

## INDEX

1. LOAD CALCULATION SUMMARY.....	2
1.1. Cooling.....	2
1.2. Heating.....	3
1.3. Graphs.....	4
2. LOAD CALCULATION PER SPACE.....	7
2.1. Cooling.....	7
2.2. Heating.....	87
2.3. Graphs.....	135

## Loads summary

### 1. LOAD CALCULATION SUMMARY

#### 1.1. Cooling

#### Zone cooling loads summary: Offices and corridors

	External					Internal		Ventilation			Total			
	A (m <sup>2</sup> )	Conduction (W)	Solar (W)	Lat. inf. (W)	Sens. inf. (W)	Lat. (W)	Sens. (W)	Airflow (l/s)	Lat. (W)	Sens. (W)	Lat. (W)	Sens. (W)	Total (W/m <sup>2</sup> )	Total (W)
Peak cooling loads per space														
Office 1	13.92	89.47	502.70	0.00	0.00	156.62	484.46	29.58	-0.51	77.09	156.11	1153.73	94.08	1309.84
Office 2	31.34	103.26	457.41	0.00	0.00	352.62	1062.51	66.61	48.38	244.22	401.01	1867.39	72.37	2268.40
Meeting room	33.14	145.43	718.97	0.00	0.00	745.74	1619.86	140.86	102.33	516.49	848.07	3000.74	116.12	3848.81
Office 3	16.75	61.60	1345.15	0.00	0.00	188.48	565.97	35.60	-0.62	92.77	187.86	2065.50	134.50	2253.36
Office 4	21.85	89.55	806.81	0.00	0.00	245.84	745.87	46.44	23.42	155.80	269.26	1798.03	94.60	2067.29
Office 5	31.34	96.09	460.87	0.00	0.00	352.62	1070.68	66.61	48.38	244.22	401.01	1871.86	72.51	2272.87
Meeting room 2	33.14	258.48	742.66	0.00	0.00	745.74	1649.48	140.86	102.33	516.49	848.07	3167.11	121.14	4015.18
Office 7	16.75	-37.61	1371.05	0.00	0.00	188.48	566.12	35.60	17.51	-70.83	205.99	1828.73	121.45	2034.72
Office 6	21.85	84.66	811.73	0.00	0.00	245.84	750.56	46.44	23.42	155.80	269.26	1802.74	94.82	2072.00
Office 8	17.87	141.09	249.56	0.00	0.00	201.09	619.14	37.98	27.59	139.27	228.68	1149.06	77.08	1377.74
Office 10	18.02	130.36	653.24	0.00	0.00	202.74	628.33	38.30	27.82	140.42	230.56	1552.34	98.93	1782.91
Office 9	19.46	166.65	439.85	0.00	0.00	218.88	683.97	41.34	30.03	151.59	248.91	1442.06	86.91	1690.97
Zone simultaneous peak cooling load: 21 of July at 16h (15 apparent solar time)														
Offices and corridors	275.46							726.22			4372.25	22174.90	96.37	26547.14

#### Abbreviations

A	Area
Conduction	Conduction heating load
Solar	Solar heating load
Lat. inf.	Latent infiltration

## Loads summary

Sens. inf.	Sensible infiltration
Lat.	Latent
Sens.	Sensible

### 1.2. Heating

#### Zone heating loads summary: Offices and corridors

	External				Ventilation			Total			
	A (m <sup>2</sup> )	Conduction (W)	Lat. inf. (W)	Sens. inf. (W)	Airflow (l/s)	Lat. (W)	Sens. (W)	Lat. (W)	Sens. (W)	Total (W/m <sup>2</sup> )	Total (W)
Peak heating loads per space											
Office 1	13.92	921.39	0.00	0.00	29.58	171.87	846.12	171.87	1767.51	139.30	1939.38
Office 2	31.34	1086.25	0.00	0.00	66.61	386.95	1904.96	386.95	2991.21	107.78	3378.16
Meeting room	33.14	1068.55	0.00	0.00	140.86	818.35	4028.73	818.35	5097.29	178.48	5915.64
Office 3	16.75	585.41	0.00	0.00	35.60	206.83	1018.23	206.83	1603.63	108.06	1810.46
Office 4	21.85	683.92	0.00	0.00	46.44	269.78	1328.11	269.78	2012.03	104.42	2281.81
Office 5	31.34	1019.59	0.00	0.00	66.61	386.95	1904.96	386.95	2924.56	105.65	3311.51
Meeting room 2	33.14	1109.60	0.00	0.00	140.86	818.35	4028.73	818.35	5138.33	179.72	5956.68
Office 7	16.75	541.96	0.00	0.00	35.60	206.83	1018.23	206.83	1560.19	105.47	1767.02
Office 6	21.85	645.74	0.00	0.00	46.44	269.78	1328.11	269.78	1973.86	102.67	2243.64
Office 8	17.87	800.58	0.00	0.00	37.98	220.66	1086.32	220.66	1886.90	117.91	2107.57
Office 10	18.02	894.47	0.00	0.00	38.30	222.48	1095.27	222.48	1989.75	122.75	2212.23
Office 9	19.46	747.19	0.00	0.00	41.34	240.19	1182.43	240.19	1929.62	111.53	2169.81
Zone simultaneous peak heating load											
Offices and corridors	275.46				726.22			4219.03	30874.87	127.40	35093.90

#### Abbreviations

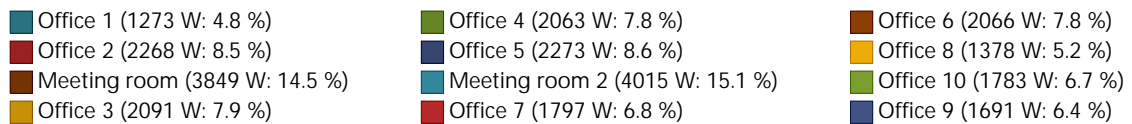
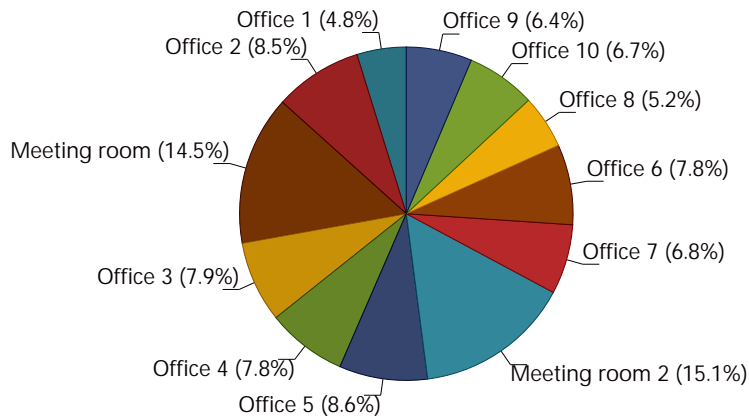
## Loads summary

	A	Area
Conduction		Conduction heating load
Lat. inf.		Latent infiltration
Sens. inf.		Sensible infiltration
Lat.		Latent
Sens.		Sensible

### 1.3. Graphs

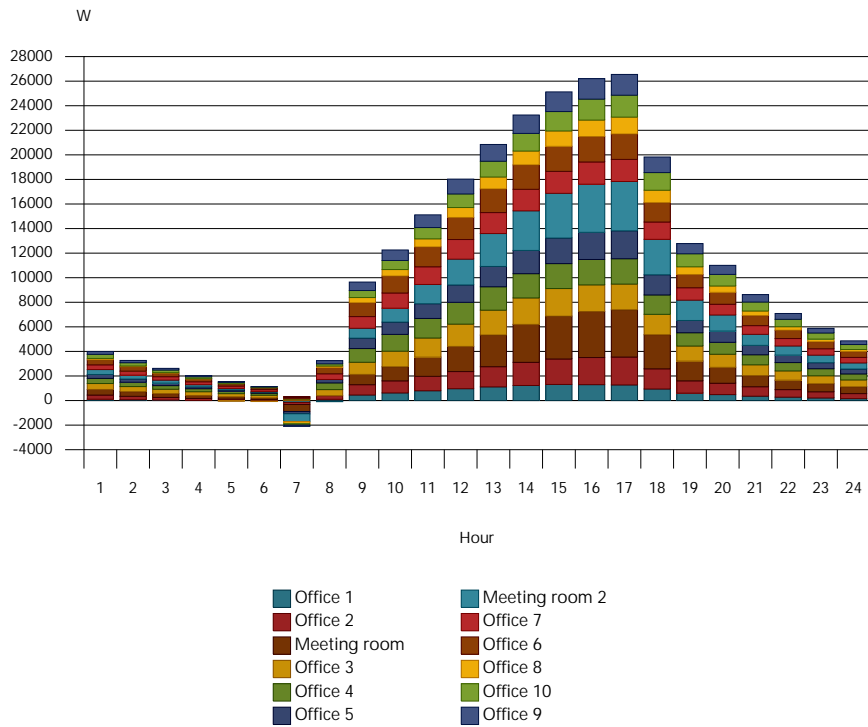
Simultaneous peak cooling load (26547 W)

21 of July at 16h (15 apparent solar time)

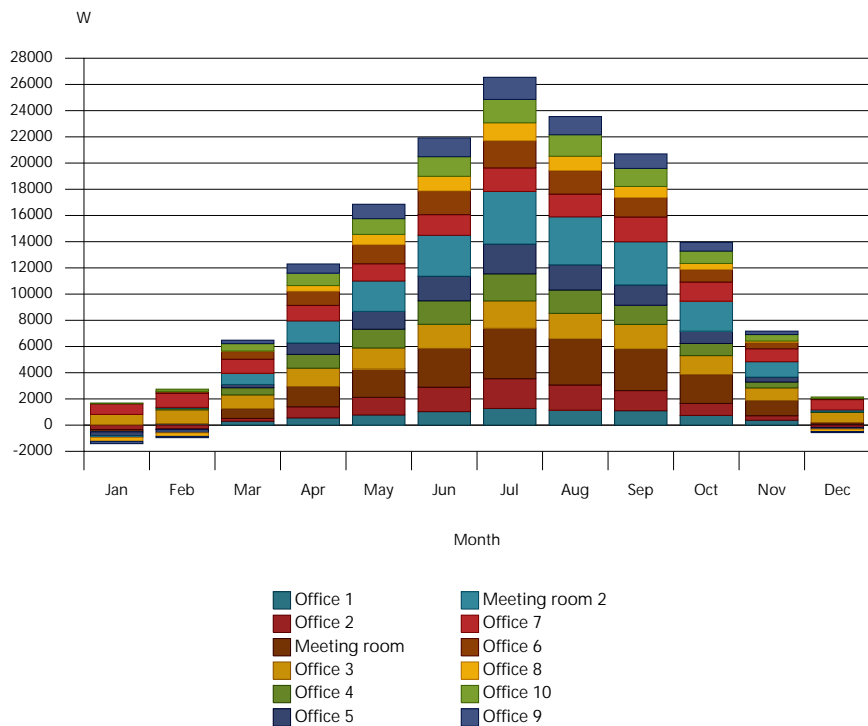


Hourly peak cooling load progression (21 of July)

## Loads summary

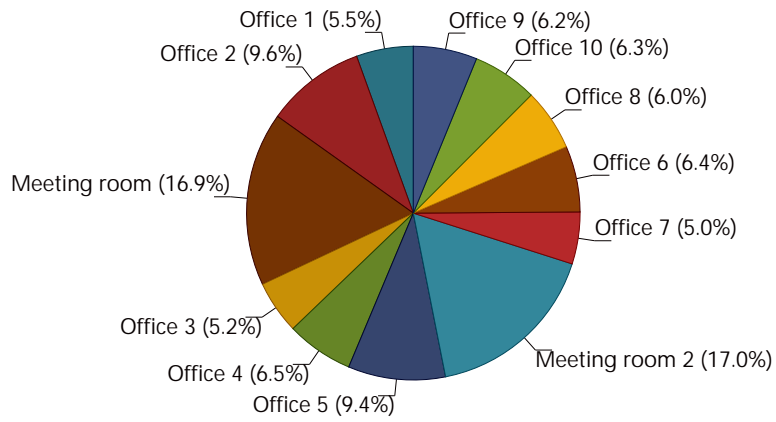


## Annual peak cooling load progression



## Loads summary

Peak heating load (35094 W)



Office 1 (1939 W: 5.5 %)  
Office 2 (3378 W: 9.6 %)  
Meeting room (5916 W: 16.9 %)  
Office 3 (1810 W: 5.2 %)

Office 4 (2282 W: 6.5 %)  
Office 5 (3312 W: 9.4 %)  
Meeting room 2 (5957 W: 17.0 %)  
Office 7 (1767 W: 5.0 %)

Office 6 (2244 W: 6.4 %)  
Office 8 (2108 W: 6.0 %)  
Office 10 (2212 W: 6.3 %)  
Office 9 (2170 W: 6.2 %)

## Loads summary

### 2. LOAD CALCULATION PER SPACE

#### 2.1. Cooling

Peak cooling load	
Space: Office 1	Zone: Offices and corridors
Net floor area = 13.92 m <sup>2</sup> Net volume = 47.38 m <sup>3</sup>	
<b>Design conditions</b>	
Indoor:	Outdoor:
Space air temperature = 24.00 °C	Dry-bulb temperature = 26.19 °C
Relative humidity = 50.00%	Wet-bulb temperature = 17.79 °C
Time of peak cooling load: 21 of July at 14h (13 apparent solar time)	

### Conduction heat gains (opaque surfaces)

	T <sub>sa</sub>	Ori.	A	U	a	Tilt	Convective component	Radiative component	Sensible load
	(°C)	(°)	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))		(°)	(W)	(W)	(W)
Exterior surface									
Façade (S)	42.10	S(180)	8.53	0.283	0.60	V(90)	3.42	1.10	4.52

## Loads summary

Façade (E)	29.91	E(90)	15.80	0.283	0.60	V(90)	21.72	12.42	34.14
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TOTAL: 38.65

	A	U	b	Tilt	Convective component	Radiative component	Sensible load
	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))		(°)	(W)	(W)	(W)

### Zone boundary partition

Partition wall	15.22	1.643	0.48	V(90)	14.33	1.38	15.71
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TOTAL: 15.71

	A	U	T <sub>ad</sub>	Convective component	Radiative component	Sensible load
	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))	(°C)	(W)	(W)	(W)

### Internal partition

Partition wall	9.57	1.643	25.10	9.32	0.90	10.21
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TOTAL: 10.21

	Length	Y	Sensible load
	(m)	(W/(m <sup>2</sup> ·K))	(W)

### Linear thermal bridges

Outward	2.81	0.600	3.70
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## Loads summary

Outward	4.95	0.600	6.52
Outward	2.81	0.325	2.01
Outward	4.07	0.325	2.90
Outward	0.74	0.325	0.53
Outward	3.40	0.100	0.75
<b>TOTAL:</b>			<b>16.40</b>

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### Abbreviations

$T_{sa}$	Sol-air temperature
Ori.	Orientation
A	Area
U	Heat transmission coefficient
a	Absorptance
b	Adjacent space correction factor
Tilt	Tilt angle
$T_{ad}$	Adjacent space temperature
Length	Length
Y	Linear thermal transmission coefficient of the thermal bridge

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### Conduction heat gains (fenestration)

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## Loads summary

	Ori.	A	U <sub>global</sub>		Convective component	Radiative component	Sensible load
	(°)	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))		(W)	(W)	(W)

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### Exterior surface

Exterior window	S(180)	1.04	2.000		3.06	0.17	3.23
Exterior window	E(90)	1.04	2.000		3.06	0.17	3.23

TOTAL: 6.46

	A	U <sub>global</sub>	b	Tilt	Convective component	Radiative component	Sensible load
	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))		(°)	(W)	(W)	(W)

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### Zone boundary partition

Interior door	1.62	2.000	0.48	V(90)	1.86	0.18	2.04
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TOTAL: 2.04

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### Abbreviations

Ori.	Orientation
A	Area
U <sub>global</sub>	Fenestration global thermic coefficient
b	Adjacent space correction factor

## Loads summary

Tilt	Tilt angle
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### Solar radiation heat gain

	Ori.	A	A <sub>s</sub>	q	SHGC	Beam solar heat gain	Diffuse solar heat gain	Sensible load
	(°)	(m <sup>2</sup> )	(m <sup>2</sup> )	(°)		(W)	(W)	(W)
Exterior surface								
Exterior window	S(180)	1.04	1.04	60.28	0.70	302.11	136.03	291.92
Exterior window	E(90)	1.04	1.04	102.60	0.70	0.00	102.41	210.78
							TOTAL:	502.70

### Abbreviations

Ori.	Orientation
A	Area
A <sub>s</sub>	Sunlit area
q	Incident angle
SHGC	Center-of-glazing solar heat gain coefficient, SHGC

## Loads summary

### Internal heat gains

	Sensible heat gain (W)	Convective component (W)	Radiative component (W)	Latent cooling gain/load (W)	Sensible load (W)
Internal gains					
Occupancy	243.64	97.45	124.69	156.62	222.14
Lighting	118.84	97.45	18.53	-	115.98
Internal equipment	150.36	120.29	26.05	0.00	146.34
TOTAL:				156.62	484.46

### Ventilation and infiltration heat gains

	Airflow rate (l/s)	Sensible heat recovery (W)	Latent heat recovery (W)	Latent load (W)	Sensible load (W)
Ventilation					
Ventilation	29.58	0.00	0.00	-0.51	77.09
TOTAL:				-0.51	77.09

## Loads summary

Total cooling load						
Total load per unit area  (W/m <sup>2</sup> )	Sensible heat factor	Latent load  (W)	Latent cooling factor (0.0%)  (W)	Sensible load  (W)	Sensible cooling factor (0.0%)  (W)	TOTAL COOLING LOAD
94.08	0.88	156.11	0.0	1153.73	0.0	1309.84 W

## Loads summary

Peak cooling load	
Space: Office 2	Zone: Offices and corridors
Net floor area = 31.34 m <sup>2</sup> Net volume = 106.67 m <sup>3</sup>	
Design conditions	
Indoor:	Outdoor:
Space air temperature = 24.00 °C	Dry-bulb temperature = 27.10 °C
Relative humidity = 50.00%	Wet-bulb temperature = 18.30 °C
Time of peak cooling load: 21 of July at 16h (15 apparent solar time)	

### Conduction heat gains (opaque surfaces)

	T <sub>sa</sub> (°C)	Ori. (°)	A (m <sup>2</sup> )	U (W/(m <sup>2</sup> ·K))	a (°)	Tilt (°)	Convective component (W)	Radiative component (W)	Sensible load (W)
Exterior surface									
Façade (N)	30.19	N(0)	18.10	0.283	0.60	V(90)	3.88	0.92	4.80
								TOTAL:	4.80
	A (m <sup>2</sup> )	U (W/(m <sup>2</sup> ·K))	b	Tilt (°)	Convective component (W)	Radiative component (W)	Sensible load (W)		

## Loads summary

### Zone boundary partition

Party wall	12.96	0.661	1.00 V(90)	14.32	2.17	16.49
Partition wall	9.97	1.643	0.30 V(90)	8.18	1.24	9.42
Partition wall	10.16	1.643	0.10 V(90)	2.73	0.41	3.15
Partition wall	3.04	1.643	0.30 V(90)	2.49	0.38	2.87

TOTAL: 31.92

A	U	$T_{ad}$	Convective component	Radiative component	Sensible load
(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))	(°C)	(W)	(W)	(W)

### Internal partition

Internal floor slab	31.34	0.473	25.55	12.41	1.88	14.29
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TOTAL: 14.29

Length	Y	Sensible load
(m)	(W/(m <sup>2</sup> ·K))	(W)

### Linear thermal bridges

Outward	3.81	0.325	3.83
Outward	7.13	0.325	7.17

## Loads summary

Outward	3.81	0.325	3.83
Outward	7.13	0.325	7.17
Outward	3.40	0.100	1.05
<b>TOTAL:</b>			<b>23.07</b>

### Abbreviations

T <sub>sa</sub>	Sol-air temperature
Ori.	Orientation
A	Area
U	Heat transmission coefficient
a	Absorptance
b	Adjacent space correction factor
Tilt	Tilt angle
T <sub>ad</sub>	Adjacent space temperature
Length	Length
Y	Linear thermal transmission coefficient of the thermal bridge

### Conduction heat gains (fenestration)

Ori.	A	U <sub>global</sub>	Convective component	Radiative component	Sensible load
(°)	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))	(W)	(W)	(W)



## Loads summary

Exterior surface							
Exterior window	N(0)	3.08	2.000		12.78	1.12	13.90
Exterior window	N(0)	3.08	2.000		12.78	1.12	13.90
TOTAL:							27.80
	A	$U_{global}$	b	Tilt	Convective component	Radiative component	Sensible load
	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))		(°)	(W)	(W)	(W)
Zone boundary partition							
Interior door	3.65	2.000	0.10	V(90)	1.20	0.18	1.38
TOTAL:							1.38

### Abbreviations

Ori.	Orientation
A	Area
$U_{global}$	Fenestration global thermic coefficient
b	Adjacent space correction factor
Tilt	Tilt angle

## Loads summary

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### Solar radiation heat gain

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	Ori.	A	A <sub>s</sub>	q	SHGC	Beam solar heat gain (W)	Diffuse solar heat gain (W)	Sensible load (W)
	(°)	(m <sup>2</sup> )	(m <sup>2</sup> )	(°)				
Exterior surface								
Exterior window	N(0)	3.08	3.08	108.35	0.70	0.00	251.98	228.70
Exterior window	N(0)	3.08	3.08	108.35	0.70	0.00	251.98	228.70
TOTAL:								457.41

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### Abbreviations

Ori.	Orientation
A	Area
A <sub>s</sub>	Sunlit area
q	Incident angle
SHGC	Center-of-glazing solar heat gain coefficient, SHGC

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### Internal heat gains

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## Loads summary

	Sensible heat gain  (W)	Convective component  (W)	Radiative component  (W)	Latent cooling gain/load  (W)	Sensible load  (W)
<b>Internal gains</b>					
Occupancy	548.52	219.41	259.34	352.62	478.75
Lighting	267.55	219.39	38.89	-	258.28
Internal equipment	338.52	270.81	54.67	0.00	325.48
<b>TOTAL:</b>				352.62	1062.51

## Ventilation and infiltration heat gains

	Airflow rate  (l/s)	Sensible heat recovery  (W)	Latent heat recovery  (W)	Latent load  (W)	Sensible load  (W)
<b>Ventilation</b>					
Ventilation	66.61	0.00	0.00	48.38	244.22
<b>TOTAL:</b>				48.38	244.22

**Total cooling load**

## Loads summary

Total load per unit area  (W/m <sup>2</sup> )	Sensible heat factor	Latent load  (W)	Latent cooling factor (0.0%)  (W)	Sensible load  (W)	Sensible cooling factor (0.0%)  (W)	TOTAL COOLING LOAD
72.37	0.82	401.01	0.0	1867.39	0.0	2268.40 W

## Loads summary

Peak cooling load	
Space: Meeting room	Zone: Offices and corridors
Net floor area = 33.14 m <sup>2</sup> Net volume = 112.79 m <sup>3</sup>	
Design conditions	
Indoor:	Outdoor:
Space air temperature = 24.00 °C	Dry-bulb temperature = 27.10 °C
Relative humidity = 50.00%	Wet-bulb temperature = 18.30 °C
Time of peak cooling load: 21 of July at 16h (15 apparent solar time)	

### Conduction heat gains (opaque surfaces)

	T <sub>sa</sub>	Ori.	A	U	a	Tilt	Convective component	Radiative component	Sensible load
	(°C)	(°)	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))		(°)	(W)	(W)	(W)
Exterior surface									
Façade (S)	37.54	S(180)	19.01	0.283	0.60	V(90)	21.67	8.49	30.16
Façade (E)	30.19	E(90)	11.75	0.283	0.60	V(90)	16.06	8.62	24.69
TOTAL:								54.85	

### Loads summary

	A (m <sup>2</sup> )	U (W/(m <sup>2</sup> ·K))	b	Tilt (°)	Convective component (W)	Radiative component (W)	Sensible load (W)
<b>Zone boundary partition</b>							
Party wall	19.36	0.661	1.00	V(90)	21.39	2.61	24.00
Partition wall	1.85	0.390	-0.04	V(90)	-0.05	-0.01	-0.06
Partition wall	1.28	0.390	-0.04	V(90)	-0.04	0.00	-0.04
Partition wall	3.11	0.390	0.08	V(90)	0.17	0.02	0.19
Partition wall	12.68	1.643	0.10	V(90)	3.41	0.42	3.83
Partition wall	5.07	0.390	-0.04	V(90)	-0.15	-0.02	-0.16
Internal floor slab	33.15	0.473	0.48	H(180)	12.69	1.55	14.24

TOTAL: 41.99

	Length (m)	Y (W/(m <sup>2</sup> ·K))	Sensible load (W)
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#### Linear thermal bridges

Outward	5.69	0.325	5.73
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## Loads summary

