Mapping Energy Efficiency:

A Global Dataset on Building Code Effectiveness and Compliance

COUNTRY PROFILES



HE WORLD BANK

Knowledge<u>m</u>Change

Albania, Tirana

			5				
2,777,689 Population	475,577 City population	Climat	Humid te Zone fication	141% Average urban growth (2010–2020)		er middle ome group	
	Building Energy Efficie Main Source of Manda	•					
∟ BUILDING	Code adoption date		2016				
ENERGY EFFICIENCY	Type of code		Performanc	e-based			
REGULATORY FRAMEWORK	Coverage of Code		New Buildin	gs			
	TYPE OF BUILDING				Residential	Commercial	
	TTPE OF BUILDING			0			
-		Thermal Transmittance (W/m ² .K)			0.35		
			Thermal Transmittance: Roof U-value (W/m ² .K) Thermal Transmittance: Floors U-value (W/m ² .K)			0.35	
	Passive Design				0.38	0.38	
				al Walls U-value (W/m².K)	0.38	0.38	
				J-value (W/m².K)	2.0	2.0	
TECHNICAL		Maximum Solar					
COMPONENTS COVERED BY		Maximum Air Leakage (m ³ /hr.m ²)					
BUILDING		Natural Ventilation Coverage					
REGULATIONS		Space Heating Coverage			V		
		Space Cooling Coverage			•		
	HVAC	Fossil Fuel Furnace Energy Efficiency (%)			0.70	0.70	
		Heat Pump (Heating) COP (Wh/Wh)			3.0	3.0	
		Split AC System EER (Wh/Wh)					
		Fan Coverage			•		
	Water Heating	Fossil Fuel Wate			t		
		Electric Water H			·		
()				Allowances (Outdoor)	•		
	Lighting			Allowances (Indoor)			
		Luminary Efficat	cy (Im/W)				
	Building	Lab Testing					
	Materials	Labelling Independent Ce	rtification		•		
		Resources to Fa		Ince		•	
	Incentives and Resources	Financial Incent					
		Financiar incent	1462			•	

Algeria, Algiers

			5			
44,903,225 Population	2,693,542 City population	Climat	Humid te Zone fication	282% Average urban growth (2010–2020)		er middle ome group
	Building Energy Efficie Main Source of Manda		Regulatory	Technical Documents (DTR)	
BUILDING	Code adoption date		1998			
ENERGY EFFICIENCY	Type of code		Combination (Prescriptive/Performance-based)			
REGULATORY FRAMEWORK	Coverage of Code					
	TYPE OF BUILDING				Residential	Commercial
		Thermal Transn	nittance (W/m².I	K)		
		Thermal Transmittance: Roof U-value (W/m ² .K)				
		Thermal Transn	nittance: Floors	U-value (W/m².K)		
	Passive Design	Thermal Transn	nittance: Externa	al Walls U-value (W/m².K)		
		Thermal Transn	nittance: Doors	U-value (W/m².K)		
		Maximum Solar	· Heat Gain Coef	ficient	0.90	0.90
TECHNICAL		Maximum Air Leakage (m³/hr.m²)				
COMPONENTS COVERED BY		Natural Ventilation Coverage				
BUILDING		Space Heating	Coverage			
REGULATIONS		Space Cooling Coverage				
		Fossil Fuel Furnace Energy Efficiency (%)				
	нуас	Heat Pump (Heating) COP (Wh/Wh)				
		Split AC System EER (Wh/Wh)				
		Fan Coverage				
(Watar Usating	Fossil Fuel Wate	er Heater EF			
	Water Heating	Electric Water H	leater EF			
		Maximum Watt	age or Lighting /	Allowances (Outdoor)		
(-`	Lighting	Maximum Watt	age or Lighting /	Allowances (Indoor)	t	/
		Luminary Effica	cy (lm/W)			
		Lab Testing				
	Building Materials	Labelling				
		Independent Ce	rtification			
	Incentives and Resources	Resources to Fa	acilitate Complia	ance	architects ar	guides for nd engineers; or any of the nolders
		Financial Incent	tives			

Some European countries that are members of the European Union are mandated to follow the European Ecodesign Directive requirements. Unless a country expresses specific requirements in its code, the dataset provides the European required value. An asterisk (*) indicates that the datapoint corresponds to a European requirement.

Argentina, Buenos Aires

			5		(
46,234,830 Population	14,966,530 City population	Clima	, Humid ate Zone ification	117% Average urban growth (2010–2020)		er middle ome group
Ĵ.	Building Energy Efficie Main Source of Manda		Building Cod	e of the Autonomous City	of Buenos Aire	25
LP BUILDING	Code adoption date		2010			
ENERGY EFFICIENCY	Type of code		Combination	ı (Prescriptive/Performan	ce-based)	
REGULATORY FRAMEWORK	Coverage of Code					
	TYPE OF BUILDING				Residential	Commercial
-		Thermal Transm	nittance (W/m².K)		
(Ird		Thermal Transmittance: Roof U-value (W/m ² .K)				
	Passive Design	Thermal Transm	nittance: Floors U	J-value (W/m².K)		
		Thermal Transm	nittance: External	Walls U-value (W/m².K)		
		Thermal Transm	nittance: Doors U	-value (W/m².K)		
		Maximum Solar	Heat Gain Coeffi	icient		
TECHNICAL		Maximum Air Le	eakage (m³/hr.m²	2)		
COMPONENTS COVERED BY		Natural Ventilation Coverage			t	/
BUILDING		Space Heating Coverage				
REGULATIONS		Space Cooling Coverage				
		Fossil Fuel Furnace Energy Efficiency (%)				
	HVAC	Heat Pump (Heating) COP (Wh/Wh)				
		Split AC System EER (Wh/Wh)				
		Fan Coverage				
	Water Heating	Fossil Fuel Wate	er Heater EF			
	Water Heating	Electric Water H	leater EF			
		Maximum Watta	age or Lighting A	llowances (Outdoor)		
(-)	Lighting	Maximum Watta	age or Lighting A	llowances (Indoor)		
		Luminary Effica	cy (lm/W)		1:	50
		Lab Testing				
	Building Materials	Labelling				
		Independent Ce	rtification			
(8	Incentives and Resources	Resources to Fa	acilitate Compliar	nce	architects ar Operator or I	guides for ad engineers; maintenance manuals
	Ĭ	Financial Incent	ives			

Armenia, Yerevan

)(
2,780,469 Population	1,080,324 City population	Mixed, Humid 21% Climate Zone Classification (2010-202	growth Inco	er middle ome group	
	Building Energy Efficie Main Source of Manda	tory Standards Armenia (No. 120-N of June 1 Protection of Buildings" (24-07	6, 2016) approving the		
BUILDING ENERGY	Code adoption date	2016			
EFFICIENCY	Type of code	Combination (Prescriptive/Per	on (Prescriptive/Performance-based)		
REGULATORY FRAMEWORK	Coverage of Code	New Buildings			
	TYPE OF BUILDING		Residential	Commercial	
		Thermal Transmittance (W/m².K)		/	
		Thermal Transmittance: Roof U-value (W/m².K)			
		Thermal Transmittance: Floors U-value (W/m ² .K)	0.42		
	Passive Design	Thermal Transmittance: External Walls U-value (W	//m².K) 0.56		
	Ze Passive Design	Thermal Transmittance: Doors U-value (W/m².K)			
		Maximum Solar Heat Gain Coefficient			
TECHNICAL		Maximum Air Leakage (m³/hr.m²)			
COMPONENTS COVERED BY		Natural Ventilation Coverage			
BUILDING		Space Heating Coverage			
REGULATIONS		Space Cooling Coverage			
	HVAC	Fossil Fuel Furnace Energy Efficiency (%)			
	HVAC	Heat Pump (Heating) COP (Wh/Wh)			
		Split AC System EER (Wh/Wh)			
		Fan Coverage			
	Water Heating	Fossil Fuel Water Heater EF			
	Water Heating	Electric Water Heater EF			
		Maximum Wattage or Lighting Allowances (Outdo	oor) .		
(-)	Lighting	Maximum Wattage or Lighting Allowances (Indoo	r) .		
		Luminary Efficacy (Im/W)			
		Lab Testing			
	Building Materials	Labelling			
		Independent Certification		•	
	Incentives and Resources	Resources to Facilitate Compliance	stakeholder guides or da	Trainings for any of the stakeholders; Consumer guides or databases for energy efficient appliances	
		Financial Incentives	Grants		

Australia, Melbourne

			5				
26,005,540 Population	4,770,894 City population	Climat	Humid te Zone fication	155% Average urban growt (2010–2020)	h Ir	High ncome group	
	Building Energy Effic Main Source of Man		The Nationa	The National Construction Code 2022 (NCC 2022)			
	Code adoption date		2022				
ENERGY EFFICIENCY	Type of code		Combination (Prescriptive/Performance-based)				
REGULATORY FRAMEWORK	Coverage of Code		New Buildin	gs and Existing Building	IS		
	TYPE OF BUILDING				Residential	Commercial	
		Thermal Transmit	tance (W/m².K)			v	
		Thermal Transmittance: Roof U-value (W/m ² .K)					
		Thermal Transmittance: Floors U-value (W/m ² .K)					
	Passive Design			Valls U-value (W/m ² .K)	2.0	2.0	
		Thermal Transmit		. ,			
TECHNICAL COMPONENTS		Maximum Solar H		ient		0.13	
COVERED BY		Maximum Air Leal			10.0		
BUILDING		Natural Ventilation	-			V	
REGULATIONS		Space Heating Co	-		v		
		Space Cooling Coverage			0.70	•	
	HVAC	Fossil Fuel Furnace Energy Efficiency (%)			0.70	0.70	
		Heat Pump (Heating) COP (Wh/Wh)			 2.9	 2.9	
		Split AC System EER (Wh/Wh)			2.9	2.9	
		Fan Coverage Fossil Fuel Water I	Heater FF				
	Water Heating	Electric Water Hea					
				owances (Outdoor)		······································	
	Lighting	Maximum Wattag		. ,		v	
		Luminary Efficacy					
		Lab Testing	. ,				
	Building Materials	Labelling					
	Materials	Independent Certi	fication				
	Incentives and Resources		ber archit Cor databas cilitate Compliance appliance of the Star (R Frame			signer guides for tects and engineers; nsumer guides or ses for energy efficient ces; Trainings for any stakeholders; Green tesponsible Products ework); Certification chemes - GECA	
		Financial Incentive	es		Grant	s; Loans	

Austria, Vienna

9,041,851 Population	1,900,547 City population	Climat	Humid e Zone fication	78% Average urban growth (2010–2020)	High Income group
	Building Energy Efficiency Main Source of Mandator		Austrian In Guidelines)	stitute of Construction Engineer)	ing Guidelines (OIB
LP BUILDING	Code adoption date		2019		
ENERGY EFFICIENCY REGULATORY FRAMEWORK	Type of code		Prescriptiv	e	
	Coverage of Code		New Buildi	ngs and Existing Buildings	

	TYPE OF BUILDING		Residential	Commercial	
		Thermal Transmittance (W/m².K)	t	✓	
		Thermal Transmittance: Roof U-value (W/m².K)	0.35	0.35	
		Thermal Transmittance: Floors U-value (W/m ² .K)	1.3	1.3	
TECHNICAL COMPONENTS		Thermal Transmittance: External Walls U-value (W/m².K)	1.3	1.3	
	Passive Design	Thermal Transmittance: Doors U-value (W/m ² .K)	2.5	2.5	
		Maximum Solar Heat Gain Coefficient			
		Maximum Air Leakage (m³/hr.m²)			
COVERED BY BUILDING		Natural Ventilation Coverage	t	/	
REGULATIONS		Space Heating Coverage	v	*	
	нуас	Space Cooling Coverage	v	*	
		Fossil Fuel Furnace Energy Efficiency (%)			
		Heat Pump (Heating) COP (Wh/Wh)	1.8*	1.8*	
		Split AC System EER (Wh/Wh)	2.3*	2.3*	
		Fan Coverage	✓*		
	Water Heating	Fossil Fuel Water Heater EF	 ✓ 		
	Water Heating	Electric Water Heater EF	✓		
		Maximum Wattage or Lighting Allowances (Outdoor)	·	/	
(-	Lighting	Maximum Wattage or Lighting Allowances (Indoor)	·	/	
		Luminary Efficacy (Im/W)	6	5*	
		Lab Testing			
	Building Materials	Labelling			
		Independent Certification			
	Incentives	Resources to Facilitate Compliance			
	and Resources	Financial Incentives			

Bahrain, Manama

			3			
1,472,233 Population	564,631 City population	D	ely hot, ry te Zone fication	334% Average urban growth (2010-2020)		High me group
	Building Energy Efficie Main Source of Manda		Green Build	ling Manual (Law 212, 2019))	
BUILDING	Code adoption date		2019			
ENERGY EFFICIENCY	Type of code		Combinatio	on (Prescriptive/Performanc	ce-based)	
REGULATORY FRAMEWORK	Coverage of Code		New Buildir	ngs and Existing Buildings		
	TYPE OF BUILDING				Residential	Commercial
		Thermal Transn	nittance (W/m².	K)	v	/
		Thermal Transmittance: Roof U-value (W/m ² .K)			0.30	0.30
		Thermal Transn	nittance: Floors	U-value (W/m ² .K)		
	Passive Design	Thermal Transn	nittance: Externa	al Walls U-value (W/m².K)	0.57	0.57
		Thermal Transmittance: Doors U-value (W/m ² .K)				
TECHNICAL		Maximum Solar	Heat Gain Coe	fficient		
COMPONENTS		Maximum Air Lo	eakage (m³/hr.n	10.0	10.0	
COVERED BY		Natural Ventilation Coverage			v	
BUILDING REGULATIONS		Space Heating	Coverage			
		Space Cooling Coverage			v	
	нуас	Fossil Fuel Furnace Energy Efficiency (%)				
	HVAC	Heat Pump (Heating) COP (Wh/Wh)				
		Split AC System EER (Wh/Wh)				
		Fan Coverage				
	Water Heating	Fossil Fuel Wate	er Heater EF			
		Electric Water H	leater EF			
		Maximum Watt	age or Lighting <i>i</i>	Allowances (Outdoor)	v	/
	Lighting	Maximum Watt	age or Lighting	Allowances (Indoor)		
		Luminary Effica	cy (lm/W)		15	50
	Building	Lab Testing				
	Materials	Labelling				
		Independent Ce	rtification			
	Incentives and Resources	Resources to Fa		ance	Operator or r guides or	
		Financial Incent		esian Directive requirements, Unles		

Bangladesh, Dhaka

			E)				
171,186,372 Population	19,578,421 City population	Hu Climat	ely hot, mid te Zone fication	335% Average urban growth (2010–2020)		er middle me group	
	Building Energy Efficie Main Source of Manda		Bangladesh	National Building Code 20	20 (BNBC 202	0)	
BUILDING	Code adoption date		2020				
ENERGY EFFICIENCY	Type of code		Prescriptive				
REGULATORY FRAMEWORK	Coverage of Code		New Building	gs			
	TYPE OF BUILDING				Residential	Commercial	
		Thermal Transm	nittance (W/m².K	()	·	/	
		Thermal Transm	Thermal Transmittance: Roof U-value (W/m ² .K)			0.58	
	Passive Design	Thermal Transm	nittance: Floors l	J-value (W/m².K)	1.2	1.2	
		Thermal Transm	nittance: Externa	l Walls U-value (W/m².K)			
		Thermal Transm	nittance: Doors L	J-value (W/m².K)			
		Maximum Solar	· Heat Gain Coeff	ficient	0.85	0.85	
TECHNICAL COMPONENTS		Maximum Air Le	eakage (m³/hr.m	²)			
COVERED BY		Natural Ventilation Coverage			v	1	
BUILDING		Space Heating Coverage					
REGULATIONS		Space Cooling (Coverage				
		Fossil Fuel Furnace Energy Efficiency (%)					
	HVAC	Heat Pump (Heating) COP (Wh/Wh)					
		Split AC System EER (Wh/Wh)					
		Fan Coverage					
C C		Fossil Fuel Wate	er Heater EF				
	Water Heating	Electric Water H	leater EF				
		Maximum Watta	age or Lighting A	llowances (Outdoor)			
(-)	Lighting	Maximum Watta	age or Lighting A	llowances (Indoor)			
		Luminary Effica	cy (lm/W)				
		Lab Testing					
	Building Materials	Labelling					
		Independent Ce	rtification				
	Incentives and Resources	Resources to Fa	acilitate Complia	nce	Consumer databases efficient a	for energy	
		Financial Incent	lives		Tax Credits o	or deductions	

Belgium, Brussels

			5			
11,685,814 Population	2,049,510 City population	Climat	Humid te Zone fication	63% Average urban growth (2010-2020)		ligh ome group
	Building Energy Efficie Main Source of Manda	-	Regulation	on Buildings Energy Perfor	nance (PEB)	
BUILDING	Code adoption date		2007			
ENERGY EFFICIENCY	Type of code		Combinatio	on (Prescriptive/Performand	ce-based)	
REGULATORY FRAMEWORK	Coverage of Code		New Buildi	ngs and Existing Buildings		
	TYPE OF BUILDING				Residential	Commercial
		Thermal Transm	mittance (W/m².K)			
	Passive Design	Thermal Transm	nittance: Roof l	J-value (W/m².K)	0.24	0.24
		Thermal Transm	nittance: Floors	s U-value (W/m².K)	0.24	0.24
		Thermal Transmittance: External Walls U-value (W/m².K)			0.24	0.24
		Thermal Transmittance: Doors U-value (W/m ² .K)			2.0	2.0
TECHNICAL		Maximum Solar Heat Gain Coefficient				
COMPONENTS		Maximum Air Leakage (m³/hr.m²)				
COVERED BY BUILDING		Natural Ventilati	ion Coverage			
REGULATIONS		Space Heating (Coverage		v	*
		Space Cooling (Coverage		v	*
	HVAC	Fossil Fuel Furn	ace Energy Effi	iciency (%)		
		Heat Pump (Hea	ating) COP (Wh	n/Wh)	2.6	2.6
		Split AC System	EER (Wh/Wh)		2.3*	2.3*
		Fan Coverage			V	
	Water Heating	Fossil Fuel Wate				*
		Electric Water H			V	*
				Allowances (Outdoor)		
	Lighting			Allowances (Indoor)		- ≁
		Luminary Efficat	cy (Im/W)		6	5*
		Lab Testing				•

Some European countries that are members of the European Union are mandated to follow the European Ecodesign Directive requirements. Unless a country expresses specific requirements in its code, the dataset provides the European required value. An asterisk (*) indicates that the datapoint corresponds to a European requirement.

Resources to Facilitate Compliance

Independent Certification

Financial Incentives

Labelling

Building

Materials

Incentives and Resources ...

Brunei Darussalam, Bandar Seri Begwan

			5		(
449,002 Population	40,781 City population	Extremely hot, Humid Climate Zone Classification		Average urban growth		High ome group	
, ŢŢŢ		Iding Energy Efficiency Code or in Source of Mandatory Standards Building Guidelines and Requirements, 4 12:2017)			s, 4th edition: 2017 (PBD		
BUILDING	Code adoption date		2017				
ENERGY EFFICIENCY	Type of code						
REGULATORY FRAMEWORK	Coverage of Code						
	TYPE OF BUILDING				Residential	Commercial	
	TTPE OF BOILDING		··· ()		Residential	Commercial	
		Thermal Transm	•				
		Thermal Transm					
	Passive Design			U-value (W/m ² .K)			
				al Walls U-value (W/m ² .K)			
				U-value (W/m ² .K)			
TECHNICAL		Maximum Solar Heat Gain Coefficient Maximum Air Leakage (m ³ /hr.m ²)					
COMPONENTS COVERED BY							
BUILDING		Natural Ventilation Coverage			~		
REGULATIONS		Space Heating Coverage					
	L	Space Cooling Coverage					
(🖷	HVAC	Fossil Fuel Furnace Energy Efficiency (%)					
	ſ	Heat Pump (Heating) COP (Wh/Wh)					
		Split AC System EER (Wh/Wh) Fan Coverage					
		Fossil Fuel Wate	er Heater FF				
	Water Heating	Electric Water H					
	Ĺ			Allowances (Outdoor)			
(-)				Allowances (Indoor)			
		Luminary Efficad					
		Lab Testing					
	Building Materials	Labelling					
<u> </u>	Waterials	Independent Cer	rtification				
	Incentives	Resources to Fa	cilitate Complia	ance		guides for nd engineers	
	and Resources	Financial Incent	ives				

Bulgaria, Sofia

			5			
6,465,097 Population	1,272,418 City population	Climat	Humid Te Zone fication	-18% Average urban growth (2010-2020)		er middle me group
	Building Energy Efficie Main Source of Manda		Energy Effic	ciency Act		
BUILDING	Code adoption date		2015			
ENERGY EFFICIENCY	Type of code		Combinatio	on (Prescriptive/Performanc	ce-based)	
REGULATORY FRAMEWORK	Coverage of Code		New Buildings and Existing Buildings			
	TYPE OF BUILDING				Residential	Commercial
-		Thermal Transn	nittance (W/m².	К)	v	/
-		Thermal Transmittance: Roof U-value (W/m ² .K)			0.25	
(Ird	Passive Design	Thermal Transmittance: Floors U-value (W/m ² .K)			0.25	
		Thermal Transn	nittance: Extern	al Walls U-value (W/m².K)	0.35	
		Thermal Transn	nittance: Doors	U-value (W/m².K)	2.5	
		Maximum Solar	Heat Gain Coe	fficient		
TECHNICAL		Maximum Air Le	eakage (m³/hr.n	n²)		
COMPONENTS		Natural Ventilat	ion Coverage			
COVERED BY		Space Heating (V	' *		
BUILDING REGULATIONS		Space Cooling Coverage			V	*
	HVAC	Fossil Fuel Furnace Energy Efficiency (%)				
	HVAC	Heat Pump (Heating) COP (Wh/Wh)			1.8*	1.8*
		Split AC System EER (Wh/Wh)			2.3*	2.3*
		Fan Coverage			V	*
	Water Heating	Fossil Fuel Wate	er Heater EF		v	/
	Water Heating	Electric Water H	leater EF		v	/
		Maximum Watta	age or Lighting	Allowances (Outdoor)		
(-)	Lighting	Maximum Watta	age or Lighting	Allowances (Indoor)		
		Luminary Effica	cy (Im/W)		6	5
		Lab Testing				
	Building Materials	Labelling				
		Independent Ce	rtification			
		Resources to Fa	cilitate Complia	ance	Trainings fo stakeh	
	Incentives and Resources	Financial Incentives			Financing from the Energy Efficiency and Renewable Sources Fund or from other financial intermediaries	

Canada, Toronto

			5			
38,929,902 Population	6,082,425 City population	Climat	Humid te Zone fication	116% Average urban growth (2010-2020)		ligh me group
	Building Energy Efficie Main Source of Manda		Toronto Gr	een Standard Version 4		
BUILDING	Code adoption date		1997			
ENERGY EFFICIENCY	Type of code		Combinatio	on (Prescriptive/Performand	ce-based)	
REGULATORY FRAMEWORK	Coverage of Code		New Buildin	ngs		
	TYPE OF BUILDING				Residential	Commercial
		Thermal Transn	nittance (W/m².	К)	V	•
		Thermal Transn	nittance: Roof L	J-value (W/m².K)	0.16	0.16
		Thermal Transmittance: Floors U-value (W/m ² .K)			0.18	0.18
	Passive Design	Thermal Transn	nittance: Extern	al Walls U-value (W/m².K)		
		Thermal Transmittance: Doors U-value (W/m ² .K)			2.0	1.9
		Maximum Solar Heat Gain Coefficient			0.30	
TECHNICAL		Maximum Air Leakage (m³/hr.m²)				
COMPONENTS COVERED BY		Natural Ventilat	ion Coverage		V	•
BUILDING		Space Heating Coverage			V	•
REGULATIONS	нуас	Space Cooling Coverage			V	•
		Fossil Fuel Furnace Energy Efficiency (%)		0.95	0.95	
	HVAC	Heat Pump (Heating) COP (Wh/Wh)				3.2
		Split AC System EER (Wh/Wh)			2.9	
		Fan Coverage			V	
	Water Heating	Fossil Fuel Water Heater EF		v		
	Water Heating	Electric Water H	leater EF			
		Maximum Watta	age or Lighting	Allowances (Outdoor)	V	•
	Lighting	Maximum Watta	age or Lighting	Allowances (Indoor)	V	•
		Luminary Effica	cy (lm/W)		10	0
		Lab Testing				
	Building Materials	Labelling				
		Independent Ce	rtification			
	Incentives	Resources to Fa	acilitate Compli	ance	Designer g architects an	d engineers
	and Resources	Financial Incentives			Grants; Fee Waivers; Rebates; Loans; Preferential utility rates	

