LEED BD+C: Core and Shell | v4 - LEED v4

Appendix 3. Retail process load baselines

Required

Glossary

Requirements

Table 1a. Commercial kitchen appliance prescriptive measures and baseline for energy cost budget (IP units)

	Baseline energy usage for energy modeling path				Levels for prescriptive path	
Appliance type	Fuel	Function	Baseline efficiency	Baseline idle rate	Prescriptive efficiency	Prescriptive idle rate
Broiler, underfired	Gas	Cooking	30%	16,000 Btu/h/ft2 peak input	35%	12,000 Btu/h/ft2 peak input
Combination ovens, steam mode (P = pan capacity)	Elec	Cooking	40% steam mode	0.37P+4.5 kW	50% steam mode	0.133P+0.6400 kW
Combination ovens, steam mode	Gas	Cooking	20% steam mode	1,210P+35,810 Btu/h	38% steam mode	200P+6,511 Btu/h
Combination ovens, convection mode	Elec	Cooking	65% convection mode	0.1P+1.5 kW	70% convection mode	0.080P+0.4989 kW
Combination ovens, convection mode	Gas	Cooking	35% convection mode	322P+13,563 Btu/h	44% convection mode	150P+5,425 Btu/h
Convection oven, full-size	Elec	Cooking	65%	2.0 kW	71%	1.6 kW
Convection oven, full-size	Gas	Cooking	30%	18,000 Btu/h	46%	12,000 Btu/h
Convection oven, half-size	Elec	Cooking	65%	1.5 kW	71%	1.0 kW
Conveyor oven, > 25-inch belt	Gas	Cooking	20%	70,000 Btu/h	42%	57,000 Btu/h
Conveyor oven, ≤ 25-inch belt	Gas	Cooking	20%	45,000 Btu/h	42%	29,000 Btu/h
Fryer	Elec	Cooking	75%	1.05 kW	80%	1.0 kW
Fryer	Gas	Cooking	35%	14,000 Btu/h	50%	9,000 Btu/h
Griddle (based on 3 ft model)	Elec	Cooking	60%	400 W/ft2	70%	320 W/ft2
Griddle (based on 3 ft model)	Gas	Cooking	30%	3,500 Btu/h/ft2	38%	2,650 Btu/h/ft2
Hot food holding cabinets (excluding drawer warmers and heated display), 0 < V < 13 ft^3 (V = volume)	Elec	Cooking	na	40 W/ft3	na	21.5V Watts
Hot food holding cabinets (excluding drawer warmers and heated display), 13 ≤ V < 28 ft^3	Elec	Cooking	na	40 W/ft3	na	2.0V + 254 Watts
Hot food holding cabinets (excluding drawer warmers and heated display), 28 ft^3 ≤ V	Elec	Cooking	na	40 W/ft3	na	3.8V + 203.5 Watts
Large vat fryer	Elec	Cooking	75%	1.35 kW	80%	1.1 kW
Large vat fryer	Gas	Cooking	35%	20,000 Btu/h	50%	12,000 Btu/h
Rack oven, double	Gas	Cooking	30%	65,000 Btu/h	50%	35,000 Btu/h
Rack oven, single	Gas	Cooking	30%	43,000 Btu/h	50%	29,000 Btu/h
Range	Elec	Cooking	70%		80%	
Range	Gas	Cooking	35%	na	40% and no standing pilots	na
Steam cooker, batch cooking	Elec	Cooking	26%	200 W/pan	50%	135 W/pan
Steam cooker, batch cooking	Gas	Cooking	15%	2,500 Btu/h/pan	38%	2,100 Btu/h/pan
Steam cooker, high production or cook to order	Elec	Cooking	26%	330 W/pan	50%	275 W/pan
Steam cooker, high production or cook to order	Gas	Cooking	15%	5,000 Btu/h/pan	38%	4,300 Btu/h/pan
Toaster	Elec	Cooking	—	1.8 kW average operating energy rate	na	1.2 kW average operating energy rate
Ice machine, IMH (ice-making head, H = ice harvest), H ≥ 450 lb/day	Elec	Ice	6.89 - 0.0011H kWh/100 lb ice	na	37.72*H-0.298 kWh/100 lb ice	na
Ice machine, IMH (ice-making head), H ≤ 450 lb/day	Elec	Ice	10.26 – 0.0086H kWh/100 lb ice	na	37.72*H-0.298 kWh/100 lb ice	na
			8.85		22.95*H-	

