

## Appendix A

**Table A1** Hourly profiles of operating conditions of conditioned spaces in residential buildings

		Time			
		0:00–6:59	7:00–14:59	15:00–22:59	23:00–23:59
<b>High temperature setpoint (°C)</b>	January–May	—	—	—	—
	June– December	27	—	25	27
	October–December	—	—	—	—
<b>Low temperature setpoint (°C)</b>	January – May	17	20	20	17
	June– December	—	—	—	—
	October – December	17	20	20	17

**Table A2** Hourly profiles of Internal loads in residential buildings

Internal load (W/m <sup>2</sup> )		Time					
		0:00–6:59	7:00–14:59	15:00–17:59	18:00–18:59	19:00–22:59	23:00–23:59
<b>Sensible occupation heat</b>	W	2.15	0.54	1.08	1.08	1.08	2.15
	S & H	2.15	2.15	2.15	2.15	2.15	2.15
<b>Latent occupation heat</b>	W	1.36	0.34	0.68	0.68	0.68	1.36
	S & H	1.36	1.36	1.36	1.36	1.36	1.36
<b>Lighting</b>	W, S & H	0.44	1.32	1.32	2.20	4.40	2.20
<b>Equipment</b>	W, S & H	0.44	1.32	1.32	2.20	4.40	2.20

Note: W: working day, S: Saturday, H: Sunday and holidays.

**Table A3** Hourly profiles of DHW consumption percentage in residential buildings

Time	%	Time	%
0h	1	12h	5
1h	0	13h	5
2h	0	14h	4
3h	0	15h	3
4h	0	16h	4
5h	1	17h	4
6h	3	18h	5
7h	10	19h	7
8h	7	20h	6
9h	7	21h	6
10h	6	22h	5
11h	6	23h	5



