≥50% Conditioned Floor Area in Daylight Zone			
Automatic Daylighting Controls Installed			
Visible Transmittance of Vertical Fenestration >1.1 Times SHGC			
Vertical Glazing			
Maximum Assembly U-factor	Fixed Fenestration		
	Operable Fenestration		
	Entrance Door		

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	Element	Commercial Chapter 4 [CE] 2012 IECC Requirement	Values Incorporated Into This Design
Maximum Assembly Solar Heat Gain Coefficient			
Increased Skylight Area with Automatic Daylighting Controls			
Required Minimum Skylight Fenestration Area with Daylighting Control			
Space >10,000 sq. ft. & >15 ft. Ceiling Height and Used as Office, Lobby, Atrium, Concourse, Corridor, Storage, Gymnasium/Exercise Center, Convention Center, Automotive Service, Manufacturing, Non-Refrigerated Warehouse, Retail Store, Distribution Area, Sorting Area, Transportation or Workshop	Daylight Zone Under Skylight $\geq 50\%$ Floor Area		
	Area/Daylight Zone $\geq 3\%$ or Effective Aperture $\geq 1\%$		
Total Skylight Area			
Skylight: Percent of Roof Area			
Skylight: Maximum Assembly U-factor			
Maximum Assembly Solar Heat Gain Coefficient			
Visible Transmittance (VT)			
Haze Factor			
Air Barriers:			
Construction			
Compliance Option	Materials		
	Assemblies		
	Building Testing		
Penetration Sealing			
Maximum Assembly Air Infiltration Rates	Windows		
	Sliding Doors		
	Swinging Doors		
	Skylights with Condensation Weepage Openings		
	Other Skylights		
	Curtain Walls		
	Storefront Glazing		
	Commercial Glazed Swinging Entrance Doors		
	Revolving Doors		
	Garage Doors		
	Rolling Doors		
Maximum Air Leakage Rates, Recessed Lighting Luminaires			
Damper, Maximum Leakage Rate			
Stairway and Shaft Vents			
Outdoor Air Intakes and Exhausts			
Loading Dock Weatherseal			
Vestibule			
Section C403			
Heating, Ventilating and Air Conditioning			
Calculated Load	Heating		
	Cooling		
Equipment Output Capacity	Heating		
	Cooling		
HVAC Equipment Performance			
Unitary Air Conditioners, Electrically Operated, Minimum Efficiency			
Air Cooled	Split System <65,000 Btu/h		
	Single Package <65,000 Btu/h		

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	Element	Commercial Chapter 4 [CE] 2012 IECC Requirement	Values Incorporated Into This Design
Through-the-Wall, Air Cooled	Split System ≤30,000Btu/h		
	Single Package ≤30,000Btu/h		
Small-Duct High-Velocity, Air Cooled	Split System <65,000 Btu/h		
Air Cooled with Electric Resistance Heating or None	≥65,000 Btu/h and <135,000 Btu/h		
	≥135,000 Btu/h and <240,000 Btu/h		
	≥240,000 Btu/h and <760,000 Btu/h		
	≥760,000 Btu/h		
Air Cooled with Other Than Electric Heating	≥65,000 Btu/h and <135,000 Btu/h		
	≥135,000 Btu/h and <240,000 Btu/h		
	and <760,000 Btu/h		
	≥760,000 Btu/h		
Water Cooled	<65,000 Btu/h		
Water Cooled with Electric Resistance Heating or None	≥65,000 Btu/h and <135,000 Btu/h		
	and <240,000 Btu/h		
	and <760,000 Btu/h		
	≥760,000 Btu/h		
Water Cooled with Other Than Electric Heating	≥65,000 Btu/h and <135,000 Btu/h		
	and <240,000 Btu/h		
	and <760,000 Btu/h		
	≥760,000 Btu/h		
Evaporatively Cooled	<65,000 Btu/h		
Evaporatively Cooled with Electric Resistance Heating or None	≥65,000 Btu/h and <135,000 Btu/h		
	≥135,000 Btu/h and <240,000 Btu/h		
	and <760,000 Btu/h		
	≥760,000 Btu/h		
Evaporatively Cooled with Other Than Electric Heating	≥65,000 Btu/h and <135,000 Btu/h		
	≥135,000 Btu/h and <240,000 Btu/h		
	and <760,000 Btu/h		
	≥760,000 Btu/h		
Condensing Units, Electrically Operated, Minimum Efficiency	Air Cooled ≥135,000 BTU/h		
	Water Cooled ≥135,000 Btu/h		

