2025 Baseline Document: Energy Code Base Case Overview

Prepared by: Annemarie Eastwood, Guidehouse

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The Baseline Document defines base case (or baseline) parameters for projects pursuing energy savings and incentives under Rhode Island Energy's New Construction program(s). This document is intended to inform assumptions for New Construction applications as well as "end of life" replacements. In this case, "end of life" is defined as either failed or retired equipment, or a specific age of existing equipment that has been established by Rhode Island Energy in cooperation with state regulators. This document is applicable to any project that is evaluated under the Rhode Island Custom Commercial & Industrial (C&I) New Construction program.

In general, the base case for a given system or piece of equipment is defined by one of two primary methods:

> *State Energy Code:* For equipment and systems whose performance is explicitly governed by the applicable state's building energy code, the baseline for that equipment is generally based on the minimum allowable performance in the energy code (for RI as of 2025, code follows IECC 2024).
>
> *Standard Practice/Industry Standard*: For equipment and systems that are not governed by energy code, the baseline is defined based on the minimum performance option that is still considered to be industry standard or standard practice within the given industry. In some cases, there are performance requirements per the current industry standard, as determined by Rhode Island Energy, which are stricter than the performance requirements in energy code. For those cases, Rhode Island Energy has set the baseline requirements within this document to reflect the current industry standard. These apply for energy conservation measure (ECM) applications regardless of their inclusion or exclusion from the national model codes and state amendments. Those cases are identified in this document with a note that the baseline is different from the energy code requirement.

Guide for Energy Code Baselines

Energy code requirements vary by state. The Rhode Island energy code as of November 14, 2024, is based on one national code standard, which is used to define the RI program baseline:

i. International Energy Conservation Code – IECC 2024

The Baseline Document is intended to highlight the key criteria within these codes that set the baseline for code-governed equipment and systems; however, it does not provide every detail of the code criteria or all potential exemptions to code requirements. Where additional information or details are required, the state specific code documents/standards should be referenced for clarification.

In RI, state code requires new buildings to use IECC, coupled with the state amendments, as the primary standard for energy code compliance. The designed building must comply with the standard in its entirety.

The baseline for incentives for a given New Construction project must follow IECC 2024.

a. State Amendments

Each state energy code can include amendments to either increase or decrease the stringency of the national code standards (IECC). In general, the baseline for incentives in any given state should reflect any and all amendments included in that state's energy code. Currently, Rhode Island does not have any amendments to IECC 2024 code. In the event of future amendments, the information will be posted on the [RI Department of State website](#).

b. IECC C406 - Additional Efficiency Package Options

IECC 2024 includes a section (C406) that outlines Additional Efficiency Package options that go above and beyond the requirements in Sections C402-C405.

State energy codes/amendments may require one or more of the C406 options for energy code compliance; however, for Rhode Island Energy's projects, the baseline for new building projects (including additions and gut-rehab of existing buildings) does not require any C406 options. Energy savings can be claimed for C406 options that are implemented into the design (even if required by energy code). Note that this is a divergence from the RI energy code, which requires new buildings to comply with a certain quantity of the C406 Additional Efficiency Package options.

c. Performance Paths for Energy Code Compliance Not Acceptable for RI Baseline

The energy code gives the design team the option of following a Prescriptive path (not to be confused with Rhode Island Energy's prescriptive incentive programs) or a Performance path (energy modeling vs. a "baseline" building as defined by a separate section of the code standard) for complying with the code. While these are viable options for energy code compliance, the Performance path options are not acceptable for defining the baseline for RI projects.
For RI, the following methods are NOT acceptable baseline modeling methods:

1. ASHRAE 90.1 Appendix G
2. ASHRAE 90.1 Chapter 11 (Energy Cost Budget Method)
3. IECC Section C407

RI custom energy savings must be evaluated through discrete individual ECMs where the proposed high performance practice is compared to the applicable base case as defined in this Baseline Document.

For incentive studies based on designs that have used one of the Performance paths for code compliance, high performance design features that exceed the applicable base case definition in this Baseline Document can be included as ECMs. However, any design tradeoffs used where systems do not meet the applicable base case definition in this Baseline Document must also be accounted for with an energy penalty and included in the project's interactive savings.

d. Stretch Energy Codes

States may adopt a stretch energy code ("stretch code") to be more stringent than the "base code" it has adopted with its state amendments. Where a state has adopted the stretch code, municipalities may elect to make the stretch code mandatory for certain building types, sizes, classes of owners, building functions or for public buildings. It varies by the version of the code adopted and by the State or municipal regulations.

Stretch codes do NOT define the baseline for RI incentive programs. For projects in municipalities where stretch code is enforced, the baseline for incentive purposes shall still follow the State's "base code" with amendments, or industry standard practice, as outlined in this document. Energy savings can be claimed, and incentives may be offered for equipment/systems meeting stretch code that exceed the requirements outlined in this document.

e. *Energy Code/Baseline Document Interpretations*

In cases where the baseline definitions in this document or the specific energy codes have gaps or questions on interpretations, Rhode Island Energy's Technical Representative will make a determination on the appropriate baseline.

Rhode Island Energy has the authority to make the final decision on any interpretation questions that arise and may make changes to this document at any time.

f. *Federal Exemption from State Energy codes*

Federal Buildings are exempt from State Energy codes; however, for incentive purposes the same base case shall be applied to these buildings as any other building.

g. *Useful Links*

The below links can be used to access useful reference information.

i. IECC 2024 electronic copy link at: https://codes.iccsafe.org/content/IECC2024P1

Update Process

This baseline document was updated by reviewing the following sources:

1. IECC 2024
2. Non-Residential New Construction Baseline IECC 2024 Addendum, prepared by DNV in 2025
3. 2024 MA Baseline Document

The baseline document was reviewed by stakeholders including Andelman and Lelek Engineering, DNV, RISE, Leidos, RI Energy Tech Representatives, and the Consulting Team.

<table>
<tr><th rowspan="3">Line #</th><th colspan="6">2025 Program Year</th></tr>
<tr><th>System</th><th colspan="5"></th></tr>
<tr><th>Sub-Category</th><th colspan="4">Baseline Minimum Standards & Practice</th><th>Potential High-Performance Practices</th></tr>
<tr><td rowspan="3">1</td><td>IECC C406 Requirements</td><td colspan="5">The baseline building for all projects shall not include any Section C406 enhanced efficiency options. This does not align with the RI energy code, which requires implementation of select C406 options.</td></tr>
<tr><td>IECC vs. ASHRAE</td><td colspan="5">Due to legislation S0855[1], IECC 2024 became the state building code in Rhode Island and ASHRAE is no longer a standard accepted by Rhode Island.</td></tr>
<tr><td>Acceptable Baseline Modeling Methods</td><td colspan="5">The only acceptable baseline definition approach is the Prescriptive path (IECC).
Although viable paths to demonstrate code compliance, the following methods are not acceptable baseline modeling methods for the RI programs: ASHRAE 90.1-2019, Appendix G, ASHRAE 90-1 2019 Chapter 11 (Energy Cost Budget Method), and IECC 2024 Section C407.</td></tr>
<tr><td>2</td><td colspan="6">Division: Architectural</td></tr>
<tr><td>3</td><td rowspan="11">Opaque Assemblies</td><td colspan="4"><u>This baseline requirement varies from code.</u>
Opaque thermal envelope insulation requirements meeting below requirements. Comply with either R-value or U-value method. The baseline construction type category shall be the same as the design construction type.</td><td rowspan="11">Opaque wall insulation with higher thermal resistance.

Efficient cladding support system to reduce thermal bridging.

*Note: Thermal bridging must be accounted for when estimating effective R-values/U-values for insulated stud cavities (the base case U-values account for thermal bridging). ASHRAE 90.1 Appendix A provides effective U-values with thermal bridging.
Additionally, 3D thermal bridging associated with linear and/or point transmittances must be accounted for in exterior wall assemblies. The same bridging factor adjustments shall be performed in the base case and design case models.</td></tr>
<tr><td>4</td><td></td><td>Category</td><td>R-value Method*</td><td>U-value Method</td></tr>
<tr><td>5</td><td rowspan="3"></td><td>Insulation entirely above deck</td><td>R-30 ci</td><td>U-0.032</td></tr>
<tr><td>6</td><td>Metal buildings</td><td>R-19 + R-11LS (thermal spacer block shall be provided)</td><td>U-0.035</td></tr>
<tr><td>7</td><td>Attic and other</td><td>R-49</td><td>U-0.021</td></tr>
<tr><td>8</td><td rowspan="4">Walls, above grade</td><td>Mass</td><td>R-11.4 ci</td><td>U-0.090</td></tr>
<tr><td>9</td><td>Metal building</td><td>R-13+ R-14 ci</td><td>U-0.050</td></tr>
<tr><td>10</td><td>Metal framed</td><td>R-0 + R-15.2ci or R-13 +R-10ci or R-20 + R-9ci</td><td>U-0.055</td></tr>
<tr><td>11</td><td>Wood framed and other</td><td>R-0 + R-17.6ci or R-14.3 + R-8.25ci or R-22 + R-4.18ci or R-29.7</td><td>U-0.046</td></tr>
<tr><td>12</td><td>Walls, below grade</td><td>Below-grade wall</td><td>R-7.5 ci</td><td>C-0.119</td></tr>
<tr><td>13</td><td>Floors</td><td>Mass</td><td>R-14.6 ci</td><td>U-0.057</td></tr>
</table>

[1] Legislation can be found here: https://webserver.rilegislature.gov/BillText/BillText23/SenateText23/S0855A.pdf

Line #	System / Sub-Category	2025 Program Year: Baseline Minimum Standards & Practice				Potential High-Performance Practices
14			Joist/framing	R-30	U-0.033	
15		Slab-on-grade floors	Unheated slabs	R-50 for 24" below	F-0.52	
16			Heated slabs	R-15 for 36" below + R-5 full slab	F-0.62	
17		**Opaque Doors**	Non-swinging	No requirement	U-0.31	
18			Swinging Door	No requirement	U-0.37	
19			Garage Door <14% glazing	No requirement	U-0.31	
20		*ci = continuous insulation; when using R-value method, a thermal spacer shall be provided.				
21	***Window and Skylight Assemblies***	**<u>This baseline requirement varies from code.</u>** Window assembly performance meeting below criteria.				Window and skylight **<u>assembly</u>** U-values exceed code requirements (note that the baseline values for assemblies include frame effects and are not the same as center-of-glass values provided by glass manufacturers).
22		***Vertical Fenestration, U-factor***			**Add'l Req.**	
23		Fixed fenestration	U-0.34		Vertical fenestration area shall be <= 40% of gross above-grade wall area†	
24		Operable fenestration	U-0.45			
25		Entrance doors	U-0.63			
26		***Vertical Fenestration, Solar Heat Gain Coefficient (SHGC)***				
27			**Fixed**		**Operable**	
28		PF < 0.2	0.38		0.33	
29		0.2 ≤ PF < 0.5	0.46		0.40	

