1 Materials

Building type	Window type	U	G	e	FF	WWR
Standard efficiency						
Hotel	Double glazing	3.1	0.75	0.89	0.2	0.8
Office	Double glazing	3.1	0.75	0.89	0.2	0.8
Residential	Single glazing	4.8	0.85	0.89	0.2	0.4
Retail	Double glazing	3.1	0.75	0.89	0.2	0.6
High efficiency (SLE)						
Hotel	Double pane with low-e	1.6	0.2	0.02	0.2	0.4
Office	Double pane with low-e	1.6	0.2	0.02	0.2	0.4
Residential	Double pane with low-e	1.6	0.2	0.02	0.2	0.35
Retail	Double pane with low-e	1.6	0.2	0.02	0.2	0.4

U Thermal transmittance of windows including linear losses (+10%). Measured in W/m^{2}K. Defined according to ISO 13790.
G Solar heat gain coefficient. Defined according to ISO 13790.
e Emissivity of external surface. Defined according to ISO 13790.
FF Window frame fraction coefficient. Defined according to ISO 13790.
WWR Window to wall ratio

Table 1.1 Window material properties

Building type	Roof type	U	a	e	r
Standard efficiency					
Hotel	Concrete or rock pebbles finishing	0.6	0.6	0.94	0.4
Office	Concrete or rock pebbles finishing	0.6	0.6	0.94	0.4
Residential	Concrete or rock pebbles finishing	0.6	0.6	0.94	0.4
Retail	Concrete or rock pebbles finishing	0.6	0.6	0.94	0.4
High efficiency (SLE)					
Hotel	Insulated roof with cool paint	0.5	0.2	0.89	0.8
Office	Insulated roof with cool paint	0.5	0.2	0.89	0.8
Residential	Insulated roof with cool paint	0.5	0.2	0.89	0.8
Retail	Insulated roof with cool paint	0.5	0.2	0.89	0.8

U Thermal transmittance of windows including linear losses (+10%). Measured in W/m^{2}K. Defined according to ISO 13790.
a Solar absorption coefficient. Defined according to ISO 13790.
e Emissivity of external surface. Defined according to ISO 13790.
r Reflectance in the red spectrum. Defined according to long-wave radiance.

Table 1.2 Roof material properties

Building type	Wall type	U	a	e	r
Standard efficiency					
Hotel	Concrete block exposed	0.75	0.6	0.95	0.4
Office	Concrete block exposed	0.75	0.6	0.95	0.4
Residential	White paint/ plaster / clay brick	0.8	0.3	0.84	0.7
Retail	Clay brick exposed	0.2	0.68	0.92	0.32
High efficiency (SLE)					
Hotel	Insulated wall with cool paint	0.5	0.2	0.89	0.8
Office	Insulated wall with cool paint	0.5	0.2	0.89	0.8
Residential	Insulated wall with cool paint	0.5	0.2	0.89	0.8
Retail	Insulated wall with cool paint	0.5	0.2	0.89	0.8

U Thermal transmittance of windows including linear losses (+10%). Measured in W/m^2K. Defined according to ISO 13790.
a Solar absorption coefficient. Defined according to ISO 13790.
e Emissivity of external surface. Defined according to ISO 13790.
r Reflectance in the red spectrum. Defined according to long-wave radiance.

Table 1.3 Wall material properties

Building type	Shading type	rf_sh
Standard efficiency		
Hotel	None	1
Office	None	1
Residential	Venetian blinds	0.15
Retail	None	1
High efficiency (SLE)		
Hotel	External and internal shading devices	0.5
Office	External and internal shading devices	0.5
Residential	External and internal shading devices	0.5
Retail	External and internal shading devices	0.5

rf_sh Shading coefficient when shading device is active. Defined according to ISO 13790.