Chile, Santiago

19,603,733 Population	6,680,37 City populatio	n Clima ⁻	n, Dry 115% te Zone fication (2010–2020)		High ncome group	
ŢŢŢ		fficiency Code or landatory Standards	Energy Efficiency Law (No. 2130	5)		
BUILDING	Code adoption da	ite	2021			
ENERGY EFFICIENCY	Type of code		Performance-based			
REGULATORY FRAMEWORK	Coverage of Code	9	New Buildings			
	TYPE OF BUILDING	i		Residential	Commercial	
		Thermal Transmittan	ice (W/m².K)		/	
			ice: Roof U-value (W/m².K)			
			ice: Floors U-value (W/m ² .K)			
(Descine		ice: External Walls U-value (W/m ² .K)			
	Passive Design		ice: Doors U-value (W/m ² .K)			
		Maximum Solar Heat	· · · ·	 0.87		
TEOLINIIOAL		Maximum Air Leakag		20.4		
TECHNICAL COMPONENTS				20.4		
COVERED BY		Natural Ventilation Coverage Space Heating Coverage				
BUILDING	нуас	Space Cooling Coverage				
REGULATIONS		Fossil Fuel Furnace E	-	•	•	
		Heat Pump (Heating)				
		Split AC System EER				
		Fan Coverage	(,			
	Water	Fossil Fuel Water Heater EF				
	Heating	Electric Water Heater	r EF			
		Maximum Wattage o	r Lighting Allowances (Outdoor)			
(-)	Lighting	Maximum Wattage o	r Lighting Allowances (Indoor)			
		Luminary Efficacy (In	n/W)			
		Lab Testing		·	/	
	Building Materials	Labelling		·	/	
		Independent Certifica	ation	·	/	
	Incentives and Resources	Resources to Facilita	te Compliance	Designer guides for architects and engineers; Operator or maintenance guides or manuals; Occupant guides for HVAC or lighting systems; Consumer guides or databases for energy efficient appliances; Trainings for any of the stakeholders		
		Financial Incentives			ints	

China, Beijing

1,412,175,000 Population	19,617,9 City populatio	n Clima	Humid 271% te Zone fication Average urban gr (2010-2020)	owth li	per middle
ŢŢŢ		Efficiency Code or Andatory Standards	General Specifications for Buildi Renewable Energy Utilization (G		vation and
BUILDING	Code adoption da	ate	2021		
ENERGY EFFICIENCY	Type of code		Prescriptive		
REGULATORY FRAMEWORK	Coverage of Cod	e	New Buildings and Existing Build	lings	
	TYPE OF BUILDING	;		Residential	Commercial
		Thermal Transmittan	ce (W/m².K)		/
			ce: Roof U-value (W/m².K)	0.25	0.55
			ce: Floors U-value (W/m ² .K)	1.5	1.0
	Passive	Thermal Transmittance: External Walls U-value (W/m ² .K)		0.45	0.60
	Design		ce: Doors U-value (W/m ² .K)	2.0	
		Maximum Solar Heat	· · · · ·		
TECHNICAL COMPONENTS		Maximum Air Leakag			
COVERED BY		Natural Ventilation Coverage		·· ·· ··	
BUILDING		Space Heating Cover			
REGULATIONS	нуас	Space Cooling Coverage		~	
لم		Fossil Fuel Furnace Energy Efficiency (%)		0.80	0.80
				4.3	4.3
		Heat Pump (Heating) COP (Wh/Wh)		2.95	2.95
		Split AC System EER (Wh/Wh)		2.95	2.95
لم		Fan Coverage Fossil Fuel Water Heater EF		 ✓	
()	Water Heating	Electric Water Heater		·	
			Lighting Allowances (Outdoor)		
	- Lighting	_		V V	
	Lighting	Luminary Efficacy (In	r Lighting Allowances (Indoor)	·	·
		Lab Testing	// VV)		
	Building	Labelling			
	Materials	Independent Certifica	tion	•	
	Incentives and Resources	Resources to Facilita	Designer guides for architects and engineers; Operator or maintenance guides or manuals; Occupant guides for HVAC or lighting systems; Consumer guides or databases for energy efficient appliances		
		Financial Incentives		Gra	nts

Colombia, Bogota

			5		(
51,874,024	10,574,409	Warm,	Humid	157%	Uppe	er middle
Population	City population	•	te Zone fication	Average urban growth (2010-2020)	Inco	ome group
	Building Energy Efficie Main Source of Manda	-		of the Ministry of Housing, No. 0549 of 2015)	City, and Territ	ory of
BUILDING	Code adoption date		2015			
ENERGY EFFICIENCY	Type of code		Combinatio	on (Prescriptive/Performan	ce-based)	
REGULATORY FRAMEWORK	Coverage of Code		New Buildin	ngs		
	TYPE OF BUILDING				Residential	Commercial
		Thermal Transm	nittance (W/m ² .	К)		
		Thermal Transm	nittance: Roof L	J-value (W/m².K)		

		Thermal Transmittance (W/m ² .K)		
		Thermal Transmittance: Roof U-value (W/m ² .K)		
		Thermal Transmittance: Floors U-value (W/m ² .K)		
		Thermal Transmittance: External Walls U-value (W/m².K)		
TECHNICAL	Passive Design	Thermal Transmittance: Doors U-value (W/m ² .K)		
		Maximum Solar Heat Gain Coefficient	0.60	0.60
		Maximum Air Leakage (m³/hr.m²)		
COMPONENTS COVERED BY		Natural Ventilation Coverage		
BUILDING REGULATIONS		Space Heating Coverage		
		Space Cooling Coverage	V	,
		Fossil Fuel Furnace Energy Efficiency (%)		
	НУАС	Heat Pump (Heating) COP (Wh/Wh)		
		Split AC System EER (Wh/Wh)	2.79	2.79
		Fan Coverage		
		Fossil Fuel Water Heater EF		
	Water Heating	Electric Water Heater EF		
		Maximum Wattage or Lighting Allowances (Outdoor)		
(-)	Lighting	Maximum Wattage or Lighting Allowances (Indoor)		
		Luminary Efficacy (Im/W)		
		Lab Testing		
	Building Materials	Labelling		
	Materials	Independent Certification		
(8	Incentives and Resources	Resources to Facilitate Compliance	Designer guides for architects and engineers; Operator or maintenance guides or manuals	
		Financial Incentives	Tax Credits of	r deductions

Costa Rica, San Jose

			(
5,180,829 Population	1,357,745 City population	Hot, Humid226%Climate Zone ClassificationAverage urban growth (2010-2020)		er middle ome group
J	Building Energy Efficie Main Source of Manda	Lirective of Ministry of Environment an	nd Energy (No.	011-MINAE)
	Code adoption date	2019		
ENERGY	Type of code			
REGULATORY	Coverage of Code			
TRAMEWORK	coverage of code			
	TYPE OF BUILDING		Residential	Commercial
		Thermal Transmittance (W/m².K)		
	Passive Design	Thermal Transmittance: Roof U-value (W/m ² .K)		
		Thermal Transmittance: Floors U-value (W/m ² .K)		
		Thermal Transmittance: External Walls U-value (W/m ² .K)		
		Thermal Transmittance: Doors U-value (W/m ² .K)		
TEOLINICAL		Maximum Solar Heat Gain Coefficient		
TECHNICAL COMPONENTS		Maximum Air Leakage (m ³ /hr.m ²)		
COVERED BY		Natural Ventilation Coverage		
BUILDING REGULATIONS		Space Heating Coverage		
REGULATIONS		Space Cooling Coverage		
	нуас	Fossil Fuel Furnace Energy Efficiency (%)		
		Heat Pump (Heating) COP (Wh/Wh)		
		Split AC System EER (Wh/Wh)		
		Fan Coverage		
(Water Heating	Fossil Fuel Water Heater EF		
	water Heating	Electric Water Heater EF		
		Maximum Wattage or Lighting Allowances (Outdoor)		•
(-)	Lighting	Maximum Wattage or Lighting Allowances (Indoor)		
		Luminary Efficacy (Im/W)		
		Lab Testing		
	Building Materials	Labelling		
		Independent Certification		
	Incentives and Resources	Resources to Facilitate Compliance		guides for nd engineers
	and Resources	Financial Incentives	Loans	

Croatia, Zagreb

			5)			
3,855,600 Population	685,587 City population	Climat	Humid e Zone fication	-40% Average urban growth (2010-2020)		High me group
<u>ا</u>	Building Energy Efficie Main Source of Manda		Law on Ene	ergy Efficiency		
LP BUILDING	Code adoption date		2021			
ENERGY EFFICIENCY	Type of code		Combinatio	on (Prescriptive/Performanc	ce-based)	
REGULATORY FRAMEWORK	Coverage of Code		New Buildir	ngs and Existing Buildings		
	TYPE OF BUILDING				Residential	Commercial
-		Thermal Transm	nittance (W/m².	К)	·	/
		Thermal Transm	nittance: Roof U	I-value (W/m².K)	0.25	0.25
		Thermal Transmittance: Floors U-value (W/m ² .K)			0.40	0.40
	Passive Design	Thermal Transm	nittance: Extern	al Walls U-value (W/m².K)	0.30	0.30
		Thermal Transm	nittance: Doors	U-value (W/m².K)	2.0	2.0
		Maximum Solar	Heat Gain Coe	fficient	0.87	0.87
TECHNICAL		Maximum Air Le	akage (m³/hr.n	n²)		
TECHNICAL COMPONENTS		Natural Ventilation Coverage				
COVERED BY		Space Heating Coverage			V	*
BUILDING	нуас	Space Cooling Coverage			v	
REGULATIONS		Fossil Fuel Furnace Energy Efficiency (%)				
		Heat Pump (Heating) COP (Wh/Wh)		1.8*	1.8*	
		Split AC System EER (Wh/Wh)			2.3*	2.3*
-		Fan Coverage			L	1
		Fossil Fuel Wate	er Heater EF			/
	Water Heating	Electric Water H			ŀ	
			Maximum Wattage or Lighting Allowances (Outdoor)			/
(Lighting			Allowances (Indoor)	·	/
		Luminary Efficad			6	5*
		Lab Testing				
	Building	Labelling			L.	/
	Materials	Independent Ce	rtification		t	/
(2	Incentives and Resources		acilitate Compliance		Trainings for any of the stakeholders; Consumer guides or databases for energy efficient appliances; Occupant guides for HVAC or lighting systems	
		Financial Incent		esign Directive requirements. Unles	Grants	

Cyprus, Nicosia

			5		(
1,251,488 Population	269,469 City population	Climat	Humid te Zone fication	74% Average urban growth (2010-2020)		High ome group	
, ŢŢŢ	Building Energy Efficie Main Source of Mand		Energy Per	rformance of Buildings Law	(L.142 (I)/2006	5)	
L₽ BUILDING	Code adoption date		2006				
ENERGY EFFICIENCY	Type of code		Combinati	on (Prescriptive/Performanc	ce-based)		
REGULATORY FRAMEWORK	Coverage of Code		New Build	ings and Existing Buildings			
	TYPE OF BUILDING				Residential	Commercial	
		Thermal Transm	nittance (W/m ²	².K)		/	
		Thermal Transm	nittance: Roof	U-value (W/m².K)	0.40	0.40	
		Thermal Transmittance: Floors U-value (W/m ² .K)			0.40	0.40	
	Passive Design	Thermal Transm	nittance: Exterr	nal Walls U-value (W/m².K)	0.40	0.40	
		Thermal Transm	nittance: Doors	s U-value (W/m².K)	2.3	2.3	
		Maximum Solar	Heat Gain Co	efficient			
TECHNICAL		Maximum Air Leakage (m³/hr.m²)					
		Natural Ventilation Coverage					
COVERED BY BUILDING		Space Heating Coverage			✓*		
REGULATIONS	ниас	Space Cooling Coverage			✓*		
		Fossil Fuel Furnace Energy Efficiency (%)					
		Heat Pump (Heating) COP (Wh/Wh)			1.8*	1.8*	
		Split AC System EER (Wh/Wh)			2.3*	2.3*	
		Fan Coverage			v	/*	
		Fossil Fuel Water Heater EF			✓*		
	Water Heating	Electric Water Heater EF			v	/*	
		Maximum Watta	age or Lighting	Allowances (Outdoor)			
(-)	Lighting	Maximum Watta	age or Lighting	Allowances (Indoor)			
		Luminary Effica			6	5*	
		Lab Testing					
	Building Materials	Labelling					
		Independent Ce	rtification				
	Incentives and Resources	Resources to Facilitate Compliance			Designer guides for architects and engineers; Trainings for any of the stakeholders		
		Financial Incent	ives		Gra	ints	

Czechia, Prague

)	
10,672,118 Population	1,291,5 City populati	on Climat	Humid 31% e Zone Average urban g fication (2010–2020		High Income group
Ţ <u></u>		Efficiency Code or Mandatory Standards	Energy Management Act (No. 4 Energy Performance of Building		
	Code adoption o	late	2000		
BUILDING ENERGY EFFICIENCY	Type of code		Combination (Prescriptive/Perf	ormance-based)	
REGULATORY FRAMEWORK	Coverage of Coo	le	New Buildings and Existing Buil	dings	
	TYPE OF BUILDIN	G		Residential	Commercial
		Thermal Transmittance	e (W/m².K)		/
			e: Roof U-value (W/m ² .K)	0.30	0.30
			e: Floors U-value (W/m ² .K)	0.60	0.60
Ć	Passive		e: External Walls U-value (W/m².K)	0.60	0.60
	Design		e: Doors U-value (W/m ² .K)	3.5	3.5
		Maximum Solar Heat (· · · ·		
TECHNICAL		Maximum Air Leakage			
COMPONENTS COVERED BY		Natural Ventilation Coverage			· · · ·
BUILDING		Space Heating Coverage		V	
REGULATIONS		Space Cooling Coverage	-	v V	
	HVAC	Fossil Fuel Furnace Energy Efficiency (%)			
		Heat Pump (Heating) COP (Wh/Wh)		 3.0	 3.0
		Split AC System EER (Wh/Wh)		2.3*	2.3*
		Fan Coverage		2.3 [^] 2.3 [^]	
	Weter	Fossil Fuel Water Heater EF		с 	
	Water Heating	Electric Water Heater E			
S		Maximum Wattage or Lighting Allowances (Outdoor)		 ✓ 	
	Lighting		Lighting Allowances (Indoor)		···
		Luminary Efficacy (Im/			5*
		Lab Testing	,		
	Building	Labelling			
	Materials	Independent Certificat	ion		
	Incentives and Resources	Resources to Facilitate		and engined for any of the Consumer guid for energy effic Occupant guid lighting system	es for architects ers; Trainings e stakeholders; les or databases cient appliances; des for HVAC or ms; Operator or nce guides
		Financial Incentives		Grants	; Loans

Denmark, Copenhagen

5,903,037 Population 1,320,826 Lity population Cool, Humid Climate Zone Classification 64% Average urban growth (2010-2020) High Income group Image: Display the second sec
Main Source of Mandatory Standards Executive Order on Building Regulations 2018 (BR18) BUILDING ENERGY EFFICIENCY REGULATORY FRAMEWORK Code adoption date 2018 Type of code Combination (Prescriptive/Performance-based) Coverage of Code New Buildings and Existing Buildings TYPE OF BUILDING ENERGY EFFICIENCY REGULATORY FRAMEWORK Thermal Transmittance (W/m².K) 0.20 Overage of Code Thermal Transmittance (W/m².K) 0.20 Thermal Transmittance: Roof U-value (W/m².K) 0.20 0.20 Thermal Transmittance: Roof U-value (W/m².K) 0.20 0.20 Thermal Transmittance: External Walls U-value (W/m².K) 0.20 0.20 Thermal Transmittance: Doors U-value (W/m².K) 0.20 0.20 Thermal Transmittance: Doors U-value (W/m².K) 0.4 1.4 Maximum Solar Heat Gain Coefficient 0.50 0.50 Maximum Air Leakage (m³/hr.m²) Natural Ventilation Coverage ✓ Space Cooling Coverage ✓
BolLDING EFFICIENCY REGULATORY FRAMEWORK Combination (Prescriptive/Performance-based) New Buildings and Existing Buildings TYPE OF BUILDING Passive Design Thermal Transmittance (W/m ² .K) Commercial Thermal Transmittance (W/m ² .K) Commercial Thermal Transmittance: Roof U-value (W/m ² .K) 0.20 Thermal Transmittance: Floors U-value (W/m ² .K) 0.20 Thermal Transmittance: External Walls U-value (W/m ² .K) 0.20 Thermal Transmittance: Doors U-value (W/m ² .K) 0.20 Thermal Transmittance: Boors U-value (W/m ² .K)

Ecuador, Quito

REGULATIONS

HVAC

Water Heating

Lighting

Building

Materials

Incentives and Resources

18,001,000 Population	1,822,397 City population	Climat	Humid e Zone fication	1.8%* Average urban growth (2010-2020)		er middle
	Building Energy Efficie Main Source of Manda	•	Technical	Rule on the Building Standar	ď	
	Code adoption date		2013			
ENERGY EFFICIENCY	Type of code		Combinati	on (Prescriptive/Performanc	ce-based)	
REGULATORY FRAMEWORK	Coverage of Code		New Buildi	ngs		
	TYPE OF BUILDING				Residential	Commercial
		Thermal Transm	nittance (W/m ²	.К)	·	/
		Thermal Transm	nittance: Roof l	U-value (W/m².K)	0.27	0.27
(Ire		Thermal Transm	nittance: Floors	s U-value (W/m².K)	0.50	0.50
		Thermal Transmittance: External Walls U-value (W/m².K)		0.50	0.59	
	Passive Design	Thermal Transm	nittance: Exterr	nal Walls U-value (W/m².K)	0.59	0.39
	Passive Design			nal Walls U-value (W/m².K) U-value (W/m².K)	2.8	2.8
	Passive Design		nittance: Doors	U-value (W/m².K)		
TECHNICAL COMPONENTS	Passive Design	Thermal Transm	hittance: Doors Heat Gain Coe	efficient	2.8	2.8
	Passive Design	Thermal Transm Maximum Solar	hittance: Doors Heat Gain Coe eakage (m³/hr.)	efficient	2.8 0.25	2.8 0.25

Space Heating Coverage Space Cooling Coverage

Fossil Fuel Furnace Energy Efficiency (%)

Maximum Wattage or Lighting Allowances (Outdoor)

Maximum Wattage or Lighting Allowances (Indoor)

Heat Pump (Heating) COP (Wh/Wh)

Split AC System EER (Wh/Wh)

Fossil Fuel Water Heater EF

Electric Water Heater EF

Luminary Efficacy (Im/W)

Independent Certification

Financial Incentives

Fan Coverage

Lab Testing

Labelling

Some European countries that are members of the European Union are mandated to follow the European Ecodesign Directive requirements. Unless a country expresses specific requirements in its code, the dataset provides the European required value. An asterisk (*) indicates that the datapoint corresponds to a European requirement.

Resources to Facilitate Compliance

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El Salvador, San Salvador

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6,336,392 Population	1,106,698 City population	Extremely hot Humid Climate Zone Classification	Average urban growth (2010–2020)		er middle ome group
Î	Building Energy Efficie Main Source of Manda	BIS / Y	0.02.01-21		
	Code adoption date	2001			
ENERGY EFFICIENCY	Type of code				
REGULATORY FRAMEWORK	Coverage of Code				
	TYPE OF BUILDING			Residential	Commercial
		Thermal Transmittance (W	//m².K)		
		Thermal Transmittance: Ro	oof U-value (W/m².K)		
	Passive Design	Thermal Transmittance: Flo	oors U-value (W/m².K)		
		Thermal Transmittance: Ex	ternal Walls U-value (W/m².K)		
Le la		Thermal Transmittance: Do	oors U-value (W/m².K)		
		Maximum Solar Heat Gain	Coefficient		
TECHNICAL		Maximum Air Leakage (m ³	/hr.m²)		
COMPONENTS COVERED BY		Natural Ventilation Coverage			
BUILDING		Space Heating Coverage			
REGULATIONS		Space Cooling Coverage			
		Fossil Fuel Furnace Energy			
	HVAC	Heat Pump (Heating) COP			
		Split AC System EER (Wh/\			
		Fan Coverage			
(2.	Fossil Fuel Water Heater E			
	Water Heating	Electric Water Heater EF			
		Maximum Wattage or Ligh	ting Allowances (Outdoor)		
(-	Lighting	Maximum Wattage or Ligh	ting Allowances (Indoor)		
		Luminary Efficacy (lm/W)	• • • •	6	0
		Lab Testing			
	Building Materials	Labelling			
		Independent Certification			
	Incentives and Resources	Resources to Facilitate Cor	mpliance	architects ar Trainings fo	guides for nd engineers; or any of the nolders
		Financial Incentives			

Estonia, Tallinn

1,348,840 Population	437,02 City population	on Clima	Humid11%te Zone ficationAverage urban gr (2010-2020)		High
		Efficiency Code or Mandatory Standards	Minimum Requirements for Ene	rgy Performance	of Buildings
BUILDING	Code adoption d	ate	2017		
ENERGY EFFICIENCY	Type of code		Performance-based		
REGULATORY FRAMEWORK	Coverage of Coo	le	New Buildings and Existing Buil	dings	
	TYPE OF BUILDIN	G		Residential	Commercial
		Thermal Transmittan	ce (W/m².K)		
		Thermal Transmittan	ce: Roof U-value (W/m².K)		
		Thermal Transmittan	ce: Floors U-value (W/m².K)		
	Passive	Thermal Transmittan	ce: External Walls U-value (W/m².K)		
	Design	Thermal Transmittan	ce: Doors U-value (W/m ² .K)		
TEOLINIAA		Maximum Solar Heat	Gain Coefficient		
TECHNICAL COMPONENTS		Maximum Air Leakag	e (m³/hr.m²)		
COVERED BY		Natural Ventilation Co			
BUILDING		Space Heating Coverage		✓*	
REGULATIONS		Space Cooling Coverage		∕*	
		Fossil Fuel Furnace E	nergy Efficiency (%)		
	HVAC	Heat Pump (Heating)	COP (Wh/Wh)	1.8*	1.8*
		Split AC System EER	(Wh/Wh)	2.3*	2.3*
		Fan Coverage		v	/*
C	Water	Fossil Fuel Water Hea	nter EF	v	/*
	Heating	Electric Water Heater	EF	v	/*
>		Maximum Wattage or	· Lighting Allowances (Outdoor)		
(-	Lighting	Maximum Wattage or	Lighting Allowances (Indoor)		
		Luminary Efficacy (Im	/W)	6	5*
		Lab Testing		•	/
	Building Materials	Labelling		ı	/
3		Independent Certifica	tion	•	/
	Incentives and Resources	Resources to Facilitat	te Compliance	liance Designer guides for architect and engineers; Operator or maintenance guides or manua Occupant guides for HVAC o lighting systems; Consumer guides or databases for energy efficient appliances; Trainings any of the stakeholders	
		Financial Incentives		Grants	; Loans