Line #	2025 Program Year				
	System				
	Sub-Category	Baseline Minimum Standards & Practice			Potential High-Performance Practices
30		PF ≥ 0.5	0.61	0.53	
31		***Skylights***			
32		U-factor	U-0.50	Skylight area shall be ≤ 3% of gross roof area†	
33		SHGC	0.40		
34		†Some exceptions apply. See IECC Section C402.5.			
35	***Window-to-Wall Ratio***	Window-to-wall ratio per design and no greater than 30% of gross above grade wall area. Skylight area per design and no greater than 3% of gross roof area. No credit allowed for reduced wall-to-window or reduced skylight areas. IECC: per Section C402.5.1			If the design window-to-wall ratio exceeds the maximum value allowed by code, this difference in WWR must be modeled between the baseline and design case.
36	***Division: Mechanical***				
37	***Code Required Airside Attributes***				
38	Data Centers	Data center systems shall comply with Sections 6 and 8 of ASHRAE 90.4. IECC: per Section C403.1.2			
39	Zone Isolation	HVAC systems serving zones >25,000 ft^2 or zones that span more than one floor and are designed to operate or be occupied non-simultaneously are required to be divided into isolation areas with control devices configured to automatically shut off the supply of conditioned air and outside air to and exhaust air from the isolation area. IECC: per Section C403.7.1			

Line #	**2025 Program Year**		
	System		
	Sub-Category	Baseline Minimum Standards & Practice	Potential High-Performance Practices
40	Demand Controlled Ventilation	Required for spaces >250 square feet with design occupancy load of 15 people or greater per 1,000 square feet. Some exemptions: see high performance practices for details. IECC: per Section C403.7.1	1.DCV in space that are either < 250 ft² or have a design occupancy < 15 people per 1,000 ft². 2.DCV in multi-zone systems with total system OA < 750 cfm 3.DCV for systems with energy recovery that complied with baseline 4. DCV in spaces where >75% of the design outdoor airflow is required for makeup air that is exhausted from the space
41	Occupied-Standby Controls	Within 5 minutes of all spaces in that zone entering occupied-standby mode, the zone control shall operate as follows: 1. The active heating setpoint and the active cooling setpoint shall be set back by not less than 1F. 2. All airflow supplied to the zone shall be shut off whenever the space temperature is between the active heating and cooling set points. For multiple-zone systems, they are required to automatically reset the effective minimum outdoor air setpoint and shall reset the effective minimum outdoor air setpoint based on a zone outdoor air requirement of zero. Sequences of operation for system outside air reset shall comply with the approved method. IECC: per Section C403.7.8.1	
42	Energy Recovery	Energy recovery is required in the baseline for all air handling systems with the following design parameters (both % OA and fan system total supply CFM), including for non-transient dwelling units.	1. Energy recovery where not code required 2. Energy recovery exceeding baseline value 3. Use of low face velocity in recovery selection, modulating bypass dampers, or other strategies to reduce interior static pressure losses associated with energy recovery

Line #	% OA	Systems Operating < 8,000 hours/year, CFM	Systems Operating ≥ 8,000 hours/year, CFM
43	≥ 80% OA	≥ 120 CFM	≥ 40 CFM
	≥ 70% and < 80%	≥ 1,000 CFM	≥ 50 CFM
	≥ 60% and < 70%	≥ 2,000 CFM	≥ 60 CFM
	≥ 50% and < 60%	≥ 3,500 CFM	≥ 70 CFM
	≥ 40% and < 50%	≥ 4,500 CFM	≥ 80 CFM
44	≥ 30% and < 40%	≥ 5,500 CFM	≥ 100 CFM
45	≥ 20% and < 30%	> 16,000 CFM	≥ 130 CFM
46	≥ 10% and < 20%	≥ 26,000 CFM	≥ 200 CFM

47 IECC: per Sections C403.7.4.1 & C402.7.4.2 /Table C403.7.4.2 (1) & (2)

Line #	2025 Program Year		
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	Sub-Category	Baseline Minimum Standards & Practice	Potential High-Performance Practices
48		Dual Recovery Wheel/Dehumidification Reheat - Where a central air handler reheat section is required to temper supply air during dehumidification, the baseline reheat shall be defined as follows: For DX air handlers with central dehumidification reheat, the Baseline shall have a hot gas reheat coil. For Chilled Water air handlers with central dehumidification reheat, the Baseline shall have a mechanical central system reheat coil. The reheat coil heating source shall match the typical heat source for the building (e.g. hot water, fossil fuel furnace, electric heat pump). If the building uses only electric heat, the baseline reheat coil shall be a heat pump.	For Chilled Water air handlers: Dual recovery wheel (or coil) system with a second heat recovery element to provide necessary reheat. Note: No high performance alternative for DX systems, because hot gas reheat provides similar benefit as a second recovery element.
49 50	Economizer	Air or water economizer interlocked with mechanical cooling required for each cooling system that has a fan and a cooling capacity ≥ 54,000 Btu/h. The total supply capacity of all fan cooling units not provided with economizers shall be ≤ 20% of the total supply capacity of all fan cooling units in the building or 300,000 Btu/h. Note: Each individual zone terminal unit (i.e. VRF, fan coil unit, heat pump) qualifies as an individual fan system. IECC: per Section C403.5	Economizers in systems with: 1.>25% of air designed to be supplied by the system is to spaces that are designed to be humidified above 35F dew-point temperature to satisfy process needs. 2. Systems operating less than 20 hours per week. 3. Systems serving supermarket areas with open refrigerated casework. 4. Where the cooling efficiency is greater than or equal to the efficiency requirements in IECC 2024 Table C403.5(2). 5. Systems that include a heat recovery system in accordance with IECC 2024 section C403.11.5. 1. 6. Direct-expansion coils or unitary equipment with a capacity of <54,000 Btu/h and multiple stages of compressor capacity installed with a dedicated outdoor air system.
51	Water-side Economizer	Water-side economizer piped in parallel with chiller(s)	Water-side economizer piped in series with chiller(s) (e.g. partial economizer capability)
52	Multizone System Airflow Control	Each supply air system serving multiple zones must be variable volume with zone controls to reduce the volume of air that is reheated, recooled, or mixed to 30% of zone peak design supply for systems with DDC controls unless a higher minimum limit is required is deliver adequate outside air or is otherwise approved by code official. IECC: per Section C403.6.1	VAV control for systems where ≥ 75% of the energy for reheating or for providing warm air in mixing systems is provided by a site-recovered or site-solar energy source, provided this site energy requirement is documented in the MRD.

Line #	2025 Program Year		
	System		
	Sub-Category	Baseline Minimum Standards & Practice	Potential High-Performance Practices
53	Fan Airflow/Speed Control	Each DX cooled AHU ≥ 65,000 Btu/h, each chilled water AHU with a fan motor ≥ 1/4 HP, and each evaporatively cooled AHU with a fan motor ≥ 1/4 HP must have one of the following: - VFDs with modulating fan speed controls, or - EC motors with multi-speed control Not required for chilled water and evaporatively cooled units with fan motors of < 1 hp where the units are not used to provide ventilation air and indoor fan cycles with load. This baseline requirement varies from code.	Modulating fan controls using VFDs or EC motors for: DX cooled AHUs < 65,000 Btu/hr, or CHW cooled AHUs with a fan motor < 1/4 hp, or evaporatively cooled AHUs with a fan motor < 1/4 hp using VFDs or EC motors
54	Static Pressure Reset	Static pressure reset required for systems where zone VAV boxes are controlled by a central energy management system (EMS). IECC: per Section C403.4.1.3 ASHRAE: per Section 6.5.3.2.3	
55	Supply Air Temperature Reset	Multiple-zone HVAC systems (including DOAS) shall have supply air temperature reset capable of resetting air temperature by at least 25% of the difference between design supply air temp and room air temp. Controls that adjust the reset based on zone humidity are allowed. IECC: per Section C403.6.5	1. Supply air temperature reset greater than 25% of dT 2. Supply air temperature reset in system where at least 75% of the energy for reheating is from site-recovered or sitesolar energy sources, provided this site energy requirement is documented in the MRD.
56	Fractional HP Fan Motors (EC Motors)	Motors for fans ≥ 1/12 hp and < 1 hp shall be electronically commutated motors or have a motor efficiency of ≥ 70%. IECC: per Section C403.8.4 ASHRAE: per Section 6.5.3.5	Higher efficiency fractional hp motors (> 70%). Non-excitable commutated motors Permanent magnet motors

<table>
<tr><th rowspan="3">Line #</th><th colspan="3">2025 Program Year</th></tr>
<tr><th>System</th><th colspan="2"></th></tr>
<tr><th>Sub-Category</th><th>Baseline Minimum Standards & Practice</th><th>Potential High-Performance Practices</th></tr>
<tr><td>57</td><td>Low Capacity Ventilation Fans</td><td>Motors < 1/12 hp shall meet the minimum efficacy requirements below:
<table>
<tr><th>System Type</th><th>AirFlow Rate (CFM)</th><th>Minimum Efficacy (CFM/Watt)</th><th>Test Procedure</th></tr>
<tr><td>Balanced ventilation system without heat or energy recovery</td><td>Any</td><td>1.2</td><td>ASHRAE Standard 51 (ANSI/AMCA Standard 210)</td></tr>
<tr><td>HRV, ERV</td><td>Any</td><td>1.2</td><td>CAN/CSA 439</td></tr>
<tr><td>Range hood</td><td>Any</td><td>2.8</td><td rowspan="5">ASHRAE 51 (ANSI/AMCA Standard 210)</td></tr>
<tr><td>In-line supply or exhaust fan</td><td>Any</td><td>3.8</td></tr>
<tr><td rowspan="3">Other exhaust fan</td><td>< 90</td><td>2.8</td></tr>
<tr><td>≥ 90 and < 200</td><td>3.5</td></tr>
<tr><td>≥ 200</td><td>4</td></tr>
</table></td><td></td></tr>
<tr><td>58</td><td>Fan Efficiency</td><td>Each fan and fan array shall have a fan energy index (FEI) ≥ 1.00 for constant volume systems and ≥ 0.95 for variable volume systems, at the design point of operation.