Table 1.4 Shading properties

2 Cooling Systems

Building type	HVAC type	Efficiency	Setpoint temp. (°C)	Setback temp. (°C)
Standard efficiency				
Hotel	Central AC	3.88	25	24
Office	Central AC	3.88	25	22
Residential	Mini-split AC	2.3	28	27
Retail	Central AC	3.88	22	37
High efficiency (SLE)				
Hotel	Central AC	3.88	23	37
Office	Central AC	3.88	25	22
Residential	Mini-split AC	2.3	28	27
Retail	Central AC	3.88	23	37

Efficiency Efficiency of the all in one system
Setpoint temp. Setpoint temperature for cooling system
Setback temp. Setback temperature for cooling system

Table 2.1 HVAC properties

Building type	Ventilation type	Mechanical Ventilation	Window Ventilation	Heat Recovery	Night Flush	Economizer
Standard efficiency						
Hotel	Mechanical ventilation with demand control	Yes	No	Yes	Yes	No
Office	Mechanical ventilation with demand control	Yes	No	Yes	Yes	No
Residential	Window ventilation	No	Yes	No	Yes	No
Retail	Mechanical ventilation with demand control	Yes	No	Yes	Yes	No
High efficiency (SLE)						
Hotel	Mechanical ventilation with demand control and economizer	Yes	No	Yes	Yes	Yes
Office	Mechanical ventilation with demand control and economizer	Yes	No	Yes	Yes	Yes
Residential	Window ventilation	No	Yes	No	Yes	No
Retail	Mechanical ventilation with demand control and economizer	Yes	No	Yes	Yes	Yes

Table 2.2 Ventilation properties

3 Internal Space Usage

Building type	Air-conditioned area	Effective GFA	Area with electrical loads
Standard efficiency			
Hotel	0.75	1.0	0.95
Office	0.75	1.0	0.95
Residential	0.35	0.9	0.8
Retail	0.95	1.0	0.95
High efficiency (SLE)			
Hotel	0.7	1.0	0.95
Office	0.5	1.0	0.95
Residential	0.35	0.9	0.8
Retail	0.75	1.0	0.95

Table 3.1 Internal space usage

4 Internal Loads

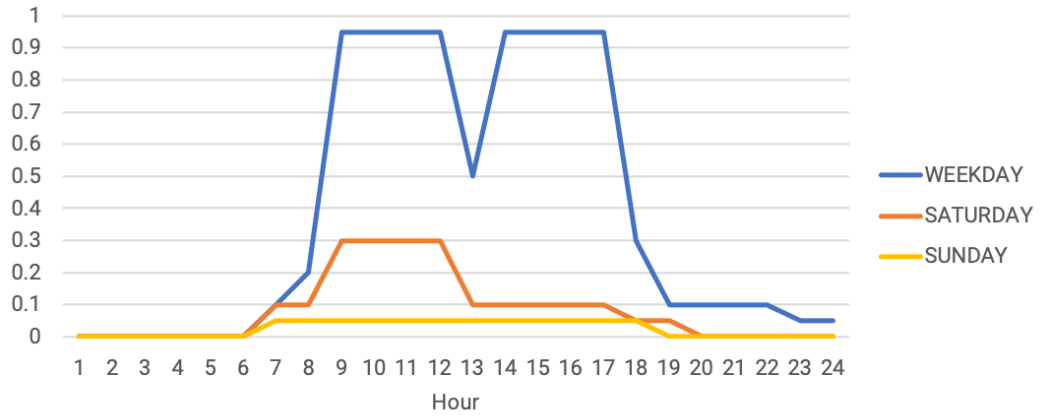
Building type	Lighting (W/m^2)	Appliances (W/m^2)	Occupancy (m^2/p)	Hot water (l/day)
Standard efficiency				
Hotel	30	20	23	45
Office	16	16	12	0
Residential	6	5	40	40
Retail	29	29	6	0
High efficiency (SLE)				
Hotel	20	15	23	20
Office	9	9	12	0
Residential	0.7	3	40	20
Retail	9	9	6	0

Lighting	Peak specific electrical load due to artificial lighting
Appliances	Peak specific electrical load due to computers and devices
Occupancy	Occupancy density
Hot water	Peak specific daily hot water consumption