Outward	6.49	0.325	6.53
Outward	3.45	0.325	3.47
Outward	3.40	0.100	1.05
Outward	5.69	0.325	5.73
Outward	6.49	0.325	6.53
Outward	3.45	0.325	3.47
Outward	3.40	0.100	1.05
TOTAL:			33.57

## Abbreviations

$T_{sa}$	Sol-air temperature
Ori.	Orientation
A	Area
U	Heat transmission coefficient
a	Absorptance
b	Adjacent space correction factor
Tilt	Tilt angle
Length	Length
Y	Linear thermal transmission coefficient of the thermal bridge

## Conduction heat gains (fenestration)

## Loads summary

	Ori.	A	U <sub>global</sub>	Convective component	Radiative component	Sensible load
	(°)	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))	(W)	(W)	(W)

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### Exterior surface

Exterior window	S(180)	3.08	2.000	12.78	0.90	13.68
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TOTAL: 13.68

	A	U <sub>global</sub>	b	Tilt	Convective component	Radiative component	Sensible load
	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))		(°)	(W)	(W)	(W)

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### Zone boundary partition

Interior door	3.65	2.000	0.10	V(90)	1.20	0.15	1.34
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TOTAL: 1.34

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### Abbreviations

Ori.	Orientation
A	Area
U <sub>global</sub>	Fenestration global thermic coefficient
b	Adjacent space correction factor
Tilt	Tilt angle



## Loads summary

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### Solar radiation heat gain

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	Ori.	A	A <sub>s</sub>	q	SHGC	Beam solar heat gain	Diffuse solar heat gain	Sensible load
	(°)	(m <sup>2</sup> )	(m <sup>2</sup> )	(°)		(W)	(W)	(W)

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#### Exterior surface

Exterior window	S(180)	3.08	3.08	71.65	0.70	534.56	317.29	718.97
TOTAL:							718.97	

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#### Abbreviations

Ori.	Orientation
A	Area
A <sub>s</sub>	Sunlit area
q	Incident angle
SHGC	Center-of-glazing solar heat gain coefficient, SHGC

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### Internal heat gains

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## Loads summary

	Sensible heat gain  (W)	Convective component  (W)	Radiative component  (W)	Latent cooling gain/load  (W)	Sensible load  (W)
<b>Internal gains</b>					
Occupancy	1160.05	464.02	539.92	745.74	1003.94
Lighting	282.92	231.99	40.55	-	272.55
Internal equipment	357.96	286.37	57.01	0.00	343.37
<b>TOTAL:</b>				745.74	1619.86

## Ventilation and infiltration heat gains

	Airflow rate  (l/s)	Sensible heat recovery  (W)	Latent heat recovery  (W)	Latent load  (W)	Sensible load  (W)
<b>Ventilation</b>					
Ventilation	140.86	0.00	0.00	102.33	516.49
<b>TOTAL:</b>				102.33	516.49

**Total cooling load**

## Loads summary

Total load per unit area  (W/m <sup>2</sup> )	Sensible heat factor	Latent load  (W)	Latent cooling factor (0.0%)  (W)	Sensible load  (W)	Sensible cooling factor (0.0%)  (W)	TOTAL COOLING LOAD
116.12	0.78	848.07	0.0	3000.74	0.0	3848.81 W

## Loads summary

Peak cooling load	
Space: Office 3	Zone: Offices and corridors
Net floor area = 16.75 m <sup>2</sup> Net volume = 57.02 m <sup>3</sup>	
Design conditions	
Indoor:	Outdoor:
Space air temperature = 24.00 °C	Dry-bulb temperature = 26.19 °C
Relative humidity = 50.00%	Wet-bulb temperature = 17.79 °C
Time of peak cooling load: 21 of July at 14h (13 apparent solar time)	

### Conduction heat gains (opaque surfaces)

	T <sub>sa</sub>	Ori.	A	U	a	Tilt	Convective component	Radiative component	Sensible load
	(°C)	(°)	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))		(°)	(W)	(W)	(W)
Exterior surface									
Façade (S)	42.10	S(180)	11.48	0.283	0.60	V(90)	4.60	1.65	6.25
Façade (E)	29.91	E(90)	10.77	0.283	0.60	V(90)	14.79	7.68	22.48
								TOTAL:	28.73

## Loads summary

	A (m <sup>2</sup> )	U (W/(m <sup>2</sup> ·K))	b	Tilt (°)	Convective component (W)	Radiative component (W)	Sensible load (W)
<b>Zone boundary partition</b>							
Partition wall	3.84	1.643	0.10	V(90)	0.73	-0.04	0.69
Partition wall	1.29	1.643	0.10	V(90)	0.25	-0.01	0.23
Partition wall	5.17	0.390	0.08	V(90)	0.20	-0.01	0.19
Partition wall	1.96	0.390	-0.04	V(90)	-0.04	0.00	-0.04
Internal floor slab	4.74	0.473	0.48	H(180)	1.29	-0.07	1.22
<b>TOTAL:</b>							<b>2.30</b>

	Length (m)	Y (W/(m <sup>2</sup> ·K))	Sensible load (W)
<b>Linear thermal bridges</b>			
Outward	1.39	0.325	0.99
Outward	2.81	0.325	2.01
Outward	4.07	0.325	2.90
Outward	4.34	0.325	3.09

## Loads summary

Outward	4.07	0.325	2.90
Outward	3.40	0.100	0.75
TOTAL:			12.64

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### Abbreviations

T <sub>sa</sub>	Sol-air temperature
Ori.	Orientation
A	Area
U	Heat transmission coefficient
a	Absorptance
b	Adjacent space correction factor
Tilt	Tilt angle
Length	Length
Y	Linear thermal transmission coefficient of the thermal bridge

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### Conduction heat gains (fenestration)

	Ori.	A	U <sub>global</sub>	Convective component	Radiative component	Sensible load
	(°)	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))	(W)	(W)	(W)

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Exterior surface

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## Loads summary

Exterior window	S(180)	3.08	2.000	9.06	-0.27	8.79
Exterior window	E(90)	3.08	2.000	9.06	-0.27	8.79
TOTAL:						17.58

A	U <sub>global</sub>	b	Tilt	Convective component	Radiative component	Sensible load
(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))		(°)	(W)	(W)	(W)

### Zone boundary partition

Interior door	1.62	2.000	0.10	V(90)	0.38	-0.02	0.36
TOTAL:						0.36	

### Abbreviations

Ori.	Orientation
A	Area
U <sub>global</sub>	Fenestration global thermic coefficient
b	Adjacent space correction factor
Tilt	Tilt angle

### Solar radiation heat gain

## Loads summary

	Ori.	A	A <sub>s</sub>	q	SHGC	Beam solar heat gain	Diffuse solar heat gain	Sensible load
	(°)	(m <sup>2</sup> )	(m <sup>2</sup> )	(°)		(W)	(W)	(W)
<hr/> Exterior surface <hr/>								
Exterior window	S(180)	3.08	3.08	60.28	0.70	894.47	402.76	720.44
Exterior window	E(90)	3.08	3.08	102.60	0.70	0.00	303.21	624.72
							TOTAL:	1345.15

### Abbreviations

Ori.	Orientation
A	Area
A <sub>s</sub>	Sunlit area
q	Incident angle
SHGC	Center-of-glazing solar heat gain coefficient, SHGC

### Internal heat gains



## Loads summary

	Sensible heat gain  (W)	Convective component  (W)	Radiative component  (W)	Latent cooling gain/load  (W)	Sensible load  (W)
<b>Internal gains</b>					
Occupancy	293.19	117.28	137.14	188.48	254.42
Lighting	143.01	117.27	20.59	-	137.86
Internal equipment	180.94	144.75	28.94	0.00	173.70
<b>TOTAL:</b>				188.48	565.97

## Ventilation and infiltration heat gains

	Airflow rate  (l/s)	Sensible heat recovery  (W)	Latent heat recovery  (W)	Latent load  (W)	Sensible load  (W)
<b>Ventilation</b>					
Ventilation	35.60	0.00	0.00	-0.62	92.77
<b>TOTAL:</b>				-0.62	92.77

**Total cooling load**

## Loads summary

Total load per unit area  (W/m <sup>2</sup> )	Sensible heat factor	Latent load  (W)	Latent cooling factor (0.0%)  (W)	Sensible load  (W)	Sensible cooling factor (0.0%)  (W)	TOTAL COOLING LOAD
134.50	0.92	187.86	0.0	2065.50	0.0	2253.36 W

## Loads summary

Peak cooling load	
Space: Office 4	Zone: Offices and corridors
Net floor area = 21.85 m <sup>2</sup> Net volume = 74.36 m <sup>3</sup>	
Design conditions	
Indoor:	Outdoor:
Space air temperature = 24.00 °C	Dry-bulb temperature = 26.83 °C
Relative humidity = 50.00%	Wet-bulb temperature = 18.15 °C
Time of peak cooling load: 21 of July at 15h (14 apparent solar time)	

## Conduction heat gains (opaque surfaces)

	T <sub>sa</sub>	Ori.	A	U	a	Tilt	Convective component	Radiative component	Sensible load
	(°C)	(°)	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))		(°)	(W)	(W)	(W)
Exterior surface									
Façade (N)	30.27	N(0)	9.92	0.283	0.60	V(90)	0.84	0.01	0.85
Façade (E)	30.27	E(90)	16.39	0.283	0.60	V(90)	23.49	13.10	36.58
TOTAL:								37.43	

## Loads summary

	A	U	b	Tilt	Convective component	Radiative component	Sensible load
	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))		(°)	(W)	(W)	(W)

### Zone boundary partition

Partition wall	1.11	1.643	0.10	V(90)	0.27	0.04	0.31
Internal floor slab	0.64	0.473	0.48	H(180)	0.22	0.03	0.25

TOTAL: 0.56

	A	U	T <sub>ad</sub>	Convective component	Radiative component	Sensible load
	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))	(°C)	(W)	(W)	(W)

### Internal partition

Internal floor slab	18.49	0.473	25.42	6.69	0.87	7.56
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TOTAL: 7.56

	Length	Y	Sensible load
	(m)	(W/(m <sup>2</sup> ·K))	(W)

### Linear thermal bridges

Outward	3.82	0.325	3.51
Outward	0.74	0.325	0.68

## Loads summary

Outward	4.84	0.325	4.45
Outward	3.82	0.325	3.51
Outward	5.72	0.325	5.26
Outward	3.40	0.100	0.96
<b>TOTAL:</b>			<b>18.39</b>

### Abbreviations

$T_{sa}$	Sol-air temperature
Ori.	Orientation
A	Area
U	Heat transmission coefficient
a	Absorptance
b	Adjacent space correction factor
Tilt	Tilt angle
$T_{ad}$	Adjacent space temperature
Length	Length
Y	Linear thermal transmission coefficient of the thermal bridge

### Conduction heat gains (fenestration)

	Ori.	A	U <sub>global</sub>	Convective component	Radiative component	Sensible load

## Loads summary

	(°)	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))	(W)	(W)	(W)
Exterior surface						
Exterior window	N(0)	3.08	2.000	11.68	0.88	12.57
Exterior window	E(90)	3.08	2.000	11.68	0.88	12.57
TOTAL:						25.13

	A	U <sub>global</sub>	b	Tilt	Convective component	Radiative component	Sensible load
	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))		(°)	(W)	(W)	(W)

### Zone boundary partition

Interior door	1.41	2.000	0.10	V(90)	0.42	0.06	0.48
TOTAL:						0.48	

### Abbreviations

Ori.	Orientation
A	Area
U <sub>global</sub>	Fenestration global thermic coefficient
b	Adjacent space correction factor
Tilt	Tilt angle

## Loads summary

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### Solar radiation heat gain

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	Ori.	A	A <sub>s</sub>	q	SHGC	Beam solar heat gain (W)	Diffuse solar heat gain (W)	Sensible load (W)
	(°)	(m <sup>2</sup> )	(m <sup>2</sup> )	(°)				
Exterior surface								
Exterior window	N(0)	3.08	3.08	115.30	0.70	0.00	280.66	232.78
Exterior window	E(90)	3.08	3.08	116.53	0.70	0.00	280.66	574.03
<b>TOTAL:</b>								<b>806.81</b>

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### Abbreviations

Ori.	Orientation
A	Area
A <sub>s</sub>	Sunlit area
q	Incident angle
SHGC	Center-of-glazing solar heat gain coefficient, SHGC

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### Internal heat gains

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## Loads summary

	Sensible heat gain  (W)	Convective component  (W)	Radiative component  (W)	Latent cooling gain/load  (W)	Sensible load  (W)
<b>Internal gains</b>					
Occupancy	382.42	152.97	184.68	245.84	337.65
Lighting	186.53	152.96	27.62	-	180.58
Internal equipment	236.01	188.81	38.83	0.00	227.64
<b>TOTAL:</b>				245.84	745.87

## Ventilation and infiltration heat gains

	Airflow rate  (l/s)	Sensible heat recovery  (W)	Latent heat recovery  (W)	Latent load  (W)	Sensible load  (W)
<b>Ventilation</b>					
Ventilation	46.44	0.00	0.00	23.42	155.80
<b>TOTAL:</b>				23.42	155.80

**Total cooling load**



## Loads summary

Total load per unit area  (W/m <sup>2</sup> )	Sensible heat factor	Latent load  (W)	Latent cooling factor (0.0%)  (W)	Sensible load  (W)	Sensible cooling factor (0.0%)  (W)	TOTAL COOLING LOAD
94.60	0.87	269.26	0.0	1798.03	0.0	2067.29 W

## Loads summary

Peak cooling load	
Space: Office 5	Zone: Offices and corridors
Net floor area = 31.34 m <sup>2</sup> Net volume = 105.75 m <sup>3</sup>	
Design conditions	
Indoor:	Outdoor:
Space air temperature = 24.00 °C	Dry-bulb temperature = 27.10 °C
Relative humidity = 50.00%	Wet-bulb temperature = 18.30 °C
Time of peak cooling load: 21 of July at 16h (15 apparent solar time)	

## Conduction heat gains (opaque surfaces)

	T <sub>sa</sub>	Ori.	A	U	a	Tilt	Convective component	Radiative component	Sensible load
	(°C)	(°)	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))		(°)	(W)	(W)	(W)
Exterior surface									
Façade (N)	30.19	N(0)	17.69	0.283	0.60	V(90)	3.80	0.91	4.70
Roof	26.08	N(0)	14.47	0.248	0.60	H(0)	3.20	-1.22	1.98
TOTAL:									6.68
	A	U	b	Tilt	Convective component	Radiative component	Sensible load		

## Loads summary

	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))	(°)	(W)	(W)	(W)
<b>Zone boundary partition</b>						
Party wall	12.83	0.661	1.00 V(90)	14.18	2.73	16.91
Partition wall	9.97	1.643	0.28 V(90)	7.57	1.46	9.02
Partition wall	10.16	1.643	0.10 V(90)	2.70	0.52	3.22
Partition wall	3.04	1.643	0.28 V(90)	2.30	0.44	2.75
					<b>TOTAL:</b>	<b>31.90</b>

	Length (m)	Y (W/(m <sup>2</sup> ·K))	Sensible load (W)
<b>Linear thermal bridges</b>			
Outward	3.81	0.325	3.83
Outward	7.13	0.325	7.17
Outward	1.46	0.325	1.47
Outward	3.34	0.100	1.04
Outward	2.03	0.500	3.14
Outward	7.13	0.500	11.04
			<b>TOTAL:</b>
			<b>27.69</b>

Abbreviations

## Loads summary

T <sub>sa</sub>	Sol-air temperature
Ori.	Orientation
A	Area
U	Heat transmission coefficient
a	Absorptance
b	Adjacent space correction factor
Tilt	Tilt angle
Length	Length
Y	Linear thermal transmission coefficient of the thermal bridge

### Conduction heat gains (fenestration)

	Ori.	A	U <sub>global</sub>	Convective component	Radiative component	Sensible load
	(°)	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))	(W)	(W)	(W)
Exterior surface						
Exterior window	N(0)	3.08	2.000	12.78	1.42	14.20
Exterior window	N(0)	3.08	2.000	12.78	1.42	14.20
TOTAL:						28.41

## Loads summary

	A (m <sup>2</sup> )	U <sub>global</sub> (W/(m <sup>2</sup> ·K))	b	Tilt (°)	Convective component (W)	Radiative component (W)	Sensible load (W)
<b>Zone boundary partition</b>							
Interior door	3.65	2.000	0.10	V(90)	1.18	0.23	1.41
<b>TOTAL:</b>							1.41

### Abbreviations

Ori.	Orientation
A	Area
U <sub>global</sub>	Fenestration global thermic coefficient
b	Adjacent space correction factor
Tilt	Tilt angle

### Solar radiation heat gain

	Ori.	A	A <sub>s</sub>	q	SHGC	Beam solar heat gain (W)	Diffuse solar heat gain (W)	Sensible load (W)
	(°)	(m <sup>2</sup> )	(m <sup>2</sup> )	(°)				

### Exterior surface

## Loads summary

Exterior window	N(0)	3.08	3.08	108.35	0.70	0.00	251.98	230.44
Exterior window	N(0)	3.08	3.08	108.35	0.70	0.00	251.98	230.44
							TOTAL:	460.87

### Abbreviations

Ori.	Orientation
A	Area
A <sub>s</sub>	Sunlit area
q	Incident angle
SHGC	Center-of-glazing solar heat gain coefficient, SHGC

### Internal heat gains

	Sensible heat gain	Convective component	Radiative component	Latent cooling gain/load	Sensible load
	(W)	(W)	(W)	(W)	(W)

#### Internal gains

Occupancy	548.52	219.41	265.53	352.62	484.94
Lighting	267.55	219.39	39.71	-	259.10

### Loads summary

Internal equipment	338.52	270.81	55.82	0.00	326.64
TOTAL:				352.62	1070.68

### Ventilation and infiltration heat gains

	Airflow rate (l/s)	Sensible heat recovery (W)	Latent heat recovery (W)	Latent load (W)	Sensible load (W)
Ventilation	66.61	0.00	0.00	48.38	244.22
TOTAL:				48.38	244.22

Total cooling load						
Total load per unit area  (W/m <sup>2</sup> )	Sensible heat factor	Latent load (W)	Latent cooling factor (0.0%) (W)	Sensible load (W)	Sensible cooling factor (0.0%) (W)	TOTAL COOLING LOAD
72.51	0.82	401.01	0.0	1871.86	0.0	2272.87 W

## Loads summary

Peak cooling load	
Space: Meeting room 2	Zone: Offices and corridors
Net floor area = 33.14 m <sup>2</sup> Net volume = 110.85 m <sup>3</sup>	
Design conditions	
Indoor:	Outdoor:
Space air temperature = 24.00 °C	Dry-bulb temperature = 27.10 °C
Relative humidity = 50.00%	Wet-bulb temperature = 18.30 °C
Time of peak cooling load: 21 of July at 16h (15 apparent solar time)	

### Conduction heat gains (opaque surfaces)

	T <sub>sa</sub>	Ori.	A	U	a	Tilt	Convective component	Radiative component	Sensible load
	(°C)	(°)	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))		(°)	(W)	(W)	(W)
Exterior surface									
Façade (S)	37.54	S(180)	18.63	0.283	0.60	V(90)	21.24	8.70	29.94
Façade (E)	30.19	E(90)	11.55	0.283	0.60	V(90)	15.79	9.03	24.82
Roof	26.08	N(0)	32.48	0.248	0.60	H(0)	87.83	31.81	119.65
								TOTAL:	174.40



### Loads summary

	A (m <sup>2</sup> )	U (W/(m <sup>2</sup> ·K))	b	Tilt (°)	Convective component (W)	Radiative component (W)	Sensible load (W)
<b>Zone boundary partition</b>							
Party wall	19.03	0.661	1.00	V(90)	21.03	4.16	25.19
Partition wall	1.82	0.390	-0.04	V(90)	-0.05	-0.01	-0.06
Partition wall	1.26	0.390	-0.04	V(90)	-0.04	-0.01	-0.04
Partition wall	3.06	0.390	0.08	V(90)	0.17	0.03	0.20
Partition wall	12.40	1.643	0.10	V(90)	3.29	0.65	3.94
Partition wall	4.98	0.390	-0.04	V(90)	-0.14	-0.03	-0.17
<b>TOTAL:</b>							<b>29.05</b>

	Length (m)	Y (W/(m <sup>2</sup> ·K))	Sensible load (W)
<b>Linear thermal bridges</b>			
Outward	5.69	0.325	5.73
Outward	6.49	0.325	6.53
Outward	3.45	0.325	3.47

## Loads summary

Outward	3.34	0.100	1.04
Outward	3.34	0.100	1.04
Outward	5.60	0.500	8.67
Outward	6.50	0.500	10.06
Outward	1.83	0.500	2.83
<b>TOTAL:</b>			<b>39.37</b>

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### Abbreviations

$T_{sa}$	Sol-air temperature
Ori.	Orientation
A	Area
U	Heat transmission coefficient
a	Absorptance
b	Adjacent space correction factor
Tilt	Tilt angle
Length	Length
Y	Linear thermal transmission coefficient of the thermal bridge

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### Conduction heat gains (fenestration)

	Ori.	A	$U_{global}$	Convective component	Radiative component	Sensible load

## Loads summary

	(°)	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))	(W)	(W)	(W)		
Exterior surface								
Exterior window	S(180)	3.08	2.000	12.78	1.46	14.24		
TOTAL:						14.24		
A		U <sub>global</sub>	b	Tilt	Convective component	Radiative component	Sensible load	
		(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))	(°)	(W)	(W)	(W)	
Zone boundary partition								
Interior door		3.65	2.000	0.10	V(90)	1.18	0.23	1.41
TOTAL:						1.41		

### Abbreviations

Ori.	Orientation
A	Area
U <sub>global</sub>	Fenestration global thermic coefficient
b	Adjacent space correction factor
Tilt	Tilt angle

### Solar radiation heat gain

## Loads summary

	Ori.	A	A <sub>s</sub>	q	SHGC	Beam solar heat gain	Diffuse solar heat gain	Sensible load
	(°)	(m <sup>2</sup> )	(m <sup>2</sup> )	(°)		(W)	(W)	(W)
Exterior surface								
Exterior window	S(180)	3.08	3.08	71.65	0.70	534.56	317.29	742.66
TOTAL:								742.66

### Abbreviations

Ori.	Orientation
A	Area
A <sub>s</sub>	Sunlit area
q	Incident angle
SHGC	Center-of-glazing solar heat gain coefficient, SHGC

### Internal heat gains

Sensible heat gain	Convective component	Radiative component	Latent cooling gain/load	Sensible load
(W)	(W)	(W)	(W)	(W)

## Loads summary

Internal gains					
Occupancy	1160.05	464.02	565.46	745.74	1029.48
Lighting	282.92	231.99	42.25	-	274.24
Internal equipment	357.96	286.37	59.39	0.00	345.76
TOTAL:				745.74	1649.48

## Ventilation and infiltration heat gains

	Airflow rate (l/s)	Sensible heat recovery (W)	Latent heat recovery (W)	Latent load (W)	Sensible load (W)
Ventilation	140.86	0.00	0.00	102.33	516.49
TOTAL:				102.33	516.49

Total cooling load						
	Sensible heat factor	Latent load	Latent cooling factor (0.0%)	Sensible load	Sensible cooling factor (0.0%)	TOTAL COOLING LOAD
Total load per unit area  (W/m <sup>2</sup> )		(W)	(W)	(W)	(W)	

## Loads summary

121.14	0.79	848.07	0.0	3167.11	0.0	4015.18 W
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## Loads summary

Peak cooling load	
Space: Office 7	Zone: Offices and corridors
Net floor area = 16.75 m <sup>2</sup> Net volume = 57.02 m <sup>3</sup>	
Design conditions	
Indoor:	Outdoor:
Space air temperature = 24.00 °C	Dry-bulb temperature = 22.35 °C
Relative humidity = 50.00%	Wet-bulb temperature = 16.61 °C
Time of peak cooling load: 21 of September at 14h (13 apparent solar time)	

### Conduction heat gains (opaque surfaces)

	T <sub>sa</sub>	Ori.	A	U	a	Tilt	Convective component	Radiative component	Sensible load
	(°C)	(°)	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))		(°)	(W)	(W)	(W)
Exterior surface									
Façade (S)	42.35	S(180)	11.48	0.283	0.60	V(90)	2.43	-1.82	0.61
Façade (E)	25.02	E(90)	10.77	0.283	0.60	V(90)	3.47	-1.05	2.42
								TOTAL:	3.03

## Loads summary

	A (m <sup>2</sup> )	U (W/(m <sup>2</sup> ·K))	b	Tilt (°)	Convective component (W)	Radiative component (W)	Sensible load (W)
<b>Zone boundary partition</b>							
Partition wall	3.84	1.643	0.10	V(90)	-0.54	-1.04	-1.59
Partition wall	1.29	1.643	0.10	V(90)	-0.18	-0.35	-0.53
Partition wall	5.17	0.390	0.08	V(90)	-0.15	-0.29	-0.44
Partition wall	1.96	0.390	-0.04	V(90)	0.03	0.06	0.09
Internal floor slab	4.42	0.473	0.17	H(180)	-0.33	-0.63	-0.95
Internal floor slab	1.36	0.473	0.27	H(180)	-0.15	-0.29	-0.45
<b>TOTAL:</b>							<b>-3.87</b>