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	Evaporatively Cooled $\geq 135,000$ Btu/h		
Unitary and Applied Heat Pumps, Electrically Operated, Minimum Cooling Mode Efficiency			
Air Cooled	Split System <65,000 Btu/h		
	Single Package <65,000 Btu/h		
Through-the-Wall Air Cooled	Split System $\leq 30,000$ Btu/h		
	Single Package $\leq 30,000$ Btu/h		
Single-Duct High-Velocity Air Cooled	Split System <65,000 Btu/h		
Air Cooled with Electric Resistance Heating or None	$\geq 65,000$ Btu/h and <135,000 Btu/h and <240,000 Btu/h		
	$\geq 240,000$ Btu/h		
Air Cooled with Other Than Electric Heating	$\geq 65,000$ Btu/h and <135,000 Btu/h and <240,000 Btu/h		
	$\geq 240,000$ Btu/h		
Water Source	<17,000 Btu/h		
	$\geq 17,000$ Btu/h and <65,000 Btu/h		
	$\geq 65,000$ Btu/h and <135,000 Btu/h		
Ground Water Source	(59° Entering Water)		
	(77° Entering Water)		
Water Source, Water-to-Water	(86° Entering Water)		
	(59° Entering Water)		
Ground Water Source, Brine-to-Water	(77° Entering Water)		
Unitary and Applied Heat Pumps, Electrically Operated, Minimum Heating Mode Efficiency			
Air Cooled	Split System <65,000 Btu/h		
	Single Package <65,000 Btu/h		
Through-the-Wall, Air Cooled	Split System (Cooling Capacity) $\leq 30,000$ Btu/h		
	Single Package (Cooling Capacity) $\leq 30,000$ Btu/h		
Small-Duct High-Velocity Air Cooled	Split System <65,000 Btu/h		
Air Cooled	(Cooling Capacity) $\geq 65,000$ Btu/h and <135,000 Btu/h (47°F db/43°F wb Outdoor Air)		