Table A5. Results for the studied multi-family housing block

NRPE consumption-RICAS (kWh/m <sup>2</sup> .year)										NRPE consumption-RITE (kWh/m <sup>2</sup> .year)										NRPE rating - RICAS										NRPE rating - RITE									
CZ	B	C	R	E8	E10	E8+C	E10+C	E8+C+R	E10+C+R	B	C	R	E8	E10	E8+C	E10+C	E8+C+R	E10+C+R	B	C	R	E8	E10	E8+C	E10+C	E8+C+R	E10+C+R	B	C	R	E8	E10	E8+C	E10+C	E8+C+R	E10+C+R			
α	48.4	47.3	47.0	49.0	48.9	47.7	47.6	46.1	46.0	41.2	40.1	39.7	41.3	41.2	40.0	40.0	38.5	38.4	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E			
A3	48.3	45.7	44.3	32.9	32.4	30.6	30.1	27.5	27.1	44.2	41.7	40.3	28.9	28.4	26.7	26.2	23.7	23.3	D	D	D	C	C	C	C	C	C	D	D	D	C	C	C	C	C	C			
A4	62.6	59.6	58.2	45.9	45.3	43.0	42.4	39.4	39.0	57.0	54.2	52.8	40.5	39.9	37.7	37.1	34.2	33.7	D	D	D	D	D	C	C	C	C	D	D	D	C	C	C	C	C	C			
B3	64.0	60.6	58.6	42.8	42.1	39.6	38.8	34.8	34.1	59.6	56.3	54.3	38.3	37.7	35.2	34.4	30.5	29.8	D	D	D	C	C	C	C	C	C	D	D	D	C	C	C	C	C	C			
B4	77.4	73.2	71.4	53.6	52.9	49.9	49.1	44.7	43.8	71.7	67.7	65.8	48.0	47.3	44.4	43.6	39.2	38.4	D	D	D	C	C	C	C	C	C	D	D	D	C	C	C	C	C	C			
C1	66.4	64.2	60.0	35.7	34.3	33.1	31.7	27.2	25.8	65.5	63.1	59.0	35.0	33.5	32.3	30.9	26.5	25.1	D	D	C	B	B	B	B	B	B	D	D	C	B	B	B	B	B	B			
C2	90.7	85.1	83.0	55.3	54.2	49.8	48.4	42.3	41.0	87.0	81.5	79.8	51.7	50.8	46.5	45.0	38.9	37.6	D	D	D	C	C	C	C	B	B	D	D	D	C	C	C	C	B	B			
C3	94.2	89.5	89.9	62.4	61.0	57.6	56.3	53.5	52.4	88.9	84.3	84.5	57.1	55.8	53.0	51.1	48.3	47.2	D	D	D	C	C	C	C	C	C	D	D	D	C	C	C	C	C	C			
C4	106.0	101.0	99.6	71.8	70.4	67.2	65.8	61.5	60.0	99.8	94.9	93.5	65.9	64.5	61.3	59.7	55.6	54.1	D	D	D	C	C	C	C	C	C	D	D	D	C	C	C	C	C	C			
D1	97.4	91.9	92.1	53.8	51.9	48.0	46.2	42.7	40.9	95.9	90.5	90.7	52.8	51.0	47.1	45.2	41.8	39.9	D	D	D	B	B	B	B	B	B	D	D	D	B	B	B	B	B	B			
D2	116.1	110.0	110.4	71.3	69.3	64.9	63.0	59.1	57.2	111.9	105.8	106.2	67.5	65.5	61.2	59.3	55.5	53.6	D	D	D	C	C	C	C	C	B	D	D	D	C	C	C	C	B	B			
D3	130.6	123.9	124.6	85.5	83.6	78.8	76.8	72.9	71.0	124.9	118.3	118.9	79.8	78.0	73.3	71.3	67.3	65.4	D	D	D	C	C	C	C	C	C	D	D	D	C	C	C	C	C	C			
E1	112.6	109.8	109.3	63.8	61.9	60.8	58.9	57.4	55.5	110.9	108.1	107.6	63.2	60.9	59.7	57.8	56.4	54.5	D	D	D	B	B	B	B	B	B	D	D	D	B	B	B	B	B	B			
CO <sub>2</sub> emissions - RICAS (kg CO <sub>2</sub> /m <sup>2</sup> .year)										CO <sub>2</sub> emissions - RITE (kg CO <sub>2</sub> /m <sup>2</sup> .year)										CO <sub>2</sub> emissions rating - RICAS										CO <sub>2</sub> emissions rating RITE									
CZ	B	C	R	E8	E10	E8+C	E10+C	E8+C+R	E10+C+R	B	C	R	E8	E10	E8+C	E10+C	E8+C+R	E10+C+R	B	C	R	E8	E10	E8+C	E10+C	E8+C+R	E10+C+R	B	C	R	E8	E10	E8+C	E10+C	E8+C+R	E10+C+R			
α	17.8	17.5	17.4	18.0	18.0	17.6	17.6	17.2	17.2	15.9	15.6	15.5	16.0	15.9	15.6	15.6	15.2	15.2	G	G	G	G	G	G	G	F	F	F	F	F	F	F	F	F	F	E	E		
A3	14.3	13.9	13.5	11.2	11.1	10.8	10.7	10.2	10.1	13.6	13.2	12.8	10.5	10.4	10.1	10.0	9.5	9.4	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D		
A4	16.8	16.2	15.9	13.4	13.3	12.9	12.7	12.2	12.1	15.8	15.3	15.0	12.5	12.3	11.9	11.8	11.3	11.2	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D		
B3	17.7	17.1	16.6	13.3	13.2	12.7	12.5	11.7	11.6	17.0	16.3	15.9	12.5	12.4	11.9	11.8	11.0	10.8	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	C	C		
B4	19.9	19.1	18.7	15.0	14.9	14.3	14.2	13.3	13.1	18.9	18.1	17.7	14.1	13.9	13.4	13.2	12.3	12.2	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	C	C		
C1	19.6	19.1	18.2	13.1	12.8	12.5	12.3	11.3	11.0	19.4	18.9	18.0	12.9	12.6	12.4	12.1	11.2	10.9	D	D	D	C	C	C	C	C	C	D	D	D	C	C	C	C	C	C	C		
C2	24.1	22.9	22.5	16.6	16.4	15.4	15.2	13.9	13.6	23.4	22.2	21.9	15.9	15.8	14.9	14.5	13.3	13.0	E	D	D	D	D	D	C	C	C	D	D	D	D	D	C	C	C	C	C		
C3	24.1	23.2	23.2	17.4	17.1	16.5	16.2	15.6	15.4	23.2	22.3	22.3	16.5	16.2	15.7	15.3	14.7	14.5	D	D	D	D	D	D	D	C	C	D	D	D	D	D	C	C	C	C	C		
C4	26.1	25.2	24.8	19.0	18.7	18.1	17.8	17.0	16.7	25.0	24.1	23.8	18.0	17.7	17.1	16.8	15.9	15.6	D	D	D	D	D	D	D	D	C	D	D	D	D	D	D	C	C	C	C		
D1	26.4	25.2	25.3	17.2	16.8	16.0	15.6	14.8	14.4	26.1	24.9	25.0	17.0	16.6	15.8	15.3	14.6	14.2	D	D	D	C	C	C	C	C	C	D	D	D	C	C	C	C	C	C	C		
D2	29.7	28.4	28.5	20.2	19.8	18.8	18.4	17.6	17.2	28.9	27.6	27.7	19.5	19.1	18.2	17.8	17.0	16.6	D	D	D	D	C	C	C	C	C	D	D	D	C	C	C	C	C	C	C		
D3	32.0	30.6	30.7	22.4	22.0	21.1	20.6	19.8	19.4	30.9	29.6	29.7	21.4	21.0	20.1	19.7	18.8	18.4	D	D	D	D	D	C	C	C	C	D	D	D	D	C	C	C	C	C	C		
E1	29.8	29.2	29.1	19.5	19.1	18.8	18.4	18.1	17.7	29.5	28.9	28.8	19.4	18.9	18.6	18.2	17.9	17.5	D	D	D	C	C	C	C	C	C	D	D	D	C	C	C	C	C	C	C		