Ice machine, RCU (remote condensing unit, w/o remote compressor, H < 1,000 lb/day	Elec	Ice	8.85 - 0.0038H kWh/100lb ice	na	0.258 + 1.00 kWh/100 lb ice	na
Ice machine, RCU (remote condensing unit), 1600 > H ≥ 1000 lb/day	Elec	ice	5.10 kWh/100 lb ice	na	22.95*H- 0.258 + 1.00 kWh/100 lb ice	na
Ice machine, RCU (remote condensing unit), H ≥ 1600 lb/day	Elec	Ice	5.10 kWh/100lb ice	na	-0.00011*H + 4.60 kWh/100 lb ice	na
Ice machine, SCU (self-contained unit), H < 175 lb/day	Elec	Ice	18.0 - 0.0469H kWh/100lb ice	na	48.66*H- 0.326 + 0.08 kWh/100 lb ice	na
Ice machine self-contained unit, H ≥ 175 lb/day	Elec	Ice	9.80 kWh/100 lb ice	na	48.66*H- 0.326 + 0.08 kWh/100 lb ice	na
Ice machine, water-cooled ice-making head, H ≥ 1436 lb/day (must be on chilled loop)	Elec	Ice	4.0 kWh/100 lb ice	na	3.68 kWh/100 lb ice	na
Ice machine, water-cooled ice-making head, 500 lb/day < H < 1436 (must be on chilled loop)	Elec	Ice	5.58 – 0.0011H kWh/100 lb ice	na	5.13 - 0.001H kWh/100 lb ice	na
Ice machine, water-cooled ice-making head, H < 500 lb/day (must be on chilled loop)	Elec	Ice	7.80 – 0.0055H kWh/100 lb ice	na	7.02 - 0.0049H kWh/100 lb ice	na
Ice machine, water-cooled once-through (open loop)	Elec	Ice	Banned	Banned	Banned	Banned
Ice machine, water-cooled SCU (self-contained unit), H < 200 lb/day (must be on chilled loop)	Elec	Ice	11.4 – 0.0190H kWh/100 lb ice	na	10.6 - 0.177H kWh/100 lb ice	na
Ice machine, water-cooled self-contained unit, H > 200 lb/day (must be on chilled loop)	Elec	Ice	7.6 kWh/100 lb ice	na	7.07 kWh/100 lb ice	na
Chest freezer, solid or glass door	Elec	Refrig	0.45V + 0.943 kWh/day	na	≤ 0.270V + 0.130 kWh/day	na
Chest refrigerator, solid or glass door	Elec	Refrig	0.1V + 2.04 kWh/day	na	≤ 0.125V + 0.475 kWh/day	na
Glass-door reach-in freezer, 0 < V < 15 ft³	Elec	Refrig	0.75V + 4.10 kWh/day	na	≤ 0.607V + 0.893 kWh/day	na
Glass-door reach-in freezer, 15 ≤ V < 30 ft³	Elec	Refrig	.75V + 4.10 kWh/day	na	≤ 0.733V – 1.00 kWh/day	na
Glass-door reach-in freezer, 30 ≤ V < 50 ft³	Elec	Refrig	.75V + 4.10 kWh/day	na	≤ 0.250V + 13.50 kWh/day	na
Glass-door reach-in freezer, 50 ≤ V ft³	Elec	Refrig	0.75V + 4.10 kWh/day	na	≤ 0.450V + 3.50 kWh/day	na
Glass-door reach-in refrigerator, 0 < V < 15 ft³	Elec	Refrig	0.12V + 3.34 kWh/day	na	≤ 0.118V + 1.382 kWh/day	na
Glass-door reach-in refrigerator, 15 ≤ V < 30 ft³	Elec	Refrig	0.12V + 3.34 kWh/day	na	≤ 0.140V + 1.050 kWh/day	na
Glass-door reach-in refrigerator, 30 ≤ V < 50 ft³	Elec	Refrig	0.12V + 3.34 kWh/day	na	≤ 0.088V + 2.625 kWh/day	na
Glass-door reach-in refrigerator, 50 ≤ V ft³	Elec	Refrig	0.12V + 3.34 kWh/day	na	≤ 0.110V + 1.500 kWh/day	na
Solid-door reach-in freezer, 0 < V < 15 ft³	Elec	Refrig	0.4V + 1.38 kWh/day	na	≤ 0.250V + 1.25 kWh/day	na
Solid-door reach-in freezer, 15 ≤ V < 30 ft³	Elec	Refrig	0.4V + 1.38 kWh/day	na	≤ 0.400V – 1.000 kWh/day	na
Solid-door reach-in freezer, 30 ≤ V < 50 ft³	Elec	Refrig	0.4V + 1.38 kWh/day	na	≤ 0.163V + 6.125 kWh/day	na
Solid-door reach-in freezer, 50 ≤ V ft³	Elec	Refrig	0.4V + 1.38 kWh/day	na	≤ 0.158V + 6.333 kWh/day	na
Solid-door reach-in refrigerator, 0 < V < 15 ft³	Elec	Refrig	0.1V + 2.04 kWh/day	na	≤ 0.089V + 1.411 kWh/day	na
Solid-door reach-in refrigerator, 15 ≤ V < 30 ft³	Elec	Refrig	0.1V + 2.04 kWh/day	na	≤ 0.037V + 2.200 kWh/day	na
Solid-door reach-in refrigerator, 30 ≤ V < 50 ft³	Elec	Refrig	0.1V + 2.04 kWh/day	na	≤ 0.056V + 1.635 kWh/day	na
Solid-door reach-in refrigerator, 50 ≤ V ft³	Elec	Refrig	0.1V + 2.04 kWh/day	na	≤ 0.060V + 1.416 kWh/day	na
Clothes washer	Gas	Sanitation	1.72 MEF	na	2.00 MEF	na