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	Element	Commercial Chapter 4 [CE] 2012 IECC Requirement	Values Incorporated Into This Design
	(Cooling Capacity) $\geq 65,000$ Btu/h and $< 135,000$ Btu/h (17°F db/15°F wb Outdoor Air)		
	(Cooling Capacity) $\geq 135,000$ Btu/h (47°F db/43°F wb Outdoor Air)		
	(Cooling Capacity) $\geq 135,000$ Btu/h (17°F db/15°F wb Outdoor Air)		
Water Source	(Cooling Capacity) $< 135,000$ Btu/h		
Ground Water Source	(Cooling Capacity) $< 135,000$ Btu/h		
Ground Source	(Cooling Capacity) $< 135,000$ Btu/h		
Water Source, Water-to-Water	(Cooling Capacity) $< 135,000$ Btu/h (68°F Entering Water)		
	(Cooling Capacity) $< 135,000$ Btu/h (50°F Entering Water)		
Ground Source, Brine-to-Water	(Cooling Capacity) $< 135,000$ Btu/h		
Package Terminal Air Conditioners (Cooling Mode) Minimum Efficiency	New Construction		
	Replacements		
Package Terminal Heat Pumps (Cooling Mode) Minimum Efficiency	New Construction		
	Replacements		
Package Terminal Heat Pumps (Heating Mode) Minimum Efficiency	New Construction		
	Replacements		
Single Package Vertical Air Conditioners (Cooling Mode) Minimum Efficiency	$< 65,000$ Btu/h $\geq 65,000$ Btu/h and $< 135,000$ Btu/h $\geq 135,000$ Btu/h and $< 240,000$		
Single Package Vertical Heat Pump (Cooling Mode) Minimum Efficiency	$< 65,000$ Btu/h $\geq 65,000$ Btu/h and $< 135,000$ Btu/h $\geq 135,000$ Btu/h and $< 240,000$		
Single Package Vertical Heat Pump (Heating Mode) Minimum Efficiency	$< 65,000$ Btu/h $\geq 65,000$ Btu/h and $< 135,000$ Btu/h $\geq 135,000$ Btu/h and $< 240,000$		
Room Air Conditioners with Louvered Sides Minimum Efficiency	$< 6,000$ Btu/h $\geq 6,000$ Btu/h and $< 8,000$ Btu/h $\geq 8,000$ Btu/h and $< 14,000$ Btu/h $\geq 14,000$ Btu/h and $< 20,000$ Btu/h $\geq 20,000$ Btu/h		
Room Air Conditioners without Louvered Sides, Minimum Efficiency	$< 8,000$ Btu/h $\geq 8,000$ Btu/h and $< 20,000$ Btu/h $\geq 20,000$ Btu/h		
Room Air Conditioner Heat Pumps without Louvered Sides, Minimum Efficiency	$< 14,000$ Btu/h $\geq 14,000$ Btu/h		

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Room Air Conditioner, Casement Only, Minimum Efficiency			
Room Air Conditioner, Casement-Slider, Minimum Efficiency			
Warm Air Furnaces, Minimum			
Gas Fired	<225,000 Btu/h		
	≥225,000 Btu/h		
Oil Fired	<225,000 Btu/h		
	≥225,000 Btu/h		
Warm Air Duct Furnaces, Gas Fired, Minimum Efficiency			
Warm Air Unit Heaters, Gas Fired, Minimum Efficiency			
Warm Air Unit Heaters, Oil Fired, Minimum Efficiency			
Boilers, Hot Water, Minimum Efficiency			
Gas Fired	<300,000 Btu/h and ≤2,500,000 Btu/h		
	>2,500,000 Btu/h		
Oil Fired	<300,000 Btu/h and ≤2,500,000 Btu/h		
	>2,500,000 Btu/h		
Boilers, Steam, Minimum Efficiency			
Gas Fired	<300,000 Btu/h		
Gas Fired, Except Natural Draft	and ≤2,500,000 Btu/h		
	>2,500,000 Btu/h		
Natural Draft Gas Fired	and ≤2,500,000 Btu/h		
	>2,500,000 Btu/h		
Oil Fired	<300,000 Btu/h and ≤2,500,000 Btu/h		
	>2,500,000 Btu/h		
Condensing Units, Electrically Operated, Minimum Efficiency			
Air Cooled	≥135,000 Btu/h		
Water or Evaporatively Cooled	≥135,000 Btu/h		
Water Chilling Package, Electrically Operated, Minimum Efficiency			
Air Cooled (Compliance Path	<150 tons		
	≥150 tons		
Air Cooled without Condenser			
Water Cooled Reciprocating			
Water Cooled Positive Displacement	<75 tons		
	≥75 tons and <150 tons		
	≥150 tons and <300 tons		
	≥300 tons		
Water Cooled Centrifugal	<150 tons		
	≥150 tons and <300 tons		
	≥300 tons and <600 tons		
	≥600 tons		
Water Chilling Package, Absorption, Minimum Efficiency - Compliance Path A	Air Cooled, Single Effect		
	Water Cooled, Single Effect		
	Double Effect, Indirect Fired		
	Double Effect, Direct Fired		