	Length (m)	Y (W/(m <sup>2</sup> ·K))	Sensible load (W)
<b>Linear thermal bridges</b>			
Outward	4.34	0.325	-2.33
Outward	4.07	0.325	-2.19



## Loads summary

Outward	1.57	0.325	-0.84
Outward	2.32	0.325	-1.25
Outward	3.40	0.100	-0.56
<b>TOTAL:</b>			<b>-7.18</b>

### Abbreviations

T <sub>sa</sub>	Sol-air temperature
Ori.	Orientation
A	Area
U	Heat transmission coefficient
a	Absorptance
b	Adjacent space correction factor
Tilt	Tilt angle
Length	Length
Y	Linear thermal transmission coefficient of the thermal bridge

### Conduction heat gains (fenestration)

	Ori.	A	U <sub>global</sub>	Convective component	Radiative component	Sensible load
	(°)	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))	(W)	(W)	(W)

Exterior surface

## Loads summary

Exterior window	S(180)	3.08	2.000	-6.83	-7.57	-14.39
Exterior window	E(90)	3.08	2.000	-6.83	-7.57	-14.39
TOTAL:						-28.78

A	U <sub>global</sub>	b	Tilt	Convective component	Radiative component	Sensible load
(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))		(°)	(W)	(W)	(W)

### Zone boundary partition

Interior door	1.62	2.000	0.10	V(90)	-0.28	-0.54	-0.82
TOTAL:						-0.82	

### Abbreviations

Ori.	Orientation
A	Area
U <sub>global</sub>	Fenestration global thermic coefficient
b	Adjacent space correction factor
Tilt	Tilt angle

### Solar radiation heat gain

## Loads summary

	Ori.	A	A <sub>s</sub>	q	SHGC	Beam solar heat gain	Diffuse solar heat gain	Sensible load
	(°)	(m <sup>2</sup> )	(m <sup>2</sup> )	(°)		(W)	(W)	(W)
<hr/> Exterior surface <hr/>								
Exterior window	S(180)	3.08	3.08	41.28	0.70	1286.51	345.57	933.05
Exterior window	E(90)	3.08	3.08	106.78	0.70	0.00	217.73	438.00
							TOTAL:	1371.05

### Abbreviations

Ori.	Orientation
A	Area
A <sub>s</sub>	Sunlit area
q	Incident angle
SHGC	Center-of-glazing solar heat gain coefficient, SHGC

### Internal heat gains

## Loads summary

	Sensible heat gain  (W)	Convective component  (W)	Radiative component  (W)	Latent cooling gain/load  (W)	Sensible load  (W)
<b>Internal gains</b>					
Occupancy	293.19	117.28	137.26	188.48	254.53
Lighting	143.01	117.27	20.60	-	137.87
Internal equipment	180.94	144.75	28.96	0.00	173.72
<b>TOTAL:</b>				188.48	566.12

## Ventilation and infiltration heat gains

	Airflow rate  (l/s)	Sensible heat recovery  (W)	Latent heat recovery  (W)	Latent load  (W)	Sensible load  (W)
<b>Ventilation</b>					
Ventilation	35.60	0.00	0.00	17.51	-70.83
<b>TOTAL:</b>				17.51	-70.83

Total cooling load
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## Loads summary

Total load per unit area  (W/m <sup>2</sup> )	Sensible heat factor	Latent load  (W)	Latent cooling factor (0.0%)  (W)	Sensible load  (W)	Sensible cooling factor (0.0%)  (W)	TOTAL COOLING LOAD
121.45	0.90	205.99	0.0	1828.73	0.0	2034.72 W

## Loads summary

Peak cooling load	
Space: Office 6	Zone: Offices and corridors
Net floor area = 21.85 m <sup>2</sup> Net volume = 73.87 m <sup>3</sup>	
Design conditions	
Indoor:	Outdoor:
Space air temperature = 24.00 °C	Dry-bulb temperature = 26.83 °C
Relative humidity = 50.00%	Wet-bulb temperature = 18.15 °C
Time of peak cooling load: 21 of July at 15h (14 apparent solar time)	

### Conduction heat gains (opaque surfaces)

	T <sub>sa</sub>	Ori.	A	U	a	Tilt	Convective component	Radiative component	Sensible load
	(°C)	(°)	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))		(°)	(W)	(W)	(W)
Exterior surface									
Façade (N)	30.27	N(0)	9.70	0.283	0.60	V(90)	0.82	-0.01	0.81
Façade (E)	30.27	E(90)	16.26	0.283	0.60	V(90)	23.30	13.31	36.61
Roof	25.99	N(0)	7.75	0.248	0.60	H(0)	0.87	-1.10	-0.23
								TOTAL:	37.20

## Loads summary

	A (m <sup>2</sup> )	U (W/(m <sup>2</sup> ·K))	b	Tilt (°)	Convective component (W)	Radiative component (W)	Sensible load (W)
<b>Zone boundary partition</b>							
Partition wall	1.02	1.643	0.10	V(90)	0.25	0.04	0.29
<b>TOTAL:</b>							0.29

	Length (m)	Y (W/(m <sup>2</sup> ·K))	Sensible load (W)
<b>Linear thermal bridges</b>			
Outward	3.82	0.325	3.51
Outward	5.72	0.325	5.26
Outward	3.37	0.325	3.10
Outward	3.34	0.100	0.95
Outward	3.82	0.500	5.41
Outward	2.03	0.500	2.87
<b>TOTAL:</b>			21.10

### Abbreviations

T <sub>sa</sub>	Sol-air temperature
Ori.	Orientation

## Loads summary

A	Area
U	Heat transmission coefficient
a	Absorptance
b	Adjacent space correction factor
Tilt	Tilt angle
Length	Length
Y	Linear thermal transmission coefficient of the thermal bridge

### Conduction heat gains (fenestration)

Ori.	A	$U_{global}$	Convective component	Radiative component	Sensible load
(°)	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))	(W)	(W)	(W)

#### Exterior surface

Exterior window	N(0)	3.08	2.000	11.68	1.09	12.78
Exterior window	E(90)	3.08	2.000	11.68	1.09	12.78

TOTAL: 25.56

A	$U_{global}$	b	Tilt	Convective component	Radiative component	Sensible load
(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))		(°)	(W)	(W)	(W)



## Loads summary

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### Zone boundary partition

Interior door	1.50	2.000	0.10	V(90)	0.44	0.07	0.52
TOTAL:							0.52

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### Abbreviations

Ori.	Orientation
A	Area
$U_{global}$	Fenestration global thermic coefficient
b	Adjacent space correction factor
Tilt	Tilt angle

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### Solar radiation heat gain

	Ori.	A	A <sub>s</sub>	q	SHGC	Beam solar heat gain	Diffuse solar heat gain	Sensible load
	(°)	(m <sup>2</sup> )	(m <sup>2</sup> )	(°)		(W)	(W)	(W)

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### Exterior surface

Exterior window	N(0)	3.08	3.08	115.30	0.70	0.00	280.66	234.28
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## Loads summary

Exterior window	E(90)	3.08	3.08	116.53	0.70	0.00	280.66	577.45
							TOTAL:	811.73

### Abbreviations

Ori.	Orientation
A	Area
A <sub>s</sub>	Sunlit area
q	Incident angle
SHGC	Center-of-glazing solar heat gain coefficient, SHGC

### Internal heat gains

	Sensible heat gain (W)	Convective component (W)	Radiative component (W)	Latent cooling gain/load (W)	Sensible load (W)
<b>Internal gains</b>					
Occupancy	382.42	152.97	188.23	245.84	341.20
Lighting	186.53	152.96	28.10	-	181.05
Internal equipment	236.01	188.81	39.50	0.00	228.30

## Loads summary

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TOTAL:    245.84    750.56

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### Ventilation and infiltration heat gains

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	Airflow rate (l/s)	Sensible heat recovery (W)	Latent heat recovery (W)	Latent load (W)	Sensible load (W)
Ventilation					
Ventilation	46.44	0.00	0.00	23.42	155.80
TOTAL:				23.42	155.80

Total cooling load						
Total load per unit area (W/m <sup>2</sup> )	Sensible heat factor	Latent load (W)	Latent cooling factor (0.0%) (W)	Sensible load (W)	Sensible cooling factor (0.0%) (W)	TOTAL COOLING LOAD
94.82	0.87	269.26	0.0	1802.74	0.0	2072.00 W

## Loads summary

Peak cooling load	
Space: Office 8	Zone: Offices and corridors
Net floor area = 17.87 m <sup>2</sup> Net volume = 59.78 m <sup>3</sup>	
Design conditions	
Indoor:	Outdoor:
Space air temperature = 24.00 °C	Dry-bulb temperature = 27.10 °C
Relative humidity = 50.00%	Wet-bulb temperature = 18.30 °C
Time of peak cooling load: 21 of July at 16h (15 apparent solar time)	

## Conduction heat gains (opaque surfaces)

	T <sub>sa</sub>	Ori.	A	U	a	Tilt	Convective component	Radiative component	Sensible load
	(°C)	(°)	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))		(°)	(W)	(W)	(W)
Exterior surface									
Façade (N)	30.19	N(0)	14.16	0.283	0.60	V(90)	3.00	0.57	3.58
Roof	40.57	N(0)	17.45	0.248	0.60	H(0)	49.60	21.01	70.61
								TOTAL:	74.19
	A	U	b	Tilt	Convective component	Radiative component	Sensible load		

## Loads summary

	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))	(°)	(W)	(W)	(W)	
<b>Zone boundary partition</b>							
Party wall	11.44	0.661	1.00	V(90)	12.64	3.38	16.02
Partition wall	15.90	1.643	0.27	V(90)	11.64	3.11	14.75
Internal floor slab	5.32	0.473	0.28	H(180)	1.16	0.31	1.48
Internal floor slab	1.69	0.473	0.10	H(180)	0.13	0.03	0.16
<b>TOTAL:</b>						<b>32.41</b>	

	Length (m)	Y (W/(m <sup>2</sup> ·K))	Sensible load (W)
Outward	1.82	0.325	1.83
Outward	1.46	0.325	1.47
Outward	3.33	0.500	5.16
Outward	5.24	0.500	8.11
<b>TOTAL:</b>			<b>16.56</b>

### Abbreviations

T <sub>sa</sub>	Sol-air temperature
Ori.	Orientation

## Loads summary

A	Area
U	Heat transmission coefficient
a	Absorptance
b	Adjacent space correction factor
Tilt	Tilt angle
Length	Length
Y	Linear thermal transmission coefficient of the thermal bridge

### Conduction heat gains (fenestration)

Ori.	A	$U_{global}$	Convective component	Radiative component	Sensible load
(°)	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))	(W)	(W)	(W)

#### Exterior surface

Exterior window	N(0)	3.36	2.000	13.94	2.16	16.10
TOTAL:					16.10	

A	$U_{global}$	b	Tilt	Convective component	Radiative component	Sensible load
(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))		(°)	(W)	(W)	(W)

#### Zone boundary partition

## Loads summary

Interior door	1.62	2.000	0.27	V(90)	1.45	0.39	1.83
TOTAL:							1.83

### Abbreviations

Ori.	Orientation
A	Area
$U_{global}$	Fenestration global thermic coeficient
b	Adjacent space correction factor
Tilt	Tilt angle

### Solar radiation heat gain

	Ori.	A	A <sub>s</sub>	q	SHGC	Beam solar heat gain	Diffuse solar heat gain	Sensible load
	(°)	(m <sup>2</sup> )	(m <sup>2</sup> )	(°)		(W)	(W)	(W)

#### Exterior surface

Exterior window	N(0)	3.36	3.36	108.35	0.70	0.00	274.85	249.56
TOTAL:							249.56	

## Loads summary

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### Abbreviations

Ori.	Orientation
A	Area
$A_s$	Sunlit area
q	Incident angle
SHGC	Center-of-glazing solar heat gain coefficient, SHGC

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### Internal heat gains

	Sensible heat gain  (W)	Convective component  (W)	Radiative component  (W)	Latent cooling gain/load  (W)	Sensible load  (W)
<hr/>					
Internal gains					
Occupancy	312.80	125.12	157.92	201.09	283.04
Lighting	152.57	125.11	23.51	-	148.62
Internal equipment	193.04	154.43	33.05	0.00	187.48
TOTAL:				201.09	619.14

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### Ventilation and infiltration heat gains

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## Loads summary

	Airflow rate (l/s)	Sensible heat recovery (W)	Latent heat recovery (W)	Latent load (W)	Sensible load (W)
Ventilation					
Ventilation	37.98	0.00	0.00	27.59	139.27
TOTAL:				27.59	139.27

Total cooling load						
Total load per unit area  (W/m <sup>2</sup> )	Sensible heat factor	Latent load  (W)	Latent cooling factor (0.0%)  (W)	Sensible load  (W)	Sensible cooling factor (0.0%)  (W)	TOTAL COOLING LOAD
77.08	0.83	228.68	0.0	1149.06	0.0	1377.74 W



## Loads summary

External									
floor slab	30.59	N(0)	6.55	0.487	0.60	H(180)	4.42	1.18	5.60
Roof	26.08	N(0)	10.71	0.248	0.60	H(0)	2.35	-1.11	1.24
TOTAL:								59.86	

	A	U	b	Tilt	Convective component	Radiative component	Sensible load
	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))		(°)	(W)	(W)	(W)

### Zone boundary partition

Partition wall	9.41	1.643	0.17	V(90)	4.52	1.44	5.96	
Partition wall	3.02	1.643	0.27	V(90)	2.21	0.71	2.91	
Partition wall	5.17	0.390	0.60	V(90)	2.02	0.65	2.67	
Partition wall	2.93	0.390	0.71	V(90)	1.35	0.43	1.79	
Internal floor slab	5.50	0.473	0.90	H(180)	3.93	1.26	5.18	
TOTAL:							18.51	

	Length	Y	Sensible load
	(m)	(W/(m <sup>2</sup> ·K))	(W)

## Loads summary

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### Linear thermal bridges

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Outward	4.28	0.850	11.27
Outward	1.53	0.850	4.03
Outward	2.32	0.325	2.34
Outward	1.00	0.100	0.31
Outward	3.34	0.100	1.04
Outward	2.34	0.100	0.73
Outward	1.24	0.500	1.92
Outward	4.29	0.500	6.64
Outward	4.17	0.500	6.46
TOTAL:			34.73

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### Abbreviations

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$T_{sa}$	Sol-air temperature
Ori.	Orientation
A	Area
U	Heat transmission coefficient
a	Absorptance
b	Adjacent space correction factor
Tilt	Tilt angle
Length	Length
Y	Linear thermal transmission coefficient of the thermal bridge

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## Loads summary

### Conduction heat gains (fenestration)

	Ori.	A	$U_{global}$	Convective component	Radiative component	Sensible load
	(°)	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))	(W)	(W)	(W)

#### Exterior surface

Exterior window	S(180)	1.04	2.000	4.32	0.80	5.12
Exterior window	E(90)	1.04	2.000	4.32	0.80	5.12
Exterior window	W(270)	1.04	2.000	4.32	0.80	5.12

TOTAL: 15.35

A	$U_{global}$	b	Tilt	Convective component	Radiative component	Sensible load
(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))		(°)	(W)	(W)	(W)

#### Zone boundary partition

Interior door	1.62	2.000	0.27	V(90)	1.45	0.46	1.91
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TOTAL: 1.91

#### Abbreviations

## Loads summary

Ori.	Orientation
A	Area
$U_{\text{global}}$	Fenestration global thermic coefficient
b	Adjacent space correction factor
Tilt	Tilt angle

### Solar radiation heat gain

	Ori.	A	A <sub>s</sub>	q	SHGC	Beam solar heat gain (W)	Diffuse solar heat gain (W)	Sensible load (W)
	(°)	(m <sup>2</sup> )	(m <sup>2</sup> )	(°)				
Exterior surface								
Exterior window	S(180)	1.04	1.04	71.65	0.70	180.55	107.16	258.49
Exterior window	E(90)	1.04	1.04	130.14	0.70	0.00	85.11	180.34
Exterior window	W(270)	1.04	1.04	49.86	0.70	369.61	127.13	214.41
							TOTAL:	653.24

### Abbreviations

## Loads summary

Ori.	Orientation
A	Area
$A_s$	Sunlit area
q	Incident angle
SHGC	Center-of-glazing solar heat gain coefficient, SHGC

### Internal heat gains

	Sensible heat gain  (W)	Convective component  (W)	Radiative component  (W)	Latent cooling gain/load  (W)	Sensible load  (W)
Internal gains					
Occupancy	315.38	126.15	162.32	202.74	288.47
Lighting	153.83	126.14	24.11	-	150.26
Internal equipment	194.63	155.71	33.90	0.00	189.61
TOTAL:				202.74	628.33

### Ventilation and infiltration heat gains

## Loads summary

	Airflow rate (l/s)	Sensible heat recovery (W)	Latent heat recovery (W)	Latent load (W)	Sensible load (W)
<b>Ventilation</b>					
Ventilation	38.30	0.00	0.00	27.82	140.42
<b>TOTAL:</b>				27.82	140.42

<b>Total cooling load</b>						
Total load per unit area  (W/m <sup>2</sup> )	Sensible heat factor	Latent load  (W)	Latent cooling factor (0.0%)  (W)	Sensible load  (W)	Sensible cooling factor (0.0%)  (W)	<b>TOTAL COOLING LOAD</b>
98.93	0.87	230.56	0.0	1552.34	0.0	<b>1782.91 W</b>



## Loads summary

Peak cooling load	
Space: Office 9	Zone: Offices and corridors
Net floor area = 19.46 m <sup>2</sup> Net volume = 65.07 m <sup>3</sup>	
Design conditions	
Indoor:	Outdoor:
Space air temperature = 24.00 °C	Dry-bulb temperature = 27.10 °C
Relative humidity = 50.00%	Wet-bulb temperature = 18.30 °C
Time of peak cooling load: 21 of July at 16h (15 apparent solar time)	

### Conduction heat gains (opaque surfaces)

	T <sub>sa</sub>	Ori.	A	U	a	Tilt	Convective component	Radiative component	Sensible load
	(°C)	(°)	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))		(°)	(W)	(W)	(W)
Exterior surface									
Façade (E)	30.19	E(90)	10.35	0.283	0.60	V(90)	14.56	9.62	24.18
Façade (N)	30.19	N(0)	15.75	0.283	0.60	V(90)	3.38	0.93	4.31
Roof	40.57	N(0)	19.46	0.248	0.60	H(0)	55.31	25.84	81.14
								TOTAL:	109.63

## Loads summary

	A (m <sup>2</sup> )	U (W/(m <sup>2</sup> ·K))	b	Tilt (°)	Convective component (W)	Radiative component (W)	Sensible load (W)
<b>Zone boundary partition</b>							
Partition wall	7.61	1.643	0.27	V(90)	5.57	2.02	7.59
Partition wall	9.41	1.643	0.17	V(90)	4.52	1.64	6.15
Internal floor slab	1.36	0.473	0.10	H(180)	0.10	0.04	0.14
<b>TOTAL:</b>							<b>13.89</b>

	Length (m)	Y (W/(m <sup>2</sup> ·K))		Sensible load (W)
<b>Linear thermal bridges</b>				
Outward	3.37	0.325		3.39
Outward	1.00	0.100		0.31
Outward	2.34	0.100		0.73
Outward	5.71	0.500		8.84
Outward	3.41	0.500		5.27
Outward	3.40	0.050		0.53
<b>TOTAL:</b>				<b>19.07</b>

## Loads summary

### Abbreviations

$T_{sa}$	Sol-air temperature
Ori.	Orientation
A	Area
U	Heat transmission coefficient
a	Absorptance
b	Adjacent space correction factor
Tilt	Tilt angle
Length	Length
Y	Linear thermal transmission coefficient of the thermal bridge

### Conduction heat gains (fenestration)

	Ori.	A	$U_{global}$	Convective component	Radiative component	Sensible load
	(°)	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))	(W)	(W)	(W)
Exterior window	E(90)	1.04	2.000	4.32	0.91	5.22
Exterior window	N(0)	3.36	2.000	13.94	2.93	16.87
TOTAL:						22.09

## Loads summary

	A (m <sup>2</sup> )	U <sub>global</sub> (W/(m <sup>2</sup> ·K))	b	Tilt (°)	Convective component (W)	Radiative component (W)	Sensible load (W)
<b>Zone boundary partition</b>							
Interior door	1.62	2.000	0.27	V(90)	1.45	0.53	1.97
<b>TOTAL:</b>							1.97

### Abbreviations

Ori.	Orientation
A	Area
U <sub>global</sub>	Fenestration global thermic coefficient
b	Adjacent space correction factor
Tilt	Tilt angle

### Solar radiation heat gain

	Ori.	A	A <sub>s</sub>	q	SHGC	Beam solar heat gain (W)	Diffuse solar heat gain (W)	Sensible load (W)
	(°)	(m <sup>2</sup> )	(m <sup>2</sup> )	(°)				

### Exterior surface

## Loads summary

Exterior window	E(90)	1.04	1.04	130.14	0.70	0.00	85.11	181.50
Exterior window	N(0)	3.36	3.36	108.35	0.70	0.00	274.85	258.35
<b>TOTAL:</b>							<b>439.85</b>	

### Abbreviations

Ori.	Orientation
A	Area
A <sub>s</sub>	Sunlit area
q	Incident angle
SHGC	Center-of-glazing solar heat gain coefficient, SHGC

### Internal heat gains

	Sensible heat gain	Convective component	Radiative component	Latent cooling gain/load	Sensible load
	(W)	(W)	(W)	(W)	(W)

#### Internal gains

Occupancy	340.47	136.19	179.51	218.88	315.70
Lighting	166.07	136.18	26.60	-	162.78

### Loads summary

Internal equipment	210.12	168.10	37.39	0.00	205.49
			TOTAL:	218.88	683.97

### Ventilation and infiltration heat gains

	Airflow rate (l/s)	Sensible heat recovery (W)	Latent heat recovery (W)	Latent load (W)	Sensible load (W)
Ventilation	41.34	0.00	0.00	30.03	151.59
			TOTAL:	30.03	151.59

Total cooling load						
Total load per unit area  (W/m <sup>2</sup> )	Sensible heat factor	Latent load (W)	Latent cooling factor (0.0%) (W)	Sensible load (W)	Sensible cooling factor (0.0%) (W)	TOTAL COOLING LOAD
86.91	0.85	248.91	0.0	1442.06	0.0	1690.97 W

## Loads summary

### 2.2. Heating

Peak heating load	
Space: Office 1	Zone: Offices and corridors
Net floor area = 13.92 m <sup>2</sup> Net volume = 47.38 m <sup>3</sup>	
<b>Design conditions</b>	
Indoor:	Outdoor:
Space air temperature = 21.00 °C	Dry-bulb temperature = -0.90 °C
Relative humidity = 30.00 %	Relative humidity = 80.00 %
	Ground temperature = 6.40 °C

### Conduction heat losses

	Ori.	A	U	Tilt	Sensible load
	(°)	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))	(°)	(W)
Outside (opaque surface elements)					
Façade (S)	S(180)	8.53	0.283	V(90)	52.80
Façade (E)	E(90)	15.80	0.283	V(90)	97.80
TOTAL:					150.59
	Ori.	A	U <sub>global</sub>	Tilt	Sensible load
	(°)	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))	(°)	(W)

## Loads summary

### Outside (fenestration)

Exterior window	S(180)	1.04	2.000	V(90)	45.57
Exterior window	E(90)	1.04	2.000	V(90)	45.57

TOTAL: 91.14

Length	Y	Sensible load
(m)	(W/(m <sup>2</sup> ·K))	(W)

### Outside (linear thermal bridges)

Outward	2.81	0.600	36.96
Outward	4.95	0.600	65.04
Outward	2.81	0.325	20.02
Outward	4.07	0.325	28.96
Outward	0.74	0.325	5.27
Outward	3.40	0.100	7.45

TOTAL: 163.70

A	U	Tilt	Sensible load
(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))	(°)	(W)

### Via the ground

Slab-on-ground floor	13.92	0.219	H(180)	44.45
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TOTAL: 44.45

A	U	b <sub>u</sub>	Tilt	Sensible load
(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))	(°)	(°)	(W)



## Loads summary

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### Via an unheated space (surface elements)

Partition wall	15.22	1.643	0.48	V(90)	264.91
Interior door	1.62	2.000	0.48	V(90)	34.41
TOTAL:					299.32

	A	U	T <sub>ad</sub>	Tilt	Sensible load
	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))	(°C)	(°)	(W)

---

### Via spaces heated at a different temperature

Partition wall	9.57	1.643	10.05	V(90)	172.19
TOTAL:					172.19

---

### Abbreviations

Ori.	Orientation
A	Area
U	Heat transmission coefficient
U <sub>global</sub>	Fenestration global thermic coefficient
e <sub>k</sub>	Orientation correction factor
b <sub>u</sub>	Adjacent space correction factor
Tilt	Tilt angle
Length	Length
Y	Linear thermal transmission coefficient of the thermal bridge