Finland, Helsinki

5,556,106 1,279,096 City population	Cold, Humid52%HighClimate Zone ClassificationAverage urban growth (2010-2020)Income group
Building Energy Efficiency Code Main Source of Mandatory Stan	
BUILDING Code adoption date	2017
ENERGY Type of code	Performance-based
EFFICIENCY Type of Code REGULATORY Coverage of Code FRAMEWORK Coverage of Code	New Buildings and Existing Buildings
TYPE OF BUILDING	Residential Commercial
Thermal Tran	smittance (W/m².K)
	smittance: Roof U-value (W/m².K) 0.09 0.09
	smittance: Floors U-value (W/m ² .K) 0.09 0.09
	smittance: External Walls U-value (W/m ² .K) 0.09 0.09
	smittance: Doors U-value (W/m ² .K) 1.0 1.0
	ar Heat Gain Coefficient 0.85 0.85
	Leakage (m ³ /hr.m ²) 4.0 4.0
TEOLINIOAL	ation Coverage
COMPONENTS Space Heatin	-
COVERED BY BUILDING Space Coolin	
	rnace Energy Efficiency (%) 0.80 0.80
	leating) COP (Wh/Wh) 1.8* 1.8*
	em EER (Wh/Wh) 2.3* 2.3*
Fan Coverage	
	ater Heater EF
Heating Electric Wate	
Maximum Wa	ttage or Lighting Allowances (Outdoor)
	ttage or Lighting Allowances (Indoor)
Luminary Effi	
Lab Testing	
Building Materials	
Independent	Certification
Incentives and Resources	Facilitate Compliance Facilitate Compliance
Financial Ince	entives Grants

France, Paris

			3		(
67,971,311 Population	10,900,952 City population	Climat	Humid te Zone fication	68% Average urban growth (2010-2020)		High ome group
	Building Energy Efficie Main Source of Manda	· · · · · · · · · · · · · · · · · · ·	Environmer	ntal Regulation 2020 (RE 20	20)	
	Code adoption date		2020			
ENERGY EFFICIENCY	Type of code		Performanc	ce-based		
REGULATORY FRAMEWORK	Coverage of Code		New Buildir	ngs and Existing Buildings		
	TYPE OF BUILDING				Residential	Commercial
		Thermal Transn	nittance (W/m².	К)		
	Passive Design			-value (W/m².K)		
		Thermal Transmittance: Floors U-value (W/m ² .K)				
6		Thermal Transmittance: External Walls U-value (W/m ² .K)				
				U-value (W/m².K)		
		Maximum Solar				
TECHNICAL COMPONENTS		Maximum Air Lo				
COVERED BY		Natural Ventilation Coverage				/
BUILDING REGULATIONS		Space Heating Coverage		V	/*	
REGULATIONS		Space Cooling Coverage		v	/*	
		Fossil Fuel Furnace Energy Efficiency (%)				
	HVAC	Heat Pump (Heating) COP (Wh/Wh)			1.8*	1.8*
		Split AC System EER (Wh/Wh)		2.3*	2.3*	
		Fan Coverage			v	/*
		Fossil Fuel Wate	er Heater EF		✓*	
	Water Heating	Electric Water H	leater EF		v	/*
		Maximum Watt	age or Lighting A	Allowances (Outdoor)		
	Lighting	Maximum Watt	age or Lighting <i>i</i>	Allowances (Indoor)		
		Luminary Effica	cy (lm/W)		6	5*
		Lab Testing				
	Building Materials	Labelling				
	Materiais	Independent Ce	rtification			
	Incentives	Resources to Fa	acilitate Complia	ance		
	and Resources	Financial Incent	Financial Incentives		Tax Credits or deductions; Grants; Loans	

Georgia, Tbilisi

3,712,502 Population	1,077,333 City population	Mixed, Climat Classif			r middle me group	
	Building Energy Efficie Main Source of Manda		Resolution "On Approval of Minimun Efficiency of Buildings, Parts of Build Buildings" (No. 354 of July 13, 2021)	lings or Elements		
BUILDING	Code adoption date		2021			
ENERGY EFFICIENCY	Type of code		Combination (Prescriptive/Performa	nce-based)		
REGULATORY FRAMEWORK	Coverage of Code					
	-					
	TYPE OF BUILDING			Residential	Commercial	
		Thermal Transm	ittance (W/m².K)	v	/	
	-	Thermal Transm	ittance: Roof U-value (W/m².K)	0.30	0.30	
	Passive Design	Thermal Transm	ittance: Floors U-value (W/m².K)	0.38	0.38	
		Thermal Transm	ittance: External Walls U-value (W/m².K)	0.38	0.38	
Ľ		Thermal Transm	ittance: Doors U-value (W/m².K)	1.8	1.8	
TEOLINIIOAL		Maximum Solar	Heat Gain Coefficient			
TECHNICAL COMPONENTS		Maximum Air Le	akage (m³/hr.m²)			
COVERED BY		Natural Ventilati	on Coverage	v	/	
BUILDING REGULATIONS		Space Heating Coverage		v	/	
RECCE/(HONO		Space Cooling Coverage		v	/	
		Fossil Fuel Furna	ace Energy Efficiency (%)			
	HVAC	Heat Pump (Hea	ating) COP (Wh/Wh)	3.1	3.1	
		Split AC System	EER (Wh/Wh)	3	3	
		Fan Coverage		~		
l (Fossil Fuel Wate	r Heater EF	v	/	
	Water Heating	Electric Water H	eater EF			
		Maximum Watta	age or Lighting Allowances (Outdoor)			
(-)	Lighting	Maximum Watta	age or Lighting Allowances (Indoor)	v	1	
		Luminary Efficad	cy (Im/W)			
		Lab Testing				
	Building Materials	Labelling				
	Waterials	Independent Cer	rtification			
	Incentives and Resources	Resources to Fa	cilitate Compliance		Trainings for any of the stakeholders	
		Financial Incent	ives the European Ecodesian Directive requirements. Un	Loans;		

Germany, Berlin

83,797,985 Population 3,552,123 City oppulation Cool, Humid Climate Zone Mained Zone Code 21% Marge urban growth (2010-2007) High Income group Image Internet Building Energy Efficiency Code or Main Source of Mandatory Standards Code adoption date Buildings Energy Act (GEG) 2022 Type of code Prescriptive 2022 Type of code Prescriptive Coverage of Code New Buildings and Existing Buildings Prescriptive Coverage of Code New Buildings and Existing Buildings Image Internet Interne				3				
Main Source of Mandatory Standards Buildings Energy Act (GEG) BUILDING ENERGY EFFICIENCY REGULATORY Type of code Prescriptive Type of code New Buildings and Existing Buildings Commercial TYPE OF BUILDING Residential Commercial Thermal Transmittance: Roof U-value (W/m².K) 0.20 Thermal Transmittance: External Walls U-value (W/m².K) 0.28 Thermal Transmittance: Doors U-value (W/m².K) Thermal Transmittance: External Walls U-value (W/m².K) Thermal Transmittance: Coors U-value (W/m².K) Thermal Transmittance: External Walls U-value (W/m².K) Thermal Transmittance: External Walls U-value (W/m².K) Thermal Transmittance: External Walls U-value (W/m².K) COVERED BY BUILDING REGULATIONS Water Heat GET Water Heating Space Cooling Coverage Fossi Fuel Water Heater EF Fossi Fuel Water Heater EF Maximum Wattage or Lighting Allowances (Indoor)		· · · · ·	Climat	e Zone	Average urban growth		-	
BUILDING ENERGY REGULATORY FRAMEWORK Type of code Prescriptive Type of code Coverage of Code TYPE OF BUILDING Rescriptive Rescriptive Rescriptive Prescriptive	İ		-	Buildings E	nergy Act (GEG)			
FEECIDINCY REGULATORY FRAMEWORK Type of code New Buildings and Existing Buildings TYPE OF BUILDING Residential Commercial TYPE OF BUILDING Residential Commercial TYPE OF BUILDING Residential Commercial Thermal Transmittance (W/m²,K) 0.20 . Thermal Transmittance: Floors U-value (W/m²,K) 0.28 . TECHNICAL COMPONENTS COVERED BY BUILDING REGULATIONS Passive Design ** Maximum Air Leakage (m²/hcm²) . Natural Ventilation Coverage . Space Ecoling Coverage . Space Cooling Coverage . Space Cooling Coverage . Space Cooling Coverage . . . Water Heating . Ident funce Energy Efficiency (%) . . . Space Cooling Coverag	BUILDING	Code adoption date		2022				
New Buildings and Existing Buildings TYPE OF BUILDING Residential Commercial Thermal Transmittance (W/m².K) 0.20 Thermal Transmittance: Floors U-value (W/m².K) 0.35 Thermal Transmittance: Floors U-value (W/m².K) 0.28 Thermal Transmittance: Doors U-value (W/m².K) 0.28 Maximum Solar Heat Gain Coefficient Maximum Solar Heat Gain Coefficient Maximum Air Leakage (m²/h.m²) Natural Ventilation Coverage Space Heating Coverage Fossil Fuel Funces Energy Efficiency (%) Fan Coverage Fossil Fuel Funces Energy Efficiency (%) Electric Water Heater EF Electric Water Heater EF	EFFICIENCY	Type of code		Prescriptive	2			
Thermal Transmittance (W/m²,K) - Thermal Transmittance: Roof U-value (W/m²,K) 0.20 Thermal Transmittance: Floors U-value (W/m²,K) 0.35 Thermal Transmittance: Doors U-value (W/m²,K) 0.28 Maximum Solar Heat Gain Coefficient Maximum Xi Leakage (m²/hr.m²) Natural Ventilation Coverage Space Heating Coverage Space Cooling Coverage Fan Coverage Fan Coverage Water Heating CoOP (Wh/Wh) Spil fuel Water Heater EF Electric Water Heater EF Maximum Wattage or Lighting Allowances (Indoor) Materials Labelling Independent Certification		Coverage of Code		New Buildir	ngs and Existing Buildings			
Thermal Transmittance: Roof U-value (W/m².K) 0.20 Thermal Transmittance: Floors U-value (W/m².K) 0.35 Thermal Transmittance: Dors U-value (W/m².K) 0.28 Maximum Solar Heat Gain Coefficient Natural Ventilation Coverage Space Heating Coverage Fan Coverage Fan Coverage Fan Coverage Fan Coverage Maximum Wattage or Lighting Allowances (Outdoor) Lab Testing Lum		TYPE OF BUILDING				Residential	Commercial	
Thermal Transmittance: Floors U-value (W/m².K) 0.35 Thermal Transmittance: External Walls U-value (W/m².K) 0.28 Thermal Transmittance: Doors U-value (W/m².K) 0.28 Maximum Solar Heat Gain Coefficient Maximum Air Leakage (m³/hr.m³) Natural Ventilation Coverage Space Heating Coverage Fossil Fuel Funace Energy Efficiency (%) Heat Pump (Heating) COP (Wh/Wh) 1.8* 1.8* Split AC System EER (Wh/Wh) 2.3* 2.3* Fan Coverage Water Heating Maximum Wattage or Lighting Allowances (Indoor) Maximum Wattage or Lighting Allowances (Indoor) Labelling			Thermal Transm	nittance (W/m².	К)	v	/	
Thermal Transmittance: External Walls U-value (W/m ² .K) 0.28 Thermal Transmittance: Doors U-value (W/m ² .K) Maximum Air Leakage (m ³ /hr.m ²) Natural Ventilation Coverage Space Heating Coverage Space Cooling Coverage Fossil Fuel Funace Energy Efficiency (%) Heat Pump (Heating) COP (Wh/Wh) 1.8* 1.8* Split AC System EER (Wh/Wh) 2.3* 2.3* Fan Coverage Water Heating Maximum Wattage or Lighting Allowances (Indoor) Maximum Wattage or Lighting Allowances (Indoor) Lab Testing Labelling Independent Certification			Thermal Transm	nittance: Roof U	J-value (W/m².K)	0.20		
Thermal Transmittance: Doors U-value (W/m².K) . TECHNICAL COMPONENTS COVERED BY BUILDING REGULATIONS Natural Ventilation Coverage Natural Ventilation Coverage Space Heating Coverage Space Cooling Coverage Vert Heating) COP (Wh/Wh) 1.8* 1.8* Split AC System EER (Wh/Wh) 2.3* 2.3* Electric Water Heater EF Maximum Wattage or Lighting Allowances (Indoor) Labelling <td></td> <td></td> <td>Thermal Transm</td> <td>nittance: Floors</td> <td>U-value (W/m².K)</td> <td>0.35</td> <td></td>			Thermal Transm	nittance: Floors	U-value (W/m ² .K)	0.35		
Thermal Transmittance: Doors U-value (W/m ² .K) Maximum Solar Heat Gain Coefficient Maximum Solar Heat Gain Coefficient Maximum Solar Heat Gain Coefficient Maximum Air Leakage (m²/hr.m²) Natural Ventilation Coverage Space Heating Coverage Fossil Fuel Furnace Energy Efficiency (%) Heat Pump (Heating) COP (Wh/Wh) 1.8* 1.8* Split AC System EER (Wh/Wh) 2.3* 2.3* Fan Coverage Water Heating Fossil Fuel Water Heater EF Maximum Wattage or Lighting Allowances (Outdoor) Maximum Wattage or Lighting Allowances (Indoor) Lab Testing Lab Testing Incentives and Resources Resources to Facilitate Compliance Designer guides for architects and engineers; Operator or maintenance or databases for energy efficient appliances			Thermal Transmittance: External Walls U-value (W/m².K)			0.28		
TECHNICAL COMPONENTS COVERED BY BUILDING REGULATIONS Maximum Solar Heat Gain Coefficient Watural Ventilation Coverage Space Heating Coverage Fresult ATIONS Water Heating Karimum Solar Heat Gain Coefficient Water Heating Space Cooling Coverage Fossil Fuel Furnace Energy Efficiency (%) Heat Pump (Heating) COP (Wh/Wh) 1.8* 1.8* Split AC System EER (Wh/Wh) 2.3* 2.3* Fan Coverage Fossil Fuel Water Heater EF Electric Water Heater EF Maximum Wattage or Lighting Allowances (Outdoor) Maximum Wattage or Lighting Allowances (Indoor) Lab Testing Labiling Incentives and Resources Resources to Facilitate Compliance Designer guides for architects and engineers; Consumer guides or manuals; Consumer guid		Passive Design	Thermal Transmittance: Doors U-value (W/m ² .K)					
TECHNICAL COMPONENTS COVERED BY BUILDING REGULATIONS Maximum Air Leakage (m³/hr.m²) Building Coverage Space Heating Coverage /* HVAC Space Heating Coverage /* HVAC Fossil Fuel Furnace Energy Efficiency (%) Heat Pump (Heating) COP (Wh/Wh) 1.8* 1.8* Split AC System EER (Wh/Wh) 2.3* 2.3* Fan Coverage /* Water Heating Fossil Fuel Water Heater EF /* Electric Water Heater EF /* Maximum Wattage or Lighting Allowances (Outdoor) Maximum Wattage or Lighting Allowances (Indoor) Luminary Efficacy (Im/W) 65* Lab Testing Labelling Incentives and Resources Resources to Facilitate Compliance Designer guides for architects and engineers; Operator or maintenance guides or energy efficient appliances					· · · ·			
TECHNICAL COMPONENTS OVERED BY BUILDING REGULATIONS Natural Ventilation Coverage WAC Space Heating Coverage ** Fossil Fuel Furnace Energy Efficiency (%) Heat Pump (Heating) COP (Wh/Wh) 1.8* 1.8* Split AC System EER (Wh/Wh) 2.3* 2.3* Fan Coverage ** Fossil Fuel Water Heater EF ** Electric Water Heater EF ** Maximum Wattage or Lighting Allowances (Indoor) Maximum Wattage or Lighting Allowances (Indoor) Lab Testing Labelling Incentives and Resources Resources to Facilitate Compliance Designer guides for architects and engineers; Operator or maintenance guides or manuals; Consumer guides or databases for energy efficient appliances			Maximum Air Le	akage (m³/hr.n	n²)			
COMPONENTS BUILDING REGULATIONS Space Heating Coverage ** Space Cooling Coverage ** Fossil Fuel Furnace Energy Efficiency (%) Heat Pump (Heating) COP (Wh/Wh) 1.8* 1.8* Split AC System EER (Wh/Wh) 2.3* 2.3* Fan Coverage Water Heating Fossil Fuel Water Heater EF Maximum Wattage or Lighting Allowances (Indoor) Maximum Wattage or Lighting Materials Lab Testing Labelling Labelling Incentives and Resources Resources to Facilitate Compliance Designer guides for architects and engineers; Operator or maintenance guides or databases for energy efficient appliances								
BULDING REGULATIONS HVAC Space Cooling Coverage Image: Coverage Fossil Fuel Furnace Energy Efficiency (%) Image: Coverage Image: Coverage Fossil Fuel Pump (Heating) COP (Wh/Wh) 1.8* 1.8* Split AC System EER (Wh/Wh) 2.3* 2.3* Fan Coverage Image: Coverage Image: Coverage Water Heating Fossil Fuel Water Heater EF Image: Coverage Image: Coverage Image: Coverage Image: Coverage Image: Coverage Image: Coverage:			-			V	*	
REGULATIONS HVAC Fossil Fuel Furnace Energy Efficiency (%) Fossil Fuel Furnace Energy Efficiency (%) 1.8* 1.8* Heat Pump (Heating) COP (Wh/Wh) 2.3* 2.3* Fossil Fuel Rumace Energy Efficiency (%) Water Heating Fossil Fuel Rumace Energy Efficiency (%) 1.8* 1.8* Water Heating Fossil Fuel Water Heater EF ✓* Water Heating Electric Water Heater EF ✓* Maximum Wattage or Lighting Allowances (Outdoor) Maximum Wattage or Lighting Allowances (Indoor) Luminary Efficacy (Im/W) 65* Labelling Independent Certification Materials Resources to Facilitate Compliance Designer guides for architects and engineers; Operator or maintenance guides or manuals; Consumer guides or databases for energy efficient appliances						✓*		
HVAC Heat Pump (Heating) COP (Wh/Wh) 1.8* 1.8* Split AC System EER (Wh/Wh) 2.3* 2.3* Fan Coverage Fan Coverage * Fossil Fuel Water Heater EF * Maximum Wattage or Lighting Allowances (Outdoor) Maximum Wattage or Lighting Allowances (Indoor) Luminary Efficacy (Im/W) 65* Lab Testing Labelling Independent Certification Materials Incentives and Resources Resources to Facilitate Compliance Water appliances Commer guides or databases for energy efficient appliances Second State appliances Materials Ma								
Split AC System EER (Wh/Wh) 2.3* 2.3* Fan Coverage ** Fossil Fuel Water Heater EF ** Electric Water Heater EF ** Maximum Wattage or Lighting Allowances (Outdoor) Maximum Wattage or Lighting Allowances (Indoor) Lighting Lab Testing Labelling Independent Certification Designer guides for architects and engineers; Operator or maintenance guides or manuals; Consumer guides or databases for energy efficient appliances		HVAC				1.8*		
Fan CoverageImage: construct of the second construction of the second constru								
Water Heating Fossil Fuel Water Heater EF Fossil Fuel Water Heater EF Electric Water Heater EF Maximum Wattage or Lighting Allowances (Outdoor) Luminary Efficacy (Im/W) Materials Building Materials Lab Testing Labelling Incentives and Resources Beside or manuals; Consumer guides or databases for energy efficient appliances 								
Water Heating Electric Water Heater EF ** Maximum Wattage or Lighting Allowances (Outdoor) Maximum Wattage or Lighting Allowances (Indoor) Maximum Wattage or Lighting Allowances (Indoor) Lighting Luminary Efficacy (Im/W) 65* Lab Testing Labelling Independent Certification Designer guides for architects and engineers; Operator or maintenance guides or databases for energy efficient appliances			-	er Heater FF				
LightingMaximum Wattage or Lighting Allowances (Outdoor)LightingMaximum Wattage or Lighting Allowances (Indoor)Luminary Efficacy (Im/W)65*Lab TestingLab TestingIndependent CertificationDesigner guides for architects and engineers; Operator or maintenance guides or manuals; Consumer guides or databases for energy efficient appliances		Water Heating				•		
Image: Second		5			Allowances (Outdoor)			
Luminary Efficacy (lm/W)65*Lab TestingLabellingIndependent CertificationDesigner guides for architects and engineers; Operator or maintenance guides or manuals; Consumer guides or databases for energy efficient appliances	(-				、			
Lab Testing Labelling Independent Certification Designer guides for architects and engineers; Operator or maintenance guides or manuals; Consumer guides or databases for energy efficient appliances								
Building Materials Labelling Independent Certification Independent Certification Incentives and Resources Resources to Facilitate Compliance			-	., (,,				
Independent Certification Independent Certification Incentives and Resources Resources to Facilitate Compliance Incentives and Resources Resources to Facilitate Compliance								
Incentives and ResourcesResources to Facilitate ComplianceDesigner guides for architects and engineers; Operator or maintenance guides or manuals; Consumer guides or databases for energy efficient appliances		Materials		rtification				
Financial Incentives			entives Resources to F				architects and engineers; Operator or maintenance guides or manuals; Consumer guides or databases for energy	
			Financial Incent	ives		Loa	ans	

Ghana, Accra

			5			
33,475,870 Population	2,439,389 City population	D Climat	ely hot, ry te Zone fication	350% Average urban growth (2010-2020)		er middle ome group
	Building Energy Efficie Main Source of Manda		Ghana Build	ding Code (DGS 1207:2018)		
	Code adoption date		2018			
ENERGY EFFICIENCY	Type of code		Prescriptive	2		
REGULATORY FRAMEWORK	Coverage of Code					
	TYPE OF BUILDING				Residential	Commercial
		Thermal Transn	nittance (W/m².I	K)		
		Thermal Transn	nittance: Roof U	-value (W/m².K)		
	Passive Design	Thermal Transn	Thermal Transmittance: Floors U-value (W/m ² .K)			
(Ir		Thermal Transn	Thermal Transmittance: External Walls U-value (W/m ² .K)			
		Thermal Transn	nittance: Doors	U-value (W/m².K)		
TECHNICAL		Maximum Solar	Heat Gain Coel	fficient		
COMPONENTS		Maximum Air Le	eakage (m³/hr.m	1 ²)		
COVERED BY		Natural Ventilation Coverage				
BUILDING REGULATIONS		Space Heating Coverage				
		Space Cooling Coverage				
		Fossil Fuel Furnace Energy Efficiency (%)				
	HVAC	Heat Pump (Heating) COP (Wh/Wh)				
		Split AC System EER (Wh/Wh)				
		Fan Coverage				
(Fossil Fuel Wate	er Heater EF			
	Water Heating	Electric Water H	leater EF			
		Maximum Watta	age or Lighting /	Allowances (Outdoor)		
(-)	Lighting	Maximum Watta	age or Lighting /	Allowances (Indoor)		
		Luminary Effica	cy (lm/W)			
		Lab Testing				
	Building Materials	Labelling				
		Independent Ce	rtification			
	Incentives and Resources	Resources to Fa	acilitate Complia	ance		guides for nd engineers
	and Resources	Financial Incent	ives			

Greece, Athens

			5				
10,426,919 Population	3,155,600 City population	Climat	Humid te Zone fication	10% Average urban growth (2010–2020)		High me group	
	Building Energy Efficie Main Source of Manda		Regulation	of Energy Performance of E	Buildings (KEN)	AK)	
LP BUILDING	Code adoption date		2008				
ENERGY EFFICIENCY	Type of code		Combinatio	on (Prescriptive/Performanc	ce-based)		
REGULATORY FRAMEWORK	Coverage of Code		New Buildi	ngs and Existing Buildings			
	TYPE OF BUILDING				Residential	Commercial	
		Thermal Transm	nittance (W/m²	.К)	v	/	
		Thermal Transm	nittance: Roof L	J-value (W/m².K)	0.40	0.40	
		Thermal Transm	nittance: Floors	U-value (W/m ² .K)	0.80	0.80	
	Passive Design	Thermal Transmittance: External Walls U-value (W/m ² .K)			0.90	0.90	
		Thermal Transmittance: Doors U-value (W/m ² .K)			2.6	2.6	
		Maximum Solar	Heat Gain Coe	fficient			
TECHNICAL		Maximum Air Le	eakage (m³/hr.r	m²)			
COMPONENTS COVERED BY		Natural Ventilation Coverage			 ✓ 		
BUILDING		Space Heating Coverage			v		
REGULATIONS		Space Cooling Coverage			v	/	
		Fossil Fuel Furnace Energy Efficiency (%)			0.70	0.70	
	HVAC	Heat Pump (Heating) COP (Wh/Wh)			1.8*	1.8*	
		Split AC System	EER (Wh/Wh)		2.3*	2.3*	
		Fan Coverage			v	/	
	Woter Useting	Fossil Fuel Wate	er Heater EF		v		
	Water Heating	Electric Water H	leater EF		v	/	
		Maximum Watta	age or Lighting	Allowances (Outdoor)			
(-)	Lighting	Maximum Watta	age or Lighting	Allowances (Indoor)	v	/	
		Luminary Effica	cy (lm/W)		6	0	
		Lab Testing					
	Building Materials	Labelling					
		Independent Ce	rtification				
	Incentives and Resources	Resources to Fa	Resources to Facilitate Compliance		Designer (architects ar Trainings fo stakeh	d engineers; r any of the	
	members of the European Unior		Financial Incentives			Grants; Loans	