The FEI is determined in accordance with AMCA 208 (AMCA 208 Annex C for fan arrays).FEI is the ratio of actual fan system efficiency to baseline fan system efficiency (as defined by AMCA 208); system fan efficiency includes motor, belt and bearing, and fan aerodynamic losses at application duty point.

IECC: per Section C403.8.3</td><td>Fan energy index greater than minimum requirement. Calculation of baseline and design fan system efficiency in accordance with AMCA 208 must be documented to validate any proposed savings</td></tr>
<tr><td>59</td><td rowspan="2">Fan Power</td><td rowspan="2">Each fan system with > 5 hp motor power, shall not exceed the allowable fan system nameplate hp or bhp at design conditions (includes supply, return, exhaust, and zonal fan units combined). Include the supply air from the ventilation unit and the zone recirculated air from any terminal units in calculating total CFM.

CV: hp ≤ CFM · 0.0011 OR bhp ≤ CFM · 0.00094 + Allowances
VAV: hp ≤ CFM · 0.0015 OR bhp ≤ CFM · 0.0013 + Allowances

Allowances = Sum of (PD Adjustment × CFM/4131)

<u>Fan systems <5 hp not governed by code.</u>
All fan systems < 5hp shall be modeled with baseline fan power equal to the design fan power.

IECC: per Section C403.8.1/Table C403..8.1(1 & 2)</td><td rowspan="2">Lower fan motor horsepower requirements at design through reduced pressure (e.g. increased duct size) and/or increased fan efficiency, high efficiency filters with reduced pressure drop
This is not intended to account for a change of use with preexisting ductwork.

If credit is taken for systems with fan HP/BHP below the code maximum allowable, a penalty must also be taken for any systems in the design that exceed the code maximum allowable fan HP/BHP.

Note: fanwalls are not considered any more efficient than a single larger fan with VFD control</td></tr>
<tr><td>60</td></tr>
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Line #	2025 Program Year			
	System			
	Sub-Category	Baseline Minimum Standards & Practice		Potential High-Performance Practices
61		Device	Adjustment	
62		***Credits***		
63		Return air or exhaust systems required by code or accreditation standards to be fully ducted or systems requires to maintain air pressure differentials between adjacent rooms	0.5 in w.c.	
64		Return and exhaust airflow control devices	0.5 in w.c.	
65		Exhaust filters, scrubbers or other treatment	design pressure drop	
66		Filters: MERV 9 thru 12	0.5 in w.c.	
67		Filters: MERV 13 thru 15	0.9 in w.c.	
68		Filters: MERV 16+	design pressure drop calculated at 2x clean filter pressure drop	
69		Carbon and other gas-phase air cleaners	clean filter pressure drop at design	
70		Biosafety cabinet	pressure drop of device at design	
71		Energy recovery device, other than coil runaround loop	(2.2 x energy recovery effectiveness) - 0.5 in w.c. for each airstream	
72		Coil runaround loop	0.6 in w.c. for each airstream	
73		Evaporative humidifier/cooler in series with another cooling coil	pressure drop at design	
74		Sound attenuation section	0.15 in w.c.	
75		Exhaust system serving fume hoods	0.35 in w.c.	

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76		Laboratory and vivarium exhaust systems in high-rise buildings	0.25 in w.c. / 100 feet of vertical duct exceeding 75 feet	
77		***Deductions***		
78		Systems without central cooling device	-0.6 in w.c.	
79		Systems without central heating device	-0.3 in w.c.	
80		Systems with central electric resistance heat	-0.2 in w.c.	
81	***EMS Basic Functionality***	EMS functionality meeting the following requirements: - Individual zone heating and cooling controls - Temperature dead bands of not less than 5°F - Automatic shutdown/setback controls - Optimal start and stop capabilities - Shutoff damper controls for outdoor air intake and exhaust dampers to automatically close dampers when spaces unoccupied or in setback - Shut off vestibule heating when outdoor air temperature > 45°F ; maintain vestibule < 60°F (heating) and 85°F (cooling) - Hot water reset control based on outdoor air temperature IECC: per Sections C403.4.1-403.4.6		See "Code Required Airside Attributes" section (line 31) for additional baseline controls and potential high-performance controls measures.
82	***Base Case HVAC System Design Based on Building Type***	In general, the baseline should reflect the same type of HVAC systems that are designed, unless the design team has seriously considered other, less efficient HVAC system types. If the design team considered multiple HVAC system types and ultimately chose a more energy efficient option, then the designed system strategy can be compared to a different baseline system type, provided that the baseline system type meets the following guidelines: 1. The baseline was actually considered for potential implementation by the design team and owner, 2. The baseline is physically, architecturally, and economically feasible for the given project, 3. The baseline type is at least as efficient as the system types outlined in Appendix A for the respective building type. 4. The RI Energy Technical Representative must approve the baseline system type to be used The system types outlined in Appendix A are suggested as a minimum Industry Standard Practice for the respective building types. Refer to the specific prescriptive code sections for all equipment performance and controls requirements.		
83	***Core & Shell Buildings***	<u>Equipment/Systems Fully Designed within Core building scope (Central building HVAC equipment, envelope, and core spaces, typically):</u> Systems shall meet all baseline requirements as defined within the applicable sections of this Baseline Document.		Exceed minimum baseline requirements for equipment that is fully designed within the Core building scope.

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84		Equipment/Systems Not Fully Designed (e.g. shell/future tenant spaces, typically): Systems shall meet all baseline requirements as defined within the applicable sections of this Baseline Document. *Consult the MA Simulation Guidelines for guidance on shell/future tenant area load assumptions	Proposed/Design Case equipment and systems must be identical to Baseline in the shell/future tenant areas.
85		Core & Shell Buildings Designed for Laboratory Use: For Core & Shell designs that include ventilation/exhaust systems to meet laboratory air change requirements, the baseline shall include time of day scheduled airflow controls to reduce lab ventilation rates by at least 50% of design rates during unoccupied hours. (see MA Simulation Guidelines for guidance on occupied/unoccupied lab air change rates.)I Lab exhaust air energy recovery is not required in the baseline; however, ventilation/exhaust systems designed to serve both lab and non-lab space must have baseline-compliant energy recovery for the non-lab exhaust air.	Exhaust air energy recovery from lab exhaust
86	***Special Ventilation System Types***		
87	Parking Garages	Enclosed parking garage ventilation controls shall comply with Section 404.1 of the International Mechanical Code and the following: 1. Separate ventilation systems and control systems shall be provided for each parking garage section. 2. Control systems for each parking garage section shall be capable of and configured to reduce fan airflow to not less than 0.05 cfm per square foot of the floor area served and $\leq$ 20% of the design capacity. 3. The ventilation system for each parking garage section shall have controls and devices that result in fan motor demand of $\leq$ 30% of the design wattage at 50% of the design airflow. IECC: per Section 403.7.2	Garage ventilation systems serving a single parking garage section having a total ventilation system motor hp not exceeding 5hp at fan system design conditions and where the parking garage section has no mechanical cooling or mechanical heating.
88	Kitchen Hood Exhaust Controls	Replacement air directly to hood shall be ≤ 10% of total hood exhaust airflow.	1. Systems ≤ 5,000 cfm: VFD on exhaust fan with sensor based velocity controls, dedicated makeup air

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	System			
	Sub-Category	Baseline Minimum Standards & Practice		Potential High-Performance Practices
89		Systems serving Type I exhaust hoods shall be provided with demand control kitchen ventilation (DCKV) controls when the exhaust airflow rate > 5,000 cfm are required to have the following: •≥ 50% reduction in exhaust and replacement air system airflow rates. •Controls necessary to modulate exhaust and replacement air system airflows in response to appliance operation and maintain full capture and containment of smoke, effluent and combustion products during cooking and idle operation. •Factory-built commercial exhaust hood listed by a nationally recognized testing laboratory and shall have a maximum exhaust rate in IECC 2024 Table C403.7.5. IECC: per Section C403.7.5		2. Dishwasher hood interlocked with dishwasher operation
90	Kitchen Hood Exhaust Flow	Each hood has a maximum exhaust rate complying with below table:		Low flow kitchen hood exhaust system. For savings to be claimed, the kitchen hood designer must provide a calculation indicating the allowable maximum flow rate and the design case flow rate.
91		Type of Hood	Light / Medium / Heavy / Extra-Heavy (-Duty) (CFM per Linear Foot of Hood Length)	
92		Wall-mounted canopy	140 / 210 / 280 / 385	
93		Single Island	280 / 350 / 420 / 490	
94		Double island (per side)	175 / 210 / 280 / 385	
95		Eyebrow	175 / 175 / NA / NA	
96		Backshelf/Pass-over	210 / 210 / 280 / NA	
97		IECC: per Table C403.2.8 ASHRAE: per Table 6.5.7.1.3		
98	Laboratory Exhaust Systems	**(ISP) This baseline requirement varies from code:** All laboratory spaces shall have time of day, scheduled airflow controls to reduce unoccupied airflow rates by at least 50%. Note: Industry standard fume hoods specified at 100 fpm		1. Systems complying with more than one baseline option 2. VAV fume hood systems with minimum 50% airflow reduction and with energy recovery 3. Occupancy based airflow setback
99		If used to bypass the energy recovery requirements of IECC 2024 Section C403.7.4.2, fume hoods shall have either: - VAV hood exhaust and supply systems capable of 50% airflow reductions		