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## Loads summary

$T_{ad}$	Indoor temperature of the adjacent space. (In heat transfer between spaces of diferent zones the mean temperature between indoor design temperature and outdoor dry-bulb temperature is considered as indoor temperature of the adjacent space).
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### Ventilation and infiltration heat losses

	Airflow rate (l/s)	Latent heat recovery (W)	Sensible heat recovery (W)	Latent load (W)	Sensible load (W)
Ventilation					
Ventilation	29.58	0.00	0.00	171.87	846.12
TOTAL:				171.87	846.12

Total heating load						
Total load per unit area  (W/m <sup>2</sup> )	Sensible heat factor	Latent load (W)	Latent cooling factor (0.0%) (W)	Sensible load (W)	Sensible cooling factor (0.0%) (W)	TOTAL HEATING LOAD
139.30	0.91	171.87	0.00	1767.51	0.00	1939.38 W

## Loads summary

Peak heating load	
Space: Office 2	Zone: Offices and corridors
Net floor area = 31.34 m <sup>2</sup> Net volume = 106.67 m <sup>3</sup>	
Design conditions	
Indoor:	Outdoor:
Space air temperature = 21.00 °C	Dry-bulb temperature = -0.90 °C
Relative humidity = 30.00 %	Relative humidity = 80.00 %
	Ground temperature = 6.40 °C

## Conduction heat losses

	Ori.	A	U	Tilt	Sensible load
	(°)	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))	(°)	(W)
Outside (opaque surface elements)					
Façade (N)	N(0)	18.10	0.283	V(90)	112.02
TOTAL:					112.02

	Ori.	A	U <sub>global</sub>	Tilt	Sensible load
	(°)	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))	(°)	(W)
Outside (fenestration)					
Exterior window	N(0)	3.08	2.000	V(90)	134.92
Exterior window	N(0)	3.08	2.000	V(90)	134.92

## Loads summary

					TOTAL:	269.84
	Length (m)		Y (W/(m <sup>2</sup> ·K))		Sensible load (W)	
Outside (linear thermal bridges)						
Outward	3.81		0.325		27.11	
Outward	7.13		0.325		50.75	
Outward	3.81		0.325		27.11	
Outward	7.13		0.325		50.75	
Outward	3.40		0.100		7.45	
					TOTAL:	163.16
	A (m <sup>2</sup> )	U (W/(m <sup>2</sup> ·K))	b <sub>u</sub>	Tilt (°)	Sensible load (W)	
Via an unheated space (surface elements)						
Party wall	12.96	0.661	1.00	V(90)	187.58	
Partition wall	9.97	1.643	0.30	V(90)	107.10	
Partition wall	10.16	1.643	0.10	V(90)	35.79	
Partition wall	3.04	1.643	0.30	V(90)	32.60	
Interior door	3.65	2.000	0.10	V(90)	15.67	
					TOTAL:	378.74
	A (m <sup>2</sup> )	U (W/(m <sup>2</sup> ·K))	T <sub>ad</sub> (°C)	Tilt (°)	Sensible load (W)	

## Loads summary

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Via spaces heated at a different temperature

Internal floor slab	31.34	0.473	10.05	H(180)	162.48
TOTAL:					162.48

---

### Abbreviations

Ori.	Orientation
A	Area
U	Heat transmission coefficient
$U_{global}$	Fenestration global thermic coefficient
$e_k$	Orientation correction factor
$b_u$	Adjacent space correction factor
Tilt	Tilt angle
Length	Length
Y	Linear thermal transmission coefficient of the thermal bridge
$T_{ad}$	Indoor temperature of the adjacent space. (In heat transfer between spaces of diferent zones the mean temperature between indoor design temperature and outdoor dry-bulb temperature is considered as indoor temperature of the adjacent space).

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### Ventilation and infiltration heat losses

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Airflow rate	Latent heat recovery	Sensible heat recovery	Latent load Sensible load
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## Loads summary

	(l/s)	(W)	(W)	(W)	(W)
Ventilation					
Ventilation	66.61	0.00	0.00	386.95	1904.96
TOTAL:				386.95	1904.96

Total heating load						
Total load per unit area  (W/m <sup>2</sup> )	Sensible heat factor	Latent load  (W)	Latent cooling factor (0.0%)  (W)	Sensible load  (W)	Sensible cooling factor (0.0%)  (W)	TOTAL HEATING LOAD
107.78	0.89	386.95	0.00	2991.21	0.00	3378.16 W

## Loads summary

Peak heating load	
Space: Meeting room	Zone: Offices and corridors
Net floor area = 33.14 m <sup>2</sup> Net volume = 112.79 m <sup>3</sup>	
Design conditions	
Indoor:	Outdoor:
Space air temperature = 21.00 °C	Dry-bulb temperature = -0.90 °C
Relative humidity = 30.00 %	Relative humidity = 80.00 %
	Ground temperature = 6.40 °C

## Conduction heat losses

	Ori.	A	U	Tilt	Sensible load
	(°)	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))	(°)	(W)
Outside (opaque surface elements)					
Façade (S)	S(180)	19.01	0.283	V(90)	117.60
Façade (E)	E(90)	11.75	0.283	V(90)	72.71
TOTAL:					190.31

	Ori.	A	U <sub>global</sub>	Tilt	Sensible load
	(°)	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))	(°)	(W)
Outside (fenestration)					
Exterior window	S(180)	3.08	2.000	V(90)	134.92

## Loads summary

			TOTAL:	134.92	
	Length (m)	Y (W/(m <sup>2</sup> ·K))	Sensible load (W)		
<b>Outside (linear thermal bridges)</b>					
Outward	5.69	0.325	40.50		
Outward	6.49	0.325	46.19		
Outward	3.45	0.325	24.58		
Outward	3.40	0.100	7.45		
Outward	5.69	0.325	40.50		
Outward	6.49	0.325	46.19		
Outward	3.45	0.325	24.58		
Outward	3.40	0.100	7.45		
			TOTAL:	237.43	
	A (m <sup>2</sup> )	U (W/(m <sup>2</sup> ·K))	b <sub>u</sub>	Tilt (°)	Sensible load (W)
<b>Via an unheated space (surface elements)</b>					
Party wall	19.36	0.661	1.00	V(90)	280.19
Partition wall	1.85	0.390	-0.04	V(90)	-0.69
Partition wall	1.28	0.390	-0.04	V(90)	-0.48
Partition wall	3.11	0.390	0.08	V(90)	2.19
Partition wall	12.68	1.643	0.10	V(90)	44.66



## Loads summary

Partition wall	5.07	0.390	-0.04	V(90)	-1.90
Internal floor slab	33.15	0.473	0.48	H(180)	166.25
Interior door	3.65	2.000	0.10	V(90)	15.67
<b>TOTAL:</b>					<b>505.88</b>

### Abbreviations

Ori.	Orientation
A	Area
U	Heat transmission coefficient
$U_{global}$	Fenestration global thermic coefficient
$e_k$	Orientation correction factor
$b_u$	Adjacent space correction factor
Tilt	Tilt angle
Length	Length
Y	Linear thermal transmission coefficient of the thermal bridge

### Ventilation and infiltration heat losses

Airflow rate	Latent heat recovery	Sensible heat recovery	Latent load	Sensible load
(l/s)	(W)	(W)	(W)	(W)

#### Ventilation

## Loads summary

Ventilation	140.86	0.00	0.00	818.35	4028.73
TOTAL:				818.35	4028.73

Total heating load						
Total load per unit area  (W/m <sup>2</sup> )	Sensible heat factor	Latent load  (W)	Latent cooling factor (0.0%)  (W)	Sensible load  (W)	Sensible cooling factor (0.0%)  (W)	TOTAL HEATING LOAD
178.48	0.86	818.35	0.00	5097.29	0.00	5915.64 W

## Loads summary

Peak heating load	
Space: Office 3	Zone: Offices and corridors
Net floor area = 16.75 m <sup>2</sup> Net volume = 57.02 m <sup>3</sup>	
<b>Design conditions</b>	
Indoor:	Outdoor:
Space air temperature = 21.00 °C	Dry-bulb temperature = -0.90 °C
Relative humidity = 30.00 %	Relative humidity = 80.00 %
	Ground temperature = 6.40 °C

### Conduction heat losses

	Ori. (°)	A (m <sup>2</sup> )	U (W/(m <sup>2</sup> ·K))	Tilt (°)	Sensible load (W)						
Outside (opaque surface elements)											
Façade (S)	S(180)	11.48	0.283	V(90)	71.07						
Façade (E)	E(90)	10.77	0.283	V(90)	66.62						
TOTAL:					137.69						
<table style="width: 100%; text-align: center;"> <thead> <tr> <th style="width: 15%;"></th> <th style="width: 10%;">Ori. (°)</th> <th style="width: 10%;">A (m<sup>2</sup>)</th> <th style="width: 15%;">U<sub>global</sub> (W/(m<sup>2</sup>·K))</th> <th style="width: 10%;">Tilt (°)</th> <th style="width: 10%;">Sensible load (W)</th> </tr> </thead> </table>							Ori. (°)	A (m <sup>2</sup> )	U <sub>global</sub> (W/(m <sup>2</sup> ·K))	Tilt (°)	Sensible load (W)
	Ori. (°)	A (m <sup>2</sup> )	U <sub>global</sub> (W/(m <sup>2</sup> ·K))	Tilt (°)	Sensible load (W)						
Outside (fenestration)											
Exterior window	S(180)	3.08	2.000	V(90)	134.92						

## Loads summary

Exterior window	E(90)	3.08	2.000	V(90)	134.92
				TOTAL:	269.84
	Length (m)		Y (W/(m <sup>2</sup> ·K))		Sensible load (W)
Outside (linear thermal bridges)					
Outward	1.39		0.325		9.88
Outward	2.81		0.325		20.02
Outward	4.07		0.325		28.96
Outward	4.34		0.325		30.89
Outward	4.07		0.325		28.96
Outward	3.40		0.100		7.45
				TOTAL:	126.17
	A (m <sup>2</sup> )	U (W/(m <sup>2</sup> ·K))	b <sub>u</sub>	Tilt (°)	Sensible load (W)
Via an unheated space (surface elements)					
Partition wall	3.84	1.643	0.10	V(90)	13.52
Partition wall	1.29	1.643	0.10	V(90)	4.55
Partition wall	5.17	0.390	0.08	V(90)	3.64
Partition wall	1.96	0.390	-0.04	V(90)	-0.73
Internal floor slab	4.74	0.473	0.48	H(180)	23.77
Interior door	1.62	2.000	0.10	V(90)	6.96

## Loads summary

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TOTAL:      51.71

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### Abbreviations

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Ori.	Orientation
A	Area
U	Heat transmission coefficient
$U_{global}$	Fenestration global thermic coefficient
$e_k$	Orientation correction factor
$b_u$	Adjacent space correction factor
Tilt	Tilt angle
Length	Length
Y	Linear thermal transmission coefficient of the thermal bridge

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### Ventilation and infiltration heat losses

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	Airflow rate	Latent heat recovery	Sensible heat recovery	Latent load	Sensible load
	(l/s)	(W)	(W)	(W)	(W)
Ventilation	35.60	0.00	0.00	206.83	1018.23
			TOTAL:	206.83	1018.23

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## Loads summary

Total heating load						
Total load per unit area  (W/m <sup>2</sup> )	Sensible heat factor	Latent load  (W)	Latent cooling factor (0.0%)  (W)	Sensible load  (W)	Sensible cooling factor (0.0%)  (W)	TOTAL HEATING LOAD
108.06	0.89	206.83	0.00	1603.63	0.00	1810.46 W

## Loads summary

Peak heating load	
Space: Office 4	Zone: Offices and corridors
Net floor area = 21.85 m <sup>2</sup> Net volume = 74.36 m <sup>3</sup>	
<b>Design conditions</b>	
Indoor:	Outdoor:
Space air temperature = 21.00 °C	Dry-bulb temperature = -0.90 °C
Relative humidity = 30.00 %	Relative humidity = 80.00 %
	Ground temperature = 6.40 °C

### Conduction heat losses

	Ori. (°)	A (m <sup>2</sup> )	U (W/(m <sup>2</sup> ·K))	Tilt (°)	Sensible load (W)						
Outside (opaque surface elements)											
Façade (N)	N(0)	9.92	0.283	V(90)	61.38						
Façade (E)	E(90)	16.39	0.283	V(90)	101.41						
TOTAL:					162.79						
<table style="width: 100%; text-align: center;"> <thead> <tr> <th style="width: 15%;"></th> <th style="width: 10%;">Ori. (°)</th> <th style="width: 10%;">A (m<sup>2</sup>)</th> <th style="width: 15%;">U<sub>global</sub> (W/(m<sup>2</sup>·K))</th> <th style="width: 10%;">Tilt (°)</th> <th style="width: 10%;">Sensible load (W)</th> </tr> </thead> </table>							Ori. (°)	A (m <sup>2</sup> )	U <sub>global</sub> (W/(m <sup>2</sup> ·K))	Tilt (°)	Sensible load (W)
	Ori. (°)	A (m <sup>2</sup> )	U <sub>global</sub> (W/(m <sup>2</sup> ·K))	Tilt (°)	Sensible load (W)						
Outside (fenestration)											
Exterior window	N(0)	3.08	2.000	V(90)	134.92						

## Loads summary

Exterior window	E(90)	3.08	2.000	V(90)	134.92
				TOTAL:	269.84

	Length (m)		Y (W/(m <sup>2</sup> ·K))		Sensible load (W)
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### Outside (linear thermal bridges)

Outward	3.82		0.325		27.19
Outward	0.74		0.325		5.27
Outward	4.84		0.325		34.45
Outward	3.82		0.325		27.19
Outward	5.72		0.325		40.72
Outward	3.40		0.100		7.45
				TOTAL:	142.27

	A (m <sup>2</sup> )	U (W/(m <sup>2</sup> ·K))	b <sub>u</sub>	Tilt (°)	Sensible load (W)
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### Via an unheated space (surface elements)

Partition wall	1.11	1.643	0.10	V(90)	3.90
Internal floor slab	0.64	0.473	0.48	H(180)	3.22
Interior door	1.41	2.000	0.10	V(90)	6.05
				TOTAL:	13.17

	A (m <sup>2</sup> )	U (W/(m <sup>2</sup> ·K))	T <sub>ad</sub> (°C)	Tilt (°)	Sensible load (W)
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## Loads summary

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Via spaces heated at a different temperature

Internal floor slab	18.49	0.473	10.05	H(180)	95.85
TOTAL:					95.85

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### Abbreviations

Ori.	Orientation
A	Area
U	Heat transmission coefficient
$U_{global}$	Fenestration global thermic coefficient
$e_k$	Orientation correction factor
$b_u$	Adjacent space correction factor
Tilt	Tilt angle
Length	Length
Y	Linear thermal transmission coefficient of the thermal bridge
$T_{ad}$	Indoor temperature of the adjacent space. (In heat transfer between spaces of diferent zones the mean temperature between indoor design temperature and outdoor dry-bulb temperature is considered as indoor temperature of the adjacent space).

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### Ventilation and infiltration heat losses

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Airflow rate	Latent heat recovery	Sensible heat recovery	Latent load Sensible load
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## Loads summary

	(l/s)	(W)	(W)	(W)	(W)
Ventilation					
Ventilation	46.44	0.00	0.00	269.78	1328.11
TOTAL:				269.78	1328.11

Total heating load						
Total load per unit area  (W/m <sup>2</sup> )	Sensible heat factor	Latent load  (W)	Latent cooling factor (0.0%)  (W)	Sensible load  (W)	Sensible cooling factor (0.0%)  (W)	TOTAL HEATING LOAD
104.42	0.88	269.78	0.00	2012.03	0.00	2281.81 W

## Loads summary

Peak heating load	
Space: Office 5	Zone: Offices and corridors
Net floor area = 31.34 m <sup>2</sup> Net volume = 105.75 m <sup>3</sup>	
Design conditions	
Indoor:	Outdoor:
Space air temperature = 21.00 °C	Dry-bulb temperature = -0.90 °C
Relative humidity = 30.00 %	Relative humidity = 80.00 %
	Ground temperature = 6.40 °C

## Conduction heat losses

	Ori.	A	U	Tilt	Sensible load
	(°)	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))	(°)	(W)
Outside (opaque surface elements)					
Façade (N)	N(0)	17.69	0.283	V(90)	109.46
Roof	N(0)	14.47	0.248	H(0)	78.60
TOTAL:					188.06

	Ori.	A	U <sub>global</sub>	Tilt	Sensible load
	(°)	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))	(°)	(W)
Outside (fenestration)					
Exterior window	N(0)	3.08	2.000	V(90)	134.92

## Loads summary

Exterior window	N(0)	3.08	2.000	V(90)	134.92
				TOTAL:	269.84

	Length (m)		Y (W/(m <sup>2</sup> ·K))		Sensible load (W)
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### Outside (linear thermal bridges)

Outward	3.81		0.325		27.11
Outward	7.13		0.325		50.75
Outward	1.46		0.325		10.38
Outward	3.34		0.100		7.32
Outward	2.03		0.500		22.23
Outward	7.13		0.500		78.07
				TOTAL:	195.86

	A (m <sup>2</sup> )	U (W/(m <sup>2</sup> ·K))	b <sub>u</sub>	Tilt (°)	Sensible load (W)
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### Via an unheated space (surface elements)

Party wall	12.83	0.661	1.00	V(90)	185.72
Partition wall	9.97	1.643	0.28	V(90)	99.12
Partition wall	10.16	1.643	0.10	V(90)	35.34
Partition wall	3.04	1.643	0.28	V(90)	30.18
Interior door	3.65	2.000	0.10	V(90)	15.47
				TOTAL:	365.82

## Loads summary

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### Abbreviations

Ori.	Orientation
A	Area
U	Heat transmission coefficient
$U_{\text{global}}$	Fenestration global thermic coefficient
$e_k$	Orientation correction factor
$b_u$	Adjacent space correction factor
Tilt	Tilt angle
Length	Length
Y	Linear thermal transmission coefficient of the thermal bridge

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### Ventilation and infiltration heat losses

Airflow rate	Latent heat recovery	Sensible heat recovery	Latent load	Sensible load
(l/s)	(W)	(W)	(W)	(W)

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#### Ventilation

Ventilation	66.61	0.00	0.00	386.95	1904.96
TOTAL:			386.95	1904.96	

Total heating load

## Loads summary

Total load per unit area  (W/m <sup>2</sup> )	Sensible heat factor	Latent load  (W)	Latent cooling factor (0.0%)  (W)	Sensible load  (W)	Sensible cooling factor (0.0%)  (W)	TOTAL HEATING LOAD
105.65	0.88	386.95	0.00	2924.56	0.00	3311.51 W

## Loads summary

Peak heating load	
Space: Meeting room 2	Zone: Offices and corridors
Net floor area = 33.14 m <sup>2</sup> Net volume = 110.85 m <sup>3</sup>	
Design conditions	
Indoor:	Outdoor:
Space air temperature = 21.00 °C	Dry-bulb temperature = -0.90 °C
Relative humidity = 30.00 %	Relative humidity = 80.00 %
	Ground temperature = 6.40 °C

## Conduction heat losses

	Ori.	A	U	Tilt	Sensible load
	(°)	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))	(°)	(W)
Outside (opaque surface elements)					
Façade (S)	S(180)	18.63	0.283	V(90)	115.27
Façade (E)	E(90)	11.55	0.283	V(90)	71.47
Roof	N(0)	32.48	0.248	H(0)	176.38
TOTAL:					363.13

	Ori.	A	U <sub>global</sub>	Tilt	Sensible load
	(°)	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))	(°)	(W)
Outside (fenestration)					

## Loads summary

Exterior window	S(180)	3.08	2.000	V(90)	134.92
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TOTAL: 134.92

	Length (m)		Y (W/(m <sup>2</sup> ·K))		Sensible load (W)
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### Outside (linear thermal bridges)

Outward	5.69		0.325		40.50
Outward	6.49		0.325		46.19
Outward	3.45		0.325		24.58
Outward	3.34		0.100		7.32
Outward	3.34		0.100		7.32
Outward	5.60		0.500		61.31
Outward	6.50		0.500		71.17
Outward	1.83		0.500		20.04

TOTAL: 278.44

	A (m <sup>2</sup> )	U (W/(m <sup>2</sup> ·K))	b <sub>u</sub>	Tilt (°)	Sensible load (W)
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### Via an unheated space (surface elements)

Party wall	19.03	0.661	1.00	V(90)	275.42
Partition wall	1.82	0.390	-0.04	V(90)	-0.69
Partition wall	1.26	0.390	-0.04	V(90)	-0.48
Partition wall	3.06	0.390	0.08	V(90)	2.17



## Loads summary

Partition wall	12.40	1.643	0.10	V(90)	43.12
Partition wall	4.98	0.390	-0.04	V(90)	-1.90
Interior door	3.65	2.000	0.10	V(90)	15.47
<b>TOTAL:</b>					<b>333.11</b>

### Abbreviations

Ori.	Orientation
A	Area
U	Heat transmission coefficient
$U_{global}$	Fenestration global thermic coeficient
$e_k$	Orientation correction factor
$b_u$	Adjacent space correction factor
Tilt	Tilt angle
Length	Length
Y	Linear thermal transmission coefficient of the thermal bridge

### Ventilation and infiltration heat losses

Airflow rate	Latent heat recovery	Sensible heat recovery	Latent load	Sensible load
(l/s)	(W)	(W)	(W)	(W)

#### Ventilation

## Loads summary

Ventilation	140.86	0.00	0.00	818.35	4028.73
TOTAL:				818.35	4028.73

Total heating load						
Total load per unit area  (W/m <sup>2</sup> )	Sensible heat factor	Latent load  (W)	Latent cooling factor (0.0%)  (W)	Sensible load  (W)	Sensible cooling factor (0.0%)  (W)	TOTAL HEATING LOAD
179.72	0.86	818.35	0.00	5138.33	0.00	5956.68 W

## Loads summary

Peak heating load	
Space: Office 7	Zone: Offices and corridors
Net floor area = 16.75 m <sup>2</sup> Net volume = 57.02 m <sup>3</sup>	
<h3>Design conditions</h3>	
Indoor:	Outdoor:
Space air temperature = 21.00 °C	Dry-bulb temperature = -0.90 °C
Relative humidity = 30.00 %	Relative humidity = 80.00 %
	Ground temperature = 6.40 °C

## Conduction heat losses

	Ori. (°)	A (m <sup>2</sup> )	U (W/(m <sup>2</sup> ·K))	Tilt (°)	Sensible load (W)						
Outside (opaque surface elements)											
Façade (S)	S(180)	11.48	0.283	V(90)	71.07						
Façade (E)	E(90)	10.77	0.283	V(90)	66.62						
TOTAL:					137.69						
<table style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 15%;"></th> <th style="width: 10%;">Ori. (°)</th> <th style="width: 10%;">A (m<sup>2</sup>)</th> <th style="width: 15%;">U<sub>global</sub> (W/(m<sup>2</sup>·K))</th> <th style="width: 10%;">Tilt (°)</th> <th style="width: 10%;">Sensible load (W)</th> </tr> </thead> </table>							Ori. (°)	A (m <sup>2</sup> )	U <sub>global</sub> (W/(m <sup>2</sup> ·K))	Tilt (°)	Sensible load (W)
	Ori. (°)	A (m <sup>2</sup> )	U <sub>global</sub> (W/(m <sup>2</sup> ·K))	Tilt (°)	Sensible load (W)						
Outside (fenestration)											
Exterior window	S(180)	3.08	2.000	V(90)	134.92						

## Loads summary

	E(90)	3.08	2.000	V(90)	134.92
TOTAL:					269.84
	Length (m)		Y (W/(m <sup>2</sup> ·K))		Sensible load (W)
Outside (linear thermal bridges)					
Outward	4.34		0.325		30.89
Outward	4.07		0.325		28.96
Outward	1.57		0.325		11.18
Outward	2.32		0.325		16.54
Outward	3.40		0.100		7.45
TOTAL:					95.03
	A (m <sup>2</sup> )	U (W/(m <sup>2</sup> ·K))	b <sub>u</sub>	Tilt (°)	Sensible load (W)
Via an unheated space (surface elements)					
Partition wall	3.84	1.643	0.10	V(90)	13.34
Partition wall	1.29	1.643	0.10	V(90)	4.50
Partition wall	5.17	0.390	0.08	V(90)	3.66
Partition wall	1.96	0.390	-0.04	V(90)	-0.74
Internal floor slab	4.42	0.473	0.17	H(180)	8.00
Internal floor slab	1.36	0.473	0.27	H(180)	3.77
Interior door	1.62	2.000	0.10	V(90)	6.88

## Loads summary

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TOTAL: 39.40

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### Abbreviations

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Ori.	Orientation
A	Area
U	Heat transmission coefficient
$U_{global}$	Fenestration global thermic coefficient
$e_k$	Orientation correction factor
$b_u$	Adjacent space correction factor
Tilt	Tilt angle
Length	Length
Y	Linear thermal transmission coefficient of the thermal bridge