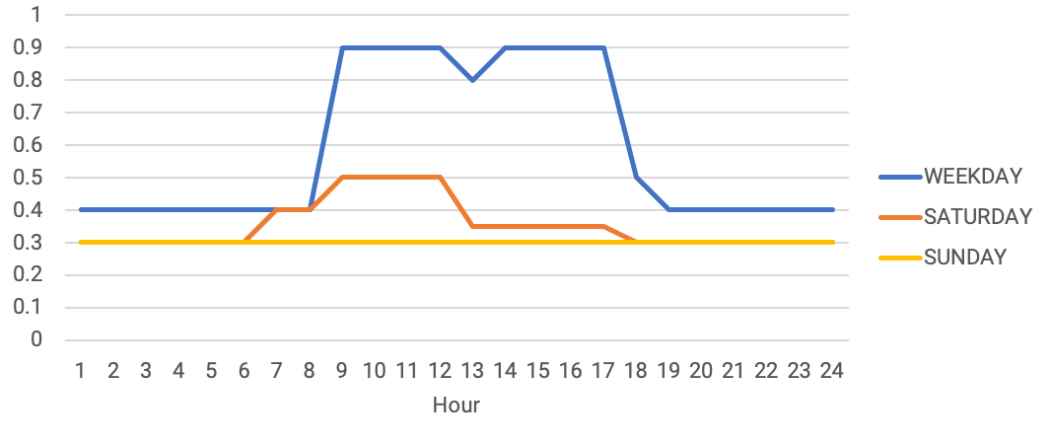
Table 4.1 Internal loads

5 Load Profiles

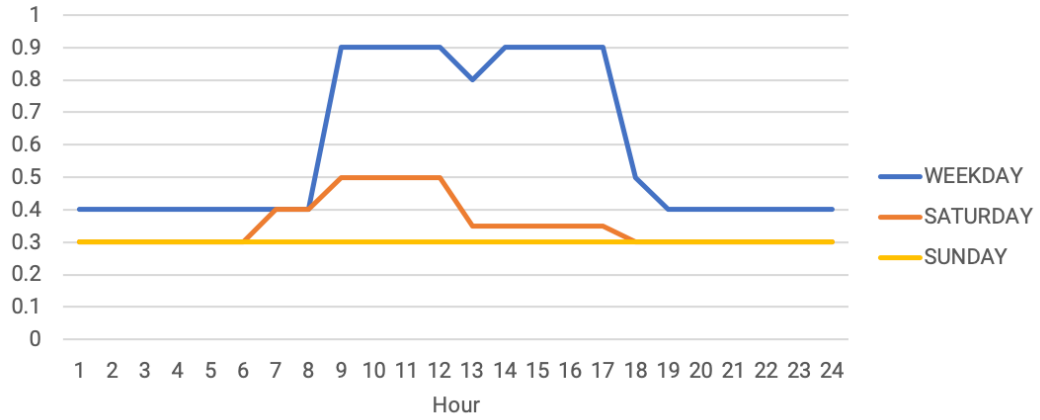
Occupancy load profile



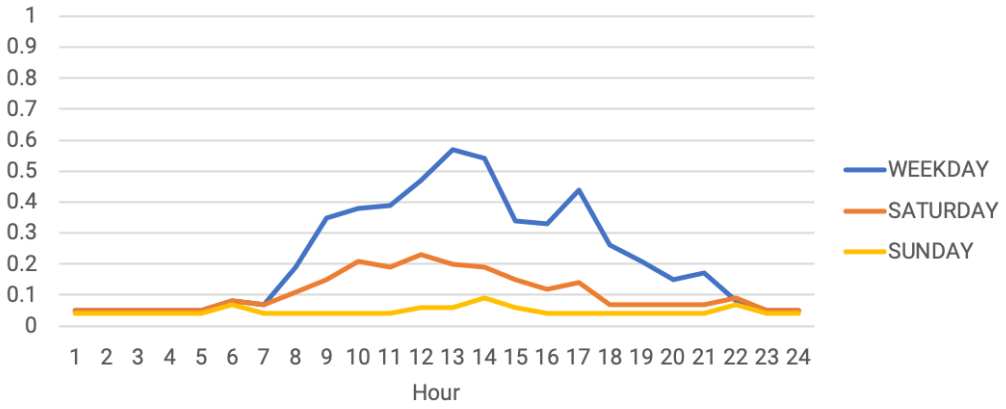
Appliances load profile



Lighting load profile



Water load profile



Cooling Operation profile