Line #	2025 Program Year		
	System		
	Sub-Category	Baseline Minimum Standards & Practice	Potential High-Performance Practices
100		- Direct makeup air ≥ 75% of the exhaust rate, heated no warmer than 2°F above room setpoint and cooled no cooler than 3°F below room setpoint IECC: per Section C403.7.4.2, exception 2	4. Hazard sensing system to modulate airflow based on contaminant levels 5. 6. Low-flow fume hoods (< 100 fpm) 7. Cascaded air
101		* For air-side systems that serve both laboratory and non-laboratory spaces, exhaust air energy recovery is required in the baseline for the non-lab space exhaust air regardless of how the lab spaces are designed/controlled.	
	Laboratory Exhaust Fan Control	Staged constant speed fans with plenum bypass damper, the number of fans shall meet the design case. The plenum bypass damper is controlled to maintain exhaust riser static pressure. Staging control minimizes the number of active fans.	Variable speed exhaust fans capable of maintaining air velocity / plume height at reduced flow
102	Operable Openings	Where operable openings per the proposed design are larger than 40 ft², automatic interlock controls with HVAC system to raise cooling setpoint to 90°F and lower heating setpoint to 55°F when opening is open. Controls shall shut HVAC systems off when outdoor air temperature below 90°F or above 55°F. IECC: per Section C403.4.7	Interlock controls with HVAC system where not code required. Note: For natural ventilation design; check with Rhode Island Energy to see if high-performance plan qualifies.
103	Guest Room HVAC System Temperature Controls	For R-1† buildings with > 50 guestrooms: - Automatically raise cooling setpoint and lower heating setpoint by 4°F within 30 minutes of the occupant leaving when the guestroom is rented - Automatically raise the cooling setpoint to ≥ 80°F and lower the heating setpoint to < 60°F when guestroom unrented or unoccupied for > 16 hours IECC: per Section C403.7.6.1 †Type R-1 buildings are residential occupancies containing sleeping units where the occupants are primarily transient in nature, including boarding houses, hotels and motels.	Guestroom HVAC system automatic ventilation controls for R-1 buildings with ≤ 50 guestrooms.
104	Guestroom HVAC system automatic ventilation controls for R-1 buildings with ≤ 50 guestrooms.	For R-1† buildings with > 50 guestrooms: - Automatically turn off ventilation and exhaust fans within 20 minutes of the occupant leaving or provide isolation devices that automatically shut off the supply of outdoor air to and exhaust air from the guestrooms. IECC: per Section C403.7.6.2 †Type R-1 buildings are residential occupancies containing sleeping units where the occupants are primarily transient in nature, including boarding houses, hotels and motels	Guestroom HVAC system automatic ventilation controls for R-1 buildings with ≤ 50 guestrooms.
105	***Hydronic Systems Equipment & Controls***		
106	HW / CHW Temperature Reset	Required for systems ≥ 500 MBH, must reset by at least 25% of system dT IECC: per Section C403.4.4 *for IECC, per Section C403.2.5, HW temperature reset should be based on OA temperature.	HW/CHW reset greater than 25% of system dT Note: condensing boilers should be combined with aggressive HW reset down to at least 120°F to achieve higher operating efficiency

Line #	2025 Program Year		
	System		
	Sub-Category	Baseline Minimum Standards & Practice	Potential High-Performance Practices
107	HW / CHW Variable Flow Control	Required for systems ≥ 300 MBH with ≥ 2 hp total pump capacity; must automatically reduce flow by at least 50%. (DP sensors controlling VFD speed should be located at a remote coil.) VFDs are required for pumps ≥ 7.5 hp where DDC controls installed and for pumps ≥ 2 hp that operate continuously or based on time of day schedule. (DP sensors controlling VFD speed should be located at a remote coil.) IECC: per Section C403.4.4	1. HW/CHW pump VFDs for pumps < 7.5 hp with DDC controls 2. HW/CHW variable flow controls for systems < 300 MBH 3. HW/CHW variable flow controls for systems with < 2 hp total pump power 4. HW/CHW flow reduction of greater than 50% of design flow 5. Fractional horsepower pumps with EC motors and variable flow control HW VFDs where > 50% of annual heat generated by electric boiler
108	Heat Rejection Loop Variable Flow Controls	Required for systems ≥ 300 MBH with either ≥ 2 hp total pump power (pumps scheduled or continuously operating) or ≥ 7.5 hp total pump power (DDC controls) serving water-cooled unitary air conditioners; must automatically reduce flow by at least 50%. VFDs are required for pumps ≥ 7.5 hp where DDC controls installed and for pumps ≥ 2 hp that operate continuously or based on time of day schedule. IECC: per Section C403.4.4	- 1. Heat Rejection Loop pump VFDs for pumps < 7.5 hp with DDC controls 2. Heat Rejection Loop variable flow controls for systems < 300 MBH 3. Heat Rejection Loop variable flow controls for system with < 7.5 hp total pump power 4. Heat Rejection Loop flow reduction of greater than 50% of design flow 5. Fractional horsepower pumps with EC motors
109	Piping Insulation	Hydronic pipe insulation meeting minimum thickness IECC: per Table C403.13.13(1)	
110	Heat Pumps: Standard Water Loop	Minimum heat pump water supply temperature dead band of 20°F IECC: per Section C403.4.3.3	- Controls that optimize loop temperature based upon real time conditions and loads
111	***Furnaces***	This baseline requirement exceed code for furnaces <225 MBH. Warm-air furnaces with performance meeting IECC 2024 Table C403.3.2(5).	Furnace with performance exceeding baseline requirement (e.g. condensing furnaces)

Line #	*Type*	*<225 MBH*	*≥225 MBH*
112			
113	Warm-Air, Gas fired	**85% AFUE**	81% Et
	Warm-Air, Oil Fired	**83% AFUE**	82% Et

Line #	2025 Program Year					
	System					
	Sub-Category	Baseline Minimum Standards & Practice				Potential High-Performance Practices
114		Warm-Air, Electric		**96% AFUE**	96% AFUE	
115		Warm-Air Duct, Gas Fired		**85% AFUE**	80% Ec	
116		Warm-Air Unit Heater, Gas Fired		80% Ec		
117		Warm-Air Unit Heater, Oil Fired				
118	***Boilers***					
119	Selection	This baseline requirement exceeds code for gas-fired hot-water boilers ≤ 2,500 MBH. Hot water - boilers with performance meeting IECC 2024 Table C403.3.2(6)				Boilers with performance exceeding baseline requirement Note: condensing boilers should be combined with aggressive HW reset down to at least 120°F to achieve higher operating efficiency
120			*Capacity (Input, MBH)*	*gas-fired*	*oil-fired*	
			< 300	**96%**	86% AFUE	
			≥ 300 and ≤ 2,500	**96%**	82% Et	
121			> 2,500	**93%** Ec	84% Ec	
		Steam plants - boilers with performance meeting IECC 2024 Table C403.3.2(6)				
122			*Capacity (Input, MBH)*	*gas-fired*	*oil-fired*	
123			< 300	82% AFUE	82% AFUE	
			≥ 300 and ≤ 2,500 all, except natural draft	79% Et	84% Et	
			≥ 300 and ≤ 2,500 natural draft	79% Et		
			> 2,500 all, except natural draft	79% Et	81% Et	
124			> 2,500 natural draft	79% Et		

Line #	2025 Program Year		
	System		
	Sub-Category	Baseline Minimum Standards & Practice	Potential High-Performance Practices
125	Burner controls	Boilers ≥ 1,000 MBH shall meet the minimum turndown ratios of IECC 2024 Table C403.3.4.2.	Boiler turndown beyond minimum code requirement
126		*Capacity (Input, MBH)* / *Minimum Turndown*: ≥ 1,000 and ≤ 5,000: 3 to 1 > 5,000 and ≤ 10,000: 4 to 1 > 10,000: 5 to 1	
127		Heating systems comprised of a single boiler > 500 MBH shall have a multistage or modulating burner	Modulating burners on boilers < 500,000 Btu/hr capacity
128		< 25 hp: Constant-speed forced-draft burner fans having inlet guide vane or outlet damper volume control ≥ 25 hp: VFD on draft fan	VFD on forced-draft burner fans < 25 hp
	Cooling Systems		
129	Heat Pumps: Air Source (excludes VRF, see VRF section)	**This baseline requirement exceeds code.** Air-source heat pumps with performance meeting IECC 2024 Table C403.3.2(2)	Heat pumps with performance exceeding baseline requirements
130		*Equipment Type* / *Size (MBH)* / *Minimum Efficiency*	
131		Air cooled / < 65 / Split: 14.3 SEER2, **7.7 HSPF2** Pkgd: 13.2 SEER2, **6.8 HSPF2**	
132		Through-the wall / ≤30 / Split: 11.7 SEER2, 6.3 HSPF2 Pkgd: 11.7 SEER2, 6.3 HSPF2	
133		Single-duct high velocity / <65 / Split: 12 SEER2, 6.1 HSPF2	

Line #	2025 Program Year					
	System					
	Sub-Category	Baseline Minimum Standards & Practice				Potential High-Performance Practices
134			Air cooled	≥ 65 and < 135	14.1 IEER (electric heat or no heat) 13.9 IEER (other heat) **3.47 COP** (47°F db/43°F wb) **2.30 COP** (17°F db/ 15°F wb)	
135				≥ 135 and < 240	13.5 IEER (electric heat or no heat) 13.3 IEER (other heat) **3.37 COP** (47°F db/43°F wb) **2.09 COP** (17°F db/ 15°F wb)	
136				≥ 240	12.5 IEER (electric heat or no heat) 12.3 IEER (other heat) **3.26 COP** (47°F db/43°F wb) **2.09 COP** (17°F db/ 15°F wb)	
137	Ground-source Heat Pumps	Ground-source heat pumps with performance meeting IECC 2024 Table C403.3.2(14) For equipment outside of the capacity ranges shown below, baseline performance should reflect alternate less efficient equipment that is available to purchase.				Heat pumps with performance exceeding baseline requirements
138			*Equipment Type*	*Size (MBH)*	*Minimum Efficiency*	
139			Water to Air: Water Loop	<17	12.2 EER (86°F EWT) 4.3 COP (68°F EWT)	
140				≥ 17 and < 65	13.0 EER (86°F EWT) 4.3 COP (68°F EWT)	
141				≥ 65 and < 135	13.0 EER (86°F EWT) 4.3 COP (68°F EWT)	
142			Water to Air: Ground Water	<135	18.0 EER (59°F EWT) 3.7 COP (50°F EWT)	
143			Brine to Air: Ground Loop	<135	14.1 EER (77°F EWT) 3.2 COP (32°F EWT)	
144			Water to Water: Water Loop	<135	10.6 EER (86°F EWT) 3.7 COP (68°F EWT)	

Line #	2025 Program Year					
	System					
	Sub-Category	Baseline Minimum Standards & Practice				Potential High-Performance Practices
145			Water to Water: Ground Water	<135	16.3 EER (59°F EWT) 3.1 COP (50°F EWT)	
146			Brine to Water: Ground Loop	<135	12.1 EER (77°F EWT) 2.5 COP (32°F EWT)	
147	Unitary Air Conditioners (RTUs, etc.) and Split Systems	**This baseline requirement exceeds code.** Standard efficiency packaged/split unit with DX cooling with performance meeting IECC 2024 Table C403.2.3(1)				Cooling systems with performance exceeding baseline requirements.
148			*Equipment Type*	*Size (MBH)*	*Minimum Efficiency*	
149			Air cooled	< 65	Split: **14.0 SEER2**; Pkgd: **14.0 SEER2**	
150			Space constrained	≤30	Split: 11.7 SEER2; Pkgd: 11.7 SEER2	
151			Single-duct high velocity	<65	Split: 12.0 SEER2	
152			Air cooled	≥ 65 and < 135	**15.47 IEER** (electric heat or no heat) **15.26 IEER** (other heat)	
153				≥ 135 and < 240	**14.84 IEER** (electric heat or no heat) **14.63 IEER** (other heat)	
154				≥ 240 and <760	**13.79 IEER** (electric heat or no heat) **13.59 IEER** (other heat)	
155				≥ 760	**13.06 IEER** (electric heat or no heat) **12.85 IEER** (other heat)	