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### Ventilation and infiltration heat losses

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	Airflow rate	Latent heat recovery	Sensible heat recovery	Latent load	Sensible load
	(l/s)	(W)	(W)	(W)	(W)
Ventilation	35.60	0.00	0.00	206.83	1018.23
			TOTAL:	206.83	1018.23

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## Loads summary

Total heating load						
Total load per unit area  (W/m <sup>2</sup> )	Sensible heat factor	Latent load  (W)	Latent cooling factor (0.0%)  (W)	Sensible load  (W)	Sensible cooling factor (0.0%)  (W)	TOTAL HEATING LOAD
105.47	0.88	206.83	0.00	1560.19	0.00	1767.02 W

## Loads summary

Peak heating load									
Space: Office 6	Zone: Offices and corridors								
<p>Net floor area = 21.85 m<sup>2</sup>    Net volume = 73.87 m<sup>3</sup></p> <h3 style="margin: 0;">Design conditions</h3> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;">Indoor:</td> <td style="width: 50%; padding: 5px;">Outdoor:</td> </tr> <tr> <td style="padding: 5px;">Space air temperature = 21.00 °C</td> <td style="padding: 5px;">Dry-bulb temperature = -0.90 °C</td> </tr> <tr> <td style="padding: 5px;">Relative humidity = 30.00 %</td> <td style="padding: 5px;">Relative humidity = 80.00 %</td> </tr> <tr> <td></td> <td style="padding: 5px;">Ground temperature = 6.40 °C</td> </tr> </table>		Indoor:	Outdoor:	Space air temperature = 21.00 °C	Dry-bulb temperature = -0.90 °C	Relative humidity = 30.00 %	Relative humidity = 80.00 %		Ground temperature = 6.40 °C
Indoor:	Outdoor:								
Space air temperature = 21.00 °C	Dry-bulb temperature = -0.90 °C								
Relative humidity = 30.00 %	Relative humidity = 80.00 %								
	Ground temperature = 6.40 °C								

## Conduction heat losses

	Ori. (°)	A (m <sup>2</sup> )	U (W/(m <sup>2</sup> ·K))	Tilt (°)	Sensible load (W)
Outside (opaque surface elements)					
Façade (N)	N(0)	9.70	0.283	V(90)	60.01
Façade (E)	E(90)	16.26	0.283	V(90)	100.62
Roof	N(0)	7.75	0.248	H(0)	42.11
TOTAL:					202.73

	Ori. (°)	A (m <sup>2</sup> )	U <sub>global</sub> (W/(m <sup>2</sup> ·K))	Tilt (°)	Sensible load (W)
Outside (fenestration)					

## Loads summary

Exterior window	N(0)	3.08	2.000	V(90)	134.92
Exterior window	E(90)	3.08	2.000	V(90)	134.92
TOTAL:					269.84

	Length (m)		Y (W/(m <sup>2</sup> ·K))		Sensible load (W)
Outside (linear thermal bridges)					

Outward	3.82		0.325		27.19
Outward	5.72		0.325		40.72
Outward	3.37		0.325		23.99
Outward	3.34		0.100		7.32
Outward	3.82		0.500		41.83
Outward	2.03		0.500		22.22
TOTAL:					163.27

	A (m <sup>2</sup> )	U (W/(m <sup>2</sup> ·K))	b <sub>u</sub>	Tilt (°)	Sensible load (W)
Via an unheated space (surface elements)					

Partition wall	1.02	1.643	0.10	V(90)	3.53
Interior door	1.50	2.000	0.10	V(90)	6.36
TOTAL:					9.89

Abbreviations



## Loads summary

Ori.	Orientation
A	Area
U	Heat transmission coefficient
$U_{\text{global}}$	Fenestration global thermic coefficient
$e_k$	Orientation correction factor
$b_u$	Adjacent space correction factor
Tilt	Tilt angle
Length	Length
Y	Linear thermal transmission coefficient of the thermal bridge

## Ventilation and infiltration heat losses

	Airflow rate	Latent heat recovery	Sensible heat recovery	Latent load	Sensible load
	(l/s)	(W)	(W)	(W)	(W)
Ventilation					
Ventilation	46.44	0.00	0.00	269.78	1328.11
TOTAL:				269.78	1328.11

Total heating load

## Loads summary

Total load per unit area  (W/m <sup>2</sup> )	Sensible heat factor	Latent load  (W)	Latent cooling factor (0.0%)  (W)	Sensible load  (W)	Sensible cooling factor (0.0%)  (W)	TOTAL HEATING LOAD
102.67	0.88	269.78	0.00	1973.86	0.00	2243.64 W

## Loads summary

Peak heating load	
Space: Office 8	Zone: Offices and corridors
Net floor area = 17.87 m <sup>2</sup> Net volume = 59.78 m <sup>3</sup>	
Design conditions	
Indoor:	Outdoor:
Space air temperature = 21.00 °C	Dry-bulb temperature = -0.90 °C
Relative humidity = 30.00 %	Relative humidity = 80.00 %
	Ground temperature = 6.40 °C

### Conduction heat losses

	Ori.	A	U	Tilt	Sensible load
	(°)	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))	(°)	(W)
Outside (opaque surface elements)					
Façade (N)	N(0)	14.16	0.283	V(90)	87.62
Roof	N(0)	17.45	0.248	H(0)	94.76
TOTAL:					182.38
	Ori.	A	U <sub>global</sub>	Tilt	Sensible load
	(°)	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))	(°)	(W)

### Outside (fenestration)

## Loads summary

Exterior window	N(0)	3.36	2.000	V(90)	147.17
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TOTAL: 147.17

	Length (m)		Y (W/(m <sup>2</sup> ·K))		Sensible load (W)
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### Outside (linear thermal bridges)

Outward	1.82		0.325		12.96
Outward	1.46		0.325		10.38
Outward	3.33		0.500		36.46
Outward	5.24		0.500		57.35

TOTAL: 117.16

	A (m <sup>2</sup> )	U (W/(m <sup>2</sup> ·K))	b <sub>u</sub>	Tilt (°)	Sensible load (W)
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### Via an unheated space (surface elements)

Party wall	11.44	0.661	1.00	V(90)	165.57
Partition wall	15.90	1.643	0.27	V(90)	152.41
Internal floor slab	5.32	0.473	0.28	H(180)	15.25
Internal floor slab	1.69	0.473	0.10	H(180)	1.69
Interior door	1.62	2.000	0.27	V(90)	18.96

TOTAL: 353.88

### Abbreviations

## Loads summary

Ori.	Orientation
A	Area
U	Heat transmission coefficient
$U_{\text{global}}$	Fenestration global thermic coefficient
$e_k$	Orientation correction factor
$b_u$	Adjacent space correction factor
Tilt	Tilt angle
Length	Length
Y	Linear thermal transmission coefficient of the thermal bridge

## Ventilation and infiltration heat losses

	Airflow rate	Latent heat recovery	Sensible heat recovery	Latent load	Sensible load
	(l/s)	(W)	(W)	(W)	(W)
Ventilation					
Ventilation	37.98	0.00	0.00	220.66	1086.32
TOTAL:				220.66	1086.32

Total heating load

## Loads summary

Total load per unit area  (W/m <sup>2</sup> )	Sensible heat factor	Latent load  (W)	Latent cooling factor (0.0%)  (W)	Sensible load  (W)	Sensible cooling factor (0.0%)  (W)	TOTAL HEATING LOAD
117.91	0.90	220.66	0.00	1886.90	0.00	2107.57 W

## Loads summary

Peak heating load	
Space: Office 10	Zone: Offices and corridors
Net floor area = 18.02 m <sup>2</sup> Net volume = 60.66 m <sup>3</sup>	
<h3>Design conditions</h3>	
Indoor:	Outdoor:
Space air temperature = 21.00 °C	Dry-bulb temperature = -0.90 °C
Relative humidity = 30.00 %	Relative humidity = 80.00 %
	Ground temperature = 6.40 °C

## Conduction heat losses

	Ori.	A	U	Tilt	Sensible load
	(°)	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))	(°)	(W)
Outside (opaque surface elements)					
Façade (S)	S(180)	13.28	0.283	V(90)	82.17
Façade (E)	E(90)	12.92	0.283	V(90)	79.96
Façade (W)	W(270)	3.12	0.283	V(90)	19.29
External floor slab	N(0)	6.55	0.487	H(180)	69.88
Roof	N(0)	10.71	0.248	H(0)	58.16
TOTAL:					309.47
	Ori.	A	U <sub>global</sub>	Tilt	Sensible load

## Loads summary

	(°)	(m <sup>2</sup> )	(W/(m <sup>2</sup> ·K))	(°)	(W)
<b>Outside (fenestration)</b>					
Exterior window	S(180)	1.04	2.000	V(90)	45.57
Exterior window	E(90)	1.04	2.000	V(90)	45.57
Exterior window	W(270)	1.04	2.000	V(90)	45.57
<b>TOTAL:</b>					<b>136.71</b>

	Length (m)	Y (W/(m <sup>2</sup> ·K))	Sensible load (W)
<b>Outside (linear thermal bridges)</b>			
Outward	4.28	0.850	79.69
Outward	1.53	0.850	28.48
Outward	2.32	0.325	16.54
Outward	1.00	0.100	2.19
Outward	3.34	0.100	7.32
Outward	2.34	0.100	5.13
Outward	1.24	0.500	13.61
Outward	4.29	0.500	46.99
Outward	4.17	0.500	45.71
<b>TOTAL:</b>			<b>245.66</b>

A (m <sup>2</sup> )	U (W/(m <sup>2</sup> ·K))	b <sub>u</sub>	Tilt (°)	Sensible load (W)
<hr/>				



## Loads summary

Via an unheated space (surface elements)

Partition wall	9.41	1.643	0.17	V(90)	59.14
Partition wall	3.02	1.643	0.27	V(90)	28.91
Partition wall	5.17	0.390	0.60	V(90)	26.46
Partition wall	2.93	0.390	0.71	V(90)	17.73
Internal floor slab	5.50	0.473	0.90	H(180)	51.43
Interior door	1.62	2.000	0.27	V(90)	18.96
TOTAL:					202.63

### Abbreviations

Ori.	Orientation
A	Area
U	Heat transmission coefficient
$U_{\text{global}}$	Fenestration global thermic coefficient
$e_k$	Orientation correction factor
$b_u$	Adjacent space correction factor
Tilt	Tilt angle
Length	Length
Y	Linear thermal transmission coefficient of the thermal bridge

### Ventilation and infiltration heat losses

## Loads summary

	Airflow rate (l/s)	Latent heat recovery (W)	Sensible heat recovery (W)	Latent load (W)	Sensible load (W)
Ventilation					
Ventilation	38.30	0.00	0.00	222.48	1095.27
TOTAL:				222.48	1095.27

Total heating load						
Total load per unit area  (W/m <sup>2</sup> )	Sensible heat factor	Latent load  (W)	Latent cooling factor (0.0%)  (W)	Sensible load  (W)	Sensible cooling factor (0.0%)  (W)	TOTAL HEATING LOAD
122.75	0.90	222.48	0.00	1989.75	0.00	2212.23 W

## Loads summary

Peak heating load	
Space: Office 9	Zone: Offices and corridors
Net floor area = 19.46 m <sup>2</sup> Net volume = 65.07 m <sup>3</sup>	
Design conditions	
Indoor:	Outdoor:
Space air temperature = 21.00 °C	Dry-bulb temperature = -0.90 °C
Relative humidity = 30.00 %	Relative humidity = 80.00 %
	Ground temperature = 6.40 °C

## Conduction heat losses

	Ori. (°)	A (m <sup>2</sup> )	U (W/(m <sup>2</sup> ·K))	Tilt (°)	Sensible load (W)
Outside (opaque surface elements)					
Façade (E)	E(90)	10.35	0.283	V(90)	64.06
Façade (N)	N(0)	15.75	0.283	V(90)	97.45
Roof	N(0)	19.46	0.248	H(0)	105.65
TOTAL:					267.17

	Ori. (°)	A (m <sup>2</sup> )	U <sub>global</sub> (W/(m <sup>2</sup> ·K))	Tilt (°)	Sensible load (W)
Outside (fenestration)					

## Loads summary

Exterior window	E(90)	1.04	2.000	V(90)	45.57
Exterior window	N(0)	3.36	2.000	V(90)	147.17
TOTAL:					192.74

	Length (m)		Y (W/(m <sup>2</sup> ·K))		Sensible load (W)
Outside (linear thermal bridges)					

Outward	3.37		0.325		23.99
Outward	1.00		0.100		2.19
Outward	2.34		0.100		5.13
Outward	5.71		0.500		62.55
Outward	3.41		0.500		37.30
Outward	3.40		0.050		3.72
TOTAL:					134.89

	A (m <sup>2</sup> )	U (W/(m <sup>2</sup> ·K))	b <sub>u</sub>	Tilt (°)	Sensible load (W)
Via an unheated space (surface elements)					

Partition wall	7.61	1.643	0.27	V(90)	72.94
Partition wall	9.41	1.643	0.17	V(90)	59.14
Internal floor slab	1.36	0.473	0.10	H(180)	1.36
Interior door	1.62	2.000	0.27	V(90)	18.96
TOTAL:					152.40

## Loads summary

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### Abbreviations

Ori.	Orientation
A	Area
U	Heat transmission coefficient
$U_{\text{global}}$	Fenestration global thermic coefficient
$e_k$	Orientation correction factor
$b_u$	Adjacent space correction factor
Tilt	Tilt angle
Length	Length
Y	Linear thermal transmission coefficient of the thermal bridge

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### Ventilation and infiltration heat losses

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Airflow rate	Latent heat recovery	Sensible heat recovery	Latent load	Sensible load
(l/s)	(W)	(W)	(W)	(W)

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#### Ventilation

Ventilation	41.34	0.00	0.00	240.19	1182.43
			<b>TOTAL:</b>	240.19	1182.43

Total heating load

## Loads summary

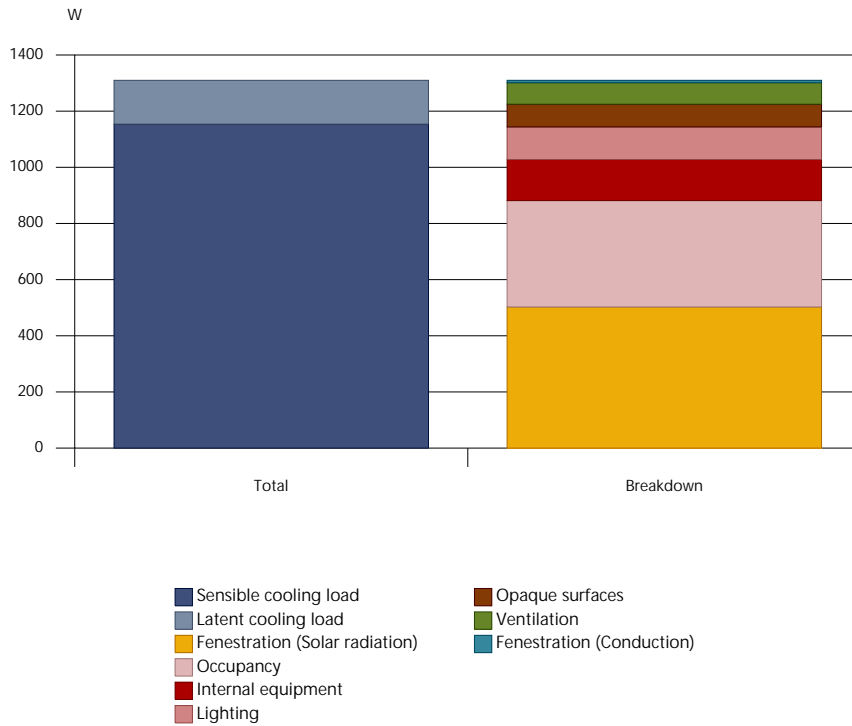
Total load per unit area  (W/m <sup>2</sup> )	Sensible heat factor	Latent load  (W)	Latent cooling factor (0.0%)  (W)	Sensible load  (W)	Sensible cooling factor (0.0%)  (W)	TOTAL HEATING LOAD
111.53	0.89	240.19	0.00	1929.62	0.00	2169.81 W

# Loads summary

## 2.3. Graphs

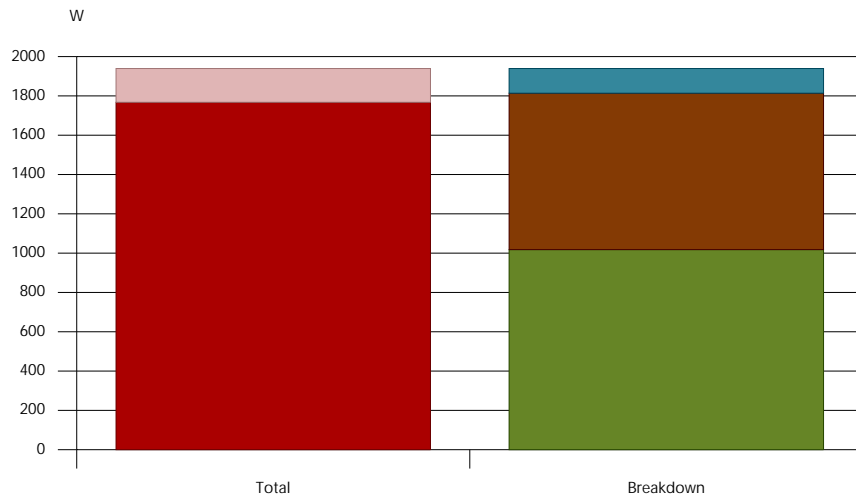
Office 1

Peak cooling load (21 of July at 14h)



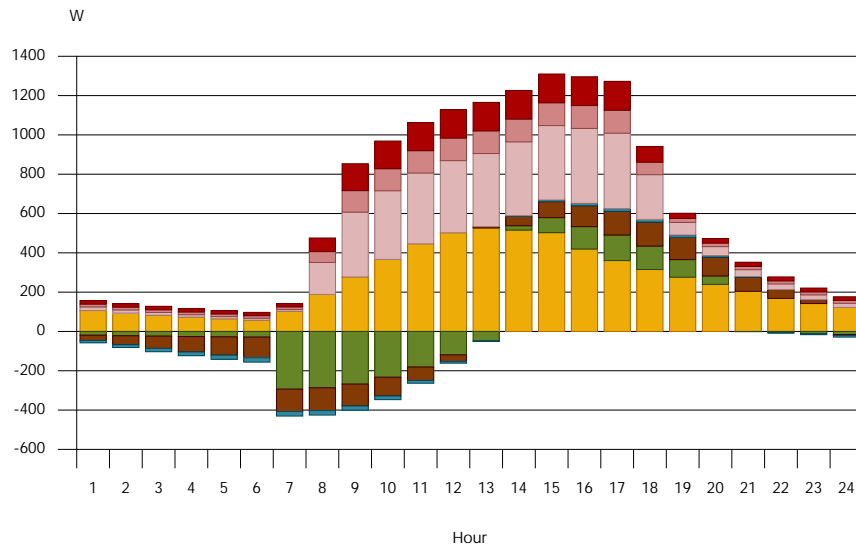
Peak heating load

## Loads summary



■ Sensible heating load  
 ■ Latent heating load  
 ■ Ventilation  
 ■ Opaque surfaces  
 ■ Fenestration (Conduction)

## Hourly cooling load progression (21 of July)



■ Fenestration (Solar radiation)  
 ■ Internal equipment  
■ Ventilation  
■ Opaque surfaces  
■ Fenestration (Conduction)  
■ Occupancy  
■ Lighting

## Annual peak cooling load progression



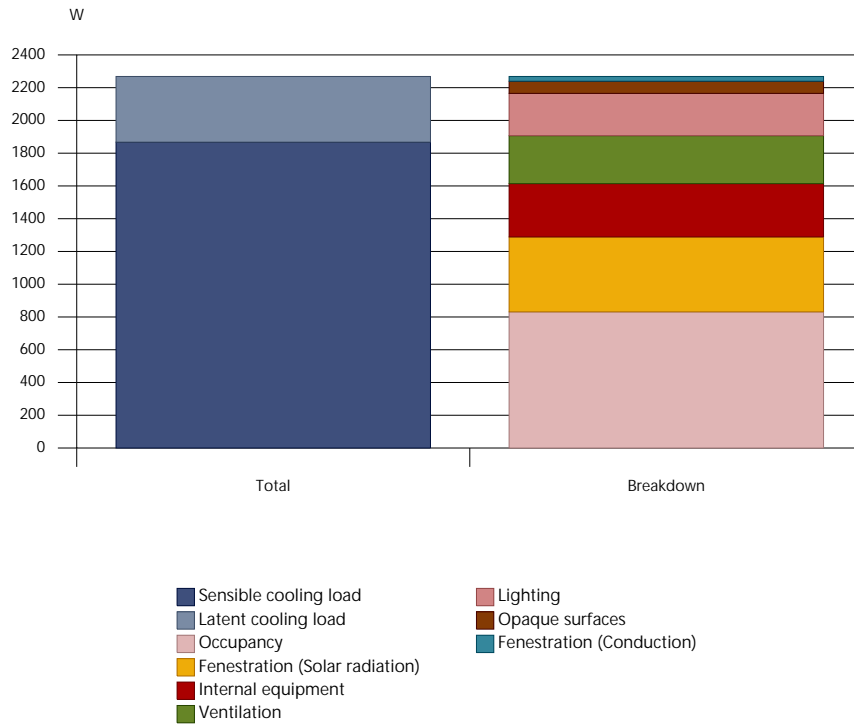
# Loads summary



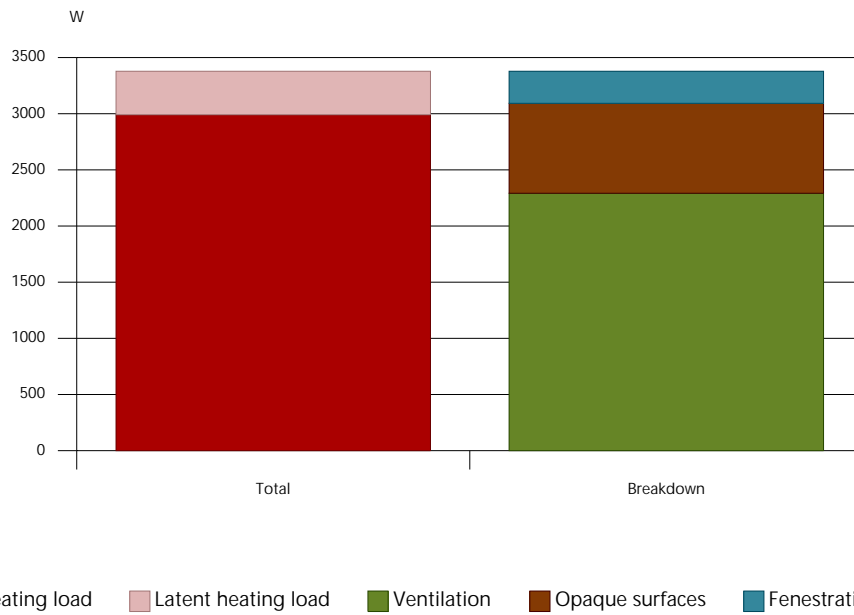
# Loads summary

Office 2

Peak cooling load (21 of July at 16h)