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Heat Rejection Equipment, Minimum Performance	Propeller or Axial Fan Open Circuit Cooling Towers		
	Centrifugal Fan Open Circuit Cooling Towers		
	Propeller or Axial Fan Closed Circuit Cooling Towers		
	Centrifugal Fan Closed Circuit Cooling Towers		
	Air Cooled Condensers		
	Plate Type Liquid-to-Liquid Heat Exchangers		
Economizers			
Airside (with Relief of Excess Outdoor Air), Capacity			
Waterside (Designed with Maximum Pressure Drop), Capacity			
HVAC System Control			
Zone Thermostatic Control			
Independent Perimeter System Thermostatic Control			
Control Device for Each Humidification and/or Dehumidification System			
Heat Pump Supplementary Electric Resistance Heat Control			
Setpoint Deadband (Overlap Restriction)			
Automatic Off-Hour Setback and Shutdown Zone Control	Operating Range		
	Different Daily Schedules		
	Maintenance During Power Failure		
	Manual Override		
	Automatic Start Control		
Automatic Zone Supply and Exhaust Damper Closure Control			
Economizer Cycle Controls	Allowed Types		
	Integrated with Equipment		
	High-Limit Airside Shutoff		
Heat Rejection Equipment Fan Speed Control			
Ventilation System Controls			
Stair and Shaft Vent Motorized Damper Controls			
Ventilation Damper Controls			
Shutoff Damper Controls			
Motorized Damper Maximum Leakage Rate			
Demand Control Ventilation			
HVAC System Insulation and Sealing			
Insulation For Supply Duct, R-Value			
Insulation For Return Duct, R-Value			
Building Envelope and Duct Insulation Separating Duct or Plenum From Exterior, Minimum R-Value			
Duct Sealing			
Duct Testing Requirements			
Pipe Insulation for Heating and Cooling Systems, Conductivity / Minimum Thickness	Fluid Operating Temperature (°F) / Nominal Pipe Size		
	>350° / <1"		
	>350° / 1" to <1½"		
	>350° / 1½" to <4"		
	>350° / 4" to <8"		
>350° / ≥8"			

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	Element	Commercial Chapter 4 [CE] 2012 IECC Requirement	Values Incorporated Into This Design
	251° - 350° / <1"		
	251° - 350° / 1" to <1½"		
	251° - 350° / 1½" to <4"		
	251° - 350° / 4" to <8"		
	251° - 350° / ≥8"		
	201° - 250° / <1"		
	201° - 250° / 1" to <1½"		
	201° - 250° / 1½" to <4"		
	201° - 250° / 4" to <8"		
	201° - 250° / ≥8"		
	141° - 200° / <1"		
	141° - 200° / 1" to <1½"		
	141° - 200° / 1½" to <4"		
	141° - 200° / 4" to <8"		
	141° - 200° / ≥8"		
	105° - 140° / <1"		
	105° - 140° / 1" to <1½"		
	105° - 140° / 1½" to <4"		
	105° - 140° / 4" to <8"		
	105° - 140° / ≥8"		
	40° - 60° / <1"		
	40° - 60° / 1" to <1½"		
	40° - 60° / 1½" to <4"		
	40° - 60° / 4" to <8"		
	40° - 60° / ≥8"		
	<40° / <1"		
	<40° / 1" to <1½"		
	<40° / 1½" to <4"		
	<40° / 4" to <8"		
	<40° / ≥8"		
	Pipe Insulation Protection		
	Exhaust Air Energy Recovery System		
	Percentage Outdoor Air at Full Design Supply Fan Airflow Rate	≥30% and <40% @ ≥5,500 cfm ≥40% and <50% @ ≥4,500 cfm ≥50% and <60% @ ≥3,500 cfm ≥60% and <70% @ ≥2,000 cfm ≥70% and <80% @ ≥1,000 cfm ≥80% @ >0 cfm	
	Percentage Enthalpy Change Between Outdoor Air & Return Air Bypass or Control to Permit Economizer Operation		
	Snow and Ice Melting System Control	Automatic Control Based on Pavement Temperature & Precipitation Control Based on Outdoor Temperature	
	Maximum Allowable Fan Horsepower (Nameplate Horsepower Option or Break Horsepower Option)	Constant Volume Variable Volume	
	Variable Air Volume System Controls		
	Variable Flow Control		
	DDC Static Pressure Reset Control		
	Supply Air Temperature Reset Control		
	Air Reheating, Recooling and Mixing Limitations		
	Hydronic System Controls		
	Two Pipe Changeover Controls with Deadband		