Line #	2025 Program Year					
	System					
	Sub-Category	Baseline Minimum Standards & Practice				Potential High-Performance Practices
156			Water cooled	<65	12.1 EER & 12.3 IEER (all)	
157				≥ 65 and < 135	12.1 EER & 13.9 IEER (electric heat or no heat) 11.9 EER & 13.7 IEER (other heat)	
158				≥ 135 and < 240	12.5 EER & 13.9 IEER (electric heat or no heat) 12.3 EER & 13.7 IEER (other heat)	
159				≥ 240 and <760	12.4 EER & 13.6 IEER (electric heat or no heat) 12.2 EER & 13.4 IEER (other heat)	
160				≥ 760	12.2 EER & 13.5 IEER (electric heat or no heat) 12.0 EER & 13.3 IEER (other heat)	
161			Evaporatively cooled	<65	12.1 EER & 12.3 IEER (all)	
162				≥ 65 and < 135	12.1 EER & 12.3 IEER (electric heat or no heat) 11.9 EER & 12.1 IEER (other heat)	
163				≥ 135 and < 240	12.0 EER & 12.2 IEER (electric heat or no heat) 11.8 EER & 12.0 IEER (other heat)	
164				≥ 240 and <760	11.9 EER & 12.1 IEER (electric heat or no heat) 11.7 EER & 11.9 IEER (other heat)	
165				≥ 760	11.7 EER & 11.9 IEER (electric heat or no heat) 11.5 EER & 11.7 IEER (other heat)	
166			Condensing Units, air cool	≥ 135	10.5 EER & 11.8 IEER	

Line #	2025 Program Year						
	System						
	Sub-Category	Baseline Minimum Standards & Practice					Potential High-Performance Practices
167			Condensing Units, water	≥ 135	13.5 EER & 14.0 IEER		
168			Condensing units, evap. cool	≥ 135	13.5 EER & 14.0 IEER		
169	Packaged Terminal Heat Pumps and Air Conditioners	Standard efficiency units with performance meeting IECC Table C403.3.2(4)					PTHP and PTAC with performance exceeding baseline requirements
170	Chilled Water Plants Equipment <u>Selection</u>	*(design CHWT > 35°F)* Chiller performance meeting IECC 2024 Table C403.3.2(3)					Chillers with performance exceeding baseline requirements. *Note: In general, the condensing type for the base case chiller must be the same as what is designed. There must be approval from the PA for situations where an air-cooled chiller is being considered compared to water-cooled.
171							
172			***<u>Equipment Type</u>***	***<u>Size (tons)</u>***	***<u>Minimum Efficiency (choose either Path A or Path B)</u>***		
173					***<u>Path A</u>***	*Path B*	
174			Air cooled	<150	≥ 10.1 EER (FL) ≥ 13.7 EER (IPLV)	≥ 9.7 EER (FL) ≥ 15.8 EER (IPLV)	
175				≥ 150	≥ 10.1 EER (FL) ≥ 14.0 EER (IPLV)	≥ 9.7 EER (FL) ≥ 16.1 EER (IPLV)	
176			Air cooled w/o condenser, electrically operated	ALL	Units shall be rated with matching condensers and comply with air cooled chiller requirements		
177			Water cooled, electrically operated, positive displacement	< 75	≤ 0.75 kW/ton (FL) ≤ 0.6 kW/ton (IPLV)	≤ 0.78 kW/ton (FL) ≤ 0.5 kW/ton (IPLV)	

Line #	2025 Program Year						
	System						
	Sub-Category	Baseline Minimum Standards & Practice					Potential High-Performance Practices
178				≥ 75 and < 150	≤ 0.72 kW/ton (FL) ≤ 0.56 kW/ton (IPLV)	≤ 0.75 kW/ton (FL) ≤ 0.49 kW/ton (IPLV)	
179				≥ 150 and < 300	≤ 0.66 kW/ton (FL) ≤ 0.54 kW/ton (IPLV)	≤ 0.68 kW/ton (FL) ≤ 0.44 kW/ton (IPLV)	
180				≥ 300 and < 600	≤ 0.61 kW/ton (FL) ≤ 0.52 kW/ton (IPLV)	≤ 0.625 kW/ton (FL) ≤ 0.41 kW/ton (IPLV)	
181				≥ 600	≤ 0.56 kW/ton (FL) ≤ 0.5 kW/ton (IPLV)	≤ 0.585 kW/ton (FL) ≤ 0.38 kW/ton (IPLV)	
182			Water cooled, electrically operated centrifugal	<150	≤ 0.610 kW/ton (FL) ≤ 0.550 kW/ton (IPLV)	≤ 0.695 kW/ton (FL) ≤ 0.440 kW/ton (IPLV)	
183				≥ 150 and < 300	≤ 0.610 kW/ton (FL) ≤ 0.550 kW/ton (IPLV)	≤ 0.635 kW/ton (FL) ≤ 0.4 kW/ton (IPLV)	
184				≥ 300 and < 400	≤ 0.56 kW/ton (FL) ≤ 0.52 kW/ton (IPLV)	≤ 0.595 kW/ton (FL) ≤ 0.39kW/ton (IPLV)	
185				≥ 400 and < 600	≤ 0.56 kW/ton (FL) ≤ 0.5 kW/ton (IPLV)	≤ 0.585 kW/ton (FL) ≤ 0.38 kW/ton (IPLV)	
186				≥ 600	≤ 0.56 kW/ton (FL) ≤ 0.5 kW/ton (IPLV)	≤ 0.585 kW/ton (FL) ≤ 0.38 kW/ton (IPLV)	
187			Absorption, single effect	ALL (air cooled)	≥ 0.6 COP (FL)	N/A	
188			Absorption, single effect	ALL (water cooled)	≥ 0.7 COP (FL)	N/A	

Line #	2025 Program Year						
	System						
	Sub-Category	Baseline Minimum Standards & Practice					Potential High-Performance Practices
189			Absorption, double effect	ALL (indirect fired)	≥ 1.0 COP (FL) ≥ 1.05 COP (IPLV)	N/A	
190			Absorption, double effect	ALL (direct fired)	≥ 1.0 COP (FL) ≥ 1.05 COP (IPLV)	N/A	
191	Chiller Sequencing	Automatic lead/lag chiller staging (run one chiller to full capacity before staging on second chiller)					Optimal automatic chiller sequencing based on total plant efficiency Different-sized chillers with optimized sequencing for prolonged high-load vs low-load operation
192	Pumping	Chilled water pumping approach (primary/secondary vs. variable primary) shall be the same as what is designed					
193							
194	Cooling Towers	Cooling tower performance meeting IECC 2024 Table C403.3.2(7).					Oversize cooling tower evaporative surface area in order to reduce the required cooling tower fan motor size
195			*Equipment Type*	*Rating Condition*	*Fan Performance*		
196			Propeller or axial fan, open-circuit	95°F EWT; 85°F LWT, 75°F OAT (db)	≥ 40.2 gpm/hp		
197			Centrifugal fan, open-circuit	95°F EWT; 85°F LWT, 75°F OAT (db)	≥ 20.0 gpm/hp		
198			Propeller or axial fan, closed-circuit	102°F EWT; 90°F LWT, 75°F OAT (db)	≥ 16.1 gpm/hp		
199			Centrifugal fan, closed-circuit	102°F EWT; 90°F LWT, 75°F OAT (db)	≥ 7.0 gpm/hp		

Line #	2025 Program Year					
	System					
	Sub-Category	Baseline Minimum Standards & Practice				Potential High-Performance Practices
200			Propeller or axial fan dry cooler (air-cooled fluid coolers)	115°F EWT; 105°F LWT, 95°F OAT (wb)	≥ 4.5 gpm/hp	
201	Condensers	Condenser performance meeting IECC 2024 Table C403.3.2(7)				Oversize condenser heat exchanger surface area in order to reduce the required condenser fan motor size
202			*Equipment Type*	*Rating Condition*	*Performance*	
203			Propeller or axial fan, evaporative	Ammonia: 140°F entering gas temp, 96.3°F condensing temp; 75°F OAT (wb)	≥ 134 MBH/hp	
204			Centrifugal fan, evaporative	Ammonia: 140°F entering gas temp, 96.3°F condensing temp; 75°F OAT (wb)	≥ 110 MBH/hp	
205			Propeller or axial fan, evaporative	R-448A: 165°F entering gas temp, 105°F condensing temp; 75°F OAT (wb)	≥ 160 MBH/hp	
206			Centrifugal fan, evaporative	R-448A: 165°F entering gas temp, 105°F condensing temp; 75°F OAT (wb)	≥ 137 MBH/hp	
207			Air-cooled	125°F condensing temp; 190°F entering gas temp; 15°F subcooling; 95°F OAT (db)	≥ 176 MBH/hp	
208	Heat Rejection Fan Controls	Each fan with a motor ≥5 hp shall have controls and devices configured to automatically modulate the fan speed to control the leaving fluid temperature or condensing temperature and pressure of the heat rejection device. Fan motor power input shall be not more than 30 percent of design wattage at 50 percent of the design airflow. IECC: per Section C403.11.1				Variable speed fan controls w/ VFD. When considering savings for these controls, provide documentation showing two-speed fans are an option from the manufacturer.
209	Condenser Water Temperature	Condenser water (CW) temperature setpoint of 70°F, floating up to the design leaving water temperature for the cooling tower.				Reset CW temperature setpoint below 70°F
210	Water-side Economizer	See "Economizer" section starting on line 42.				