Hong Kong SAR, China, Hong Kong

					(
7,346,100 Population	7,428,887 City population	Climat	lumid e Zone fication	51% Average urban growth (2010-2020)		High ome group
	Building Energy Efficie Main Source of Mand		Code of Praint Installation	actice for Energy Efficiency of 2021	of Building Ser	vices
BUILDING	Code adoption date		2021			
ENERGY EFFICIENCY	Type of code		Prescriptiv	e		
REGULATORY FRAMEWORK	Coverage of Code		New Buildi	ngs and Existing Buildings		
	TYPE OF BUILDING				Residential	Commercial
		Thermal Transm	nittance (W/m²	.К)		
	Passive Design	Thermal Transmittance: Roof U-value (W/m².K)				
		Thermal Transmittance: Floors U-value (W/m ² .K)				
		Thermal Transmittance: External Walls U-value (W/m ² .K)				
Ľ		Thermal Transm	nittance: Doors	U-value (W/m².K)		
TECHNICAL		Maximum Solar	Heat Gain Coe	fficient		
COMPONENTS		Maximum Air Leakage (m³/hr.m²)				
COVERED BY BUILDING		Natural Ventilation Coverage				
REGULATIONS		Space Heating Coverage			·	/
		Space Cooling Coverage			·	/
	HVAC	Fossil Fuel Furnace Energy Efficiency (%)				
	HVAC	Heat Pump (Heating) COP (Wh/Wh)			3.1	3.1
		Split AC System	EER (Wh/Wh)			
		Fan Coverage			·	/
	Water Heating	Fossil Fuel Wate	er Heater EF			
		Electric Water H	eater EF			
		Maximum Watta	age or Lighting	Allowances (Outdoor)		
	Lighting	Maximum Watta	age or Lighting	Allowances (Indoor)		
		Luminary Efficad	cy (lm/W)			
		Lab Testing				
	Building Materials	Labelling				
		Independent Ce	rtification			
	Incentives	Resources to Fa	cilitate Compli	ance		
	and Resources	Financial Incent	ives		Loa	ans

Hungary, Budapest

Lighting

Building

			5			
9,643,048	1,759,497	Cool	Humid	18%		High
Population	City population	Climat	te Zone fication	Average urban growth (2010-2020)		ome group
	Building Energy Efficie Main Source of Manda		Ministry without Portfolio Decree on the Determination of Buildings' Energy Performance (No. 7/2006. (V.24.))			on of
BUILDING	Code adoption date		2006			
ENERGY EFFICIENCY	Type of code		Combination	n (Prescriptive/Performand	ce-based)	
REGULATORY FRAMEWORK	Coverage of Code	overage of Code		New Buildings and Existing Buildings		
	TYPE OF BUILDING				Residential	Commercial
	-	Thermal Transmittance (W/m ² .K)		·	/	
		Thermal Transmittance: Roof U-value (W/m ² .K)		0.17	0.17	
		Thermal Transmittance: Floors U-value (W/m ² .K)		0.30	0.30	
		Thermal Transmittance: External Walls U-value (W/m².K)		0.24	0.24	
	Passive Design	Thermal Transmittance: Doors U-value (W/m ² .K)		1.4	1.4	
TEOLINIIOAL		Maximum Solar	Heat Gain Coef	ficient		
TECHNICAL COMPONENTS		Maximum Air Le	eakage (m³/hr.m	²)		
COVERED BY		Natural Ventilat	ion Coverage		·	/
BUILDING REGULATIONS		Space Heating (Coverage		V	*
		Space Cooling (-		V	*
	HVAC	Fossil Fuel Furn			0.23	0.23
	HVAC	Heat Pump (Hea		Wh)	1.8*	1.8*
		Split AC System	EER (Wh/Wh)		2.5	2.5
		Fan Coverage			v	
	Water Heating	Fossil Fuel Water			•	/*
		Electric Water Heater EF			✓*	

Building Materials	Labelling	v
	Independent Certification	v
	Resources to Facilitate Compliance	Designer guides for architects and engineers
and Resources	Financial Incentives	Grants; Tax Credits or deductions; Loans
ntries that are members of the European Unior	are mandated to follow the European Ecodesign Directive requirements. Unles	s a country expresses specific

Maximum Wattage or Lighting Allowances (Outdoor)

Maximum Wattage or Lighting Allowances (Indoor)

Some European countries that requirements in its code, the dataset provides the European required value. An asterisk (*) indicates that the datapoint corresponds to a European requirement.

Luminary Efficacy (Im/W)

Lab Testing

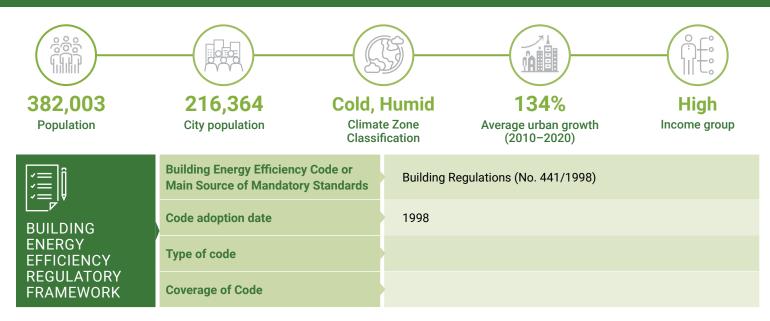
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Iceland, Reykjavík

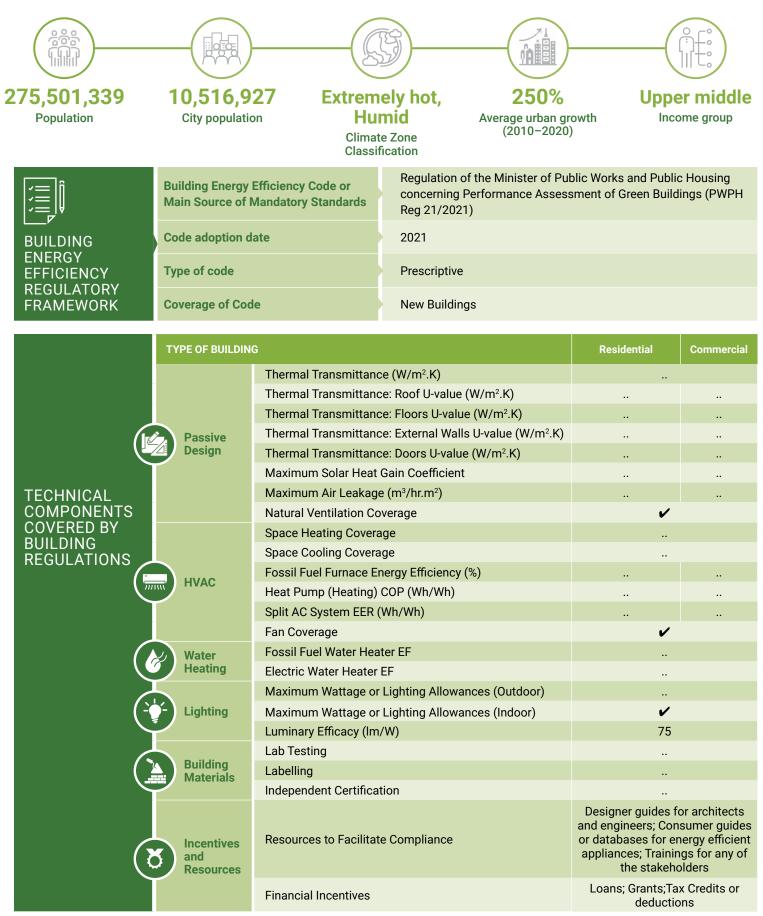


	TYPE OF BUILDING		Residential	Commercial
		Thermal Transmittance (W/m².K)	v	
		Thermal Transmittance: Roof U-value (W/m ² .K)	0.20	0.20
		Thermal Transmittance: Floors U-value (W/m ² .K)	0.30	0.30
	Dessive Desire	Thermal Transmittance: External Walls U-value (W/m ² .K)	0.30	0.30
Ľ	Passive Design	Thermal Transmittance: Doors U-value (W/m ² .K)	3.0	3.0
TECHNICAL		Maximum Solar Heat Gain Coefficient		
COMPONENTS		Maximum Air Leakage (m³/hr.m²)	3.0	6.0
COVERED BY BUILDING		Natural Ventilation Coverage		
REGULATIONS		Space Heating Coverage		
		Space Cooling Coverage		
	НУАС	Fossil Fuel Furnace Energy Efficiency (%)		
	HVAC	Heat Pump (Heating) COP (Wh/Wh)		
		Split AC System EER (Wh/Wh)		
		Fan Coverage		
	Water Heating	Fossil Fuel Water Heater EF		
	Water Heating	Electric Water Heater EF		•
		Maximum Wattage or Lighting Allowances (Outdoor)		
(-)	Lighting	Maximum Wattage or Lighting Allowances (Indoor)		
		Luminary Efficacy (Im/W)		•
		Lab Testing		
	Building Materials	Labelling		
		Independent Certification		
	Incentives	Resources to Facilitate Compliance		
<u> </u>	and Resources	Financial Incentives		

India, Mumbai

1,417,173,173 Population	19,979,955 City population	Climat	te Zone fication 234%		er middle me group
J	Building Energy Efficie Main Source of Manda		Energy Conservation Building Code		
∟ BUILDING	Code adoption date		2018		
ENERGY EFFICIENCY	Type of code		Combination (Prescriptive/Performan	ce-based)	
REGULATORY FRAMEWORK	Coverage of Code		New Buildings		
	TYPE OF BUILDING			Residential	Commercial
		Thermal Transm	nittance (W/m².K)	v	/
		Thermal Transm	nittance: Roof U-value (W/m².K)		0.33
	Passive Design	Thermal Transm	nittance: Floors U-value (W/m².K)		
(Ind		Thermal Transm	nittance: External Walls U-value (W/m².K)		0.40
		Thermal Transm	nittance: Doors U-value (W/m².K)		
		Maximum Solar	Heat Gain Coefficient		0.50
TECHNICAL COMPONENTS		Maximum Air Le	eakage (m³/hr.m²)		
COVERED BY		Natural Ventilat	ion Coverage		
BUILDING		Space Heating Coverage		v	/
REGULATIONS		Space Cooling Coverage		v	/
		Fossil Fuel Furnace Energy Efficiency (%)			
	HVAC	Heat Pump (Heat	ating) COP (Wh/Wh)		
		Split AC System	EER (Wh/Wh)		2.8
		Fan Coverage		v	/
	Water Heating	Fossil Fuel Wate	er Heater EF	✓	
		Electric Water H	leater EF		
		Maximum Watta	age or Lighting Allowances (Outdoor)		
	Lighting	Maximum Watta	age or Lighting Allowances (Indoor)		
		Luminary Effica	cy (Im/W)		
	Duilding	Lab Testing		v	/
	Building Materials	Labelling		·	/
		Independent Ce	rtification	v	
	Incentives	Resources to Fa	acilitate Compliance	architects ar	-
	and Resources	Financial Incent	ives	Grants; Fee Credits or o	

Indonesia, Jakarta



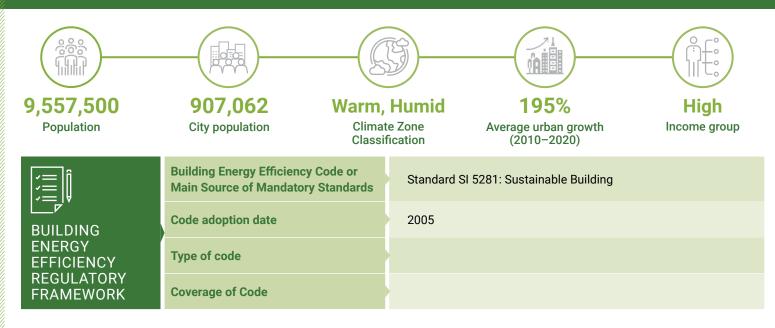
Iran, Islamic Rep., Tehran

				(
88,550,570 Population	City population Climat		n, Dry 200% te Zone fication Average urban gr (2010–2020)	rowth Income group	
	Building Energy Efficiency Code or Main Source of Mandatory Standards		Code 19 of the Iranian Building Regulations		
BUILDING ENERGY EFFICIENCY REGULATORY FRAMEWORK	Code adoption date		1991		
	Type of code		Combination (Prescriptive/Performance-based)		
	Coverage of Code		New Buildings		
TECHNICAL COMPONENTS COVERED BY BUILDING REGULATIONS	TYPE OF BUILDING			Residential	Commercial
		Thermal Transmittanc	e (W/m² K)	×	
	Passive Design	Thermal Transmittance: Roof U-value (W/m ² .K)		1.2	1.2
		Thermal Transmittance: Floors U-value (W/m ² .K)		1.8	1.8
		Thermal Transmittance: External Walls U-value (W/m ² .K)		2.1	2.1
		Thermal Transmittance: Doors U-value (W/m ² .K)			
		Maximum Solar Heat Gain Coefficient			
		Maximum Air Leakage (m ³ /hr.m ²)			
		Natural Ventilation Coverage			
	нуас	Space Heating Coverage			
		Space Cooling Coverage			
		Fossil Fuel Furnace Energy Efficiency (%)			
		Heat Pump (Heating) COP (Wh/Wh)			
		Split AC System EER (Wh/Wh)			
		Fan Coverage			
	Water Heating	After an			
	Heating	Electric Water Heater EF			
	Lighting	Maximum Wattage or Lighting Allowances (Outdoor)			
		Maximum Wattage or Lighting Allowances (Indoor)			
		Luminary Efficacy (Im/W)		••	
	Building Materials	Lab Testing			
		Labelling			
		Independent Certification			
	Incentives and Resources	Resources to Facilitate Compliance		Designer guides for architects and engineers; Consumer guides or databases for energy efficient appliances; Trainings for any of the stakeholders	
		Financial Incentives		Loans; Grants; Tax Credits or deductions	

Ireland, Dublin

)		(
5,127,170 Population	1,201,4 2 City populati	on Climat	Humid 120% te Zone fication (2010–2020	rowth Inco	High	
[]≣Î		Efficiency Code or Mandatory Standards	Technical Guidance Document	of the Building Regula	ations	
L₽ BUILDING	Code adoption of	late	2021			
ENERGY EFFICIENCY	Type of code		Prescriptive			
REGULATORY FRAMEWORK	Coverage of Co	de	New Buildings and Existing Buil	dings		
	TYPE OF BUILDIN	IG		Residential	Commercial	
		Thermal Transmittanc	e (W/m².K)	 ✓ 		
	Passive Design	Thermal Transmittanc	e: Roof U-value (W/m².K)	0.16	0.16	
		Thermal Transmittanc	e: Floors U-value (W/m².K)	0.18	0.21	
		Thermal Transmittanc	e: External Walls U-value (W/m².K)	0.18	0.21	
		Thermal Transmittanc	e: Doors U-value (W/m².K)	1.4	1.6	
		Maximum Solar Heat	Gain Coefficient		0.68	
		Maximum Air Leakage	e (m³/hr.m²)	5.0	5.0	
TECHNICAL		Natural Ventilation Co		 		
COMPONENTS COVERED BY		Space Heating Covera	-	✓*		
BUILDING		Space Cooling Covera		✓*		
REGULATIONS		Fossil Fuel Furnace En	-			
	HVAC	Heat Pump (Heating)		1.8*	1.8*	
		Split AC System EER (· · · ·	2.3*	2.3*	
		Fan Coverage	,,	2.0 V	2.0	
	Water	Fossil Fuel Water Heat	ter FF	v		
	Heating	Electric Water Heater		✓*		
			Lighting Allowances (Outdoor)			
(-)	Lighting		Lighting Allowances (Indoor)			
		Luminary Efficacy (Im/	, ,	65*		
		Lab Testing	,	V		
	Building	Labelling		v		
	Materials	Independent Certificat	ion	v		
(?	Incentives and Resources	Resources to Facilitate		Designer guides for and engineers; Occ for HVAC or lighti Consumer guides for energy efficien Trainings for a stakehold	supant guides ng systems; or databases t appliances; ny of the	
		Financial Incentives		Grants; Tax Credits	or deductions	
Some European countries that are	members of the Europe	an Union are mandated to follow	, the European Ecodesian Directive requiremen			

Israel, Jerusalem



	TYPE OF BUILDING		Residential	Commercial	
		Thermal Transmittance (W/m ² .K)	v	/	
		Thermal Transmittance: Roof U-value (W/m ² .K)	0.52	0.52	
	Passive Design	Thermal Transmittance: Floors U-value (W/m ² .K)	0.84	0.84	
		Thermal Transmittance: External Walls U-value (W/m².K)	1.4	1.4	
	Passive Design	Thermal Transmittance: Doors U-value (W/m ² .K)			
		Maximum Solar Heat Gain Coefficient	0.50		
TECHNICAL		Maximum Air Leakage (m³/hr.m²)			
COMPONENTS COVERED BY		Natural Ventilation Coverage			
BUILDING		Space Heating Coverage			
REGULATIONS		Space Cooling Coverage			
	нуас	Fossil Fuel Furnace Energy Efficiency (%)			
		Heat Pump (Heating) COP (Wh/Wh)			
		Split AC System EER (Wh/Wh)			
		Fan Coverage			
(Water Heating	Fossil Fuel Water Heater EF			
	Water Heating	Electric Water Heater EF			
		Maximum Wattage or Lighting Allowances (Outdoor)			
(-	Lighting	Maximum Wattage or Lighting Allowances (Indoor)			
		Luminary Efficacy (Im/W)			
		Lab Testing			
	Building Materials	Labelling			
		Independent Certification			
	Incentives	Resources to Facilitate Compliance			
	and Resources	Financial Incentives			

Italy, Rome

			3			
58,940,425 Population	4,209,710 City population	Climat	Humid e Zone Tication	37% Average urban growth (2010–2020)		High me group
, ŢŢŢŢ	Building Energy Efficie Main Source of Manda	•	Ministerial I of June 26,	Decree for Energy Efficiency 2015	y Requirements	s in Buildings
∟ <i>P</i> BUILDING	Code adoption date		2015			
ENERGY EFFICIENCY	Type of code		Performanc	e-based		
REGULATORY FRAMEWORK	Coverage of Code		New Buildin	igs and Existing Buildings		
	TYPE OF BUILDING				Residential	Commercial
		Thermal Transm	nittance (W/m².I	K)	v	/
	Passive Design	Thermal Transm	nittance: Roof U	-value (W/m².K)	0.26	0.26
		Thermal Transm	ittance: Floors	U-value (W/m ² .K)	0.32	0.29
(Ind		Thermal Transmittance: External Walls U-value (W/m ² .K)			0.32	0.29
				U-value (W/m ² .K)	1.8	1.8
		Maximum Solar		. ,	0.35	
		Maximum Air Le			0.00	
TECHNICAL COMPONENTS		Natural Ventilation Coverage				
COVERED BY		Space Heating Coverage				/*
BUILDING		Space Cooling Coverage				
REGULATIONS					-	
	HVAC	Fossil Fuel Furnace Energy Efficiency (%)				
		Heat Pump (Heating) COP (Wh/Wh)			1.8*	1.8*
-		Split AC System EER (Wh/Wh)			2.3*	2.3*
		Fan Coverage			V	
	Water Heating	Fossil Fuel Wate			V	
		Electric Water H			~	*
				Allowances (Outdoor)		
(-	Lighting			Allowances (Indoor)		
		Luminary Efficad	cy (lm/W)		65	5*
	Building	Lab Testing				
	Materials	Labelling				
		Independent Ce	rtification			
	Incentives and Resources	Resources to Facilitate Compliance			Designer guides for architects and engineers; Occupant guides for HVAC or lighting systems	
	members of the European Union	Financial Incent			Tax Credits o Convertible Gra	Tax Credits;

Japan, Tokyo

				(
125,124,989 Population	37,468,302 City population	Climat	Humid2%te Zone ficationAverage urban growth (2010-2020)		ligh ome group	
	Building Energy Efficie Main Source of Manda		Act on Improvement of Energy Consu Buildings (Building Energy Conservation			
	Code adoption date		2015			
ENERGY EFFICIENCY REGULATORY	Type of code		Performance-based			
FRAMEWORK	Coverage of Code					
	TYPE OF BUILDING			Residential	Commercial	
		Thermal Transm	nittance (W/m².K)		/	
-		Thermal Transm	nittance: Roof U-value (W/m².K)	0.94		
			nittance: Floors U-value (W/m².K)	0.98		
	Passive Design		hittance: External Walls U-value (W/m ² .K)	1.1		
			hittance: Doors U-value (W/m ² .K)			
			Heat Gain Coefficient	0.73		
TEOLINICAL			eakage (m³/hr.m²)			
TECHNICAL COMPONENTS		Natural Ventilat				
COVERED BY		Space Heating Coverage				
BUILDING		Space Cooling (•	
REGULATIONS			ace Energy Efficiency (%)	0.88		
	HVAC		ating) COP (Wh/Wh)	0.00		
		Split AC System				
		Fan Coverage				
		Fossil Fuel Wate	or Hostor EE		/	
	Water Heating	Electric Water H				
			age or Lighting Allowances (Outdoor)	•	•	
	Lighting				•	
	Lighting		age or Lighting Allowances (Indoor)			
		Luminary Effication			•	
	Building	Lab Testing Labelling			•	
	Materials	-	utific action		•	
	Incentives and Resources	Independent Ce Resources to Fa	acilitate Compliance	Designer guides for architects and engineers; Operator or maintenance guides or manuals; Occupant guides for HVAC or lighting systems		
		Financial Incent	ives the European Ecodesian Directive requirements. Unles			

Kazakhstan, Almaty

19,621,972	1,829,005	Cool,	Humid	154%	Uppe	r middle
Population	City population		e Zone Tication	Average urban growth (2010-2020)	Inco	me group
Î.	Building Energy Efficie Main Source of Manda	•	SNiP RK 2	.04-05-2002 "Natural and art	ificial lighting	
BUILDING	Code adoption date		2002			
ENERGY EFFICIENCY	Type of code		Combinati	on (Prescriptive/Performand	ce-based)	
REGULATORY FRAMEWORK	Coverage of Code New Buildings					
	TYPE OF BUILDING				Residential	Commercial
	Passive Design	Thermal Transm	Thermal Transmittance (W/m ² .K)			/
		Thermal Transmittance: Roof U-value (W/m ² .K)			0.36	
		Thermal Transmittance: Floors U-value (W/m ² .K)			0.36	
		Thermal Transmittance: External Walls U-value (W/m ² .K)			0.48	
		Thermal Transmittance: Doors U-value (W/m ² .K)			3.3	
		Maximum Solar Heat Gain Coefficient				
TECHNICAL COMPONENTS		Maximum Air Leakage (m³/hr.m²)				
COVERED BY		Natural Ventilation Coverage				
BUILDING		Space Heating (Coverage			
REGULATIONS		Space Cooling (-			
	НУАС	Fossil Fuel Furn	ace Energy Eff	iciency (%)		
	HVAC	Heat Pump (Hea	-, ,			
		Split AC System	EER (Wh/Wh)			
		-	Fan Coverage			
	Water Heating	Fossil Fuel Wate				
		Electric Water H				
				Allowances (Outdoor)		•
(-	Lighting			Allowances (Indoor)		
		Luminary Efficacy (Im/W)			55	