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	Element	Commercial Chapter 4 [CE] 2012 IECC Requirement	Values Incorporated Into This Design
Variable Flow Controls			
Chiller Isolation Controls			
Boiler Isolation Controls			
Water Temperature Reset Controls			
Hydronic (Water Loop) Heat Pump System Controls			
Two Position Valve on Each Heat Pump			
Deadband between Addition or Rejection of Heat			
Automatic Isolation of Cooling Tower When Not Required			
Heat Recovery for Service Water Heating			
Cooling System Hot Gas Bypass Limitation: Maximum Percentage of Total			
Heating Outside Building			
Radiant System			
Occupant Sensing Device or Timer Switch Control			
Mechanical Systems Commissioning and Completion Requirements in Section C4			
Section C404			
Service Water Heating			
Water Heating Equipment, Minimum Performance			
Electric Resistance	≤12 kW		
	>12 kW		
Electric Heat Pump	≤24 amps and ≤250 volts		
Storage, Gas	≤75,000 Btu/h & ≥20 gal		
	>75,000 Btu/h and ≤155,000 Btu/h & <4,000 Btu/h/gal		
	>155,000 Btu/h & <4,000 Btu/h/gal		
Instantaneous, Gas	>50,000 and <200,000 Btu/h & ≥4,000 Btu/h/gal and <2 gal		
	≥200,000 Btu/h & ≥4,000 Btu/h/gal and <10 gal		
	≥200,000 Btu/h & ≥4,000 Btu/h/gal and ≥10 gal		
Storage, Oil	≤105,000 Btu/h & ≥20 gal		
	>105,000 Btu/h & <4,000 Btu/h/gal		
Instantaneous, Oil	≤210,000 Btu/h & ≥4,000 Btu/h/gal and <2 gal		
	>210,000 Btu/h & ≥4,000 Btu/h/gal and <10 gal		
	>210,000 Btu/h & ≥4,000 Btu/h/gal and ≥10 gal		
Hot Water Supply Boiler, Minimum Performance			
Gas and Oil	and <12,500,000 Btu/h & ≥4,000 Btu/h/gal and <10 gal		

Building Energy Performance Characteristics
 For Compliance with Commercial Provisions, Chapter 4 of 2012 IECC

Project:

Project Location:

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	Element	Commercial Chapter 4 [CE] 2012 IECC Requirement	Values Incorporated Into This Design
Gas	and <12,500,000 Btu/h & ≥4,000 Btu/h/gal and ≥10 gal		
Oil	and <12,500,000 Btu/h & >4,000 Btu/h/gal and >10 gal		
Pool Heater, Minimum Performance			
Gas and Oil			
Heat Pump			
Unfired Storage Tank, Minimum Insulation R-Value			
Service Water Heater Equipment Temperature Control			
Service Water Heater Supply & Discharge Heat Traps			
Pipe Insulation for Service Hot-Water Systems, Conductivity / Thickness	Circulating and Heat-Traced Systems		
	Non Temperature Maintenance Systems		
Circulating Service Hot Water System Pump Shut Off Control			
Pool and Spa Heater Accessible On-Off Switch			
Swimming Pool Heater and Pump Time Switch			
Pool Cover for Heated Pool and Inground Spas			
Section C405			
Electrical Power and Lighting			
Building Type			
Gross Lighted Floor Area			
Interior Lighting Power Allowance	Allowance		
	Connected		
Equivalent Interior Lighting Power Density (by Building Area Method or Space-by-Space Method)			
Percentage of Fixtures with High Efficacy Lamps in Dwelling Units			
Interior Lighting Controls			
Enclosed Area Lighting Controls			
Light Reduction Controls			
Automatic Building Time Switch Controls			
Occupancy Sensors in Required Areas (Manual On or Automatic On to 50% Power)	Classrooms		
	Conference/Meeting Rooms		
	Employee Lunch & Break Rooms		
	Private Offices		
	Restrooms		
	Storage Rooms		
	Janitorial Closets		
	Spaces ≤300 sq. Ft. enclosed by Floor-to-Ceiling Height Partitions		
Daylight Zone Controls	Manual Controls		
	Automatic Controls		
	Multi-Level Controls		
Specific Application Controls	Display & Accent Light		
	Case Lighting		

Building Energy Performance Characteristics
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	Element	Commercial Chapter 4 [CE] 2012 IECC Requirement	Values Incorporated Into This Design
	Hotel & Motel Sleeping Unit & Guest Suites		
	Supplemental Task Lighting		
	Lighting for Nonvisual Applications		
	Lighting Equipment for Sale or Demonstration		
Luminaire Tandem Wiring			
Exit Sign: Maximum Wattage per Face			
Exterior Lighting Zone (1, 2, 3, or 4)			
Exterior Lighting Power			
	Total Exterior Lighting Power	Allowance	
		Connected	
	Tradable Surface Exterior Lighting Power	Allowance	
		Connected	
	Non-Tradable Surface Exterior Lighting Power	Allowance	
		Connected	
Exterior Lighting			
	Automatic Exterior Lighting Control	Dusk-to-Dawn Operation	
		Not Dusk-to-Dawn Operation	
	Minimum Lamp Efficacy		
Separately Metered Individual Dwelling Units			
Section C406			
Additional Efficiency Package Options			
Efficient HVAC Performance Option in Addition to Section C403 Requirements			
Unitary Air Conditioners, Electrically Operated, Minimum Efficiency			
	Air Cooled	Split System <65,000 Btu/h	
		Single Package <65,000 Btu/h	
		≥65,000 Btu/h and <240,000 Btu/h	
		and <760,000 Btu/h	
		≥760,000 Btu/h	
	Cooled		
Unitary and Applied Heat Pumps, Electrically Operated, Minimum Cooling Mode Efficiency			
	Air Cooled	Split System <65,000 Btu/h	
		Single Package <65,000 Btu/h	
		≥65,000 Btu/h and <240,000 Btu/h	
		≥240,000 Btu/h	
	Water Source	<135,000 Btu/h	
Unitary and Applied Heat Pumps, Electrically Operated, Minimum Heating Mode Efficiency			
	Air Cooled	Split System (Cooling Capacity) <65,000 Btu/h	