Door-type dish machine, high temp	Elec	Sanitation	na	1.0 kW	na	0.70 kW
Door-type dish machine, low temp	Elec	Sanitation	na	0.6 kW	na	0.6 kW
Multitank rack conveyor dish machine, high temp	Elec	Sanitation	na	2.6 kW	na	2.25 kW
Multitank rack conveyor dish machine, low temp	Elec	Sanitation	na	2.0 kW	na	2.0 kW
Single-tank rack conveyor dish machine, high temp	Elec	Sanitation	na	2.0 kW	na	1.5 kW
Single-tank rack conveyor dish machine, low temp	Elec	Sanitation	na	1.6 kW	na	1.5 kW
Undercounter dish machine, high temp	Elec	Sanitation	na	0.9 kW	na	0.5 kW
Undercounter dish machine, low temp	Elec	Sanitation	na	0.5 kW	na	0.5 kW

The energy efficiency, idle energy rates, and water use requirements, where applicable, are based on the following test methods:
ASTM F1275 Standard Test Method for Performance of Griddles
ASTM F1361 Standard Test Method for Performance of Open Deep Fat Fryers
ASTM F1484 Standard Test Methods for Performance of Steam Cookers
ASTM F1496 Standard Test Method for Performance of Convection Ovens
ASTM F1521 Standard Test Methods for Performance of Range Tops
ASTM F1605 Standard Test Method for Performance of Double-Sided Griddles
ASTM F1639 Standard Test Method for Performance of Combination Ovens
ASTM F1695 Standard Test Method for Performance of Underfired Broilers
ASTM F1696 Standard Test Method for Energy Performance of Single-Rack Hot Water Sanitizing, ASTM Door-Type Commercial Dishwashing Machines
ASTM F1704 Standard Test Method for Capture and Containment Performance of Commercial Kitchen Exhaust Ventilation Systems
ASTM F1817 Standard Test Method for Performance of Conveyor Ovens
ASTM F1920 Standard Test Method for Energy Performance of Rack Conveyor, Hot Water Sanitizing, Commercial Dishwashing Machines
ASTM F2093 Standard Test Method for Performance of Rack Ovens
ASTM F2140 Standard Test Method for Performance of Hot Food Holding Cabinets
ASTM F2144 Standard Test Method for Performance of Large Open Vat Fryers
ASTM F2324 Standard Test Method for Prerinse Spray Valves
ASTM F2380 Standard Test Method for Performance of Conveyor Toasters
ARI 810-2007: Performance Rating of Automatic Commercial Ice Makers
ANSI/ASHRAE Standard 72–2005: Method of Testing Commercial Refrigerators and Freezers with temperature setpoints at 38°F for medium-temp refrigerators, 0°F for low-temp freezers, and -15°F for ice cream freezers