Line #	System / Sub-Category	2025 Program Year: Baseline Minimum Standards & Practice				Potential High-Performance Practices
211	Thermal Storage	No thermal storage				Thermal storage to reduce plant peak kW demand (consider energy penalty on overall plant energy use)
212	Central Hydronic Heat Pump and Heat Recovery Chiller Packages (Simultaneous Cooling/Heating Chiller)	Performance meeting IECC 2024 Table C403.3.2(15).				Where Heat Recovery Chillers are installed to offset fossil fuel heating energy, it is acceptable to evaluate the proposed Heat Recovery Chiller compared to the fossil fuel baseline equipment (i.e. no baseline HRC performance used)
213	Variable Refrigerant Flow (VRF) Air Conditioners	VRF air conditioner performance meeting IECC 2024 Table C403.2.2(8).				VRF air conditioners with performance exceeding baseline requirements.
214			***Equipment Type***	***Size (MBH)***	***Minimum Efficiency***	
215			VRF air conditioners, air cooled	< 65	13 SEER (VRF multisplit, all heat types)	
216				≥ 65 and < 135	10.5 EER & 15.5 IEER (VRF multisplit, electric heat or no heat)	
217				≥ 135 and < 240	10.3 EER & 14.9 IEER (VRF multisplit, electric heat or no heat)	
218				≥ 240	9.5 EER & 13.9 IEER (VRF multisplit, electric heat or no heat)	
219	Variable Refrigerant Flow (VRF) Heat Pumps	**This baseline requirement exceeds code.** VRF Heat Pumps performance meeting IECC 2024 Table C403.3.2(9)				VRF heat pumps with performance exceeding baseline requirements.
220			*Equipment Type*	*Size (MBH)*	*Minimum Efficiency (VRF multisplit)*	
			VRF air cooled (cool mode)	< 65	13.4 SEER2 (all heat types)	

Line #	2025 Program Year					
	System					
	Sub-Category	Baseline Minimum Standards & Practice				Potential High-Performance Practices
221				≥ 65 and < 135	**10.3 EER & 14.6 IEER** (electric heat/no heat) **10.1 EER & 14.4 IEER** (heat recovery, electric heat/no heat)	
222				≥ 135 and < 240	**9.9 EER & 14.4 IEER** (electric heat/no heat) **9.7 EER & 13.9 IEER** (heat recovery, electric heat/no heat)	
223				≥ 240	**9.1 EER & 12.7 IEER** (electric heat/no heat) **8.9 EER & 12.5 IEER** (heat recovery, electric heat/no heat)	
224			VRF water source (cool mode)	< 65	**12.0 EER & 16.0 IEER**; 86°F EWT **11.8 EER & 15.8 IEER**; 86°F EWT (heat recovery)	
225				≥ 65 and < 135	**12.0 EER & 16.0 IEER**; 86°F EWT **11.8 EER & 15.8 IEER**; 86°F EWT (heat recovery)	
226				≥ 135 and < 240	**10.0 EER & 14.0 IEER**; 86°F EWT **9.8 EER & 13.8 IEER**; 86°F EWT (heat recovery)	
227				≥ 240	**10.0 EER & 12.0 IEER**; 86°F EWT **9.8 EER & 11.8 IEER**; 86°F EWT (heat recovery)	
228			VRF groundwater source (cool mode)	<135	**16.2 EER**; 59°F EWT **16.0 EER**; 59°F EWT (heat recovery)	
229				≥ 135	**13.8 EER**; 59°F EWT **13.6 EER**; 59°F EWT (heat recovery)	
230			VRF ground source (cool mode)	<135	**13.4 EER**; 77°F EWT **13.2 EER**; 77°F EWT (heat recovery)	
231				≥ 135	**11.0 EER**; 77°F EWT **10.8 EER**; 77°F EWT (heat recovery)	
232			VRF air cooled (heat mode)	< 65	**7.57 HSPF2**	
233				≥ 65 and < 135	**3.3 COP$_H$** (47°F db/ 43°F wb); **2.27 COP$_H$** (17°F db / 15°F wb)	

Line #	System / Sub-Category	Baseline Minimum Standards & Practice				Potential High-Performance Practices
		2025 Program Year				
234				≥ 135	**3.23 COP_H** (47°F db/ 43°F wb); **2.07 COP_H** (17°F db / 15°F wb)	
			VRF water source (heat mode)	<135	**4.3 COP_H**; 68°F EWT	
				≥ 135 and < 240	**4.0 COP_H**; 68°F EWT	
235				≥ 240	**3.9 COP_H**; 68°F EWT	
236			VRF groundwater source (heat mode)	<135	**3.6 COP_H**; 50°F EWT	
237				≥ 135	**3.3 COP_H**; 50°F EWT	
238			VRF ground source (heat mode)	<135	**3.1 COP_H**; 32°F EWT	
239				≥ 135	**2.8 COP_H**; 32°F EWT	
240	DX-DOAS Units	DX DOAS unit performance meeting IECC 2024 Tables C403.3.2(12)&(13)				DX-DOAS units with performance exceeding the baseline requirements.

Equipment Type	Minimum Efficiency (without energy recovery)	Minimum Efficiency (with energy recovery)
Air cooled (dehumidification mode)	3.8 ISMRE2	5.0 ISMRE2
Air-source heat pumps (dehumidification mode)	3.8 ISMRE2	5.0 ISMRE2
Water cooled (dehumidification mode)	4.7 ISMRE2 (cooling tower condenser water)	5.1 ISMRE2 (cooling tower condenser water)
Air-source heat pump (heating mode)	2.05 ISCOP2	3.2 ISCOP2
Water source heat pump (dehumidification mode)	4.6 ISMRE2 (ground source closed and open loop)	5.0 ISMRE2 (ground source closed and open loop)
	3.8 ISMRE2 (water source)	4.6 ISMRE2 (water source)
Water source heat pump (heating mode)	2.13 ISCOP2 (ground source closed and open loop)	3.5 ISCOP2 (ground source closed and open loop)
	2.13 ISCOP2 (water source)	4.04 ISCOP2 (water source)

Line #	2025 Program Year		
	System		
	Sub-Category	Baseline Minimum Standards & Practice	Potential High-Performance Practices
241	Floor-mounted Computer Room Air Conditioners and Condensing Units (Excludes Chilled Water Room Air Handlers)	Air conditioner and condenser performance meeting IECC 2024 Table C403.3.2(10) Computer rooms shall have dedicated air-side HVAC systems	Computer room air conditioners with performance exceeding baseline requirements. For new data centers designed with central chiller plants, consult the PA regarding savings potential.
242	Ceiling Mounted DX Computer Room Air Conditioners and Condensing Units (Excludes Chilled Water Computer Room Air Handlers)	Air conditioner and condenser performance meeting IECC 2024 Table C403.3.2(16) Computer rooms shall have dedicated air-side HVAC systems	Computer room air conditioners with performance exceeding baseline requirements. For new data centers designed with central chiller plants, consult the PA regarding savings potential
243	Walk-in coolers/freezers, Refrigerated warehouse coolers /freezers	This baseline requirement varies from code in some cases: The following system features are considered baseline: - Automatic door closer controls - EC motors on all evaporator and condenser fans < 1 hp - Doorways shall have strip doors, curtains, spring-hinged doors, or other method of minimizing infiltration when doors are open. - Timer to turn off lights within 15 minutes of occupants leaving - LED lighting - Temperature based defrost termination control - On/Off type antisweat door heater controls (baseline shall assume that heater controls reduce heater run time by 46% for freezers and 74% for coolers). - Wall, ceiling, and door minimum insulation R-25 (coolers) or R-32 (freezers) - Floor minimum insulation R-28 (freezers) For transparent reach-in doors connected to walk-in freezers or coolers: -For walk-in freezers: Triple pane glass with inert gas or with heat-reflective treated glass or vacuum insulated glazing for transparent reach-in doors or walk-in freezer and windows in walk-in freezer doors. For walk-in coolers: Double pane glass with heat reflective treated glass and gas filled, or triple pane glass for transparent reach-in doors for walk-in coolers and windows in walk-in coolers doors. IECC: per Section C403.12	1. Coolers with insulation > R-25 (wall, ceiling, or door) 2. Freezers with insulation > R-32 (wall, ceiling, or door) 3. Walk-in freezers with floor insulation > R-28 4. Hot gas defrost 5. Heat recovery off of condensers 6. Micro-pulse antisweat door heater controls that reduce heater run time by more than baseline threshold
244	Refrigerated Display Cases	The following system features are considered baseline: - Automatic lighting controls (time switch or motion sensor) - LED lighting - Temperature based defrost controls - Where antisweat heaters are installed, antisweat heater controls for low temperature (freezer) doors (baseline shall assume that heater controls reduce heater run time by 46% for freezers) IECC: per Section C403.12	1. Hot gas defrost 2. Antisweat heater controls for medium temperature doors 3. Micro-pulse antisweat door heater controls that reduce heater run time by more than the baseline threshold 4. Low/no heat low temperature doors

Line #	2025 Program Year		
	System		
	Sub-Category	Baseline Minimum Standards & Practice	Potential High-Performance Practices
245	Commercial Refrigerators and Freezers (Stand Alone)	(Stand-Alone, Cabinet Type with Packaged Compressors) Performance meeting IECC Tables C403.12.1	Commercial refrigeration, refrigerators, and freezers with performance exceeding baseline requirements.
246	Remote Condensers & Remote Compressors Serving Refrigeration Systems	EC motors for condenser fans < 1 hp Variable speed condenser fan control Condensing temperature reset (Min. condensing temp ≤ 70°F) Compressors with suction pressure reset (some exceptions apply) Subcooling for compressors ≥ 100 MBH with maximum suction temperature of -10°F Cycling crankcase heaters IECC: per Section C403.12.3	Minimum condensing temperature < 70°F (check manufacturer's specifications to determine if viable) Subcooling where not code required Floating suction pressure controls if not code required per exceptions
247	Indoor Pool Dehumidifiers (Vapor Compression Based)	All equipment types shall have a minimum MRE of 3.5 per IECC 2024 Table C403.3.2(11). MRE = moisture removal efficiency, a ratio of the moisture removal capacity (lbs of moisture/hr) to the input power kW of the equipment	Indoor pool dehumidifiers with performance exceeding the baseline requirements.
248	***Service Water Heating***		
249	***Equipment Performance***		
250	Gas-fired water heaters	Water heating equipment and storage tanks must meet minimum performance requirements of IECC 2024 Table C404.2	Exceed requirements of IECC Table C404.2 Heat pump electric HW heaters
251	Electric water heaters	For building using a heat pump water heater, an electric resistance water heater is an acceptable base case.	Heat pump water heater (air temperature and sensible heating loads within zones must be accounted for if heat is sourced from air within a conditioned space)
252	High Input Service Water Heating Systems	For gas-fired water-heating equipment systems with total combined input capacity ≥ 1,000,000 Btu/h: 1. If one singular piece of equipment, the equipment shall have a minimum thermal efficiency of 92% Et. 2. If multiple pieces of equipment, the combined input-capacity-weighted-average efficiency shall be a minimum of 90% Et and a minimum of 30% of the input to the high-capacity gas-fired water heaters in the service water heating system shall have a minimum of 92% Et. (Note there are exceptions for water heaters installed in individual dwelling units and water heaters with an input capacity ≤ 100,000 Btu/hr) IECC: per Section C404.2.1	Exceed baseline efficiency requirement Thermal efficiency > 80% if ≥ 25% of the annual service water-heating requirement is provided by on-site renewable energy or site recovered energy
253	***Heat Recovery***	Condenser heat recovery for heating or reheating of service hot water provided the facility operates 24 hr/day, total heat capacity exceeds 6,000 MBH of heat rejection, and design service water load exceeds 1,000 MBH Heat recovery system must provide the smaller of: 1. 60% of peak heat rejection load at design conditions 2. Preheating required to raise peak hot water draw to 85F IECC: per Section C403.11.5	Condenser heat recovery where not code required
254	***Motors***		