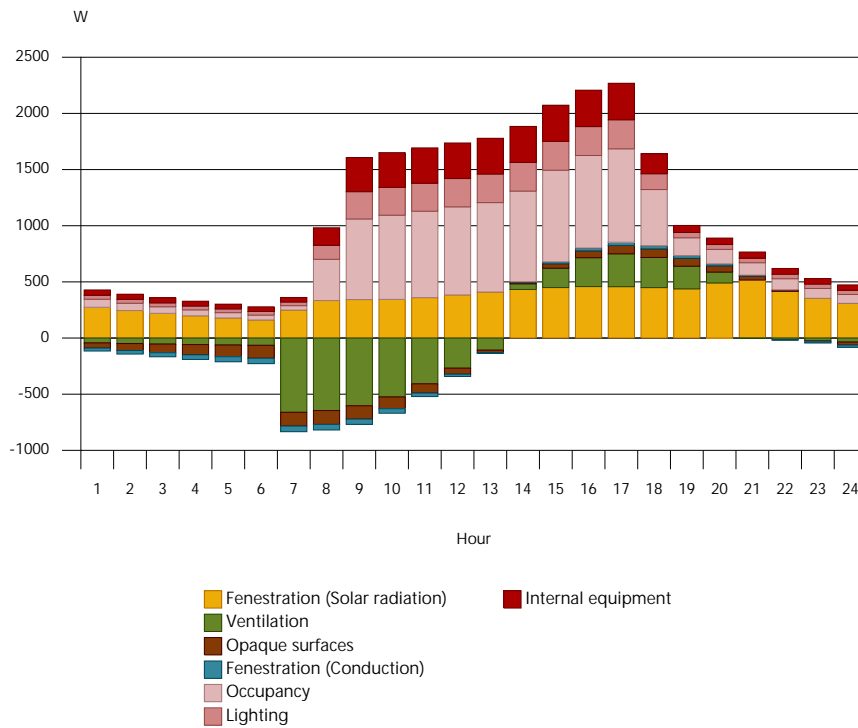


Peak heating load

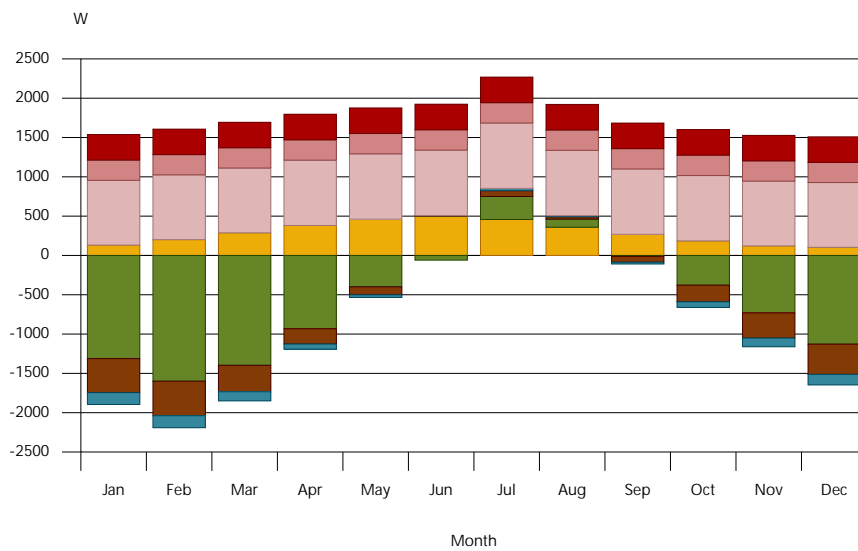


# Loads summary

## Hourly cooling load progression (21 of July)



## Annual peak cooling load progression



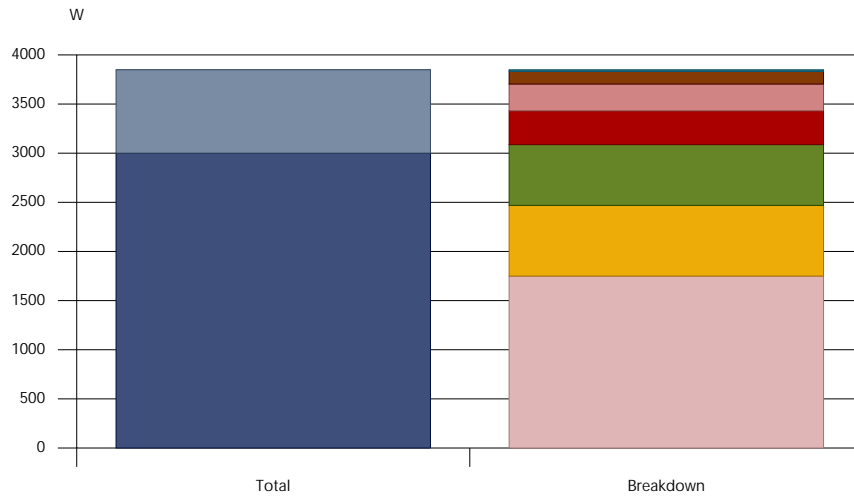
## Loads summary

- Fenestration (Solar radiation)
- Ventilation
- Opaque surfaces
- Fenestration (Conduction)
- Occupancy
- Lighting
- Internal equipment

# Loads summary

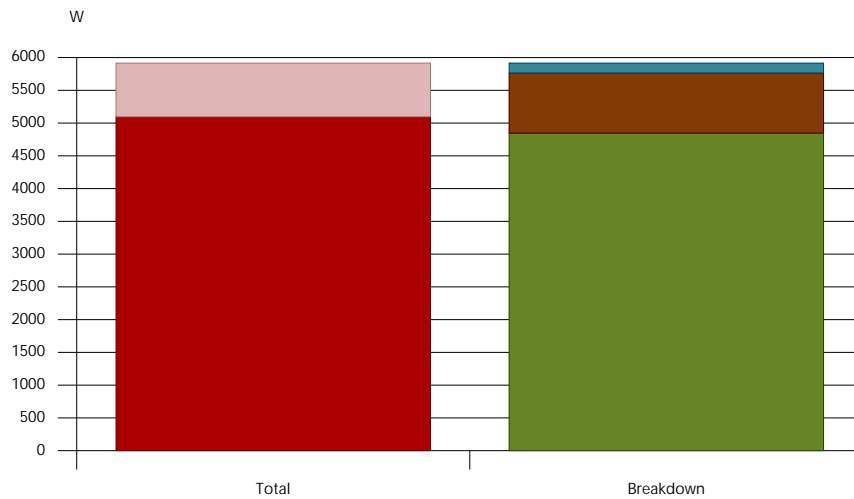
Meeting room

Peak cooling load (21 of July at 16h)



- Sensible cooling load
- Latent cooling load
- Occupancy
- Fenestration (Solar radiation)
- Ventilation
- Internal equipment
- Lighting
- Opaque surfaces
- Fenestration (Conduction)

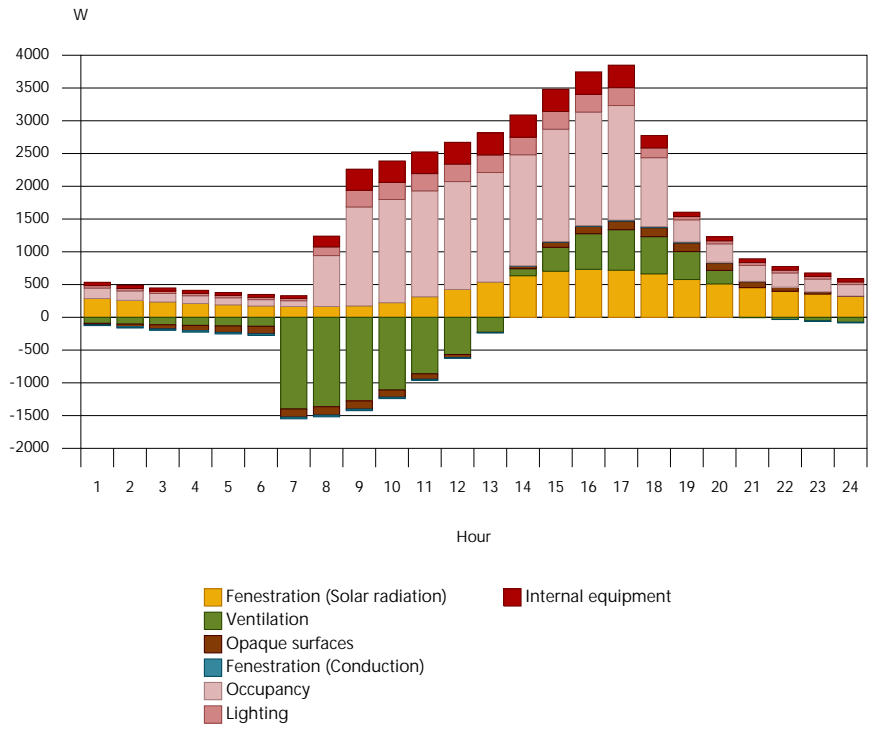
Peak heating load



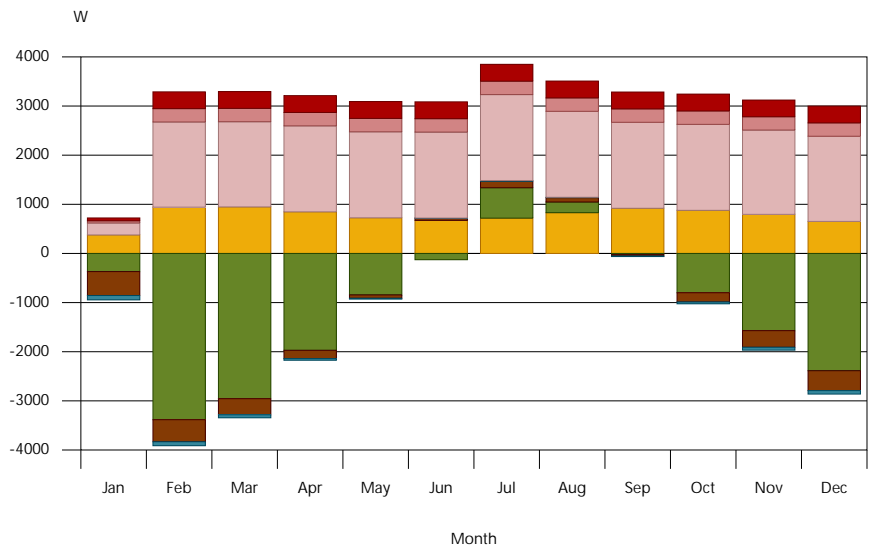
- Sensible heating load
- Latent heating load
- Ventilation
- Opaque surfaces
- Fenestration (Conduction)

# Loads summary

## Hourly cooling load progression (21 of July)



## Annual peak cooling load progression



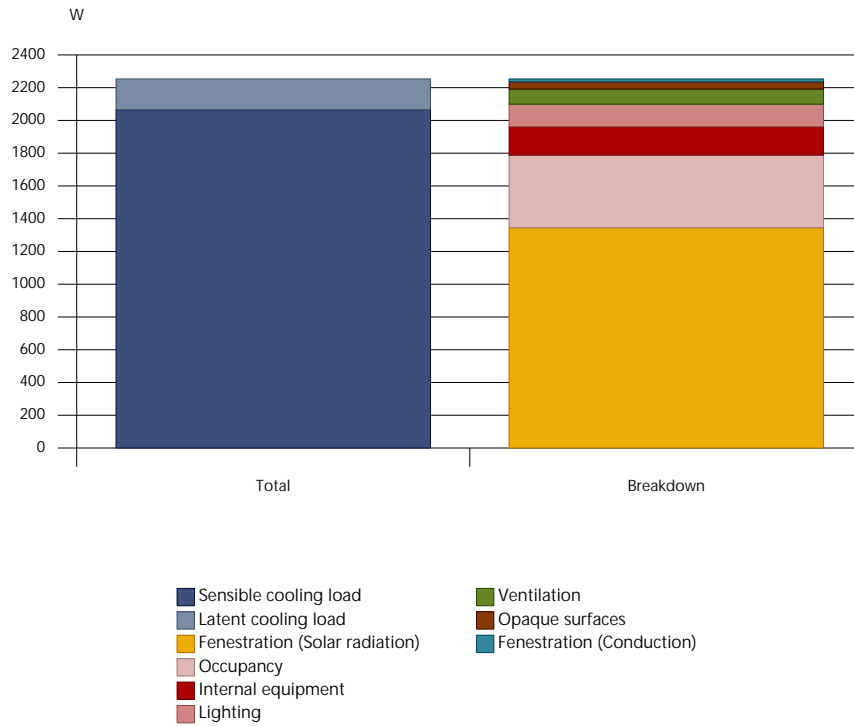
## Loads summary

- Fenestration (Solar radiation)
- Ventilation
- Opaque surfaces
- Fenestration (Conduction)
- Occupancy
- Lighting
- Internal equipment

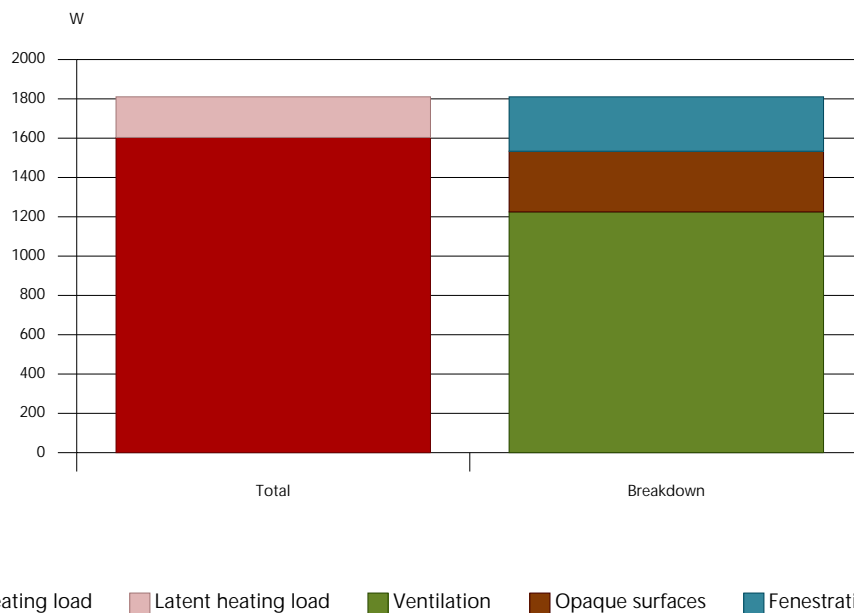
# Loads summary

Office 3

Peak cooling load (21 of July at 14h)



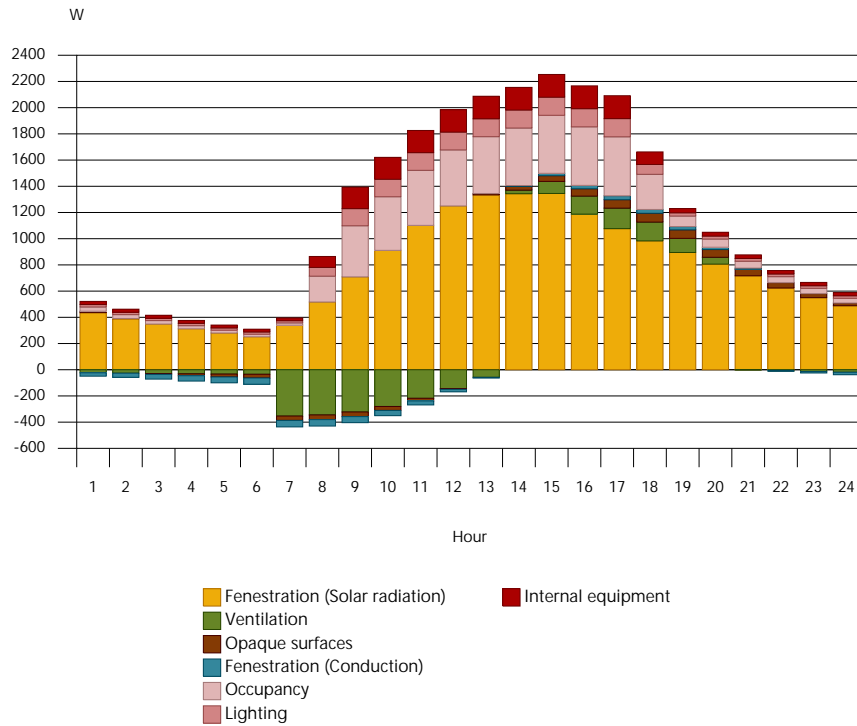
Peak heating load



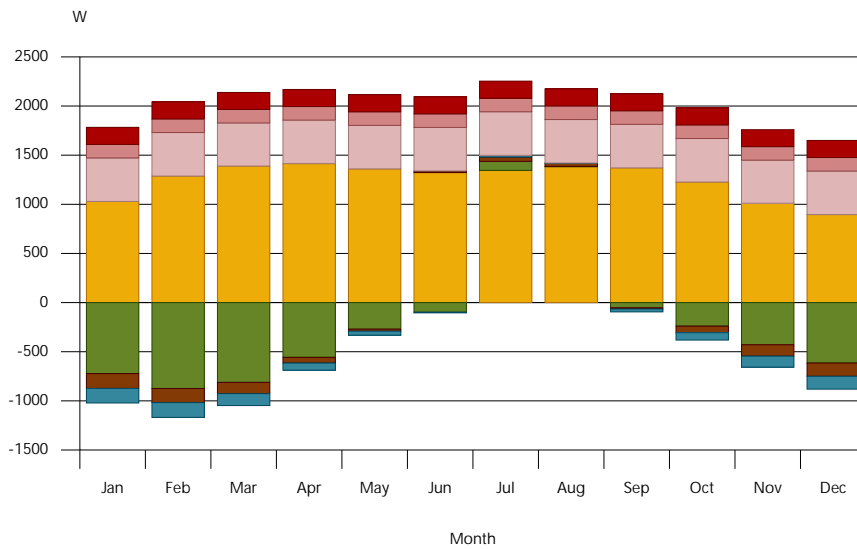


# Loads summary

## Hourly cooling load progression (21 of July)



## Annual peak cooling load progression



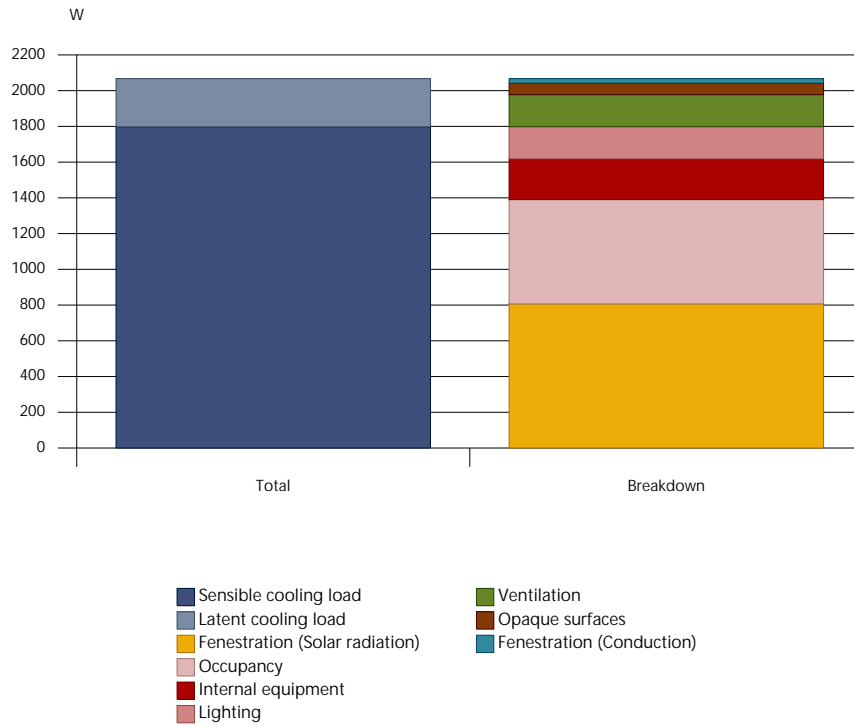
## Loads summary

- Fenestration (Solar radiation)
- Ventilation
- Opaque surfaces
- Fenestration (Conduction)
- Occupancy
- Lighting
- Internal equipment

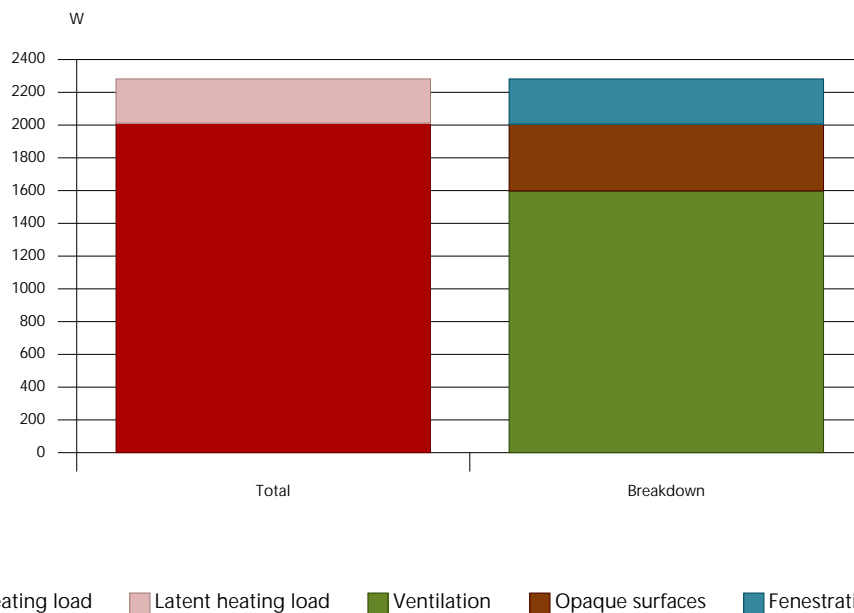
# Loads summary

Office 4

Peak cooling load (21 of July at 15h)

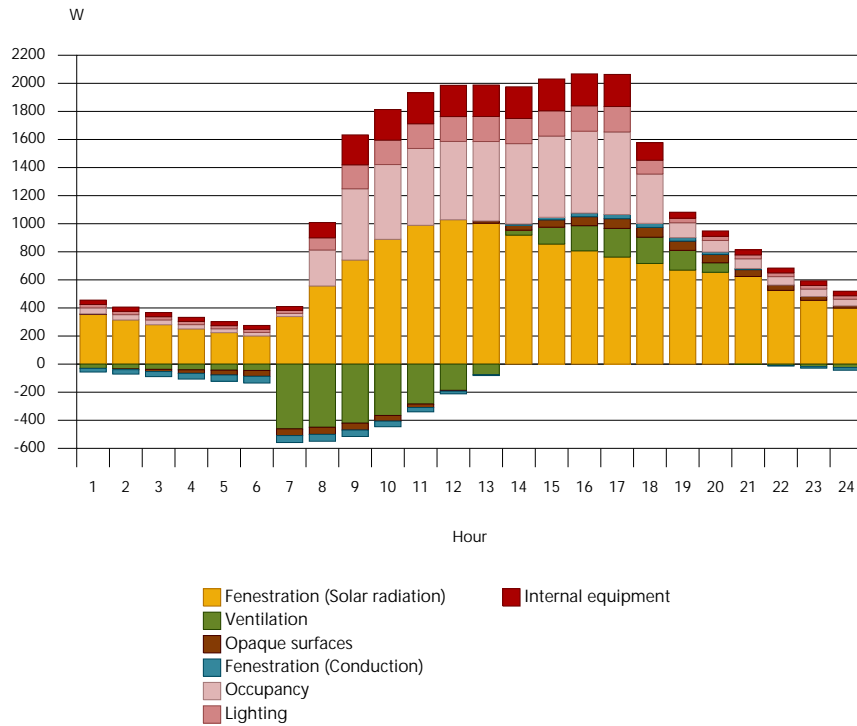


Peak heating load

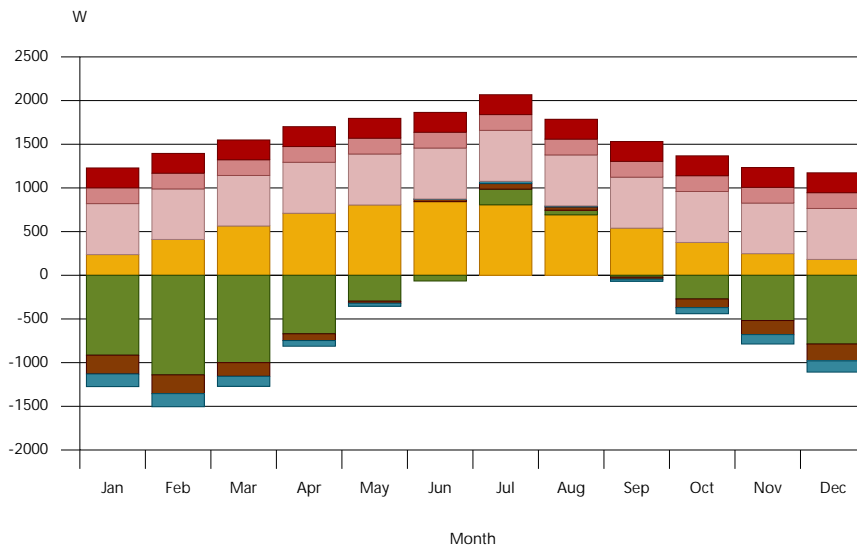


# Loads summary

## Hourly cooling load progression (21 of July)



## Annual peak cooling load progression



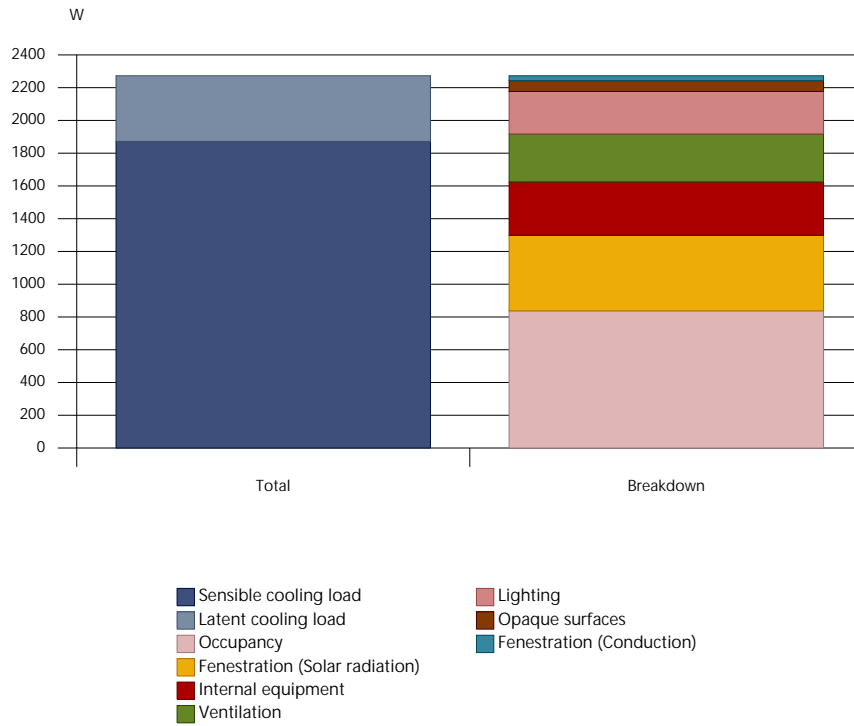
## Loads summary

- Fenestration (Solar radiation)
- Ventilation
- Opaque surfaces
- Fenestration (Conduction)
- Occupancy
- Lighting
- Internal equipment