Financial Incentives

Independent Certification

Resources to Facilitate Compliance

Lab Testing

Labelling

Building

Materials

Incentives

and Resources

.. Trainings for any of the stakeholders; Occupant

guides for HVAC or lighting

systems

Loans; Grants

Kenya, Nairobi

			F		(
54,027,487 Population	4,385,853 City population	Clima	Marine te Zone fication	418% Average urban growth (2010–2020)		er middle me group
Ţ <u></u>	Building Energy Efficie Main Source of Manda		The Energy	Act		
BUILDING	Code adoption date		2019			
ENERGY EFFICIENCY	Type of code					
REGULATORY FRAMEWORK	Coverage of Code					
	TYPE OF BUILDING				Residential	Commercial
		Thermal Transn	nittance (W/m².I	K)	v	,
	Passive Design	Thermal Transmittance: Roof U-value (W/m ² .K)			0.61	
				U-value (W/m².K)		
				al Walls U-value (W/m ² .K)	3.1	
				U-value (W/m².K)		
TEOLINICAL		Maximum Solai				
TECHNICAL COMPONENTS		Maximum Air Leakage (m ³ /hr.m ²)				
COVERED BY		Natural Ventilation Coverage				
BUILDING REGULATIONS		Space Heating Coverage				
		Space Cooling Coverage				
		Fossil Fuel Furnace Energy Efficiency (%)				
	HVAC	Heat Pump (Heating) COP (Wh/Wh)				
		Split AC System EER (Wh/Wh)				
		Fan Coverage				
		Fossil Fuel Wate	er Heater EF			
	Water Heating	Electric Water H	leater EF			
		Maximum Watt	age or Lighting /	Allowances (Outdoor)		
(-)	Lighting	Maximum Watt	age or Lighting /	Allowances (Indoor)		
		Luminary Effica	cy (lm/W)			
		Lab Testing				
	Building Materials	Labelling				
		Independent Ce	rtification			
	Incentives	Resources to Fa	acilitate Complia	ance		
C	and Resources	Financial Incent	tives			

Korea, Rep., Seoul

			5			
51,628,117 Population	9,963,497 City population	Climat	Humid te Zone fication	36% Average urban growth (2010-2020)		High ome group
Ţ <u></u>	Building Energy Efficie Main Source of Manda	· · · · · · · · · · · · · · · · · · ·	Building End	ergy Conservation Design G	Guide	
LP BUILDING	Code adoption date		1980			
ENERGY EFFICIENCY	Type of code		Combinatio	n (Prescriptive/Performanc	e-based)	
REGULATORY FRAMEWORK	Coverage of Code		New Buildin	ıgs		
	TYPE OF BUILDING				Residential	Commercial
		Thermal Transn	nittance (W/m².I	K)		
	Passive Design	Thermal Transmittance: Roof U-value (W/m ² .K)				
		Thermal Transmittance: Floors U-value (W/m ² .K)				
(Irs		Thermal Transn	nittance: Externa	al Walls U-value (W/m².K)		
		Thermal Transn	nittance: Doors	U-value (W/m².K)		
		Maximum Solar	[.] Heat Gain Coef	ficient		
TECHNICAL COMPONENTS		Maximum Air Lo	eakage (m³/hr.m	1 ²)		
COVERED BY		Natural Ventilation Coverage				
BUILDING	-	Space Heating Coverage				
REGULATIONS		Space Cooling Coverage				
	HVAC	Fossil Fuel Furnace Energy Efficiency (%)				
		Heat Pump (Heating) COP (Wh/Wh)		••		
	-	Split AC System EER (Wh/Wh)				
		Fan Coverage			•	
	Water Heating	Fossil Fuel Wate	er Heater EF			
		Electric Water H	leater EF			
		Maximum Watt	age or Lighting /	Allowances (Outdoor)		
(-)	Lighting	Maximum Watt	age or Lighting /	Allowances (Indoor)		
		Luminary Effica	cy (lm/W)			
		Lab Testing				
	Building Materials	Labelling				
		Independent Ce	rtification			
6	Incentives	Resources to Fa	acilitate Complia	ance		
(*	and Resources	Financial Incent	tives			

Some European countries that are members of the European Union are mandated to follow the European Ecodesign Directive requirements. Unless a country expresses specific requirements in its code, the dataset provides the European required value. An asterisk (*) indicates that the datapoint corresponds to a European requirement.

Kuwait, Kuwait

				(
4,268,873	2,989,270	_	ely hot, 357%		High
Population	City population		ry Average urban growth e Zone (2010-2020)	n Inco	ome group
			ication		
	Building Energy Efficie Main Source of Manda		Energy Conservation Code for Buildin	ngs (MEW/R-6/2	018)
	Code adoption date		2018		
ENERGY	Type of code		Prescriptive		
REGULATORY FRAMEWORK	Coverage of Code		New Buildings		
	TYPE OF BUILDING			Residential	Commercial
		Thermal Transm	nittance (W/m².K)		/
			hittance: Roof U-value (W/m².K)	0.26	0.26
			hittance: Floors U-value (W/m ² .K)	0.26	0.26
(m	Passive Design	Thermal Transm	nittance: External Walls U-value (W/m².K)	0.48	0.45
		Thermal Transm	hittance: Doors U-value (W/m².K)	3.6	1.1
TECHNICAL		Maximum Solar	0.40	0.22	
COMPONENTS		Maximum Air Le			
COVERED BY BUILDING		Natural Ventilati			
REGULATIONS		Space Heating (
		Space Cooling (v		
		Fossil Fuel Furn			
	HVAC	Heat Pump (Hea			
		Split AC System			
		Fan Coverage			
(Water Heating	Fossil Fuel Wate			
	water Heating	Electric Water H	eater EF		
		Maximum Watta	age or Lighting Allowances (Outdoor)		
(-)	Lighting	Maximum Watta	age or Lighting Allowances (Indoor)		/
		Luminary Effica	cy (lm/W)		
		Lab Testing			
	Building Materials	Labelling			
		Independent Ce	rtification		
6	Incentives	Resources to Fa	cilitate Compliance		
(and Resources	Financial Incent	ives		

Kyrgyz Republic, Bishkek

)(3				
6,974,900 Population	996,31 City populati	on Clima	, Humid te Zone A fication	224% Average urban gr (2010-2020)	owth I	wer middle ncome group	
		Efficiency Code or Mandatory Standards	Law of the Kyrg (No. 137 of July		the Energy Efficien	ncy of Buildings"	
∟ <i>P</i> BUILDING	Code adoption	date	2011				
ENERGY EFFICIENCY	Type of code		Prescriptive				
REGULATORY FRAMEWORK	Coverage of Co	de	New Buildings				
	TYPE OF BUILDIN	IG			Residential	Commercial	
		Thermal Transmittanc	e (W/m².K)			/	
		Thermal Transmittance: Roof U-value (W/m².K)			0.32		
	Passive Design	Thermal Transmittance: Floors U-value (W/m ² .K)					
		Thermal Transmittanc	e: External Walls U-v	/alue (W/m².K)			
		Thermal Transmittanc	e: Doors U-value (W	/m².K)	4.0		
		Maximum Solar Heat	Gain Coefficient				
		Maximum Air Leakage	e (m³/hr.m²)				
TECHNICAL		Natural Ventilation Coverage					
		Space Heating Coverage					
COVERED BY BUILDING		Space Cooling Coverage					
REGULATIONS		Fossil Fuel Furnace Energy Efficiency (%)					
	HVAC	Heat Pump (Heating) COP (Wh/Wh)					
		Split AC System EER (Wh/Wh)					
		Fan Coverage	,,				
	Water	Fossil Fuel Water Heat	ter FF				
	Heating	Electric Water Heater					
	ζ	Maximum Wattage or	Lighting Allowances	s (Outdoor)			
	Lighting	Maximum Wattage or					
		Luminary Efficacy (Im/					
		Lab Testing	,			/	
(Building	Labelling				/	
	Materials	Independent Certificat	tion			/	
	Incentives and Resources	Resources to Facilitate			and engineer maintenance gu Occupant guid lighting syster guides or datab efficient appliand	s for architects s; Operator or ides or manuals; es for HVAC or ms; Consumer ases for energy ces; Trainings for takeholders	
		Financial Incentives				ints	
	1 64 5	an Union are mandated to follow					

Latvia, Riga

			5				
1,879,383 Population	637,089 City population	Climat	Humid te Zone fication	-100% Average urban growth (2010-2020)		ligh me group	
	Building Energy Efficie Main Source of Manda		Energy Effic	ciency Law			
BUILDING	Code adoption date		2020				
ENERGY EFFICIENCY	Type of code		Prescriptive	e			
REGULATORY FRAMEWORK	Coverage of Code		New Buildin	ngs and Existing Buildings			
	TYPE OF BUILDING				Residential	Commercial	
		Thermal Transn	nittance (W/m².	К)	V	/	
	Passive Design	Thermal Transmittance: Roof U-value (W/m ² .K)			0.20	0.23	
		Thermal Transmittance: Floors U-value (W/m ² .K)			0.30	0.35	
		Thermal Transn	nittance: Extern	al Walls U-value (W/m².K)	0.20	0.25	
		Thermal Transn	nittance: Doors	U-value (W/m².K)	1.8	2.0	
		Maximum Solar	Heat Gain Coe	fficient			
TECHNICAL		Maximum Air Leakage (m³/hr.m²)			3.0	3.0	
COMPONENTS COVERED BY		Natural Ventilation Coverage			v	1	
BUILDING		Space Heating Coverage			V	*	
REGULATIONS		Space Cooling Coverage			✓*		
	HVAC	Fossil Fuel Furnace Energy Efficiency (%)					
		Heat Pump (Heating) COP (Wh/Wh)			1.8*	1.8*	
		Split AC System EER (Wh/Wh)			2.3*	2.3*	
		Fan Coverage			V		
	Water Heating	Fossil Fuel Water Heater EF			~		
		Electric Water H			~		
(Allowances (Outdoor)	v		
-	Lighting			Allowances (Indoor)	•		
		Luminary Effica	cy (Im/w)		65)^	
	Building	Lab Testing			•		
	Materials	Labelling Independent Certification			•		
	Incentives and Resources	Resources to Fa		ance	 Mandatory labeling; Mandatory laboratory testing; Energy efficiency ratings		
		Financial Incent	ives		Designer g architects ar		

Lithuania, Vilnius

HVAC

Water Heating

Lighting

Building

Materials

2,831,639 Population	536,055 City population	Climat	Humid te Zone	-86% Average urban growth		High bome group
	Building Energy Efficie Main Source of Manda Code adoption date	ency Code or	-	(2010–2020) echnical Regulation "Design nce of buildings" (STR 2.01.0		on of energy
ENERGY EFFICIENCY REGULATORY FRAMEWORK	Type of code Coverage of Code			ion (Prescriptive/Performand	ce-based)	
	TYPE OF BUILDING				Residential	Commercial
		Thermal Transn	nittance (W/m ²	².K)	 ✓ 	
		Thermal Transn	nittance: Roof	U-value (W/m².K)	0.14	0.19
		Thermal Transn	nittance: Floor	s U-value (W/m².K)	0.16	0.25
	Passive Design	Thermal Transn	nittance: Exter	nal Walls U-value (W/m².K)	0.15	0.22
		Thermal Transn	nittance: Doors	s U-value (W/m².K)	1.4	1.9
TECHNICAL COMPONENTS		Maximum Solar	Heat Gain Co	efficient	0.80	0.80
		Maximum Air Leakage (m³/hr.m²)				
COVERED BY		Natural Ventilation Coverage				
BUILDING		Space Heating (Coverage		•	/
REGULATIONS		Space Cooling (Coverage		•	/

Fossil Fuel Furnace Energy Efficiency (%)

Maximum Wattage or Lighting Allowances (Outdoor)

Maximum Wattage or Lighting Allowances (Indoor)

Heat Pump (Heating) COP (Wh/Wh)

Split AC System EER (Wh/Wh)

Fossil Fuel Water Heater EF

Electric Water Heater EF

Luminary Efficacy (Im/W)

Independent Certification

Fan Coverage

Lab Testing

Labelling

0.50

1.8*

2.3*

0.50

1.8*

2.3*

∕*

∕*

1*

..

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150

..

Designer guides for

architects and engineers

 Incentives and Resources
 Financial Incentives
 None. Only program is to compansate 30 % of solar panels.

 Some European countries that are members of the European Union are mandated to follow the European Ecodesign Directive requirements. Unless a country expresses specific requirements in its code, the dataset provides the European required value. An asterisk (*) indicates that the datapoint corresponds to a European requirement.

Resources to Facilitate Compliance

Luxembourg, Luxembourg

653,103 Population	119,75 City population	on Climat	Humid 241% re Zone fication Average urban gr (2010–2020	rowth)	High Income group	
		Efficiency Code or Mandatory Standards	Grand Ducal Regulation of 9 Jur Performance of Buildings	ne 2021 on the Er	nergy	
L₽ BUILDING	Code adoption d	ate	2021			
ENERGY EFFICIENCY	Type of code		Prescriptive			
REGULATORY FRAMEWORK	Coverage of Coc	le	New Buildings and Existing Build	dings		
	TYPE OF BUILDIN	G		Residential	Commercial	
		Thermal Transmittanc	e (W/m².K)		~	
			e: Roof U-value (W/m ² .K)	0.11	0.22	
	Passive Design	Thermal Transmittanc	e: Floors U-value (W/m ² .K)	0.13	0.28	
			e: External Walls U-value (W/m².K)	0.13	0.28	
		Thermal Transmittanc	e: Doors U-value (W/m ² .K)	1.0	1.6	
		Maximum Solar Heat	Gain Coefficient	0.87	0.64	
		Maximum Air Leakage	e (m³/hr.m²)			
TECHNICAL COMPONENTS		Natural Ventilation Co				
COVERED BY		Space Heating Covera	ge		*	
BUILDING REGULATIONS		Space Cooling Covera	ge	✓		
REGULATIONS		Fossil Fuel Furnace Er	nergy Efficiency (%)			
	HVAC	Heat Pump (Heating)	COP (Wh/Wh)	1.8*	1.8*	
		Split AC System EER (Wh/Wh)	2.3*	2.3*	
		Fan Coverage			 ✓ 	
	Water	Fossil Fuel Water Heat	ter EF		 	
	Heating	Electric Water Heater	EF		v	
		Maximum Wattage or	Lighting Allowances (Outdoor)			
	Lighting	Maximum Wattage or	Lighting Allowances (Indoor)			
		Luminary Efficacy (Im/	/W)	6	55*	
		Lab Testing				
	Building Materials	Labelling				
		Independent Certificat	ion			
	Incentives and Resources	Resources to Facilitate	e Compliance	Designer guides for architects and engineers; Consumer guides or databases for energy efficient appliances; Occupant guides for HVAC or lighting systems; Operator or maintenance guides		
		Financial Incentives		Grants; Tax Cree	dits or deductions	

Malaysia, Kuala Lumpur

33,938,221 Population	7,563,9 [°] City population	on Hu Climat	ely hot, 225% mid Average urban gr (2010-2020)	owth I	per middle ncome group	
		Efficiency Code or Mandatory Standards	Energy Efficiency and Use of Renewable Energy for Non- Residential Buildings - Code of Practice			
BUILDING	Code adoption d	ate	2017			
ENERGY EFFICIENCY	Type of code		Performance-based			
REGULATORY FRAMEWORK	Coverage of Coo	le	New Buildings			
	TYPE OF BUILDIN	G		Residential	Commercial	
		Thermal Transmittanc	e (W/m².K)		/	
	Passive Design	Thermal Transmittance: Roof U-value (W/m ² .K)			0.60	
		Thermal Transmittance: Floors U-value (W/m ² .K)				
		Thermal Transmittanc	e: External Walls U-value (W/m².K)			
		Thermal Transmittance: Doors U-value (W/m ² .K)				
		Maximum Solar Heat Gain Coefficient				
TECHNICAL		Maximum Air Leakage (m³/hr.m²)				
COMPONENTS COVERED BY		Natural Ventilation Coverage				
BUILDING		Space Heating Covera	ge			
REGULATIONS		Space Cooling Coverage				
	НУАС	Fossil Fuel Furnace Energy Efficiency (%)				
	III HVAC	Heat Pump (Heating)	COP (Wh/Wh)			
		Split AC System EER (Wh/Wh)			
		Fan Coverage				
	Water	Fossil Fuel Water Heat	ter EF			
	Heating	Electric Water Heater	EF			
		Maximum Wattage or	Lighting Allowances (Outdoor)			
(-	Lighting	Maximum Wattage or	Lighting Allowances (Indoor)			
		Luminary Efficacy (Im/	′W)			
	Building	Lab Testing		•	/	
	Materials	Labelling		١	/	
		Independent Certificat	ion			
	Incentives and Resources	Resources to Facilitate Compliance		Designer guides for architects and engineers; Operator or maintenance guides or manuals; Trainings for any of the stakeholders		
		Financial Incentives		Tax Credits or de	eductions; Loans	

Malta, Valletta

inarca,						
			3			
531,113 Population	212,768 City population	Climat	Humid e Zone fication	195% Average urban growth (2010–2020)		High ome group
	Building Energy Effici Main Source of Mand		Energy Per Legislatior	rformance of Buildings Regu n 623.01)	llations (Subsid	diary
	Code adoption date		2018			
ENERGY EFFICIENCY	Type of code		Prescriptiv	ve		
REGULATORY FRAMEWORK	Coverage of Code	of Code New Buildings and Existing Buildings				
	TYPE OF BUILDING				Residential	Commercial
		Thermal Transm	nittance (W/m²	².K)	v	/
		Thermal Transmittance: Roof U-value (W/m ² .K)		0.59	0.59	
		Thermal Transmittance: Floors U-value (W/m ² .K)		1.6	1.6	
	Passive Design	Thermal Transmittance: External Walls U-value (W/m².K)		1.6	1.6	
Ľ		Thermal Transmittance: Doors U-value (W/m ² .K)		4.0	4.0	
TECHNICAL		Maximum Solar Heat Gain Coefficient				
COMPONENTS		Maximum Air Le		m²)		
COVERED BY BUILDING		Natural Ventilati				
REGULATIONS		Space Heating (-		•	/
		Space Cooling C	-	iciency (%)	-	
	НУАС	Heat Pump (Heat			 2.5	 2.5
		Split AC System			2.6	2.6
		Fan Coverage				/*
		Ecocil Fuel Wete	r Hostor EE			,

	Split AC System EER (WII/ WII)	2.0 2.0
	Fan Coverage	✓*
	Fossil Fuel Water Heater EF	v
Water Heating	Electric Water Heater EF	v
	Maximum Wattage or Lighting Allowances (Outdoor)	v
Lighting	Maximum Wattage or Lighting Allowances (Indoor)	v
Ŷ	Luminary Efficacy (Im/W)	65*
	Lab Testing	
Building Materials	Labelling	
Ŷ	Independent Certification	
Incentives	Resources to Facilitate Compliance	Trainings for any of the stakeholders
and Resources	Financial Incentives	Loans;

Mexico, Mexico City

			3		(
127,504,125 Population	21,580,827 City population	Climat	Humid te Zone fication	159% Average urban growth (2010-2020)		r middle me group
	Building Energy Efficie Main Source of Manda		Mexican Off Edificacione	icial Standards in Energy E es)	fficiency - Buil	dings (NOM
LP BUILDING	Code adoption date		2001			
ENERGY EFFICIENCY	Type of code		Combinatio	n (Prescriptive/Performand	ce-based)	
REGULATORY FRAMEWORK	Coverage of Code		New Buildin	gs and Existing Buildings		
	TYPE OF BUILDING				Residential	Commercial
		Thermal Transn	nittance (W/m².ł	()	v	1
		Thermal Transn	•	,	0.91	0.39
	Passive Design	Thermal Transmittance: Floors U-value (W/m ² .K)				
		Thermal Transmittance: External Walls U-value (W/m².K)		0.91	2.2	
		Thermal Transn	nittance: Doors l	J-value (W/m ² .K)		
		Maximum Solar Heat Gain Coefficient				
TECHNICAL COMPONENTS		Maximum Air Leakage (m³/hr.m²)				
COVERED BY		Natural Ventilation Coverage				
BUILDING REGULATIONS		Space Heating Coverage				
REGULATIONS		Space Cooling Coverage				
		Fossil Fuel Furnace Energy Efficiency (%)				
	HVAC	Heat Pump (Heating) COP (Wh/Wh)				
		Split AC System EER (Wh/Wh)				
		Fan Coverage				
	Water Heating	Fossil Fuel Wate	er Heater EF			
		Electric Water H	leater EF			
		Maximum Watta	age or Lighting A	Allowances (Outdoor)		
	Lighting	Maximum Watta	age or Lighting A	Allowances (Indoor)		
		Luminary Effica	cy (lm/W)			
	Ruilding	Lab Testing			v	•
	Building Materials	Labelling			v	,
		Independent Ce	rtification		V	
	Incentives and Resources		acilitate Complia	nce	Designer g architects ar	d engineers
			Financial Incentives		Tax Credits or deductions	

Moldova, Chișinău



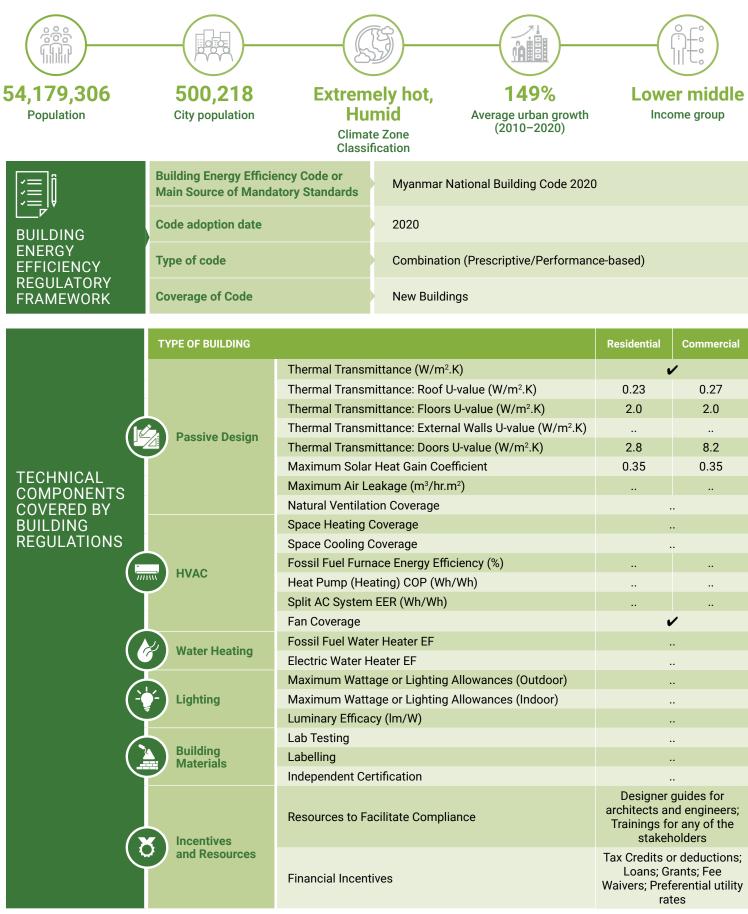
Montenegro, Podgorica

617,213 Population	177,17 City population	on Climat	Humid53%te Zone ficationAverage urban gro (2010-2020)	owth I	per middle	
		Efficiency Code or Mandatory Standards	Rulebook on Minimal Energy Effi	ciency Requireme	ents in Buildings	
L₽ BUILDING	Code adoption d	ate	2013			
ENERGY EFFICIENCY	Type of code		Performance-based			
REGULATORY FRAMEWORK	Coverage of Cod	e	New Buildings and Existing Build	lings		
	TYPE OF BUILDIN	G		Residential	Commercial	
		Thermal Transmittand	ce (W/m².K)		/	
		Thermal Transmittand	ce: Roof U-value (W/m².K)	0.30	0.30	
		Thermal Transmittand	ce: Floors U-value (W/m ² .K)	1.4	1.4	
6	Passive	Thermal Transmittance: External Walls U-value (W/m².K)		1.4	1.4	
	Design		ce: Doors U-value (W/m ² .K)	2.9	2.9	
		Maximum Solar Heat		0.50	0.50	
		Maximum Air Leakag				
TECHNICAL		Natural Ventilation Coverage				
COMPONENTS COVERED BY		Space Heating Coverage		V		
BUILDING		Space Cooling Coverage		•		
REGULATIONS		Fossil Fuel Furnace Energy Efficiency (%)		0.60	0.60	
	HVAC			3.8	3.8	
		Heat Pump (Heating) COP (Wh/Wh)		5.0		
		Split AC System EER (Wh/Wh)				
		Fan Coverage	tor FF			
	Water Heating	Fossil Fuel Water Hea Electric Water Heater				
	Totaling			-		
(Lighting Allowances (Outdoor)			
	Lighting		Lighting Allowances (Indoor)			
		Luminary Efficacy (Im	/ ••)	•		
\langle	Building	Lab Testing				
	Materials	Labelling	1			
رى	Incentives and Resources	Independent Certifica Resources to Facilitat		and engineer maintenance gr guides for HV systems; Cons databases for	s for architects s; Operator or uides; Occupant AC or lighting umer guides or energy efficient ances	
		Financial Incentives		Grants	; Loans	
Some European countries that are	members of the Europe	n Union are mandated to follow	the European Ecodesian Directive requirement			