Line #	2025 Program Year		
	System		
	Sub-Category	Baseline Minimum Standards & Practice	Potential High-Performance Practices
255	Selection	Minimum motor efficiencies per: -NEMA design A, B and IEC design N motors at 60 Hz- Table C405.8(1) -NEMA design C and IEC design H motors at 60 Hz - Table C405.8(2) - Polyphase small electric motors - Table C405.8(3) - Capacitor-start capacitor-run and capacitor-start induction-run small electric motors - Table C405.8(4)	Motors exceeding baseline efficiency
256	***Elevators & Escalators***		
257	Elevators	Lighting efficacy > 35 lumens/watt Ventilation fans shall be sized for no more than 0.33 watts/cfm Controls to de-energize ventilation fans and lighting systems when the elevator is stopped and unoccupied with doors closed for at least 15 minutes IECC: per Section C405.10.1	Regenerative drives
258	Escalators	Automatic controls to reduce speed Shall be designed with energy recovery when resisting overspeed in the down direction. IECC: per Section C405.10.2	
259	***Division: Electrical***		
260	***Plug-Loads***		
261	Automatic Receptacle Control	Automatic receptacle controls in at least 50% of all 125V, 15- and 20-amp receptacles in offices, conference rooms, printing/copying rooms, break rooms, classrooms, and individual workstations. At least 25% of branch circuit feeders installed for modular furniture not shown on the construction documents. Per IECC 2024 Section C405.12	Automatic receptacle controls controlling >50% of all receptacles in required spaces, controlling >25% of all branch circuit feeders installed for modular furniture, or implemented in non-required space types.
262	***Lighting***		
263	Lighting Power	(ISP) This baseline requirement varies from code. Lighting power density is 42% better than code for interior LPD. See Appendix B for specific LPD values. A spreadsheet version of Appendix B is attached to this document. The same LPD modeling approach (either Building Area Method or Space-by-Space Method) must be utilized in modeling both the baseline and design.	High efficiency design including LEDs with LPD less than the maximum allowable (Field "tuning" of LED fixtures for reduced watts should be supported with clear design documentation and any tuning requirements should be outlined in MRD)

Line #	2025 Program Year		
	System		
	Sub-Category	Baseline Minimum Standards & Practice	Potential High-Performance Practices
264	Lighting Occupancy Sensor Control	Automatic occupant sensors controls installed in the following space types: ▪ Classrooms/lecture/training rooms ▪ Computer room/data center ▪ Conference/meeting/multipurpose rooms ▪ Copy/print rooms ▪ Lounges/breakrooms ▪ Medical supply room in health care facility ▪ Enclosed offices ▪ Laundry/washing area ▪ Restrooms ▪ Storage rooms / janitorial closets ▪ Telemedicine room in a health care facility ▪ Locker rooms ▪ Spaces ≤ 300 SF enclosed by floor to ceiling partitions ▪ Warehouses IECC: per Section C405.2.1	
265	Lighting Time Switch Control	Time-switch controls installed in building areas not provided with occupancy sensors. Time-switch controls shall comply with the functions per IECC section 405.2.2.1. IECC: per Section C405.2.2	
266	Lighting Daylight Dimming Control	Daylight-responsive (on/off) controls in primary "sidelight" daylight where there are greater than 75 watts of general lighting, in sidelit daylight zones where there are greater than 150 watts of general lighting , and toplit daylight zones where there are greater than 75 watts of general lighting; Continuous dimming down to 15% of full light output for all daylight zone fixtures. IECC: per Section C405.2.4, see Section C405.2.4.2/3 for definitions of sidelit and toplit zones.	1. Daylight responsive controls in spaces in health care facilities where patient care is directly provided 424 2. Controls for new buildings where the total connected lighting power ≤ LPAnorm × (1.0 - 0.4 × UDZFA / TBFA) (IECC Only) LPAnorm = lighting power allowanced calculated per Section C405.3.2 and reduced in accordance with Section C406.3 UDZFA = uncontrolled daylight zone floor area is the sum of all sidelit and toplit zones without daylight responsive controls TBFA = total building floor area
267	Lighting Dwelling Unit controls	Dwelling units shall be provided with controls to automatically turn off lights within 20 minutes after all occupants have left the space. Dwelling units shall be equipped with daylight responsive controls. IECC: per Section C405.2.1.1	
268	Lighting Controls for Non-Visual Applications	Lighting for nonvisual applications, such as plant growth and food warming, shall be controlled by a time switch control that is independent of the controls for other lighting within the room or space. IECC: per Section C405.2.5	
269	Lighting for Plant Growth and Maintenance	Permanently installed luminaires shall have photosynthetic photon efficacy of ≥ 1.7 µmol/J for horticultural lighting in greenhouses and ≥ 1.9 µmol/J for all other horticultural lighting. IECC per Section: C405.4	

Line #	2025 Program Year		
	System		
	Sub-Category	Baseline Minimum Standards & Practice	Potential High-Performance Practices
270	Parking Garage Lighting Control	·Lighting shall be controlled by an occupant sensor complying with section C405.2.1.1 or a time-switch control complying with Section C405.2.2.1. · Lighting power of each luminaire shall be automatically reduced by a minimum of 30% when there is no activity detected within a lighting zone for 20 minutes. · Lighting power for covered vehicle entrances and exits from building and parking structures must be automatically controlled to reduce lighting 50% from sunset to sunrise. · Daylight controls for lighting fixtures within 20 feet of any perimeter wall openings should reduce in response to daylight by at least 50%. IECC: per Section C405.2.9	Automatic parking garage lighting controls that allow for luminaires to reduce lighting power by > 30% when no activity detected for 20 minutes; > 50% lighting power reduction for covered vehicle entrances and exits from sunset to sunrise; >50% lighting power reduction for fixtures within 20 feet of any perimeter wall structure and a minimum 40% "opening-to-wall-ratio", daylight controls where not required.
271	Exterior Lighting	(ISP) This baseline requirement varies from code. Total exterior lighting power is 52% of the value calculated per IECC 2024 Tables C405.5.2(2)/C405.5.2(3), depending on lighting zone breakdown in IECC 2024 Table C405.5.2(1). The baseline exterior lighting power allowance shall be based on the same illuminated area as the design case (i.e. areas with no light cannot be counted toward the baseline allowance).	High efficiency design including LEDs
272	Exterior Lighting Controls	Timeclock and/or photocell controls that automatically turn off lighting fixtures as a function of available daylight. Façade and landscape lighting controls to shut off lighting no later than 1 hour after business closing and to turn on lights no earlier than 1 hour before business opening. All other fixture types shall have controls to reduce connected lighting power by ≥ 50% from 12AM to 6AM, from one hour after business/building closing to one hour before business /building opening, or during any period when activity not detected for 15 minutes. Outdoor parking area luminaires ≥ 40 W and mounted ≤ 24 feet above the ground shall be controlled to automatically reduce the power of each luminaire by a minimum of 50% when no activity has been detected for 15 minutes IECC: per Section C405.2.7	Automatic high/low controls (for loading docks or areas with variable occupancy; no manual override ON option)

Line #	APPENDIX A - BASE CASE HVAC SYSTEM DESIGN		
	System Sub-Category	Baseline Minimum Standards & Practice	Potential High-Performance Practices
A1	***Base Case HVAC System Design Based on Building Type***	In general, the baseline should reflect the same type of HVAC systems that are designed, unless the design team has seriously considered other, less efficient HVAC system types. If the design team considered multiple HVAC system types and ultimately chose a more energy efficient option, then the designed system strategy can be compared to a different baseline system type, provided that the baseline system type meets the following guidelines: 1. The baseline was actually considered for potential implementation by the design team and owner, 2. The baseline is physically, architecturally, and economically feasible for the given project, 3. The baseline type is at least as efficient as the system types outlined in Appendix A for the respective building type, 4. The PA must approve the baseline system type to be used The system types outlined in Appendix A are suggested as a minimum Industry Standard Practice for the respective building types. Refer to the specific prescriptive code sections for all equipment performance and controls requirements.	
A2	*Equipment Sizing*	Equipment sizing shall match the design. For Integrated Design studies, sizing in the baseline model (if necessary) can only be increased to reduce unmet hours such that the total unmet hours in the baseline are similar to the design model.	In comprehensive projects, if equipment downsizing is possible via implementation of high-performance measures (e.g. improved envelope performance, reduced LPD, etc.), saving can be claimed for downsized equipment.
A3	*Use of Cooling*	The baseline shall only have cooling where it is actually designed	
A4	Hotels (Guest Rooms)	PTAC units with hot water fossil fuel boiler and DX cooling	
A5	Rooms) (> 6 floors) and all Multifamily	Water-source heat pumps or 4-pipe fan coil units with HW, CHW *For multi-family buildings, consult PA to determine whether building should be considered under the Commercial program.	

Line #	APPENDIX A - BASE CASE HVAC SYSTEM DESIGN		
	System Sub-Category	Baseline Minimum Standards & Practice	Potential High-Performance Practices
A6	Nonresidential ≤ 3 floors and < 25,000 ft² OR Warehouses/ Manufacturing Space	Packaged Constant Volume AHUs with DX Cooling, and central heating section Each AHU serves no more than 5,000 ft² of conditioned space with zoning identical to the design	
A7	Nonresidential AND -4 or 5 floors and < 25,000 ft², OR -5 floors or fewer and 25,000 ft² to 150,000 ft²	Packaged rooftop VAV with reheat, hot-water boiler and DX cooling	
A8	Nonresidential and more than 5 floors or > 150,000 ft²	VAV with reheat, hot-water fossil fuel boiler and chilled water	
A9	Retail with ≤ 2 Floors	Packaged Constant Volume AHUs with DX Cooling, and central heating section Each AHU serves no more than 5,000 ft² of conditioned space with zoning identical to the design	
A10	Schools (all sizes)	Packaged VAV air handling units with DX cooling and HW reheat for multi-zone service (e.g. classrooms, offices, etc.) Packaged Constant Volume AHUs with DX cooling for specialty spaces (e.g. auditorium, gym, cafeteria, etc.) Central HW boiler plant serving AHUs, VAV reheats, and perimeter radiant heating elements	

APPENDIX B: BASELINE LPD VALUES (PER ISP)

Note: The Rhode Island Baseline LPD values are defined by Industry Standard Practice (ISP), which differs from IECC 2024. The baseline LPD values are defined using 0.57 adjustment factor applied to the IECC 2024 values[2]. The IECC 2024 values are provided below for reference.