Table 1b. Commercial Kitchen Appliance Prescriptive Measures and Baseline for Energy Cost Budget (SI units)

	Baseline energy usage for energy modeling path				**Levels for prescriptive path**	
Appliance type	Fuel	Function	Baseline efficiency	Baseline idle rate	Prescriptive efficiency	Prescriptive idle rate
Broiler, underfired	Gas	Cooking	30%	50.5 kW/m2	35%	37.9 kW/m2
Combination oven, steam mode (P = pan capacity)	Elec	Cooking	40% steam mode	0.37P+4.5 kW	50% steam mode	0.133P+0.6400 kW
Combination oven, steam mode	Gas	Cooking	20% steam mode	(1 210P+ 35 810)/3 412 kW	38% steam mode	(200P+6 511)/ 3 412 kW
Combination oven, convection mode	Elec	Cooking	65% convection mode	0.1P+1.5 kW	70% convection mode	0.080P+0.4989 kW
Combination oven, convection mode	Gas	Cooking	35% convection mode	(322P+ 13 563)/ 3412 kW	44% convection mode	(150P+5 425)/ 3412 kW
Convection oven, full-size	Elec	Cooking	65%	2.0 kW	71%	1.6 kW
Convection oven, full-size	Gas	Cooking	30%	5.3 kW	46%	3.5 kW
Convection oven, half-size	Elec	Cooking	65%	1.5 kW	71%	1.0 kW
Conveyor oven, > 63.5 cm belt	Gas	Cooking	20%	20.5 kW	42%	16.7 kW
Conveyor oven, < 63.5 cm belt	Gas	Cooking	20%	13.2 kW	42%	8.5 kW
Fryer	Elec	Cooking	75%	1,05 kW	80%	1.0 kW
Fryer	Gas	Cooking	35%	4.1 kW	50%	2.64 kW
Griddle (based on 90-cm model)	Elec	Cooking	60%	4.3 kW/m2	70%	3 .45 kW/m2
Griddle (based on 90-cm model)	Gas	Cooking	30%	11 kW/m2	33%	8.35 kW/m2
Hot food holding cabinets (excluding drawer warmers and heated display) 0 < V < 0.368 m3 (V = volume)	Elec	Cooking	na	1.4 kW/m3	na	(21.5*V)/0.0283 kW/m3
Hot food holding cabinets (excluding drawer warmers and heated display), 0.368 ≤ V < 0.793 m3	Elec	Cooking	na	1.4 kW/m3	na	(2.0*V + 254)/0.0283 kW/m3
Hot food holding cabinets (excluding drawer warmers and heated display), 0.793 m3 ≤ V	Elec	Cooking	na	1.4 kW/m3	na	(3.8*V + 203.5)/0.0283 kW/m3
Large vat fryer	Elec	Cooking	75%	1.35 kW	80%	1.1 kW
Large vat fryer	Gas	Cooking	35%	5.86 kW	50%	3.5 kW
Rack oven, double	Gas	Cooking	30%	19 kW	50%	10.25 kW
Rack oven, single	Gas	Cooking	30%	12.6 kW	50%	8.5 kW
Range	Elec	Cooking	70%	na	80%	na
Range	Gas	Cooking	35%	na	40% and no standing pilots	**na**
Steam cooker, batch cooking	Elec	Cooking	26%	200 W/pan	50%	135 W/pan
Steam cooker, batch cooking	Gas	Cooking	15%	733 W/pan	38%	615 W/pan
Steam cooker, high production or cook to order	Elec	Cooking	26%	330 W/pan	50%	275 W/pan
Steam cooker, high production or cook to order	Gas	Cooking	15%	1.47 kW/pan	38%	1.26 kW/pan
						1.2 kW