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	Element	Commercial Chapter 4 [CE] 2012 IECC Requirement	Values Incorporated Into This Design
	Single Package (Cooling Capacity) <65,000 Btu/h		
	(Cooling Capacity) ≥65,000 Btu/h and <135,000 Btu/h (47°F db/43°F wb Outdoor Air)		
	(Cooling Capacity) ≥65,000 Btu/h and <135,000 Btu/h (17°F db/15°F wb Outdoor Air)		
	(Cooling Capacity) ≥135,000 Btu/h (47°F db/43°F wb Outdoor Air)		
	(Cooling Capacity) ≥135,000 Btu/h (17°F db/15°F wb Outdoor Air)		
	Water Source (Cooling Capacity) <135,000 Btu/h		
Package Terminal Air Conditioners and Package Terminal Heat Pumps (Cooling Mode), Minimum Efficiency	<7,000 Btu/h		
	≥7,000 Btu/h and <10,000 Btu/h		
	≥10,000 Btu/h and ≤13,000 Btu/h		
	>13,000 Btu/h		
Warm Air Furnaces, Minimum Efficiency			
Gas Fired	<225,000 Btu/h		
	≥225,000 Btu/h		
Oil Fired	<225,000 Btu/h		
	≥225,000 Btu/h		
Warm Air Duct Furnaces, Gas Fired, Minimum Efficiency			
Warm Air Unit Heaters, Gas Fired, Minimum Efficiency			
Warm Air Unit Heaters, Oil Fired, Minimum Efficiency			
Boilers, Hot Water, Minimum Efficiency			
Gas Fired	<300,000 Btu/h and ≤2,500,000 Btu/h		
	>2,500,000 Btu/h		
Oil Fired	<300,000 Btu/h and ≤2,500,000 Btu/h		
	>2,500,000 Btu/h		
Boilers, Steam, Minimum Efficiency			
Gas Fired	<300,000 Btu/h and ≤2,500,000 Btu/h		
	>2,500,000 Btu/h		
Oil Fired	<300,000 Btu/h and ≤2,500,000 Btu/h		
	>2,500,000 Btu/h		
Water Chilling Package, Electrically Operated, Minimum Efficiency - Compliance Path (A or B)			
Air Cooled	<150 tons		
	≥150 tons		
Air Cooled without Condenser			
Water Cooled Reciprocating			
Water Cooled Positive	<75 tons		

Building Energy Performance Characteristics
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	Element	Commercial Chapter 4 [CE] 2012 IECC Requirement	Values Incorporated Into This Design	
Displacement	≥75 tons and <150 tons			
	≥150 tons and <300 tons			
	≥300 tons			
	Water Cooled Centrifugal	<150 tons		
		≥150 tons and <300 tons		
		≥300 tons and <600 tons		
Water Chilling Package, Absorption, Minimum Efficiency - Compliance Path A	≥600 tons			
	Air Cooled, Single Effect (Heat Recovery Application)			
	Water Cooled, Single Effect (Heat Recovery Application)			
	Double Effect, Indirect Fired			
Efficient Lighting System Option	Double Effect, Direct Fired			
	Equivalent Interior Lighting Power Density (Building Area Method)			
On-site Renewable Energy Option	Total Minimum Rating (One of)			
	Capacity Use			
Section C408				
System Commissioning				
Mechanical Systems Commissioning and Completion Requirements				
Commissioning Plan	Narrative Description of Activities			
	Listing of Equipment, Appliances or Systems To Be Tested			
	Functions To Be Tested			
	Test Conditions			
	Measurable Criteria for Performance			
Air System Balancing				
Hydronic System Balancing				
Functional Performance Testing	Equipment in All Modes of Operation			
	Equipment in Redundant or Automatic Back-up Mode			
	Equipment Performance			
	Upon Loss and Restoration of Power			

Building Energy Performance Characteristics
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Project:

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	Element	Commercial Chapter 4 [CE] 2012 IECC Requirement	Values Incorporated Into This Design
Preliminary Commissioning Report	Controls		
	Economizers		
	Provided to Owner		
	Acceptance of Report by Owner		
Documentation Requirements	Availability for Review		
	Record Drawings		
	Equipment Capacity Lists		
	Operation Manuals		
	Maintenance Manuals		
	System Control Information		
	System Narrative for Each		
	Systems Balancing Reports		
Final Commissioning Report			
Lighting Systems Commissioning and Completion Requirements			
Functional Testing of Automatic Controls			
Occupant Sensor Testing Procedures			
Time Switches Testing Procedures			
Programmable Schedule Control Testing Procedures			
Photosensors or Daylighting Control Testing Procedures			