Morocco, Rabat

			3			
37,457,971 Population	1,846,661 City population	Climat	Humid e Zone fication	221% Average urban growth (2010-2020)		er middle me group
	Building Energy Efficie Main Source of Manda		Thermal Reg	gulation of Construction in	Morocco (RTC	M)
LP BUILDING	Code adoption date		2014			
ENERGY EFFICIENCY	Type of code		Performanc	e-based		
REGULATORY FRAMEWORK	Coverage of Code		New Buildin	gs		
	TYPE OF BUILDING				Residential	Commercial
-		Thermal Transm	nittance (W/m².ł	<)	v	/
		Thermal Transm	nittance: Roof U-	-value (W/m².K)	0.75	0.65
		Thermal Transmittance: Floors U-value (W/m ² .K)				
	Passive Design	Thermal Transmittance: External Walls U-value (W/m ² .K)			5.8	5.8
		Thermal Transm	nittance: Doors l	U-value (W/m².K)		
		Maximum Solar	Heat Gain Coef	ficient		
TECHNICAL		Maximum Air Leakage (m³/hr.m²)				
COMPONENTS		Natural Ventilation Coverage				
COVERED BY BUILDING		Space Heating Coverage				
REGULATIONS		Space Cooling Coverage				
		Fossil Fuel Furnace Energy Efficiency (%)				
	HVAC	Heat Pump (Heating) COP (Wh/Wh)				
		Split AC System EER (Wh/Wh)				
-		Fan Coverage				
		Fossil Fuel Water Heater EF				
	Water Heating	Electric Water Heater EF				
		Maximum Watta	age or Lighting A	Allowances (Outdoor)		
(-)	Lighting	Maximum Watta	age or Lighting A	Allowances (Indoor)		
		Luminary Effica		, <i>,</i> ,		
		Lab Testing				
	Building Materials	Labelling				
	Materials	Independent Ce	rtification			
(2	Incentives and Resources	Resources to Fa	cilitate Complia	ince	Trainings for any of the stakeholders; Designer guides for architects and engineers	
		Financial Incent	ives		()

Myanmar, Naipyidó



Netherlands, Amsterdam

17,700,982 Population	1,131,69 City populatio	n Climat	Humid108%te Zone ficationAverage urban gro (2010-2020)	owth I	High ncome group	
Ĵ		Efficiency Code or landatory Standards	Building Decree 2012			
LP BUILDING	Code adoption da	ite	2012			
ENERGY EFFICIENCY	Type of code		Combination (Prescriptive/Perfo	rmance-based)		
REGULATORY FRAMEWORK	Coverage of Code	e	New Buildings and Existing Build	ings		
	TYPE OF BUILDING)		Residential	Commercial	
		Thermal Transmittan	ce (W/m².K)		/	
			ce: Roof U-value (W/m ² .K)	0.27	0.27	
		Thermal Transmittance: Floors U-value (W/m ² .K)		0.27	0.27	
Ind	Passive Design	Thermal Transmittance: External Walls U-value (W/m ² .K)		0.27	0.27	
		Thermal Transmittan	ce: Doors U-value (W/m².K)	3.4	3.4	
		Maximum Solar Heat	Gain Coefficient	0.85	0.85	
		Maximum Air Leakag	je (m³/hr.m²)			
TECHNICAL		Natural Ventilation Coverage		v		
COMPONENTS COVERED BY		Space Heating Coverage		v		
BUILDING		Space Cooling Coverage			/*	
REGULATIONS		Fossil Fuel Furnace Energy Efficiency (%)		0.75	0.75	
	HVAC	Heat Pump (Heating) COP (Wh/Wh)		4.4	4.4	
		Split AC System EER	(Wh/Wh)	2.3*	2.3*	
		Fan Coverage		v		
	Water	Fossil Fuel Water Hea	ater EF		/	
	Heating	Electric Water Heater	EF		/	
		Maximum Wattage o	r Lighting Allowances (Outdoor)			
(-)	- Lighting	Maximum Wattage o	r Lighting Allowances (Indoor)			
		Luminary Efficacy (Im	n/W)	6	5*	
		Lab Testing			/	
	Building Materials	Labelling			/	
		Independent Certifica	ation		/	
	Incentives and Resources	Resources to Facilita	te Compliance	Designer guides for architects and engineers; Consumer guides or databases for energy efficient appliances; Trainings for any of the stakeholders; Occupant guides for HVAC or lighting systems		
		Financial Incentives			x Credits or ons; Loans	

New Zealand, Wellington

5,124,100 Population	411,346 City population	Warm, Climat Classif		151% Average urban growth (2010-2020)		High bome group
BUILDING ENERGY EFFICIENCY REGULATORY FRAMEWORK	Building Energy Efficiency O Main Source of Mandatory S Code adoption date Type of code Coverage of Code		1992 Performanc	ad Building Code		
	TYPE OF BUILDING				Residential	Commercial

	TYPE OF BUILDING		Residential	Commercial
		Thermal Transmittance (W/m ² .K)	U	/
		Thermal Transmittance: Roof U-value (W/m ² .K)	0.15	
		Thermal Transmittance: Floors U-value (W/m ² .K)	0.34	
	Passive Design	Thermal Transmittance: External Walls U-value (W/m ² .K)	0.33	
		Thermal Transmittance: Doors U-value (W/m ² .K)		
	ſ	Maximum Solar Heat Gain Coefficient	0.84	
TECHNICAL		Maximum Air Leakage (m³/hr.m²)		
COMPONENTS		Natural Ventilation Coverage		
COVERED BY		Space Heating Coverage		
BUILDING		Space Cooling Coverage		
REGULATIONS	HVAC	Fossil Fuel Furnace Energy Efficiency (%)		
	IVAC	Heat Pump (Heating) COP (Wh/Wh)		
		Split AC System EER (Wh/Wh)		
		Fan Coverage		
	Water Heating	Fossil Fuel Water Heater EF	v	/
C C		Electric Water Heater EF	v	/
		Maximum Wattage or Lighting Allowances (Outdoor)		
(-	Lighting	Maximum Wattage or Lighting Allowances (Indoor)		
		Luminary Efficacy (Im/W)		
		Lab Testing		
	Building Materials	Labelling		
		Independent Certification		
(?	Incentives and Resources	Resources to Facilitate Compliance	Designer guides fo architects and engine Consumer guides databases for ener efficient appliance Trainings for any of stakeholders	
		Financial Incentives	Rebates; Loans	

Nigeria, Lagos

218,541,212 Population	13,463,4 City populatio	n Hu Climat	te Zone fication 441% Average urban gr (2010-2020)	owth I	wer middle ncome group
Ĵ.		Efficiency Code or Aandatory Standards	Building Energy Efficiency Code		
∟ <i>P</i> BUILDING	Code adoption da	ate	2017		
ENERGY EFFICIENCY	Type of code		Prescriptive		
REGULATORY FRAMEWORK	Coverage of Cod	е	New Buildings and Existing Build	dings	
	TYPE OF BUILDING	3		Residential	Commercial
-		Thermal Transmittan	ce (W/m².K)		/
		Thermal Transmittance: Roof U-value (W/m ² .K)		0.80	0.80
		Thermal Transmittance: Floors U-value (W/m ² .K)			
	Passive Design	Thermal Transmittance: External Walls U-value (W/m².K)			
			ce: Doors U-value (W/m².K)		
		Maximum Solar Heat			
TECHNICAL		Maximum Air Leakage (m³/hr.m²)			
COMPONENTS		Natural Ventilation Coverage			
COVERED BY BUILDING		Space Heating Covera	-		
REGULATIONS		Space Cooling Coverage		v	
		Fossil Fuel Furnace Energy Efficiency (%)			
	HVAC	Heat Pump (Heating)			
		Split AC System EER	. ,		
		Fan Coverage	(,)		
	Water	Fossil Fuel Water Hea	iter EF		
	Heating	Electric Water Heater			
		Maximum Wattage or	· Lighting Allowances (Outdoor)		
	Lighting	_	Lighting Allowances (Indoor)		/
		Luminary Efficacy (Im			
		Lab Testing	· ,		
	Building	Labelling			
	Materials	Independent Certifica	tion		
	Incentives and Resources	Resources to Facilitat		and engineers; (for HVAC or lig	es for architects Occupant guides Inting systems; Intenance guides
		Financial Incentives	v the Furnnean Fondesian Directive requirement		

Norway, Oslo

5,457,127 Population	1,012,2 City populati	on Clima	Humid 141% te Zone fification Average urban gra (2010-2020)		High
		Efficiency Code or Mandatory Standards	Regulations on Technical Require	ements for Const	ruction Works
BUILDING	Code adoption of	late	2017		
ENERGY EFFICIENCY	Type of code		Prescriptive		
REGULATORY FRAMEWORK	Coverage of Co	le	New Buildings		
	TYPE OF BUILDIN	G		Residential	Commercial
		Thermal Transmittan	ce (W/m².K)	·	/
	Passive Design	Thermal Transmittan	ce: Roof U-value (W/m².K)	0.18	0.18
		Thermal Transmittan	ce: Floors U-value (W/m².K)	0.18	0.18
		Thermal Transmittan	ce: External Walls U-value (W/m².K)	1.2	1.2
Ľ		Thermal Transmittan	ce: Doors U-value (W/m².K)	1.2	1.2
TECHNICAL		Maximum Solar Heat	Gain Coefficient		
COMPONENTS		Maximum Air Leakage (m³/hr.m²)			
COVERED BY		Natural Ventilation Coverage		U	/
BUILDING		Space Heating Cover	age	·	/
REGULATIONS		Space Cooling Coverage		~	
	нуас	Fossil Fuel Furnace E	nergy Efficiency (%)		
	HVAC	Heat Pump (Heating)	COP (Wh/Wh)		
		Split AC System EER	(Wh/Wh)		
		Fan Coverage		v	
	Water	Fossil Fuel Water Hea	iter EF		
	Heating	Electric Water Heater	EF		
(.			Lighting Allowances (Outdoor)		
(-(Lighting	-	Lighting Allowances (Indoor)		
		Luminary Efficacy (Im	/W)		•
(Building	Lab Testing			
	Materials	Labelling			•
		Independent Certifica	tion		
	Incentives and Resources	Resources to Facilita	te Compliance	and engineer maintenance gu guides for HV systems; Cons databases for	s for architects s; Operator or uides; Occupant AC or lighting umer guides or energy efficient nings for any of abolders

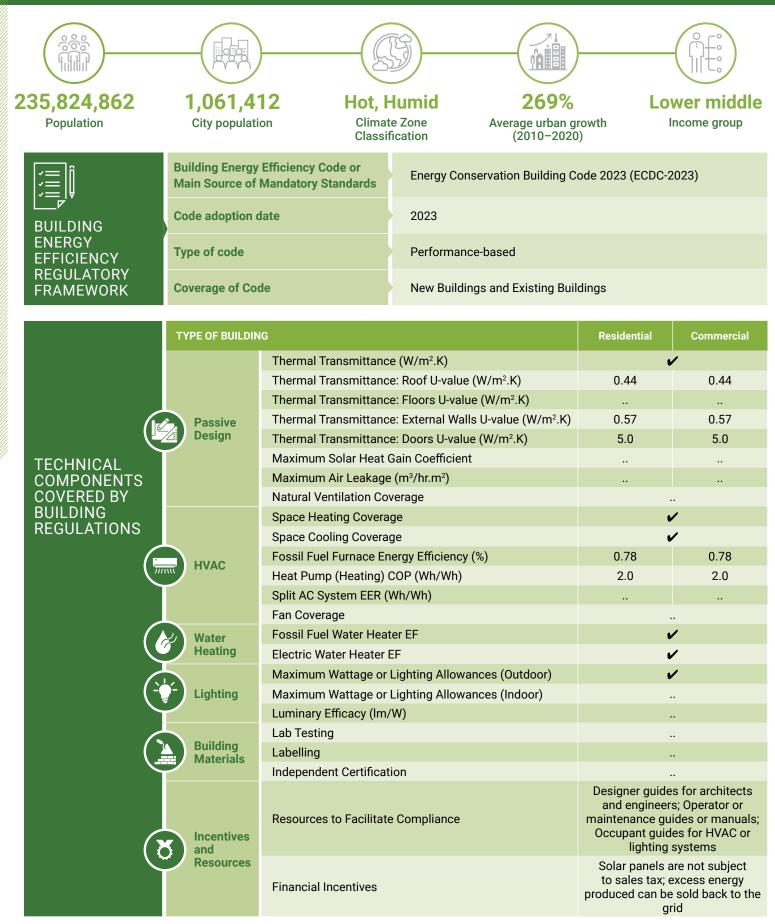
Some European countries that are members of the European Union are mandated to follow the European Ecodesign Directive requirements. Unless a country expresses specific requirements in its code, the dataset provides the European required value. An asterisk (*) indicates that the datapoint corresponds to a European requirement.

Financial Incentives

the stakeholders

Loans; Grants

Pakistan, Islamabad



Panama, Panama City

				(
4,408,581 Population	1,783,490 City population	Humid Average	2 18% eurban growth 10-2020)		High ome group
	Building Energy Efficie Main Source of Manda	Fiberay Savina in Buildi	ngs and Measur	res for the Rati	onal and
BUILDING	Code adoption date	2016			
ENERGY EFFICIENCY	Type of code	Combination (Prescript	tive/Performanc	ce-based)	
REGULATORY	Coverage of Code	New Buildings		,	
FRAMEWORK	Coverage of Code	New Buildings			
	TYPE OF BUILDING			Residential	Commercial
		Thermal Transmittance (W/m ² .K)			
		Thermal Transmittance: Roof U-value (W/n			
	Passive Design	Thermal Transmittance: Floors U-value (W/			
		Thermal Transmittance: External Walls U-v			
		Thermal Transmittance: Doors U-value (W/	′m².K)		
		Maximum Solar Heat Gain Coefficient			
TECHNICAL		Maximum Air Leakage (m³/hr.m²)			
COMPONENTS		Natural Ventilation Coverage			
COVERED BY BUILDING		Space Heating Coverage			
REGULATIONS		Space Cooling Coverage			
	нуас	Fossil Fuel Furnace Energy Efficiency (%)			
	HVAC	Heat Pump (Heating) COP (Wh/Wh)			
		Split AC System EER (Wh/Wh)			
		Fan Coverage			
C C		Fossil Fuel Water Heater EF			
	Water Heating	Electric Water Heater EF			
		Maximum Wattage or Lighting Allowances	(Outdoor)		
(`	Lighting	Maximum Wattage or Lighting Allowances	(Indoor)		
		Luminary Efficacy (Im/W)			
	Building Materials	Lab Testing			
		Labelling			
		Independent Certification			
6	Incentives	Resources to Facilitate Compliance			guides for nd engineers
	and Resources	Financial Incentives			erential utility tes

Paraguay, Asunción

			B)			
6,780,744 Population	3,222,199 City population	Clima	Humid te Zone ification	181% Average urban growth (2010-2020)		er middle ome group
	Building Energy Efficie Main Source of Manda		Municipal Or (No. 128/17)	dinance "Incentives for Su	ustainable Con	struction"
BUILDING	Code adoption date		2016			
ENERGY EFFICIENCY	Type of code		Prescriptive			
REGULATORY FRAMEWORK	Coverage of Code		New Building	js		
	TYPE OF BUILDING				Residential	Commercial
		Thermal Transr	nittance (W/m².K)		/
		Thermal Transmittance: Roof U-value (W/m ² .K)			0.83	0.83
	Passive Design	Thermal Transmittance: Floors U-value (W/m ² .K)				
(h		Thermal Transmittance: External Walls U-value (W/m².K)			1.0	1.0
		Thermal Transmittance: Doors U-value (W/m ² .K)				
TEOLINICAL		Maximum Solar Heat Gain Coefficient				
TECHNICAL COMPONENTS		Maximum Air Leakage (m³/hr.m²)				
COVERED BY		Natural Ventilation Coverage				/
BUILDING REGULATIONS		Space Heating Coverage				
		Space Cooling Coverage				
		Fossil Fuel Furnace Energy Efficiency (%)				
	HVAC	Heat Pump (Heating) COP (Wh/Wh)				
		Split AC System EER (Wh/Wh)				
		Fan Coverage				
	Water Heating	Fossil Fuel Wat	er Heater EF			
	Mater meating	Electric Water Heater EF				
C.		Maximum Watt	age or Lighting A	llowances (Outdoor)		
(-	Lighting	Maximum Wattage or Lighting Allowances (Indoor)				
	Γ	Luminary Efficacy (Im/W)				
(Building	Lab Testing				
	Materials	Labelling				•
		Independent Ce				
	Incentives	Resources to Fa	acilitate Compliar	nce		

Some European countries that are members of the European Union are mandated to follow the European Ecodesign Directive requirements. Unless a country expresses specific requirements in its code, the dataset provides the European required value. An asterisk (*) indicates that the datapoint corresponds to a European requirement.

Financial Incentives

and Resources

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Peru, Lima

			5			
34,049,588 Population	10,390,607 City population	Clima	, Dry te Zone fication	147% Average urban growth (2010-2020)		r middle me group
	Building Energy Efficie Main Source of Manda	•	National Bu	ilding Regulations (RNE)		
	Code adoption date		2017			
ENERGY EFFICIENCY REGULATORY	Type of code		Prescriptive			
FRAMEWORK	Coverage of Code		New Buildin	gs		
	TYPE OF BUILDING				Residential	Commercial
		Thermal Transn	nittance (W/m².ł	$\langle \rangle$	v	/
			nittance: Roof U-		2.2	2.2
	Passive Design	Thermal Transmittance: Floors U-value (W/m ² .K)			2.6	3.3
		Thermal Transmittance: External Walls U-value (W/m ² .K)			2.4	3.6
				J-value (W/m ² .K)		
			r Heat Gain Coef			
TECHNICAL COMPONENTS		Maximum Air Leakage (m³/hr.m²)				
COVERED BY		Natural Ventilation Coverage			v	,
BUILDING REGULATIONS		Space Heating Coverage				
		Space Cooling Coverage			v	
		Fossil Fuel Furnace Energy Efficiency (%)				
	HVAC	Heat Pump (Heating) COP (Wh/Wh)				
		Split AC System EER (Wh/Wh)				
		Fan Coverage			v	,
		Fossil Fuel Water Heater EF				
	Water Heating	Electric Water H	leater EF			
		Maximum Watt	age or Lighting A	Allowances (Outdoor)		
(-`	Lighting	Maximum Wattage or Lighting Allowances (Indoor)				
		Luminary Efficacy (Im/W)			10	0
		Lab Testing				
	Building Materials	Labelling				
		Independent Ce	ertification			
6	Incentives	Resources to Fa	acilitate Complia	ince		
	and Resources	Financial Incent	tives			

Philippines, Manila



Poland, Warsaw

			5				
36,821,749 Population	1,767,798 City population	Climat	Humid te Zone fication	-21% Average urban growth (2010-2020)		ligh me group	
	Building Energy Efficie Main Source of Manda		-	the Minister of Infrastruc be met by Buildings and o. 1225)			
BUILDING	Code adoption date		2022				
ENERGY EFFICIENCY	Type of code		Performance	-based			
REGULATORY FRAMEWORK	Coverage of Code		New Building	s and Existing Buildings			
	TYPE OF BUILDING		-		Residential	Commercial	
		Thermal Transn	nittance (W/m².K)		V	,	
	-				0.15	0.15	
		Thermal Transmittance: Roof U-value (W/m ² .K) Thermal Transmittance: Floors U-value (W/m ² .K)			0.30	0.30	
6	Passive Design	Thermal Transmittance: External Walls U-value (W/m ² .K)			0.20	0.20	
			nittance: Doors U-		1.3	1.3	
			Heat Gain Coeffi	. ,			
TEOLINILOAL			eakage (m³/hr.m²)				
TECHNICAL COMPONENTS		Natural Ventilation Coverage				•	
COVERED BY		Space Heating Coverage			✓*		
BUILDING		Space Cooling Coverage			· ·		
REGULATIONS		Fossil Fuel Furnace Energy Efficiency (%)			-		
	HVAC	Heat Pump (Heating) COP (Wh/Wh)			 1.8*	 1.8*	
		Split AC System EER (Wh/Wh)			2.3*	2.3*	
		Fan Coverage			2.0		
		Fossil Fuel Water Heater EF		· · ·			
	Water Heating	Electric Water H			· · ·		
				lowances (Outdoor)	-		
	Lighting			lowances (Indoor)	···		
		Luminary Effica		iowances (indoor)	65		
		Lab Testing					
(Building	Labelling					
	Materials	-	ortification				
			ependent Certification ources to Facilitate Compliance		Designer guides for architects and engineers; Operator or maintenance guides; Occupant guides for HVAC or lighting systems		
		Financial Incent	tives				

Portugal, Lisboa

			5)		(
10,409,704 Population	2,927,316 City population	Climat	Humid e Zone fication	69% Average urban growth (2010-2020)		High ome group	
	Building Energy Efficie Main Source of Manda			v establishing the Requirem their Energy Performance (I			
LP BUILDING	Code adoption date		2020				
ENERGY EFFICIENCY	Type of code		Prescriptive	e			
REGULATORY FRAMEWORK	Coverage of Code		New Buildin	ngs and Existing Buildings			
	TYPE OF BUILDING				Residential	Commercial	
		Thermal Transm	nittance (W/m².	K)		/	
-		Thermal Transmittance: Roof U-value (W/m ² .K)			0.40	0.50	
		Thermal Transmittance: Floors U-value (W/m ² .K)			0.40	0.50	
	Passive Design	Thermal Transmittance: External Walls U-value (W/m ² .K)			0.50	0.70	
		Thermal Transm	nittance: Doors	U-value (W/m ² .K)	0.50	0.70	
		Maximum Solar	Heat Gain Coe	fficient	0.56	0.56	
TECHNICAL		Maximum Air Le	eakage (m³/hr.r	n²)			
COMPONENTS		Natural Ventilation Coverage					
COVERED BY BUILDING		Space Heating Coverage					
REGULATIONS		Space Cooling Coverage				/	
		Fossil Fuel Furnace Energy Efficiency (%)					
	HVAC	Heat Pump (Heating) COP (Wh/Wh)			3.0	3.0	
		Split AC System EER (Wh/Wh)			2.9	2.9	
		Fan Coverage			v	/*	
		Fossil Fuel Wate	er Heater EF			/	
	Water Heating	Electric Water Heater EF				/	
		Maximum Watta	age or Lighting	Allowances (Outdoor)			
	Lighting	Maximum Watta	age or Lighting	Allowances (Indoor)			
		Luminary Effica	cy (Im/W)		6	5*	
		Lab Testing					
	Building Materials	Labelling					
	Waterials	Independent Ce	rtification				
			to Facilitate Compliance		Consumer guides or databases for energy efficient appliances; Designer guides for architects and engineers		
		Financial Incent	ives				