Toaster	Elec	Cooking	**na**	1.8 kW average operating energy rate	**na**	1.2 kW average operating energy rate
Ice machine, IMH (ice making head, H = ice harvest) H ≥ 204 kg/day	Elec	Ice	0.0015 - 5.3464E-07 kWh/kg ice	na	≤ 13.52*H-0.298 kWh/100 kg ice	na
Ice machine, IMH (ice making head), H < 204 kg/day	Elec	Ice	0.2262 - 4.18E-04 kWh/kg ice	na	≤ 13.52*H-0.298 kWh/100 kg ice	na
Ice machine, RCU (remote condensing unit, w/o remote compressor) H < 454 kg/day	Elec	Ice	0.1951 - 1.85E-04 kWh/kg ice	na	≤ 111.5835H-0.258) + 2.205 kWh/100 kg ice	na
Ice machine, RCU (remote condensing unit) 726 > H ≥ 454 kg/day	Elec	Ice	0.1124 kWh/kg ice	na	≤ 111.5835H-0.258) + 2.205 kWh/100 kg ice	na
Ice machine, RCU (remote condensing unit), H ≥ 726kg/day	Elec	Ice	0.1124 kWh/kg ice	na	≤ -0.00024H + 4.60 kWh/100 kg ice	na
Ice machine, SCU (self contained unit), H < 79 kg/day	Elec	Ice	0.3968 - 2.28E-03 kWh/kg ice	na	236.59H-0.326 +0.176 kWh/100 kg ice	na
Ice machine, SCU (self contained unit), H ≥ 79 kg/day	Elec	Ice	0.2161 kWh/kg ice	na	236.59H-0.326 +0.176 kWh/100 kg ice	na
Ice machine, water-cooled ice-making head, H ≥ 651 kg/day(must be on a chilled loop)	Elec	Ice	0.0882 kWh/kg ice	na	≤ 8.11 kWh/100 kg ice	na
Ice machine, water-cooled ice-making head, 227 ≤ H < 651 kg/day (must be on a chilled loop)	Elec	Ice	0.1230 - 5.35E-05 kWh/kg ice	na	≤ 11.31 - 0.065H kWh/100 kg ice	na
Ice machine, water-cooled ice-making head, H < 227 kg/day(must be on a chilled loop)	Elec	Ice	0.1720 - 2.67E-04 kWh/kg ice	na	≤ 15.48 - 0.0238H kWh/100 kg ice	na
Ice machine, water-cooled once-through (open loop)	Elec	Ice	Banned	Banned	Banned	Banned
Ice machine, water cooled SCU (self-contained unit) H < 91 kg/day (must be on a chilled loop)	Elec	Ice	0.2513 - 9.23E-04 kWh/kg ice	na	≤ 23.37-0.086H kWh/100 kg ice	na
Ice machine, water cooled SCU (self-contained unit) H ≥ 91 kg/day (must be on a chilled loop)	Elec	Ice	0.1676 kWh/kg ice	na	15.57 kWh/100 kg ice	na
Chest freezer, solid or glass door	Elec	Refrig	15.90V + 0.943 kWh/day	na	9.541V + 0.130 kWh/day	na
Chest refrigerator, solid or glass door	Elec	Refrig	3.53V + 2.04 kWh/day	na	≤ 4.417 V + 0.475 kWh/day	na
Glass-door reach-in freezer, 0 < V < 0.42 m3	Elec	Refrig	26.50V + 4.1 kWh/day	na	≤ 21.449V + 0.893 kWh/day	na
Glass-door reach-in freezer, 0.42 ≤ V < 0.85 m3	Elec	Refrig	26.50V + 4.1 kWh/day	na	≤ 25.901V – 1.00 kWh/day	na
Glass-door reach-in freezer, 0.85 ≤ V < 1.42 m3	Elec	Refrig	26.50V + 4.1 kWh/day	na	≤ 8.834V + 13.50 kWh/day	na
Glass-door reach-in freezer, 1.42 ≤ V m3	Elec	Refrig	26.50V + 4.1 kWh/day	na	≤ 15.90V + 3.50 kWh/day	na
Glass-door reach-in refrigerator, 0 < V < 0.42m3	Elec	Refrig	4.24V + 3.34 kWh/day	na	≤ 4.169V + 1.382 kWh/day	na
Glass-door reach-in refrigerator, 0.42 ≤ V < 0.85 m3	Elec	Refrig	4.24V + 3.34 kWh/day	na	≤ 4.947V + 1.050 kWh/day	na
Glass-door reach-in refrigerator, 0.85 ≤ V < 1.42 m3	Elec	Refrig	4.24V + 3.34 kWh/day	na	≤ 3.109V + 2.625 kWh/day	na
Glass-door reach-in refrigerator, 1.42 ≤ V m3	Elec	Refrig	4.24V + 3.34 kWh/day	na	≤ 3.887V + 1.500 kWh/day	na
Solid-door reach-in freezer, 0 < V < 0.42 m3	Elec	Refrig	14.13V + 1.38 kWh/day	na	≤ 8.834V + 1.25 kWh/day	na
Solid-door reach-in freezer, 0.42 ≤ V < 0.85 m3	Elec	Refrig	14.13V + 1.38 kWh/day	na	≤ 4.819V – 1.000 kWh/day	na
Solid-door reach-in freezer, 0.85 ≤ V < 1.42 m3	Elec	Refrig	14.13V + 1.38 kWh/day	na	≤ 5.760V + 6.125 kWh/day	na
Solid-door reach-in freezer, 1.42 ≤ V m3	Elec	Refrig	14.13V + 1.38 kWh/day	na	≤ 5.583V + 6.333 kWh/day	na
			3.53V + 2.04		≤ 3.145V +	