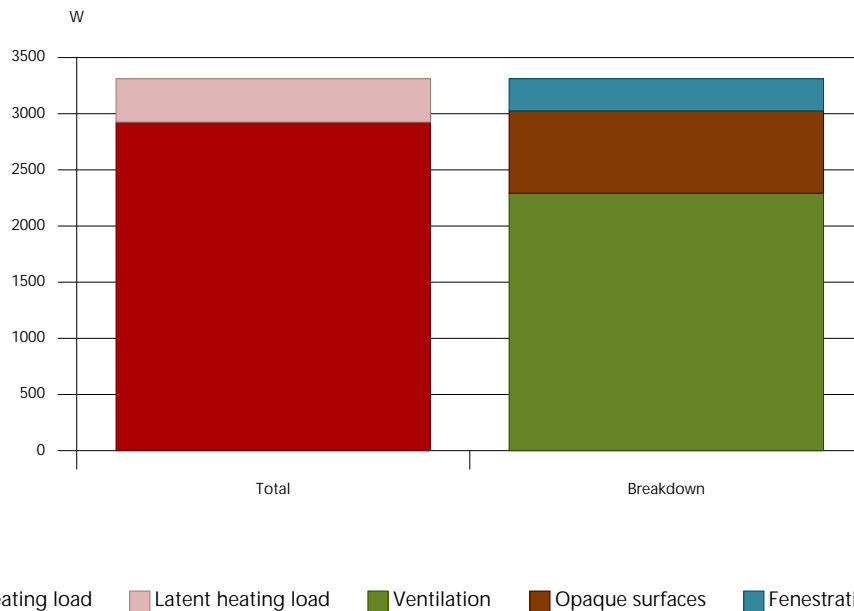
# Loads summary

Office 5

Peak cooling load (21 of July at 16h)

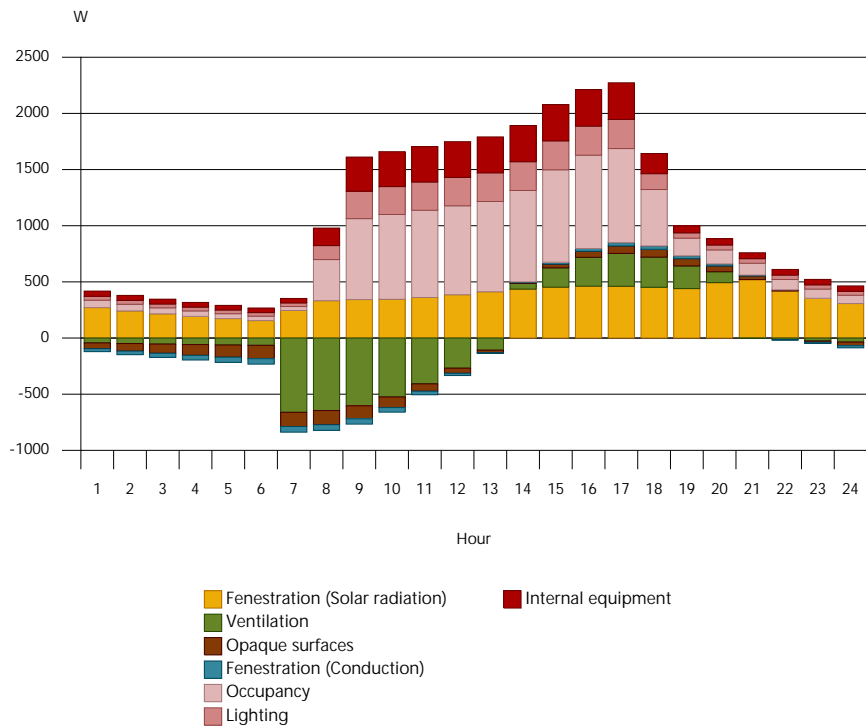


Peak heating load

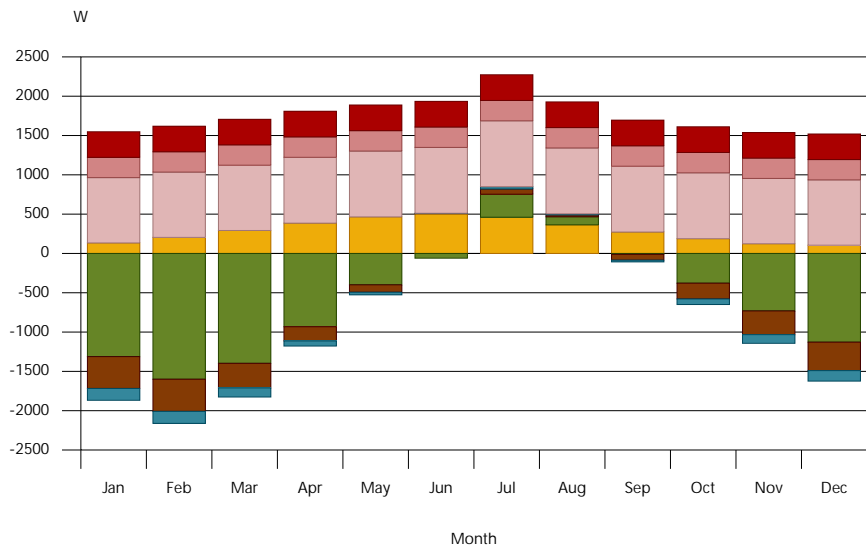


# Loads summary

## Hourly cooling load progression (21 of July)



## Annual peak cooling load progression



## Loads summary

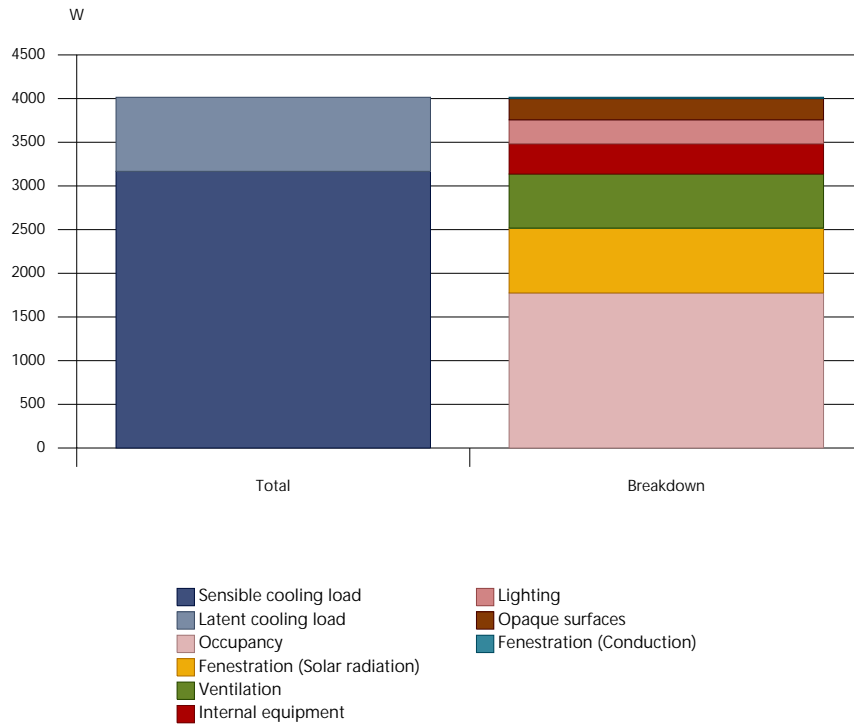
- Fenestration (Solar radiation)
- Ventilation
- Opaque surfaces
- Fenestration (Conduction)
- Occupancy
- Lighting
- Internal equipment



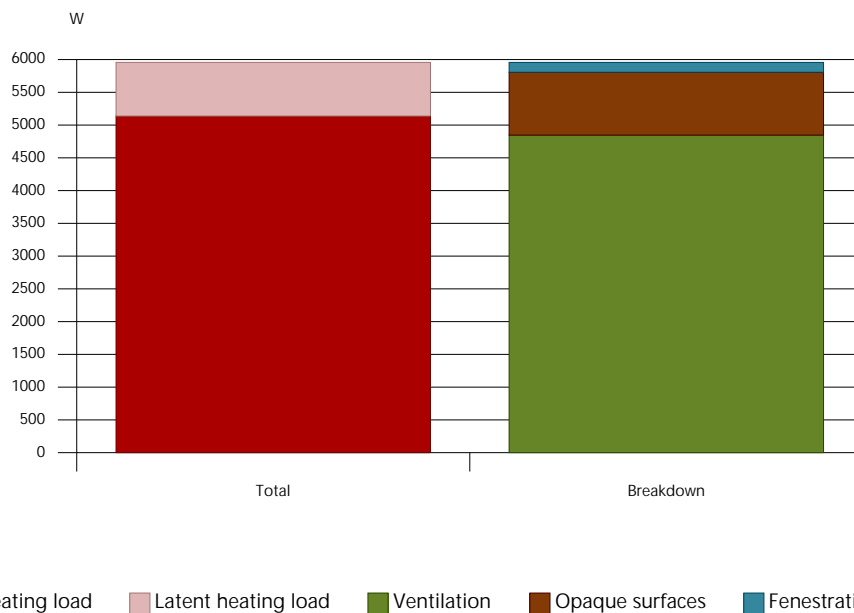
# Loads summary

Meeting room 2

Peak cooling load (21 of July at 16h)

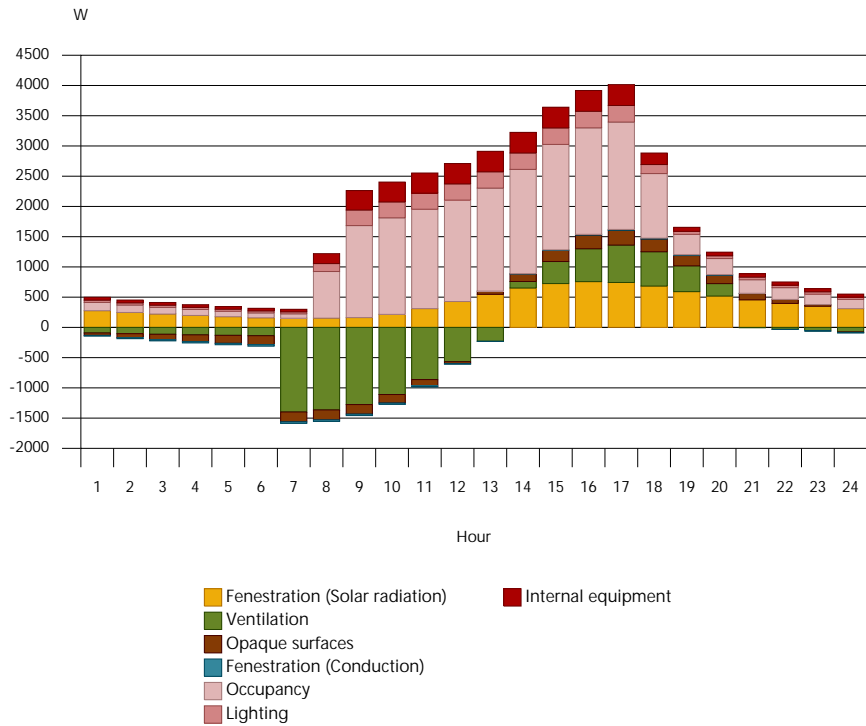


Peak heating load

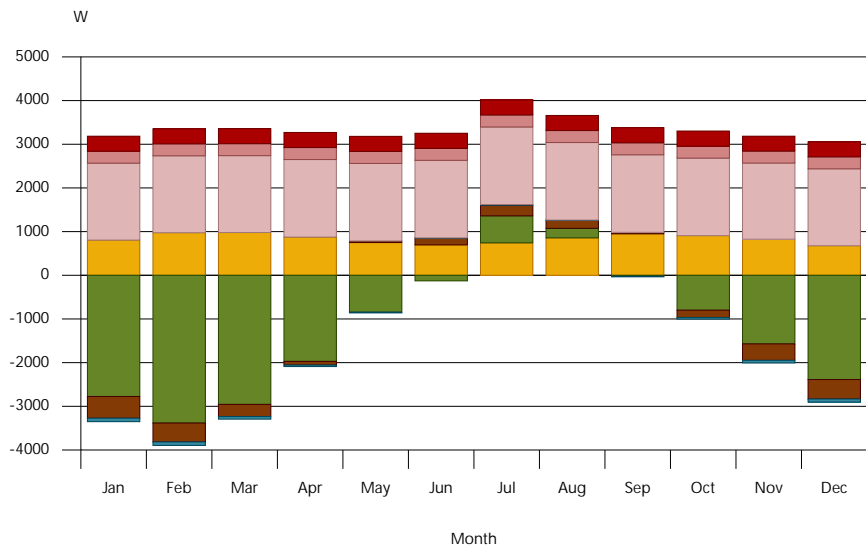


# Loads summary

## Hourly cooling load progression (21 of July)



## Annual peak cooling load progression



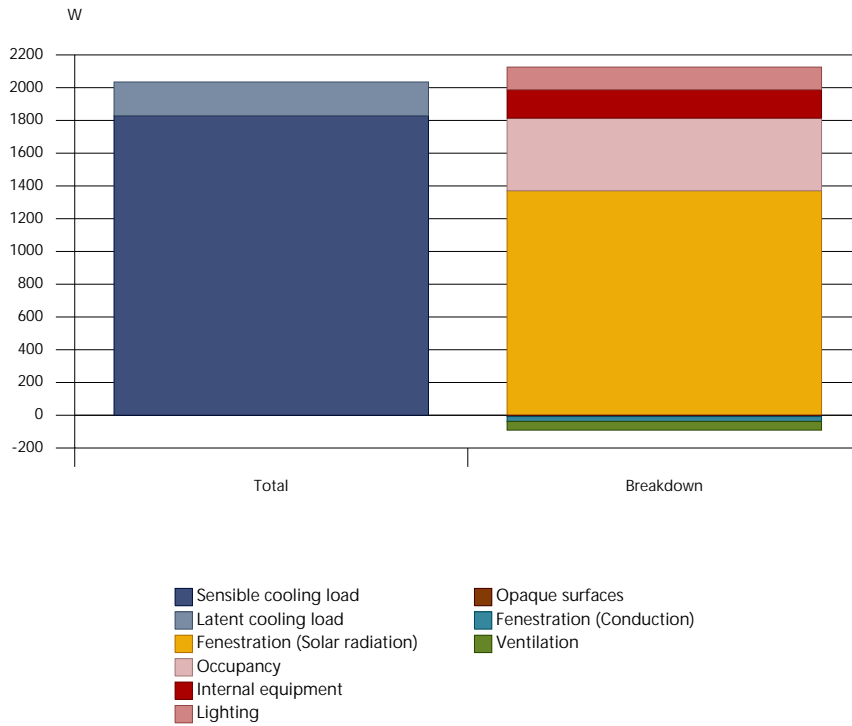
## Loads summary

- Fenestration (Solar radiation)
- Ventilation
- Opaque surfaces
- Fenestration (Conduction)
- Occupancy
- Lighting
- Internal equipment

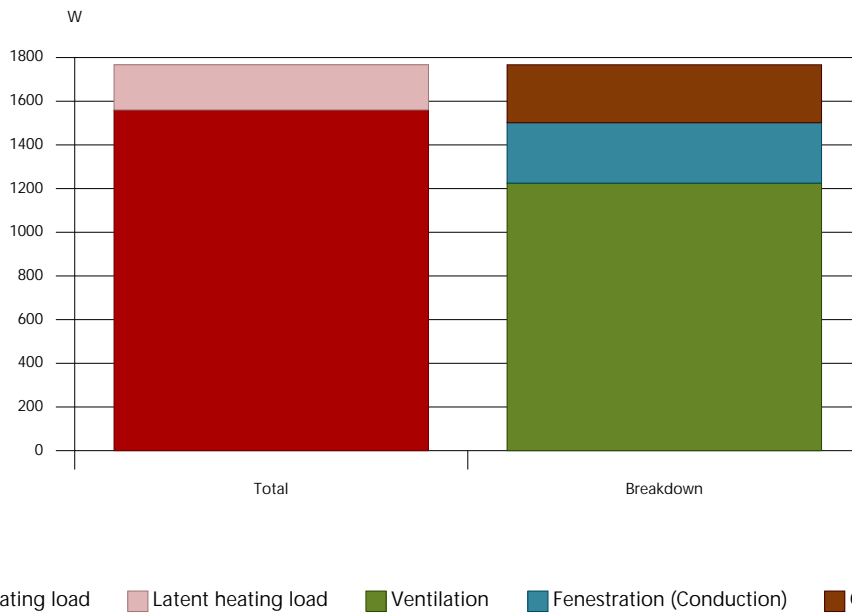
# Loads summary

Office 7

Peak cooling load (21 of September at 14h)

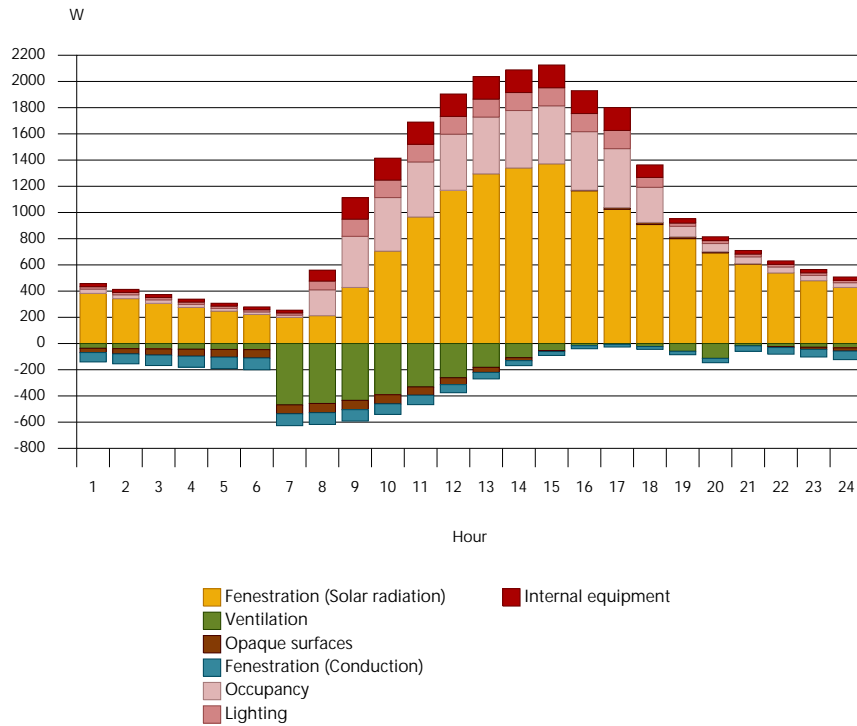


Peak heating load

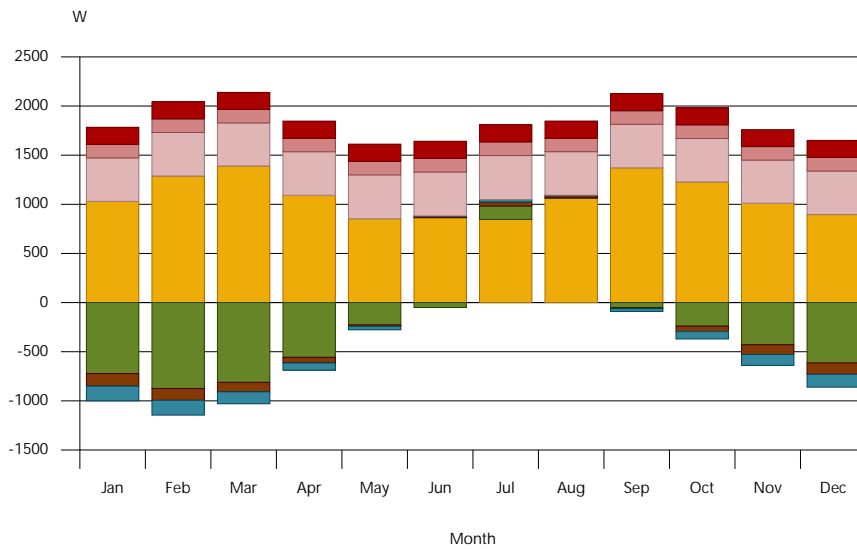


# Loads summary

## Hourly cooling load progression (21 of September)



## Annual peak cooling load progression



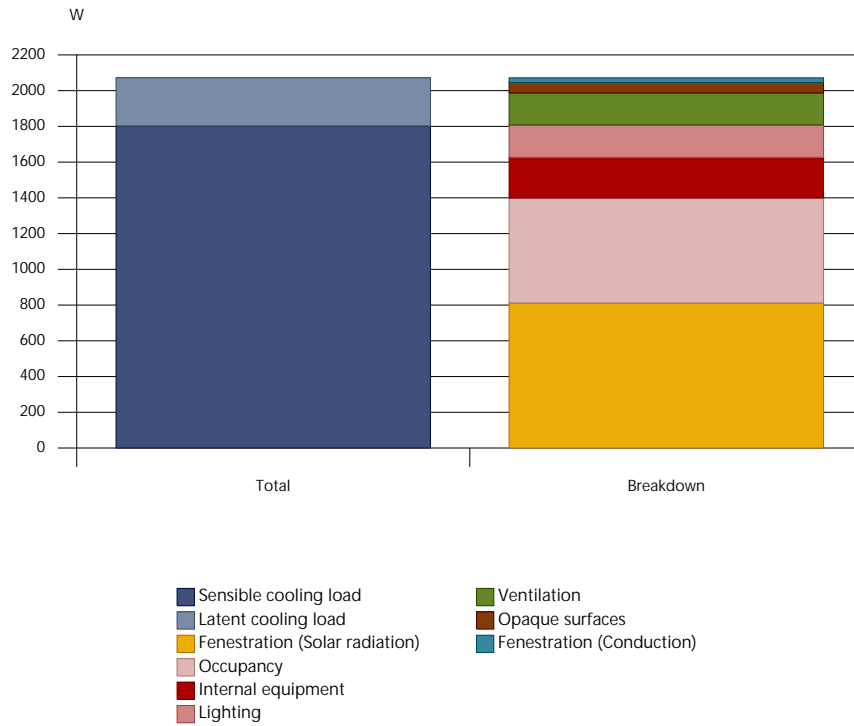
## Loads summary

- Fenestration (Solar radiation)
- Ventilation
- Opaque surfaces
- Fenestration (Conduction)
- Occupancy
- Lighting
- Internal equipment

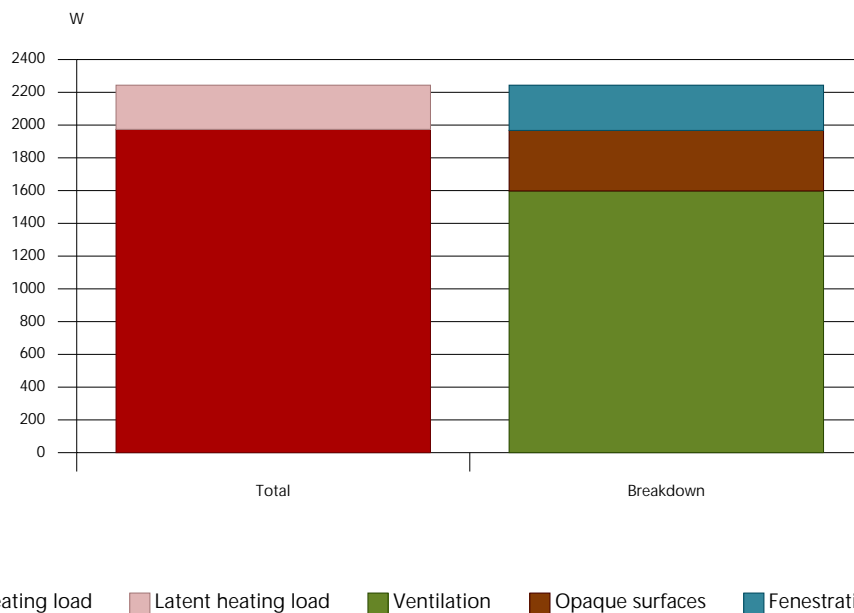
# Loads summary

Office 6

Peak cooling load (21 of July at 15h)