Building Area Method		
Building Type	**Rhode Island ISP* (Rhode Island Baseline)**	**IECC 2024**
Automotive facility	0.41	0.73
Convention center	0.36	0.64
Courthouse	0.42	0.75
Dining: bar lounge/leisure	0.41	0.74
Dining: cafeteria/fast food	0.39	0.7
Dining: family	0.36	0.65
Dormitory	0.29	0.52
Exercise center	0.40	0.72
Fire station	0.31	0.56
Gymnasium	0.42	0.75
Health care clinic	0.43	0.77
Hospital	0.52	0.92
Hotel/Motel	0.30	0.53
Library	0.46	0.83
Manufacturing facility	0.46	0.82
Motion picture theater	0.24	0.43
Multifamily	0.26	0.46
Museum	0.31	0.56
Office	0.35	0.62
Parking garage	0.10	0.17
Penitentiary	0.36	0.65
Performance arts theater	0.46	0.82
Police Station	0.35	0.62
Post office	0.36	0.64
Religious building	0.37	0.66

[2] Rhode Island Non-Residential New Construction Industry Standard Practice Study https://eec.ri.gov/wp-content/uploads/2025/04/RI_NRNC_ISP_Final-Report.pdf

Building Area Method		
Building Type	Rhode Island ISP* (Rhode Island Baseline)	IECC 2024
Retail	0.44	0.78
School/university	0.39	0.7
Sports arena	0.41	0.73
Town hall	0.38	0.67
Transportation	0.31	0.56
Warehouse	0.25	0.45
Workshop	0.48	0.86

*Rhode Island follows Industry Standard Practice to define baseline LPD

Space-by-Space Method			
Common/Building Specific	Space Type	Rhode Island ISP* (Rhode Island Baseline)	IECC 2024
Common Space types	Atrium – Less than 40 feet in Height	0.23	0.41
Common Space types	Atrium – Greater than 40 feet in Height	0.29	0.51
Common Space types	Audience seating area - In a gymnasium	0.13	0.23
Common Space types	Audience seating area - In a motion picture theater	0.15	0.27
Common Space types	Audience seating area - In a penitentiary	0.31	0.56
Common Space types	Audience seating area - In a performing arts theater	0.61	1.09
Common Space types	Audience seating area - In a religious building	0.40	0.72
Common Space types	Audience seating area - In a sports arena	0.15	0.27
Common Space types	Audience seating area - In an auditorium	0.32	0.57
Common Space types	Audience seating area - OTHERWISE	0.18	0.33
Common Space types	Banking activity area	0.31	0.56
Common Space types	Classroom/lecture hall/ training room - In a penitentiary	0.41	0.74
Common Space types	Classroom/lecture hall/ training room - OTHERWISE	0.40	0.72
Common Space types	Computer Room	0.42	0.75
Common Space types	Conference/meeting/multipurpose room	0.49	0.88
Common Space types	Copy/Print Room	0.31	0.56
Common Space types	Corridor - facility for visually impaired (not primarily used by staff)	0.40	0.71
Common Space types	Corridor - In a hospital	0.34	0.61
Common Space types	Corridor – OTHERWISE	0.25	0.44
Common Space types	Courtroom	0.60	1.08
Common Space types	Dining area - facility for visually impaired (not primarily used by staff)	0.68	1.22
Common Space types	Dining area - In a penitentiary	0.20	0.35
Common Space types	Dining area - In bar/lounge or leisure dining	0.43	0.76
Common Space types	Dining area - In cafeteria or fast food dining	0.20	0.36
Common Space types	Dining area - In family dining	0.29	0.52
Common Space types	Dining area - OTHERWISE	0.24	0.42
Common Space types	Electrical/mechanical	0.40	0.71
Common Space types	Emergency vehicle parking	0.29	0.51
Common Space types	Food preparation	0.67	1.19
Common Space types	Guest room	0.23	0.41
Common Space types	Laboratory - In or as classrooms	0.59	1.05
Common Space types	Laboratory - OTHERWISE	0.68	1.21
Common Space types	Laundry/washing area	0.29	0.51
Common Space types	Loading dock, interior	0.49	0.88
Common Space types	Lobby - facility for visually impaired (not primarily used by staff)	0.81	1.44
Common Space types	Lobby - for an elevator	0.36	0.64
Common Space types	Lobby - In a hotel	0.29	0.51
Common Space types	Lobby - In a motion picture theater	0.11	0.2
Common Space types	Lobby - In a performing arts theater	0.68	1.21
Common Space types	Lobby – OTHERWISE	0.45	0.8
Common Space types	Locker room	0.24	0.43
Common Space types	Lounge/breakroom - In a healthcare facility	0.43	0.77

Business Use

Space-by-Space Method			
Common/Building Specific	Space Type	Rhode Island ISP* (Rhode Island Baseline)	IECC 2024
Common Space types	Lounge/breakroom - Mother's wellness room	0.38	0.68
Common Space types	Lounge/breakroom - OTHERWISE	0.31	0.55
Common Space types	Office - enclosed	0.41	0.73
Common Space types	Office - open plan	0.59	1.06
Common Space types	Parking area, interior	0.06	0.11
Common Space types	Pharmacy area	0.89	1.59
Common Space types	Restroom - facility for visually impaired (not primarily used by staff)	0.54	0.96
Common Space types	Restroom – OTHERWISE	0.41	0.74
Common Space types	Sales area	0.48	0.85
Common Space types	Seating area, general	0.12	0.21
Common Space types	Stairwell	0.26	0.47
Common Space types	Storage room	0.20	0.35
Common Space types	Vehicular Maintenance area	0.33	0.59
Common Space types	Workshop	0.66	1.17
Common Space types	Security screening general areas	0.36	0.64
Common Space types	Security screening in transportation facilities	0.52	0.93
Common Space types	Security screening transportation waiting area	0.31	0.56
Building Specific Space Types	Convention center - exhibit space	0.28	0.5
Building Specific Space Types	Dormitory - living quarters	0.32	0.58
Building Specific Space Types	Facility for visually impaired - In a Chapel (not primarily used by staff)	0.32	0.58
Building Specific Space Types	Facility for visually impaired - In a rec room (not primarily used by staff)	0.67	1.2
Building Specific Space Types	Fire Station - sleeping quarters	0.27	0.48
Building Specific Space Types	Gymnasium/fitness center - In a playing area	0.46	0.82
Building Specific Space Types	Gymnasium/fitness center - In an exercise area	0.46	0.82
Building Specific Space Types	Healthcare Facility - In a medical supply room	0.31	0.56
Building Specific Space Types	Healthcare Facility - In a nursery	0.49	0.87
Building Specific Space Types	Healthcare Facility - In a patient room	0.44	0.78
Building Specific Space Types	Healthcare Facility - In a physical therapy room	0.46	0.82
Building Specific Space Types	Healthcare Facility - In an exam/treatment room	0.74	1.33
Building Specific Space Types	Healthcare Facility - In an imaging room	0.53	0.94
Building Specific Space Types	Healthcare Facility - In a nurse's station	0.60	1.07
Building Specific Space Types	Healthcare Facility - In an operating room	1.27	2.26
Building Specific Space Types	Healthcare Facility - In a recovery room	0.66	1.18
Building Specific Space Types	Healthcare Facility - Telemedicine Room	0.81	1.44
Building Specific Space Types	Library - In a reading area	0.48	0.86
Building Specific Space Types	Library - In the stacks	0.66	1.18
Building Specific Space Types	Manufacturing - In a detailed manufacturing area	0.43	0.76
Building Specific Space Types	Manufacturing - In a high bay area (25- – 50-foot floor-ceiling height)	0.69	1.24
Building Specific Space Types	Manufacturing - In a low bay area (<25-foot floor-ceiling height)	0.48	0.86
Building Specific Space Types	Manufacturing - In an equipment room	0.41	0.73

Business Use

Space-by-Space Method			
Common/Building Specific	Space Type	Rhode Island ISP* (Rhode Island Baseline)	IECC 2024
Building Specific Space Types	Manufacturing - In an extra high bay area (>50-foot floor-ceiling height)	0.76	1.36
Building Specific Space Types	Museum - In a general exhibition area	0.17	0.31
Building Specific Space Types	Museum - In a restoration room	0.69	1.24
Building Specific Space Types	Performing arts theater - dressing room	0.22	0.39
Building Specific Space Types	Post office - sorting area	0.40	0.71
Building Specific Space Types	Religious building - In a fellowship hall	0.28	0.5
Building Specific Space Types	Religious building - In a worship/pulpit/choir area	0.42	0.75
Building Specific Space Types	Retail - In a dressing/fitting area	0.25	0.45
Building Specific Space Types	Sports arena - playing area - For a Class I facility	1.60	2.86
Building Specific Space Types	Sports arena - playing area - For a Class II facility	1.11	1.98
Building Specific Space Types	Sports arena - playing area - For a Class III facility	0.72	1.29
Building Specific Space Types	Sports arena - playing area - For a Class IV facility	0.48	0.86
Building Specific Space Types	Sports arena - sports area - For a Class I facility	1.23	2.2
Building Specific Space Types	Sports arena - sports area - For a Class II facility	0.82	1.47
Building Specific Space Types	Sports arena - sports area - For a Class III facility	0.55	0.99
Building Specific Space Types	Sports arena - sports area - For a Class IV facility	0.33	0.59
Building Specific Space Types	Transportation facility - At a terminal ticket counter	0.22	0.4
Building Specific Space Types	Transportation facility - In a baggage/carousel area	0.16	0.28
Building Specific Space Types	Transportation facility - In an airport concourse	0.27	0.49
Building Specific Space Types	Transportation facility - Airport Hanger	0.76	1.36
Building Specific Space Types	Transportation facility - Passenger loading area	0.40	0.71
Building Specific Space Types	Warehouse - storage area - For medium to bulky, palletized items	0.39	0.69
Building Specific Space Types	Warehouse - storage area - For smaller, hand-carried items	0.18	0.33
Building Specific Space Types	Automotive – service/repair	0.33	0.6
Building Specific Space Types	Gaming Establishments - High limits game	0.94	1.68
Building Specific Space Types	Gaming Establishments - Slots	0.30	0.54
Building Specific Space Types	Gaming Establishments - Sportsbook	0.46	0.82
Building Specific Space Types	Gaming Establishments - Table games	0.61	1.09

*Rhode Island follows Industry Standard Practice to define baseline LPD