Qatar, Doha

2,695,122 Population	633,40 [°] City population	on D Climat	ely hot, 484% ry Average urban gro (2010-2020) fication		High Income group	
		Efficiency Code or Mandatory Standards	Energy and Water Conservation (Code 2023		
LP BUILDING	Code adoption d	ate	2023			
ENERGY EFFICIENCY	Type of code		Combination (Prescriptive/Perfo	rmance-based)		
REGULATORY FRAMEWORK	Coverage of Cod	e	New Buildings and Existing Build	ings		
	TYPE OF BUILDING	3		Residential	Commercial	
			(11/2-210)	Residential	Commercial	
		Thermal Transmittand	. ,		V	
	-	Thermal Transmittand	0.44	0.44		
		Thermal Transmittand				
	Passive Design		ce: External Walls U-value (W/m ² .K)	0.57	0.57	
Ľ	Design		ce: Doors U-value (W/m ² .K)			
		Maximum Solar Heat		0.30	0.30	
TECHNICAL	-	Maximum Air Leakage				
COMPONENTS		Natural Ventilation Co	•			
COVERED BY		Space Heating Covera	-			
BUILDING		Space Cooling Covera	•		v	
REGULATIONS	HVAC	Fossil Fuel Furnace E				
		Heat Pump (Heating)				
		Split AC System EER	(vvn/ vvn)	2.42	2.42	
		Fan Coverage	tor CC			
	Water Heating	Fossil Fuel Water Heater				
	. routing	Electric Water Heater EF Maximum Wattage or Lighting Allowances (Outdoor)		v		
	Lighting	-	Lighting Allowances (Indoor)			
	Lighting	Luminary Efficacy (Im	, ,			
		Lab Testing	, ••)		 V	
(Building	Labelling			v v	
	Materials	Independent Certifica	tion		v	
	Incentives and Resources	Resources to Facilitat		and enginee maintenance g guides for H systems; Con databases for appliances; Tra	es for architects rs; Operator or guides; Occupant VAC or lighting sumer guides or energy efficient ainings for any of keholders	
		Financial Incentives	, the European Ecodesian Directive requirements		ants	

Romania, Bucharest

			3		(
19,047,009 Population	1,821,380 City population	Climat	Humid te Zone fication	-43% Average urban growth (2010-2020)		High ome group
	Building Energy Efficie Main Source of Manda	· · · · · · · · · · · · · · · · · · ·	Law on Ener	rgy Performance of Buildin	gs (No. 372/20	005)
LP BUILDING	Code adoption date		2005			
ENERGY EFFICIENCY	Type of code		Combinatio	n (Prescriptive/Performand	ce-based)	
REGULATORY FRAMEWORK	Coverage of Code		New Buildin	gs and Existing Buildings		
	TYPE OF BUILDING				Residential	Commercial
		Thermal Transn	nittance (W/m².ł	<)	t	/
		Thermal Transn	nittance: Roof U-	-value (W/m².K)	0.20	
		Thermal Transn	nittance: Floors	U-value (W/m².K)	0.22	
	Passive Design	Thermal Transmittance: External Walls U-value (W/m².K)			0.56	
		Thermal Transmittance: Doors U-value (W/m ² .K)			1.3	
		Maximum Solar Heat Gain Coefficient			0.75	
		Maximum Air Leakage (m³/hr.m²)				
TECHNICAL		Natural Ventilation Coverage			6	/
		Space Heating Coverage ✓*				
COVERED BY BUILDING		Space Cooling Coverage			✔*	
REGULATIONS	НУАС	Fossil Fuel Furnace Energy Efficiency (%)				
		Heat Pump (Heating) COP (Wh/Wh)			1.8*	1.8*
		Split AC System EER (Wh/Wh)			2.3*	2.3*
		Fan Coverage			V	*
	Water Heating	Fossil Fuel Wate			•	/*
		Electric Water Heater EF			V	*
		Maximum Wattage or Lighting Allowances (Outdoor)				
	- Lighting			Allowances (Indoor)		•
		Luminary Efficacy (Im/W)			6	5*
	Building	Lab Testing				
	Materials	Labelling	utifi a ati a u		•	•
	Incentives and Resources	Independent Certification Resources to Facilitate Compliance		 Designer guides for architects and engineers; Operator or maintenance guides or manuals; Consumer guides or databases for energy efficient appliances		
		Financial Incent		esian Directive requirements. Unles	Grants; Fee Credits or o Loa	Waivers; Tax deductions; ans

Rwanda, Kigali

				(
13,776,698 Population	1,057,836 City population	Climat	Humid285%te Zone ficationAverage urban grow (2010-2020)	th Inco	Low ome group
	Building Energy Efficie Main Source of Manda		Ministerial Order determining Urbar Regulations (No. 03/CAB.M/019 of	-	ilding
LP BUILDING	Code adoption date		2019		
ENERGY EFFICIENCY	Type of code		Performance-based		
REGULATORY FRAMEWORK	Coverage of Code		New Buildings		
	TYPE OF BUILDING			Residential	Commercial
		Thermal Transm	nittance (W/m².K)		/
		Thermal Transmittance: Roof U-value (W/m ² .K)			1.0
	Passive Design	Thermal Transmittance: Floors U-value (W/m ² .K)			
			nittance: External Walls U-value (W/m².k	()	2.0
			nittance: Doors U-value (W/m ² .K)		
		Maximum Solar	Heat Gain Coefficient		
TECHNICAL COMPONENTS		Maximum Air Le	eakage (m³/hr.m²)		
COVERED BY		Natural Ventilation Coverage			/
BUILDING REGULATIONS		Space Heating Coverage			
		Space Cooling (Coverage		
		Fossil Fuel Furn	ace Energy Efficiency (%)		
	HVAC	Heat Pump (Hea	ating) COP (Wh/Wh)		
		Split AC System	EER (Wh/Wh)		
		Fan Coverage			
	Water Heating	Fossil Fuel Water Heater EF			
		Electric Water Heater EF			
		Maximum Watta	age or Lighting Allowances (Outdoor)		
	- Lighting		age or Lighting Allowances (Indoor)	•	/
		Luminary Efficat	cy (Im/W)		
\Box	Building Materials	Lab Testing			
		Labelling			•
		Independent Ce		Designer	 guides for
	Incentives and Resources	Resources to Fa	icilitate Compliance		nd engineers
	and Resources	Financial Incent	ives		

Saudi Arabia, Riyadh

36,408,820 Population	6,906,59 City populatio	n Clima	te Zone fication 262%		High ncome group	
		Efficiency Code or Aandatory Standards	Saudi Energy Conservation Code	e (SBC 601)		
BUILDING	Code adoption da	ate	2007			
ENERGY EFFICIENCY	Type of code		Performance-based			
REGULATORY FRAMEWORK	Coverage of Code	e	New Buildings			
		;		Residential	Commercial	
		Thermal Transmittan	ce (W/m².K)		/	
		Thermal Transmittan	ce: Roof U-value (W/m².K)	0.37	0.37	
-	Passive Design	Thermal Transmittan	ce: Floors U-value (W/m².K)	0.41	0.41	
		Thermal Transmittan	ce: External Walls U-value (W/m².K)	0.31	1.3	
		Thermal Transmittan	ce: Doors U-value (W/m².K)	5.9	5.9	
		Maximum Solar Heat	Gain Coefficient	0.25	0.25	
TEOLINIIOAL		Maximum Air Leakag	je (m³/hr.m²)			
TECHNICAL COMPONENTS		Natural Ventilation C	overage			
COVERED BY		Space Heating Cover	age			
BUILDING		Space Cooling Cover	age	v		
REGULATIONS		Fossil Fuel Furnace E	Energy Efficiency (%)			
	HVAC	Heat Pump (Heating)				
		Split AC System EER	· · · ·			
-		Fan Coverage	``		/	
	Water	Fossil Fuel Water He	ater EF	• •		
	Heating	Electric Water Heater	rEF			
		Maximum Wattage o	r Lighting Allowances (Outdoor)			
(-)	- Lighting		r Lighting Allowances (Indoor)			
		Luminary Efficacy (In	, ,			
		Lab Testing				
	Building	Labelling				
	Materials	Independent Certifica	ation			
8	Incentives and Resources	Resources to Facilita		Designer guides for architects and engineers; Occupant guides for HVAC or lighting systems; Consumer guides or databases for energy efficient appliances; Operator or maintenance guides or manuals		
		Financial Incentives				

Serbia, Belgrade

			5		(
6,664,449 Population	1,389,351 City population	Clima	, Humid te Zone fication	-28% Average urban growth (2010–2020)		r middle me group	
J	Building Energy Efficie Main Source of Manda	•	Rulebook or No. 61/201	n Energy Efficiency of Build 1)	ings ("RS Offici	al Gazette"	
BUILDING	Code adoption date		2011				
ENERGY EFFICIENCY	Type of code		Performanc	e-based			
REGULATORY FRAMEWORK	Coverage of Code		New Buildin	gs and Existing Buildings			
	TYPE OF BUILDING				Residential	Commercial	
		Thermal Transr	nittance (W/m².I	<)	×		
		Thermal Transmittance: Roof U-value (W/m ² .K)			0.15	0.15	
	Passive Design	Thermal Transmittance: Floors U-value (W/m ² .K)					
		Thermal Transr	nittance: Externa	al Walls U-value (W/m².K)	0.30	0.30	
		Thermal Transr	nittance: Doors I	J-value (W/m².K)	1.6	1.6	
		Maximum Solar Heat Gain Coefficient					
TECHNICAL COMPONENTS		Maximum Air Leakage (m³/hr.m²)					
COVERED BY		Natural Ventilation Coverage			v	,	
BUILDING REGULATIONS		Space Heating Coverage			V	•	
RECOLATIONS		Space Cooling Coverage			v		
	HVAC	Fossil Fuel Furnace Energy Efficiency (%)					
	HVAC	Heat Pump (He	ating) COP (Wh	′Wh)			
		Split AC System EER (Wh/Wh)			2.5	2.5	
		Fan Coverage					
(Water Heating	Fossil Fuel Wat	er Heater EF				
	Water Heating	Electric Water Heater EF					
	Lighting	Maximum Wattage or Lighting Allowances (Outdoor)					
		Maximum Wattage or Lighting Allowances (Indoor)					
		Luminary Effica	cy (lm/W)				
	Building	Lab Testing					
	Materials	Labelling					
		Independent Ce	ertification				
	Incentives	Resources to F	acilitate Complia	ince	Designer o	guides for	

Some European countries that are members of the European Union are mandated to follow the European Ecodesign Directive requirements. Unless a country expresses specific requirements in its code, the dataset provides the European required value. An asterisk (*) indicates that the datapoint corresponds to a European requirement.

Financial Incentives

Incentives

and Resources

architects and engineers

Grants; Loans

Singapore, Singapore

5,637,022 Population	5,791,901 City population	Hu	ely hot, mid e Zone Tication	74% Average urban growth (2010–2020)		ligh me group
	Building Energy Efficie Main Source of Manda		The Code fo (Edition 4.0)	or Environmental Sustainab)	ility of Building	S
BUILDING	Code adoption date		2008			
ENERGY EFFICIENCY	Type of code		Combinatio	n (Prescriptive/Performand	ce-based)	
REGULATORY FRAMEWORK	Coverage of Code		New Buildin	gs and Existing Buildings		
	TYPE OF BUILDING				Residential	Commercial
		Thermal Transm	nittance (W/m².ł	<)	V	,
		Thermal Transmittance: Roof U-value (W/m ² .K)			0.50	1.2
	Passive Design	Thermal Transmittance: Floors U-value (W/m ² .K)				
		Thermal Transm	nittance: Externa	al Walls U-value (W/m².K)		
		Thermal Transm	nittance: Doors l	U-value (W/m².K)		
TEOLINIIOAL		Maximum Solar	Heat Gain Coef	ficient		
TECHNICAL COMPONENTS		Maximum Air Leakage (m³/hr.m²)				
COVERED BY		Natural Ventilation Coverage			v	,
BUILDING REGULATIONS		Space Heating Coverage				
REGULATIONS		Space Cooling Coverage				
		Fossil Fuel Furnace Energy Efficiency (%)				
	HVAC	Heat Pump (Heating) COP (Wh/Wh)				
		Split AC System EER (Wh/Wh)				
		Fan Coverage			v	•
	Water Heating	Fossil Fuel Water Heater EF				
	Water Heating	Electric Water H	eater EF			
Ć.		Maximum Watta	age or Lighting A	Allowances (Outdoor)		
(-)	Lighting	Maximum Watta	age or Lighting A	Allowances (Indoor)	v	/
		Luminary Effica	cy (lm/W)			
	Ruilding	Lab Testing				
	Building Materials	Labelling				
		Independent Ce	rtification			
6	Incentives and Resources	Resources to Fa	cilitate Complia	ince	Designer g architects ar	d engineers
	and Resources	Financial Incent	ives		Grants; Tax deductions;	

Slovak Republic, Bratislava

5,431,752 Population	429,920 City population	Climat	Humid e Zone fication	-8% Average urban growth (2010-2020)	High Income group
	Building Energy Efficiency Main Source of Mandator		Act on the	Energy Performance of Buildings	s (No. 555/2005)
	Code adoption date		2005		
ENERGY EFFICIENCY	Type of code		Combinatio	on (Prescriptive/Performance-ba	sed)
REGULATORY FRAMEWORK	Coverage of Code		New Buildings and Existing Buildings		

	YPE OF BUILDING		Residential	Commercial
		Thermal Transmittance (W/m².K)	·	/
		Thermal Transmittance: Roof U-value (W/m ² .K)	0.15	
		Thermal Transmittance: Floors U-value (W/m ² .K)	0.20	
		Thermal Transmittance: External Walls U-value (W/m².K)	0.22	
	Passive Design	Thermal Transmittance: Doors U-value (W/m ² .K)	0.85	
TEOLINILOAL		Maximum Solar Heat Gain Coefficient		
TECHNICAL COMPONENTS		Maximum Air Leakage (m³/hr.m²)		
COVERED BY		Natural Ventilation Coverage	·	/
BUILDING REGULATIONS		Space Heating Coverage	U	/
		Space Cooling Coverage	V	*
	HVAC	Fossil Fuel Furnace Energy Efficiency (%)		
		Heat Pump (Heating) COP (Wh/Wh) 4		1.8*
		Split AC System EER (Wh/Wh)	2.3*	2.3*
		Fan Coverage	V	*
$\mathbf{\nabla}$	Watar Heating	Fossil Fuel Water Heater EF	V	*
	Water Heating	Electric Water Heater EF	✓*	
(Maximum Wattage or Lighting Allowances (Outdoor)		
Ĭ	Lighting	Maximum Wattage or Lighting Allowances (Indoor)		
		Luminary Efficacy (Im/W)	6	5*
		Lab Testing		
Ϋ́	Building Materials	Labelling		
		Independent Certification		
Ő	Incentives and Resources	Resources to Facilitate Compliance	Designer architects ar	guides for nd engineers
	and Resources	Financial Incentives	Grants	Loans

Slovenia, Ljubljana

2,111,986 Population	286,491 City population	Climat	Humid te Zone fication	73% Average urban growth (2010–2020)	High Income group
	Building Energy Efficienc Main Source of Mandator	•	Rules on th 161/22)	ne Efficient Use of Energy in Build	lings (No. 70/22 and
	Code adoption date		2022		
ENERGY EFFICIENCY	Type of code		Combinatio	on (Prescriptive/Performance-ba	ised)
REGULATORY FRAMEWORK	Coverage of Code		New Buildi	ngs and Existing Buildings	

	TYPE OF BUILDING		Residential	Commercial
		Thermal Transmittance (W/m².K)	·	/
		Thermal Transmittance: Roof U-value (W/m ² .K)	0.15	
		Thermal Transmittance: Floors U-value (W/m ² .K)	0.35	
		Thermal Transmittance: External Walls U-value (W/m ² .K)	0.18	
Ľ	Passive Design	Thermal Transmittance: Doors U-value (W/m ² .K)		
TEOLINIIOAL		Maximum Solar Heat Gain Coefficient		
TECHNICAL COMPONENTS		Maximum Air Leakage (m³/hr.m²)		
COVERED BY		Natural Ventilation Coverage		
BUILDING REGULATIONS		Space Heating Coverage	V	* *
RECOLATIONS		Space Cooling Coverage	·	/
		Fossil Fuel Furnace Energy Efficiency (%)		
	HVAC	Heat Pump (Heating) COP (Wh/Wh)	1.8*	1.8*
		Split AC System EER (Wh/Wh)	2.3*	2.3*
		Fan Coverage	V	*
	Water Heating	Fossil Fuel Water Heater EF	·	/
	Water Heating	Electric Water Heater EF	✓	
		Maximum Wattage or Lighting Allowances (Outdoor)	·	/
(-)	Lighting	Maximum Wattage or Lighting Allowances (Indoor)	v	/
		Luminary Efficacy (Im/W)	6	5*
لـر		Lab Testing		
	Building Materials	Labelling		
		Independent Certification		
(?	Incentives	Resources to Facilitate Compliance	Designer architects ar	
	and Resources	Financial Incentives	Grants; Loans	

South Africa, Pretoria

			5			
59,893,885 Population	2,378,350 City population	Climat	Humid te Zone fication	224% Average urban growth (2010-2020)		er middle me group
	Building Energy Efficie Main Source of Manda		Building Re	an National Standard. The A gulations. Part X: Environm Usage in Buildings (SANS 1	ental Sustaina	
BUILDING	Code adoption date		2011			
ENERGY EFFICIENCY	Type of code		Combinatio	n (Prescriptive/Performanc	ce-based)	
REGULATORY FRAMEWORK	Coverage of Code		New Buildin	ngs and Existing Buildings		
	TYPE OF BUILDING				Residential	Commercial
		Thermal Transn	nittance (W/m².	K)		/
	Passive Design		•		•	
		Thermal Transmittance: Roof U-value (W/m ² .K) Thermal Transmittance: Floors U-value (W/m ² .K)			••	
				al Walls U-value (W/m ² .K)		
				U-value (W/m ² .K)		••
		Maximum Solar		、 ,	 0.81	
TECHNICAL		Maximum Air Leakage (m ³ /hr.m ²) Natural Ventilation Coverage				
COVERED BY BUILDING		Space Heating Coverage			,	
REGULATIONS		Space Cooling Coverage			·	
	HVAC	Fossil Fuel Furnace Energy Efficiency (%)				
		Heat Pump (Heating) COP (Wh/Wh)			••	
		Split AC System EER (Wh/Wh)				
		Fan Coverage				
	Water Heating	Fossil Fuel Water Heater EF			ť	
		Electric Water Heater EF Maximum Wattage or Lighting Allowances (Outdoor)				
(Lighting					
	Lighting			Allowances (Indoor)	•	•
	[Luminary Effica	cy (Im/ vv)			
(Building	Lab Testing			•	•
	Materials	Labelling	rtification			•
	Incentives and Resources		o Facilitate Compliance		 Consumer guides or databases for energy efficient appliances; Trainings for any of the stakeholders; Designer guides for architects and engineers	
		Financial Incent	ives			

Spain, Madrid

47,778,340	6,497,124	Mixe	d, Dry	47%	(High
Population	City population	Climat	e Zone	Average urban growth		ome group
		Classif	ication	(2010–2020)		
Ţ Ţ	Building Energy Efficie Main Source of Manda	•	Technical	Code of Building (CTE)		
LP BUILDING ENERGY EFFICIENCY	Code adoption date		1999			
	Type of code		Combinat	ion (Prescriptive/Performanc	ce-based)	
REGULATORY FRAMEWORK	Coverage of Code		New Build	ings and Existing Buildings		
	TYPE OF BUILDING				Residential	Commercial
		Thermal Transmittance (W/m².K)			/	
	Passive Design	Thermal Transmittance: Roof U-value (W/m².K)			0.40	0.40
		Thermal Transmittance: Floors U-value (W/m ² .K)			0.49	0.49
		Thermal Transmittance: External Walls U-value (W/m².K)			0.49	0.49
		Thermal Transmittance: Doors U-value (W/m ² .K)			5.7	5.7
TECHNICAL		Maximum Solar Heat Gain Coefficient				
COMPONENTS		Maximum Air Leakage (m³/hr.m²)		9.0	9.0	
COVERED BY		Natural Ventilati	on Coverage			
BUILDING REGULATIONS		Space Heating (Coverage		•	/
		Space Cooling C	Coverage		•	/
	HVAC	Fossil Fuel Furn	ace Energy Eff	ficiency (%)	0.92	
		Heat Pump (Hea	ating) COP (W	h/Wh)	1.8*	1.8*
		Split AC System	EER (Wh/Wh)		2.3*	2.3*
		Fan Coverage			v	/*
	Water Heating	Fossil Fuel Wate				/*
		Electric Water H			•	/*
				g Allowances (Outdoor)	-	
	Lighting			g Allowances (Indoor)	-	-
		Luminary Efficad	cy (Im/W)		6	5*
		Lab Testing				

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.. Designer guides for

architects and engineers

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Resources to Facilitate Compliance

Independent Certification

Financial Incentives

Labelling

Building

Materials

Incentives

and Resources

Sri Lanka, Colombo

				3			
	81,000 pulation	599,821 City population	Hu	ely hot, mid e Zone Tication	108% Average urban growth (2010–2020)		r middle me group
][]	Building Energy Efficie Main Source of Manda	•	Energy Effic	iency Building Code of Sri L	anka	
	.DING	Code adoption date		2021			
ENE EFFI	RGY CIENCY	Type of code		Performanc	e-based		
	ULATORY MEWORK	Coverage of Code		New Buildin	gs		
		TYPE OF BUILDING				Residential	Commercial
		Passive Design	Thermal Transm	•		V	/
	-		Thermal Transmittance: Roof U-value (W/m ² .K)				1.3
			Thermal Transm	ittance: Floors I	U-value (W/m².K)		
			Thermal Transm	nittance: Externa	al Walls U-value (W/m².K)		2.5
			Thermal Transm	nittance: Doors l	J-value (W/m².K)		
TEA			Maximum Solar	Heat Gain Coef	ficient		
	HNICAL IPONENTS		Maximum Air Leakage (m³/hr.m²)				
	ERED BY		Natural Ventilation Coverage			•	
BUIL	DING		Space Heating Coverage				
REG	ULATIONS		Space Cooling Coverage				
			Fossil Fuel Furnace Energy Efficiency (%)				
		HVAC	Heat Pump (Heating) COP (Wh/Wh)				
			Split AC System EER (Wh/Wh)				
			Fan Coverage			V	/
			Fossil Fuel Wate	er Heater EF		v	/
		Water Heating	Electric Water H	eater EF		v	/
			Maximum Watta	age or Lighting A	Allowances (Outdoor)		
	(-)	Lighting	Maximum Watta	age or Lighting A	Allowances (Indoor)		
			Luminary Effica	cy (Im/W)			
	لم .		Lab Testing				
	()	Building Materials	Labelling				
			Independent Ce	rtification			
	Incentives	Resources to Fa	cilitate Complia	nce	Trainings fo stakeholder guides for ar	s; Designer chitects and	
		and Resources	d Resources				eers

Sweden, Stockholm

10,486,941 Population	1,582,96 City population	on Clima	Humid 127% Average urban gr (2010-2020	rowth Inc	High	
		Efficiency Code or Mandatory Standards	Planning and Building Act (SFS	, 		
BUILDING	Code adoption d	ate	2010			
ENERGY EFFICIENCY	Type of code		Combination (Prescriptive/Perfo	ormance-based)		
REGULATORY FRAMEWORK	Coverage of Coc	le	New Buildings and Existing Build	dings		
	TYPE OF BUILDIN	G		Residential	Commercial	
		Thermal Transmittan	ce (W/m².K)	×		
	Passive Design	Thermal Transmittance: Roof U-value (W/m ² .K)		0.40	0.33	
			ce: Floors U-value (W/m ² .K)	0.40	0.33	
			ce: External Walls U-value (W/m ² .K)	0.40	0.33	
			ce: Doors U-value (W/m ² .K)			
		Maximum Solar Heat	, ,			
		Maximum Air Leakage (m³/hr.m²)				
TECHNICAL		Natural Ventilation Coverage		~		
		Space Heating Coverage		v		
COVERED BY BUILDING		Space Cooling Coverage		✓*		
REGULATIONS		Fossil Fuel Furnace Energy Efficiency (%)		0.65		
	HVAC	Heat Pump (Heating) COP (Wh/Wh)		1.8*	1.8*	
		Split AC System EER (Wh/Wh)		2.3*	2.3*	
		Fan Coverage		✓*		
	Water	Fossil Fuel Water Hea	ater EF	v		
	Heating	Electric Water Heater EF		v		
	5	Maximum Wattage o	r Lighting Allowances (Outdoor)			
(-)	Lighting	Maximum Wattage o	r Lighting Allowances (Indoor)			
		Luminary Efficacy (In	1/W)	65*		
		Lab Testing				
	Building Materials	Labelling				
		Independent Certifica	ation			
(2	Incentives and Resources	Resources to Facilita	te Compliance	Designer guides f and engineers; (maintenance guide Occupant guides lighting systems guides or databas efficient appliances any of the stal	Dperator or so or manuals; for HVAC or ; Consumer es for energy s; Trainings for	