Solid-door reach-in refrigerator, 0 < V < 0.42m3	Elec	Refrig	3.53V + 2.04 kWh/day	na	1.411 kWh/day	na
Solid-door reach-in refrigerator, 0.42 ≤ V < 0.85 m3	Elec	Refrig	3.53V + 2.04 kWh/day	na	≤ 1.307V + 2.200 kWh/day	na
Solid-door reach-in refrigerator, 0.85 ≤ V < 1.42 m3	Elec	Refrig	3.53V + 2.04 kWh/day	na	≤ 1.979V + 1.635 kWh/day	na
Solid-door reach-in refrigerator, 1.42 ≤ V m3	Elec	Refrig	3.53V + 2.04 kWh/day	na	≤ 2.120V + 1.416 kWh/day	na
Clothes washer	Gas	Sanitation	1.72 MEF		2.00 MEF	
Door-type dish machine, high temp	Elec	Sanitation	na	1.0 kW	na	0.70 kW
Door-type dish machine, low temp	Elec	Sanitation	na	0.6 kW	na	0.6 kW
Multitank rack conveyor dish machine, high temp	Elec	Sanitation	na	2.6 kW	na	2.25 kW
Multitank rack conveyor dish machine, low temp	Elec	Sanitation	na	2.0 kW	na	2.0 kW
Single-tank rack conveyor dish machine, high temp	Elec	Sanitation	**na**	2.0 kW	na	1.5 kW
Single-tank rack conveyor dish machine, low temp	Elec	Sanitation	na	1.6 kW	na	1.5 kW
Undercounter dish machine, high temp	Elec	Sanitation	na	0.9 kW	na	0.5 kW
Undercounter dish machine, low temp	Elec	Sanitation	na	0.5 kW	na	0.5 kW