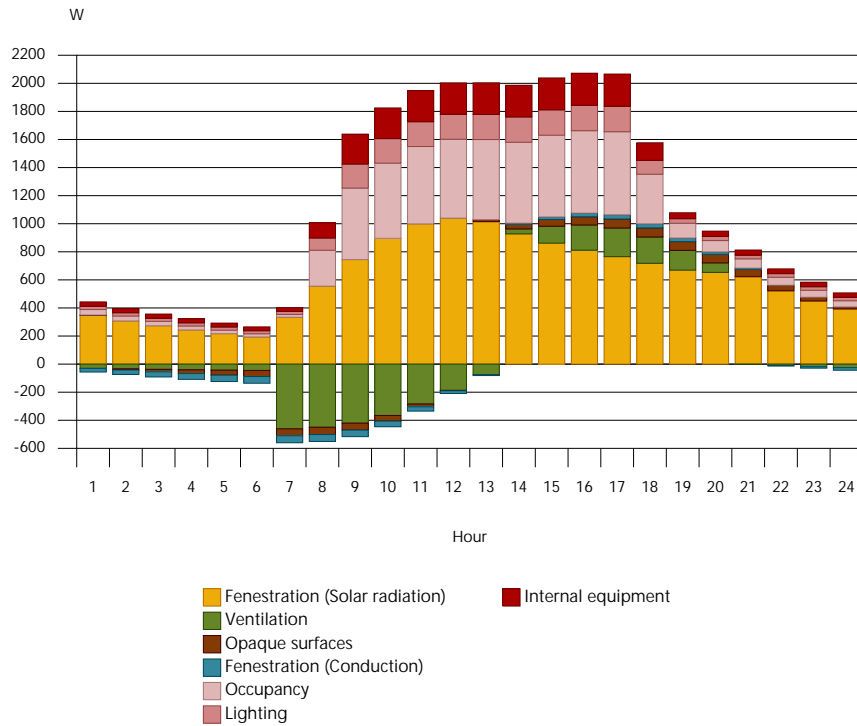


Peak heating load

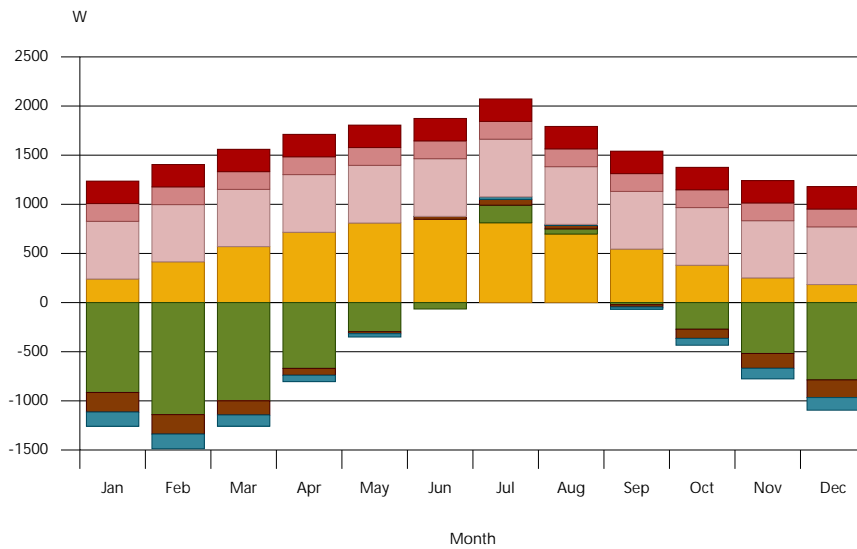


# Loads summary

## Hourly cooling load progression (21 of July)



## Annual peak cooling load progression





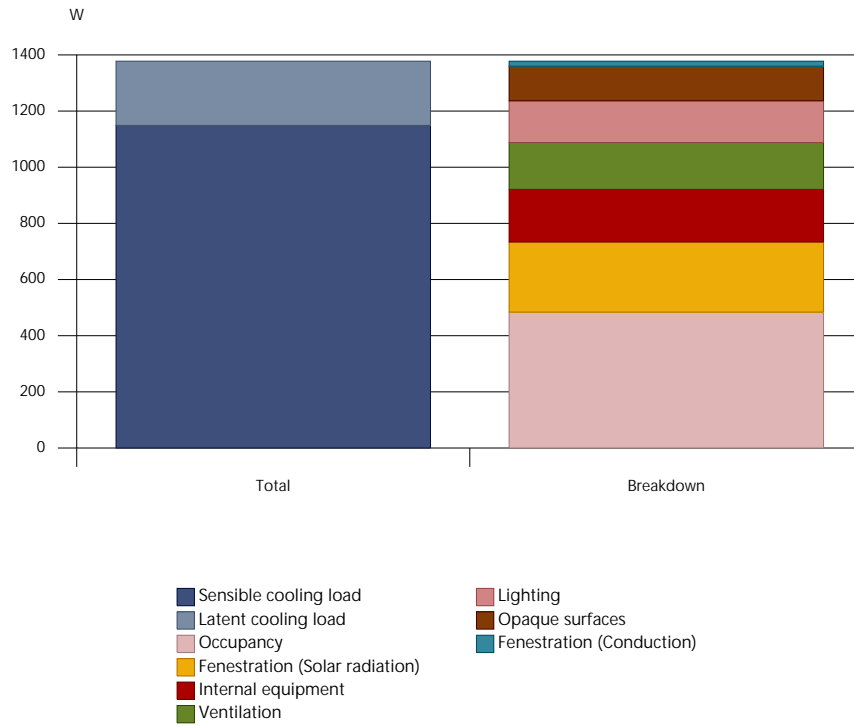
## Loads summary

- Fenestration (Solar radiation)
- Ventilation
- Opaque surfaces
- Fenestration (Conduction)
- Occupancy
- Lighting
- Internal equipment

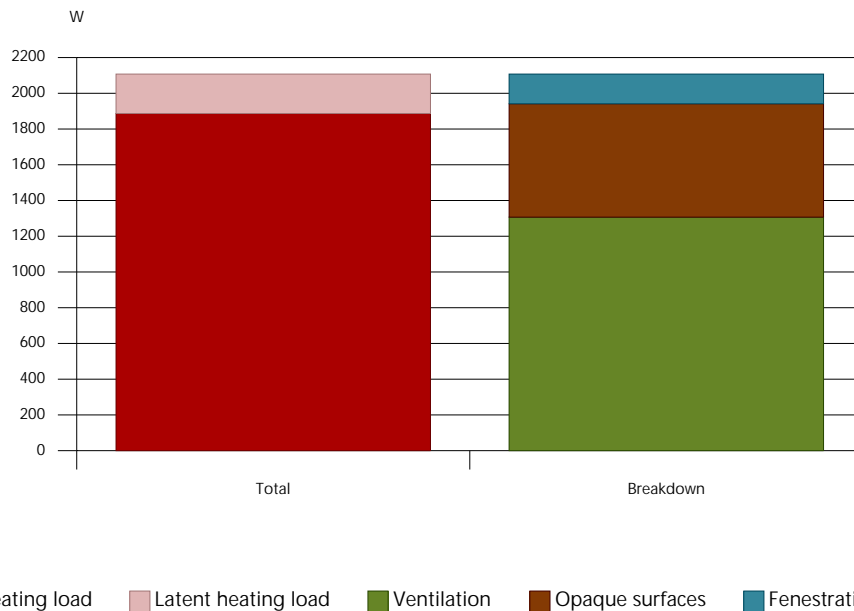
# Loads summary

Office 8

Peak cooling load (21 of July at 16h)

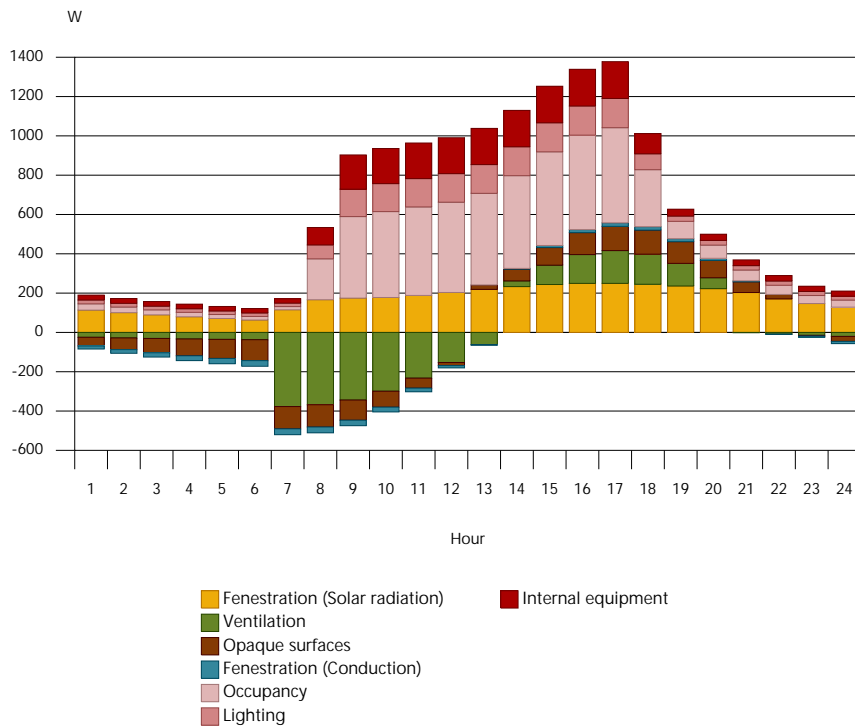


Peak heating load

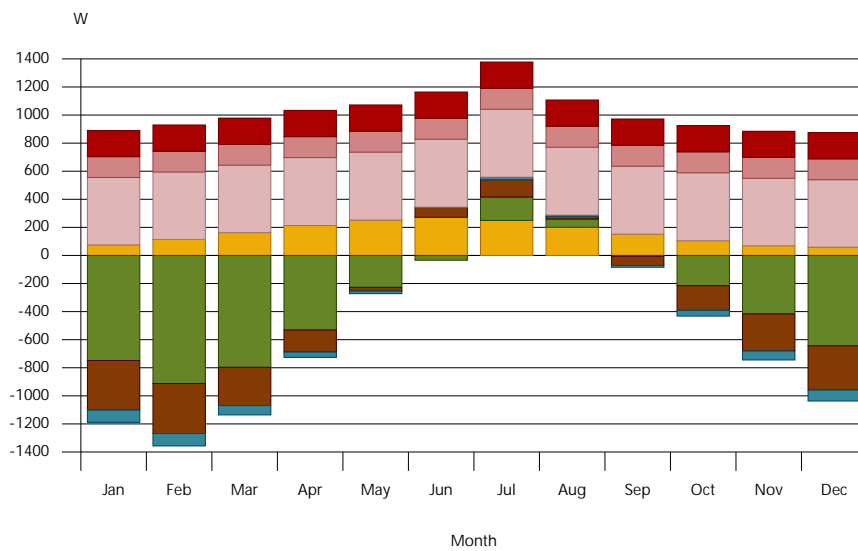


# Loads summary

## Hourly cooling load progression (21 of July)



## Annual peak cooling load progression



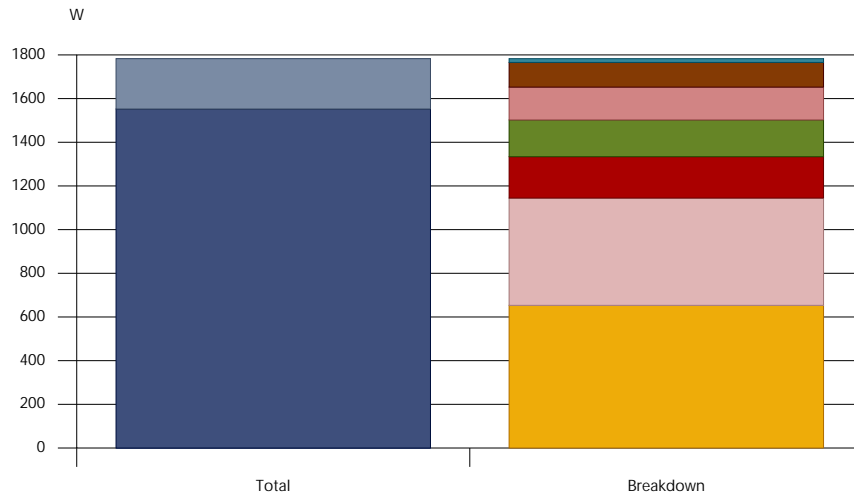
## Loads summary

- Fenestration (Solar radiation)
- Ventilation
- Opaque surfaces
- Fenestration (Conduction)
- Occupancy
- Lighting
- Internal equipment

# Loads summary

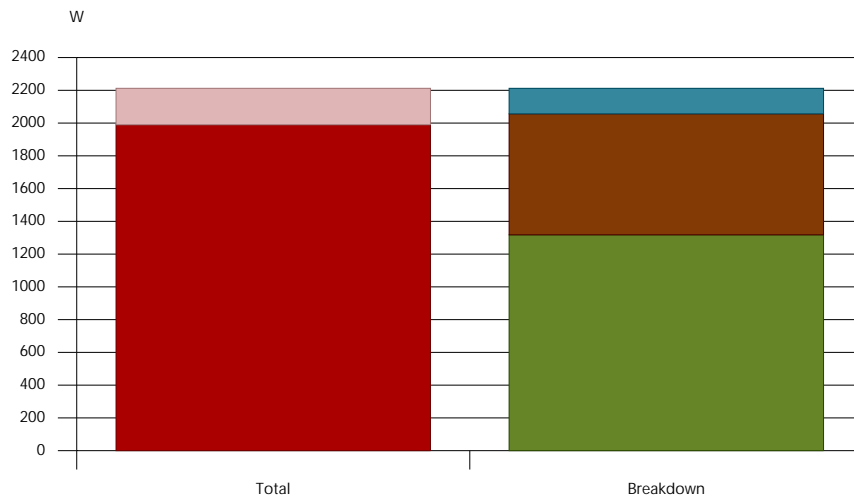
Office 10

Peak cooling load (21 of July at 16h)



- Sensible cooling load
- Latent cooling load
- Fenestration (Solar radiation)
- Occupancy
- Internal equipment
- Ventilation
- Lighting
- Opaque surfaces
- Fenestration (Conduction)

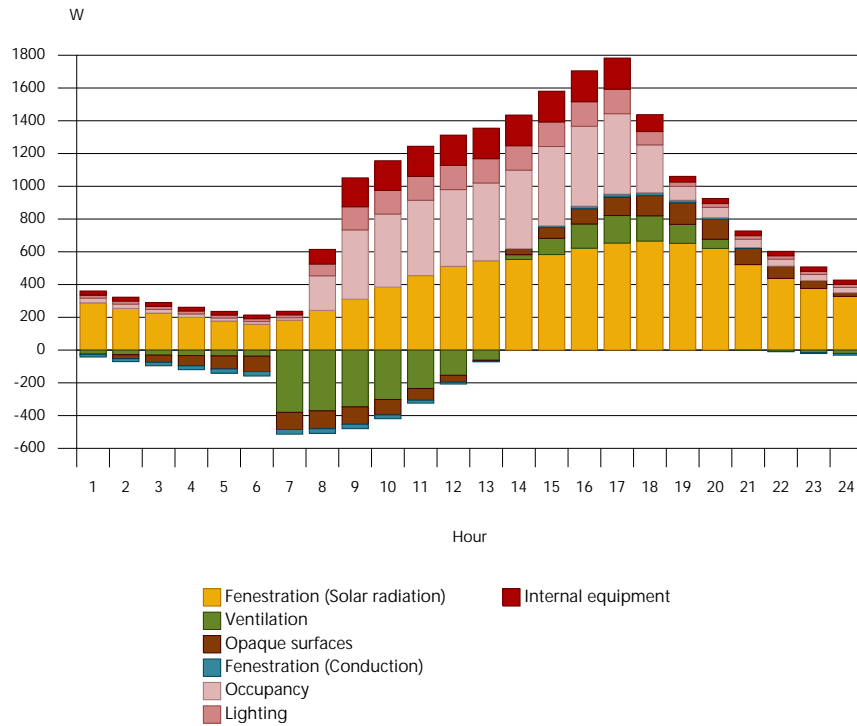
Peak heating load



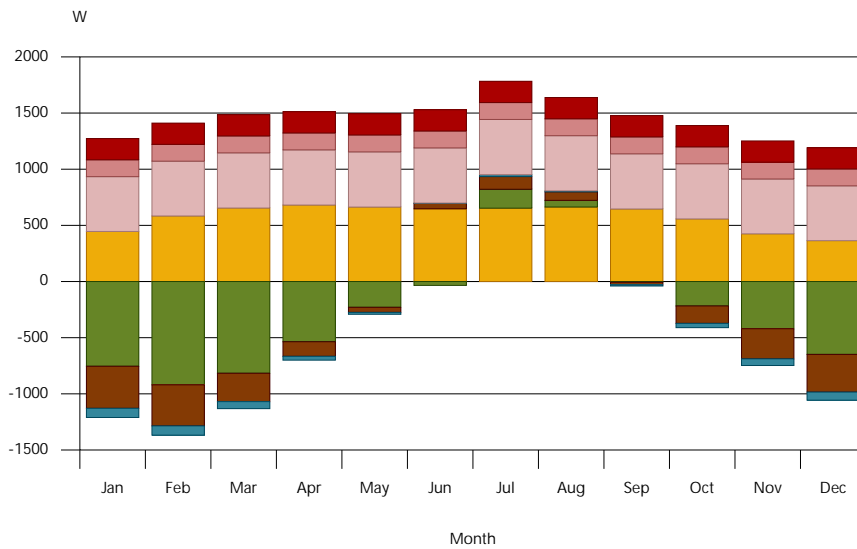
- Sensible heating load
- Latent heating load
- Ventilation
- Opaque surfaces
- Fenestration (Conduction)

# Loads summary

## Hourly cooling load progression (21 of July)



## Annual peak cooling load progression



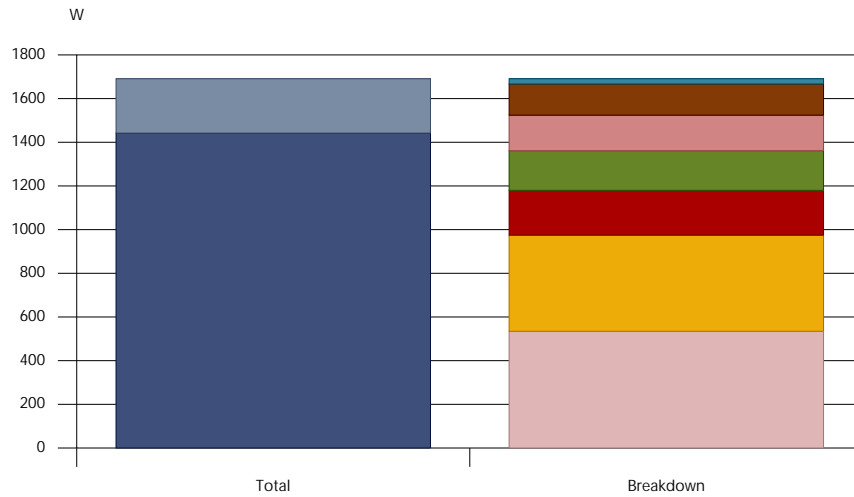
## Loads summary

- Fenestration (Solar radiation)
- Ventilation
- Opaque surfaces
- Fenestration (Conduction)
- Occupancy
- Lighting
- Internal equipment

# Loads summary

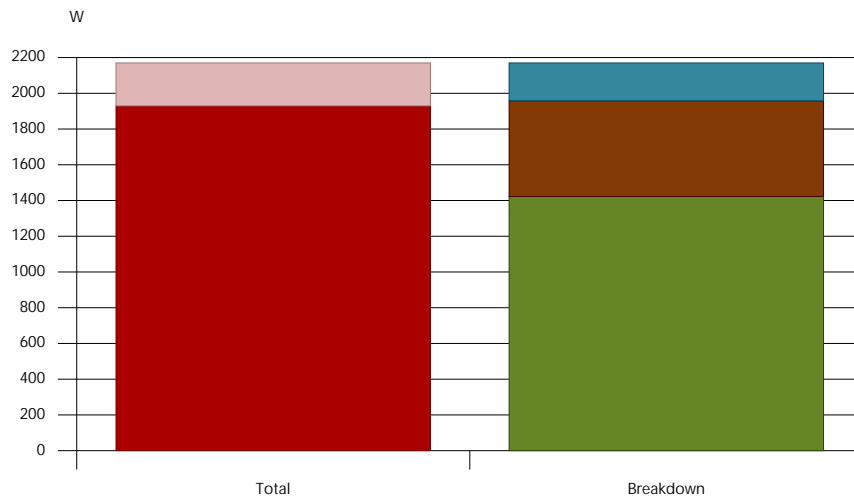
Office 9

Peak cooling load (21 of July at 16h)



- Sensible cooling load
- Latent cooling load
- Occupancy
- Fenestration (Solar radiation)
- Internal equipment
- Ventilation
- Lighting
- Opaque surfaces
- Fenestration (Conduction)

Peak heating load

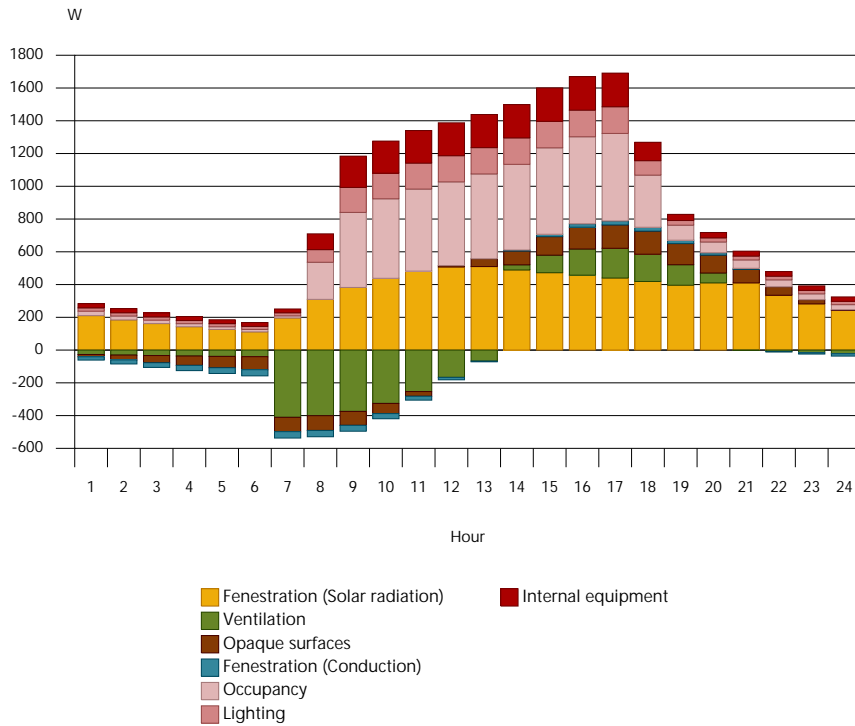


- Sensible heating load
- Latent heating load
- Ventilation
- Opaque surfaces
- Fenestration (Conduction)

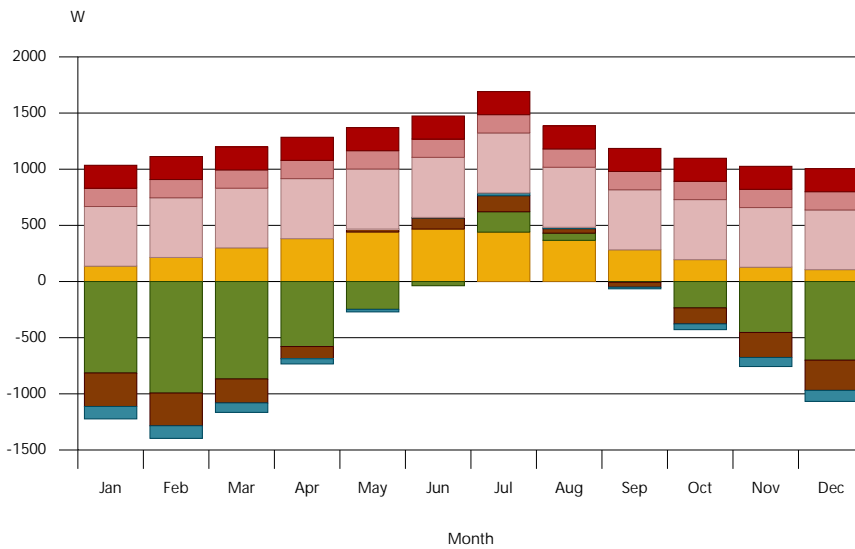


# Loads summary

## Hourly cooling load progression (21 of July)



## Annual peak cooling load progression



## Loads summary

- Fenestration (Solar radiation)
- Ventilation
- Opaque surfaces
- Fenestration (Conduction)
- Occupancy
- Lighting
- Internal equipment