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Financial Incentives

any of the stakeholders

Tax Credits or deductions

Thailand, Bangkok

			5			
71,697,030 Population	10,156,316 City population	Hu Climat	ely hot, mid te Zone fication	207% Average urban growth (2010-2020)		er middle ome group
	Building Energy Efficie Main Source of Manda	· · · · · · · · · · · · · · · · · · ·	Thai Buildir	ng Energy Code (BEC)		
	Code adoption date		2021			
ENERGY EFFICIENCY	Type of code		Combinatio	on (Prescriptive/Performand	ce-based)	
REGULATORY FRAMEWORK	Coverage of Code		New Buildin	ngs and Existing Buildings		
	TYPE OF BUILDING				Residential	Commercial
		Thermal Transm	nittance (W/m².	К)		
	Passive Design	Thermal Transmittance: Roof U-value (W/m ² .K)				
			Thermal Transmittance: Floors U-value (W/m ² .K)			
				al Walls U-value (W/m ² .K)		
			Thermal Transmittance: Doors U-value (W/m ² .K)			
		Maximum Solar				
TECHNICAL		Maximum Air Leakage (m³/hr.m²)				
COMPONENTS		Natural Ventilation Coverage				
COVERED BY BUILDING		Space Heating Coverage				
REGULATIONS		Space Cooling Coverage			V	
		Fossil Fuel Furnace Energy Efficiency (%)				
	HVAC	Heat Pump (Heating) COP (Wh/Wh)				
		Split AC System EER (Wh/Wh)				
		Fan Coverage				
		Fossil Fuel Water Heater EF			····	
	Water Heating	Electric Water Heater EF				
		Maximum Watta	age or Lighting	Allowances (Outdoor)	U	/
(-)	- Lighting	Maximum Watta	age or Lighting	Allowances (Indoor)	·	/
		Luminary Effica	cy (lm/W)			
		Lab Testing				
	Building Materials	Labelling				
	Indiciduo	Independent Ce	rtification			
	Incentives and Resources	Resources to Fa	acilitate Compli	ance	Designer guides for architects and engineers; Operator or maintenance guides; Trainings for any of the stakeholders	
		Financial Incent	ives		Loa	ans

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Tunisia, Tunis

				(
12,356,117 Population	2,290,777 City population	Climat	Humid148%te Zone ficationAverage urban growth (2010-2020)		er middle me group
	Building Energy Efficie Main Source of Manda	-	Joint Order of the Minister of Minister of and Land Use and the Minister of Indus Medium Enterprises of 1 June 2009, fix Specifications aimed at Saving Energy (and Extension Projects for Residential E	try, Energy and ing Minimum To Consumption in	Small and echnical Construction
BUILDING ENERGY	Code adoption date		2009		
EFFICIENCY REGULATORY	Type of code				
FRAMEWORK					
	Coverage of Code				
	TYPE OF BUILDING			Residential	Commercial
		Thermal Transm	nittance (W/m².K)		/
	-		hittance: Roof U-value (W/m².K)	0.75	
	Passive Design		nittance: Floors U-value (W/m ² .K)		
(r			nittance: External Walls U-value (W/m².K)	1.1	
			nittance: Doors U-value (W/m².K)		
TECHNICAL			Heat Gain Coefficient	0.95	
COMPONENTS		Maximum Air Le	eakage (m³/hr.m²)		
COVERED BY BUILDING		Natural Ventilat	ion Coverage		
REGULATIONS		Space Heating (Coverage		
		Space Cooling (Coverage		
		Fossil Fuel Furn			
	HVAC	Heat Pump (Heat	ating) COP (Wh/Wh)		
		Split AC System			
		Fan Coverage			
	Water Heating	Fossil Fuel Wate	er Heater EF		
	water Heating	Electric Water H	leater EF		
		Maximum Watta	age or Lighting Allowances (Outdoor)		
(-)	Lighting	Maximum Watta	age or Lighting Allowances (Indoor)		
		Luminary Effica	cy (Im/W)		
		Lab Testing			
	Building Materials	Labelling			
		Independent Ce	rtification		
	Incentives	Resources to Fa	cilitate Compliance		
	and Resources	Financial Incent	ives		

Türkiye, Istanbul

)(
84,979,913 Population	4,919,07 City population	on Climat	Humid219%te Zone ficationAverage urban g (2010-2020)	rowth Inc	er middle ome group
		Efficiency Code or Mandatory Standards	Building Energy Performance R		
LP BUILDING	Code adoption d	ate	2008		
ENERGY EFFICIENCY REGULATORY	Type of code		Performance-based		
FRAMEWORK	Coverage of Cod	le	New Buildings		
	TYPE OF BUILDIN	G		Residential	Commercial
	Passive Design		Thermal Transmittance (W/m ² .K) Thermal Transmittance: Roof U-value (W/m ² .K)		
			ce: Floors U-value (W/m ² .K)	0.40	
		Thermal Transmittance: External Walls U-value (W/m ² .K)		0.60	
		Thermal Transmittance: Doors U-value (W/m ² .K)			
		Maximum Solar Heat Gain Coefficient			
		Maximum Air Leakage (m ³ /hr.m ²)			
TECHNICAL		Natural Ventilation Coverage			
COMPONENTS COVERED BY		Space Heating Coverage			
BUILDING	-	Space Cooling Coverage			
REGULATIONS		Fossil Fuel Furnace Energy Efficiency (%)			
	HVAC	Heat Pump (Heating)	Heat Pump (Heating) COP (Wh/Wh)		
		Split AC System EER (Wh/Wh)			
		Fan Coverage			
	Water	Fossil Fuel Water Hea	ter EF		
	Heating	Electric Water Heater			
		-	Lighting Allowances (Outdoor)		
(-	Lighting	-	Lighting Allowances (Indoor)	 ✓ 	
		Luminary Efficacy (Im,	/W)		
	Building	Lab Testing Labelling		V	
	Materials	Independent Certificat	tion		
		maepenaent certifica		Designer guides f and engineers; maintenance guide	Operator or
	Incentives			Occupant quides	

Resources to Facilitate Compliance

and engineers; Operator or maintenance guides or manuals; Occupant guides for HVAC or lighting systems; Consumer guides or databases for energy efficient appliances; Trainings for any of the stakeholders

Loans

Financial Incentives

Incentives

and Resources

Ukraine, Kyiv

	-, -, -, -, -, -, -, -, -, -, -, -, -, -						
			5				
38,000,000	2,956,706	Cool	Humid	-26%	Lowe	er middle	
Population	City population	Climat	e Zone fication	Average urban growth (2010-2020)		ome group	
	Building Energy Efficie Main Source of Manda		Main Requi (DBN V.1.2-	rements to Buildings and S 11-2008)	tructures. Ener	gy Saving	
LP BUILDING	Code adoption date		2008				
ENERGY EFFICIENCY	Type of code						
REGULATORY FRAMEWORK	Coverage of Code						
	TYPE OF BUILDING				Residential	Commercial	
		Thermal Transmittance (W/m ² .K)			·		
-		Thermal Transmittance: Roof U-value (W/m ² .K)			0.20	0.20	
		Thermal Transmittance: Floors U-value (W/m ² .K)			0.27	0.27	
	Passive Design	Thermal Transmittance: External Walls U-value (W/m ² .K) Thermal Transmittance: Doors U-value (W/m ² .K)			0.30 1.7	0.30	
		Maximum Solar Heat Gain Coefficient				1.7	
TEOLINILOAL		Maximum Air Leakage (m ³ /hr.m ²)					
TECHNICAL COMPONENTS			Natural Ventilation Coverage				
COVERED BY		Space Heating (-		v	/	
BUILDING REGULATIONS		Space Cooling (Coverage		·	/	
	нуас	Fossil Fuel Furn	ace Energy Effic	ciency (%)	0.91		
	IVAC	Heat Pump (Heat	ating) COP (Wh	/Wh)			
		Split AC System EER (Wh/Wh)		2.16			
		Fan Coverage					
	Water Heating	Fossil Fuel Wate					
		Electric Water H			t		
	Lighting			Allowances (Outdoor)		•	
	Lighting	waximum watta	age or Lighting	Allowances (Indoor)			

Financial Incentives

Luminary Efficacy (Im/W)

Independent Certification

Lab Testing

Labelling

Building

Materials

Incentives

and Resources

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Resources to Facilitate Compliance

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.. Designer guides for architects and engineers; Trainings for any of the

stakeholders; Consumer

guides or databases for energy efficient appliances

United Arab Emirates, Dubai

			5			
9,441,129 Population	1,419,699 City population	D	ely hot, ry te Zone fication	229% Average urban growth (2010-2020)		High ome group
	Building Energy Efficie Main Source of Manda	•	Green Builio	ding Regulations and Speci	fications	
	Code adoption date		2020			
ENERGY EFFICIENCY	Type of code		Performanc	ce-based		
REGULATORY FRAMEWORK	Coverage of Code		New Buildir	ngs		
	TYPE OF BUILDING				Residential	Commercial
	Passive Design	Thermal Transn	nittance (W/m².	К)		/
		Thermal Transmittance: Roof U-value (W/m ² .K)			0.30	0.30
-		Thermal Transmittance: Floors U-value (W/m ² .K)			0.57	0.57
(Thermal Transmittance: External Walls U-value (W/m ² .K)			0.57	0.57
		Thermal Transmittance: Doors U-value (W/m ² .K)				
		Maximum Solar Heat Gain Coefficient				
TECHNICAL		Maximum Air Leakage (m³/hr.m²)			 5.0	 5.0
COMPONENTS		Natural Ventilation Coverage			5.0	5.0
COVERED BY		Space Heating Coverage			•	•
BUILDING REGULATIONS		Space Cooling Coverage			•	
REGULATIONS	нуас	Fossil Fuel Furnace Energy Efficiency (%)				
(🖷		Heat Pump (Heating) COP (Wh/Wh)				
					••	
		Split AC System EER (Wh/Wh)			••	
		Fan Coverage Fossil Fuel Water Heater EF			•	
	Water Heating	Electric Water Heater EF			•	•
		Maximum Wattage or Lighting Allowances (Outdoor)				
6	Lighting					
	Lighting			Allowances (Indoor)		
		Luminary Efficacy (Im/W) Lab Testing				
(Building	-			•	•
	Materials	Labelling Independent Certification			•	•
			Eacilitate Compliance Consumer guides for energy efficient appliances			
		Financial Incent	ives		Loa	ans

United Kingdom, London

					(
66,971,395 Population	9,046,485 City population	Mixed, Climate Classif	e Zone	96% Average urban grov (2010-2020)	vth Inc	High come group
	Building Energy Efficiency Code or Main Source of Mandatory Standards		Building Act 1984; Building Regulations 2010 (SI 2010/2214); Building Regulations etc. (Amendment) (England) Regulations 2021 (SI 2021/1391)			•
	Code adoption date		2021			
ENERGY EFFICIENCY REGULATORY	Type of code		Combination (Prescriptive/Performance-based)			
FRAMEWORK	Coverage of Code		New Buildin	igs and Existing Buildir	igs	
	TYPE OF BUILDING				Residential	Commercial
	Thermal Transmittance (W/m ² .K)			V		

		Thermal Transmittance (W/m².K)	 ✓ 		
		Thermal Transmittance: Roof U-value (W/m ² .K)	0.16	0.16	
		Thermal Transmittance: Floors U-value (W/m ² .K)	0.18	0.18	
	Passive	Thermal Transmittance: External Walls U-value (W/m ² .K)			
	Design	Thermal Transmittance: Doors U-value (W/m ² .K)	1.6	1.6	
		Maximum Solar Heat Gain Coefficient	0.48		
TECHNICAL		Maximum Air Leakage (m³/hr.m²)	8.0	8.0	
COMPONENTS		Natural Ventilation Coverage	 ✓ 		
COVERED BY		Space Heating Coverage	 ✓ 		
BUILDING REGULATIONS		Space Cooling Coverage	 ✓ 		
		Fossil Fuel Furnace Energy Efficiency (%)	0.91	0.91	
	HVAC	Heat Pump (Heating) COP (Wh/Wh)	2.5	2.5	
		Split AC System EER (Wh/Wh)			
		Fan Coverage			
	Water	Fossil Fuel Water Heater EF	✓		
	Heating	Electric Water Heater EF	v		
		Maximum Wattage or Lighting Allowances (Outdoor)			
(- •́	Lighting	Maximum Wattage or Lighting Allowances (Indoor)	✓		
, v		Luminary Efficacy (Im/W)	75		
لې		Lab Testing	✓		
(🎽	Building Materials	Labelling	 ✓ 		
		Independent Certification	✓		
(১	Incentives and Resources	Resources to Facilitate Compliance	Designer guides for architects and engineers; Operator or maintenance guides or manual Consumer guides or databases for energy efficient appliances		
		Financial Incentives	Grants; Loans; Re Waivers; L		

United States, Los Angeles

HVAC

Water Heating

Lighting

Building

Materials

Incentives

and Resources

333,287,557 Population	12,457,765 City population	Climat	Marine te Zone fication	89% Average urban growth (2010–2020)		High bome group
	Building Energy Efficie Main Source of Manda Code adoption date		The Califo	rnia Green Building Standarc	ls Code (CALG	reen)
BUILDING ENERGY EFFICIENCY REGULATORY	Type of code		Combinati	on (Prescriptive/Performand	ce-based)	
FRAMEWORK	TYPE OF BUILDING				Residential	Commercial
		Thermal Transmittance (W/m ² .K)		.К)	•	/
		Thermal Transmittance: Roof U-value (W/m ² .K)			0.04	0.04
		Thermal Transmittance: Floors U-value (W/m ² .K)		0.04	0.11	
	Passive Design	Thermal Transmittance: External Walls U-value (W/m ² .K)		0.07	0.69	
TECHNICAL COMPONENTS		Thermal Transmittance: Doors U-value (W/m ² .K)		0.20	1.5	
		Maximum Solar Heat Gain Coefficient			0.23	0.22
		Maximum Air Le		m²)		
			-		•	
REGULATIONS			-		•	
COVERED BY BUILDING REGULATIONS		Natural Ventilat Space Heating (Space Cooling (Coverage		•	

Fossil Fuel Furnace Energy Efficiency (%)

Maximum Wattage or Lighting Allowances (Outdoor)

Maximum Wattage or Lighting Allowances (Indoor)

Heat Pump (Heating) COP (Wh/Wh)

Split AC System EER (Wh/Wh)

Fossil Fuel Water Heater EF

Electric Water Heater EF

Luminary Efficacy (Im/W)

Independent Certification

Fan Coverage

Lab Testing

Labelling

0.81

3.28

0.80

2.1

•••

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45

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.. Consumer guides or

databases for energy

efficient appliances

Rebates

Some European countries that are members of the European Union are mandated to follow the European Ecodesign Directive requirements. Unless a country expresses specific requirements in its code, the dataset provides the European required value. An asterisk (*) indicates that the datapoint corresponds to a European requirement.

Financial Incentives

Resources to Facilitate Compliance

Uruguay, Montevideo

			5		(
3,422,794 Population	1,736,989 City population	Climat	Humid te Zone fication	45% Average urban growth (2010–2020)		High ome group
	Building Energy Efficie Main Source of Manda	•	Regulation	on Thermal Insulation of Bu	uildings (No. 29	928/09)
BUILDING ENERGY EFFICIENCY	Code adoption date		2009			
	Type of code		Prescriptive			
REGULATORY FRAMEWORK	Coverage of Code	New Buildings and Existing Buildings				
	TYPE OF BUILDING				Residential	Commercial
		Thermal Transn	nittance (W/m²	.К)		/
		Thermal Transmittance: Roof U-value (W/m ² .K)			0.85	0.85
		Thermal Transmittance: Floors U-value (W/m ² .K)				
	Passive Design	Thermal Transmittance: External Walls U-value (W/m ² .K)			0.85	0.85
	a dissive besign	Thermal Transn	nittance: Doors	: U-value (W/m².K)		
TECHNICAL		Maximum Solar	Heat Gain Coe	efficient		
COMPONENTS		Maximum Air Le	eakage (m³/hr.i	m²)		
COVERED BY		Natural Vantilation Coverage				

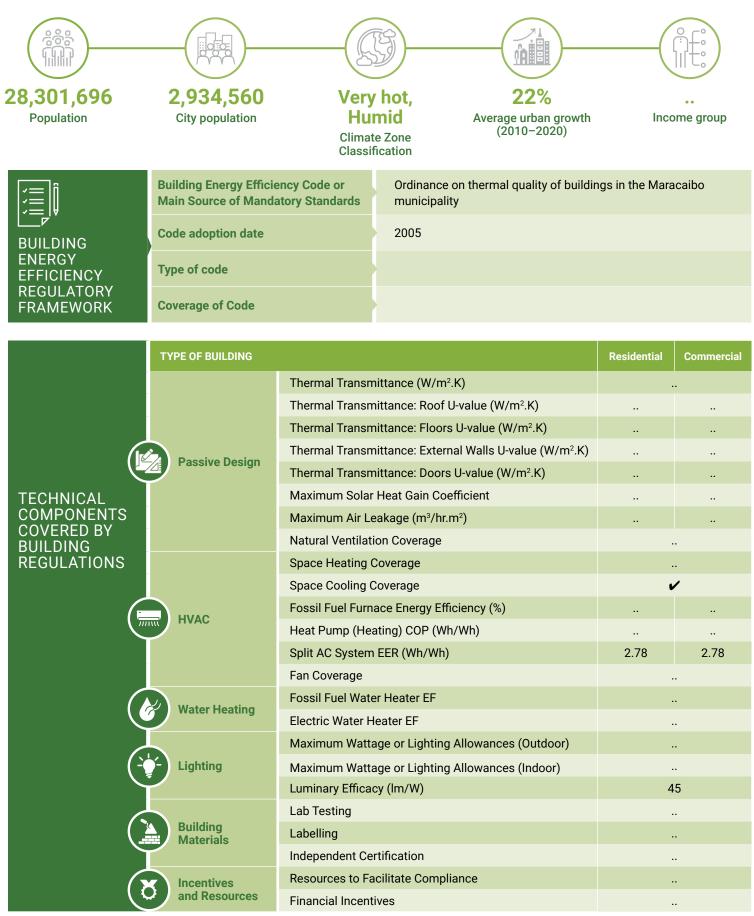
TECHNICAL COMPONENTS				
	Passive Design	Thermal Transmittance: Doors U-value (W/m ² .K)		
		Maximum Solar Heat Gain Coefficient		
		Maximum Air Leakage (m³/hr.m²)		
COVERED BY BUILDING		Natural Ventilation Coverage		
REGULATIONS		Space Heating Coverage		
		Space Cooling Coverage	. .	
	нуас	Fossil Fuel Furnace Energy Efficiency (%)		
	HVAC	Heat Pump (Heating) COP (Wh/Wh)		
		Split AC System EER (Wh/Wh)		
		Fan Coverage		
	Water Heating	Fossil Fuel Water Heater EF		
<u> </u>	water Heating	Electric Water Heater EF		
لم	Lighting	Maximum Wattage or Lighting Allowances (Outdoor)		
(- <u></u>		Maximum Wattage or Lighting Allowances (Indoor)		
		Luminary Efficacy (Im/W)		
لر		Lab Testing		
	Building Materials	Labelling		
		Independent Certification		
	Incentives and Resources	Resources to Facilitate Compliance		
		Financial Incentives		

Uzbekistan, Tashkent

35,648,100 Population	2,463,969 City population	Climat	Humid re Zone fication	190% Average urban growth (2010–2020)	Lower middle Income group
	Building Energy Efficiency Main Source of Mandator	•	Minimum e	energy performance requirement	nts (MEPRs)
	Code adoption date		2011		
ENERGY EFFICIENCY REGULATORY FRAMEWORK	Type of code		Performance-based		
	Coverage of Code		New Buildi	ngs	

	TYPE OF BUILDING		Residential	Commercial
		Thermal Transmittance (W/m ² .K)		
-		Thermal Transmittance: Roof U-value (W/m ² .K)		
		Thermal Transmittance: Floors U-value (W/m ² .K)		
		Thermal Transmittance: External Walls U-value (W/m ² .K)		
	Passive Design	Thermal Transmittance: Doors U-value (W/m ² .K)		
		Maximum Solar Heat Gain Coefficient		
TECHNICAL COMPONENTS		SignThermal Transmittance: External Walls U-value (W/m².K) Thermal Transmittance: Doors U-value (W/m².K) Maximum Solar Heat Gain Coefficient Maximum Air Leakage (m³/hr.m²) 		
COVERED BY				
BUILDING		Space Heating Coverage		
REGULATIONS		Space Cooling Coverage		
	нуас	Fossil Fuel Furnace Energy Efficiency (%)		
	HVAC	Heat Pump (Heating) COP (Wh/Wh)		
		Split AC System EER (Wh/Wh)		
-		Fan Coverage		
		Fossil Fuel Water Heater EF		
	water Heating	Electric Water Heater EF		
لر		Maximum Wattage or Lighting Allowances (Outdoor)		
(÷	Lighting	Maximum Wattage or Lighting Allowances (Indoor)		
, · · ·		Luminary Efficacy (Im/W)		
, , , , , , , , , , , , , , , , , , ,		Lab Testing		
	Building Materials	Labelling		
		Independent Certification		
		Resources to Facilitate Compliance		
(۵	Incentives and Resources	Financial Incentives	Loans; Preferential util rates; Tax Credits or deductions; Fee Waive	

Venezuela, RB, Caracas



Vietnam, Hanoi

				(
98,186,856 Population	4,282,73 City population	on Hu Climat	all hot, mid te Zone fication 305% Average urban gr (2010-2020)	owth Inc	er middle ome group	
J		Efficiency Code or National Technical Regulation on Energy Efficiency Buildin (QCVN 09:2017/ BXD)				
BUILDING	Code adoption d	ate	2017			
ENERGY EFFICIENCY	Type of code		Prescriptive			
REGULATORY FRAMEWORK	Coverage of Coo	le	New Buildings and Existing Build	dings		
	TYPE OF BUILDIN	G		Residential	Commercial	
		Thermal Transmittanc	ce (W/m².K)			
	Passive Design	Thermal Transmittanc	e: Roof U-value (W/m².K)			
_		Thermal Transmittanc	e: Floors U-value (W/m².K)			
		Thermal Transmittanc	ce: External Walls U-value (W/m².K)			
		Thermal Transmittanc	ce: Doors U-value (W/m².K)			
		Maximum Solar Heat	Gain Coefficient	0.90	0.90	
TECHNICAL		Maximum Air Leakage				
COMPONENTS COVERED BY		Natural Ventilation Coverage		V		
BUILDING		Space Heating Covera		~		
REGULATIONS		Space Cooling Covera	-	•		
	НУАС	Fossil Fuel Furnace En		0.78		
		Heat Pump (Heating)		3.0	3.0	
		Split AC System EER (wn/wn)			
		Fan Coverage Fossil Fuel Water Hea	tor EE	V		
	Water Heating	Electric Water Heater				
			Lighting Allowances (Outdoor)	V		
	Lighting		Lighting Allowances (Indoor)			
		Luminary Efficacy (Im				
		Lab Testing				
(Building	Labelling				
	Materials	Independent Certifica	tion			
(?	Incentives and Resources	Resources to Facilitat		Designer guides for architects and engineers; Trainings for any of the stakeholders; Consumer guides or databases for energy efficient appliances		
		Financial Incentives		Grants; Tax C deductions;	Loans	