The energy efficiency, idle energy rates, and water use requirements, where applicable, are based on the following test methods:
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ASTM F1361 Standard Test Method for Performance of Open Deep Fat Fryers
ASTM F1484 Standard Test Methods for Performance of Steam Cookers
ASTM F1496 Standard Test Method for Performance of Convection Ovens
ASTM F1521 Standard Test Methods for Performance of Range Tops
ASTM F1605 Standard Test Method for Performance of Double-Sided Griddles
ASTM F1639 Standard Test Method for Performance of Combination Ovens
ASTM F1695 Standard Test Method for Performance of Underfired Broilers
ASTM F1696 Standard Test Method for Energy Performance of Single-Rack Hot Water Sanitizing, ASTM Door-Type Commercial Dishwashing Machines
ASTM F1704 Standard Test Method for Capture and Containment Performance of Commercial Kitchen Exhaust Ventilation Systems
ASTM F1817 Standard Test Method for Performance of Conveyor Ovens
ASTM F1920 Standard Test Method for Energy Performance of Rack Conveyor, Hot Water Sanitizing, Commercial Dishwashing Machines
ASTM F2093 Standard Test Method for Performance of Rack Ovens
ASTM F2140 Standard Test Method for Performance of Hot Food Holding Cabinets
ASTM F2144 Standard Test Method for Performance of Large Open Vat Fryers
ASTM F2324 Standard Test Method for Prerinse Spray Valves
ASTM F2380 Standard Test Method for Performance of Conveyor Toasters
ARI 810-2007: Performance Rating of Automatic Commercial Ice Makers
ANSI/ASHRAE Standard 72–2005: Method of Testing Commercial Refrigerators and Freezers with temperature setpoints at 38°F (3°C) for mediumtemp refrigerators, -18°C for low-temp freezers, and -26°C for ice cream freezers.

Table 2. Supermarket refrigeration prescriptive measures and baseline for energy cost budget

Item	Attribute	Prescriptive measure	Baseline for energy modeling path
Commercial Refrigerator and Freezers	Energy Use Limits	ASHRAE 90.1-2010 Addendum g. Table 6.8.1L	ASHRAE 90.1-2010 Addendum g. Table 6.8.1L
Commercial Refrigeration Equipment	Energy Use Limits	ASHRAE 90.1-2010 Addendum g. Table 6.8.1M	ASHRAE 90.1-2010 Addendum g. Table 6.8.1M

Table 3. Walk-in coolers and freezers prescriptive measures and baseline for energy cost budget

Item	Attribute	Prescriptive measure	Baseline for energy modeling path
Envelope	Freezer insulation	R-46	R-36
	Cooler insulation	R-36	R-20
	Automatic closer doors	Yes	No
	High-efficiency low- or no-heat reach-in doors	40W/ft (130W/m) of door frame (low temperature), 17W/ft (55W/m) of door frame (medium temperature)	40W/ft (130W/m) of door frame (low temperature), 17W/ft (55W/m) of door frame (medium temperature)
Evaporator	Evaporator fan motor and control	Shaded pole and split phase motors prohibited; use PSC or EMC motors	Constant-speed fan
	Hot gas defrost	No electric defrosting.	Electric defrosting
Condenser	Air-cooled condenser fan motor and control	Shaded pole and split phase motors prohibited; use PSC or EMC motors; add condenser fan controllers	Cycling one-speed fan
	Air Cooled condenser design approach	Floating head pressure controls or ambient subcooling	10°F (-12°C) to 15°F (-9°C) dependent on suction temperature
Lighting	Lighting power density (W/sq.ft.)	0.6 W/sq.ft. (6.5 W/sq. meter)	0.6 W/sq.ft. (6.5 W/sq. meter)
Commercial Refrigerator and Freezers	Energy Use Limits	N/A	Use an Exceptional Calculation Method if attempting to take savings
Commercial Refrigerator and Freezers	Energy Use Limits	N/A	Use an Exceptional Calculation Method if attempting to take savings

Table 4. Commercial kitchen ventilation prescriptive measures and baseline for energy cost budget

Strategies	Prescriptive measure	Baseline
Kitchen hood control	ASHRAE 90.1-2010 Section 6.5.7.1, except that Section 6.5.7.1.3 and Section 6.5.7.1.4 shall apply if the total kitchen exhaust airflow rate exceeds 2,000 cfm (960 L/s) (as opposed to 5,000 cfm (2,400 L/s) noted in the ASHRAE 90.1-2010 requirements)	ASHRAE 90.1-2010 Section 6.5.7.1 and Section G3.1.1 Exception (d) where applicable

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2101 L Street NW
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Within the United States:
1-800-795-1747

Outside the United States:
1-202-742-3792

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