**建筑能效测评报告书**

公共建筑

|  |  |
| --- | --- |
| 工程名称 | 绿色佳园 |
| 工程地点 | 福建-泉州 |
| 设计编号 |  |
| 建设单位 |  |
| 设计单位 | 黎明职业大学建筑工程学院 |
| 设 计 人 |  |
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| 审 定 人 |  |
| 设计日期 | 2021年12月22日 |



|  |  |
| --- | --- |
| 采用软件 | 能耗计算BESI2020 |
| 软件版本 | 20190808 |
| 研发单位 | 北京绿建软件有限公司 |
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# 建筑概况

|  |  |
| --- | --- |
| 工程名称 | 绿色佳园 |
| 工程地点 | 福建-泉州 |
| 地理位置 | 北纬：24.56° | 东经：118.36° |
| 建筑面积(m2) | 地上12339 地下0 |
| 建筑层数 | 地上7 地下0 |
| 建筑高度（m） | 地上30.9 地下0.0 |
| 建筑体积(m3) | 51993.21 |
| 建筑外表面积(m2) | 11069.80 |
| 北向角度 | 83 |
| 结构类型 |  |
| 外墙太阳辐射吸收系数 | 0.75 |
| 屋顶太阳辐射吸收系数 | 0.75 |

|  |  |  |
| --- | --- | --- |
|  | 标识建筑 | 比对建筑 |
| 屋顶传热系数K [W/(m2·K)] | 0.50(D:4.08) | 0.80 |
| 外墙（包括非透明幕墙）传热系数K [W/(m2·K)] | 1.11(D:2.94) | 1.50 |
| 屋顶透明部分传热系数K [W/(m2·K)] | － | － |
| 屋顶透明部分太阳得热系数 | － | － |
| 底面接触室外的架空或外挑楼板传热系数K [W/(m2·K)] | 1.18 | 1.50 |
| 外窗（包括透明幕墙） | 朝向 | 立面 | 窗墙比 | 传热系数 | 太阳得热系数 | 窗墙比 | 传热系数 | 太阳得热系数 |
| 南向 | 南-默认立面 | 0.25 | 2.80 | 0.39 | 0.25 | 4.00 | 0.44 |
| 北向 | 北-默认立面 | 0.30 | 2.80 | 0.44 | 0.30 | 4.00 | 0.52 |
| 东向 | 东-默认立面 | 0.16 | 2.80 | 0.37 | 0.16 | 5.20 | 0.52 |
| 西向 | 西-默认立面 | 0.18 | 2.80 | 0.38 | 0.18 | 5.20 | 0.52 |

备注：1. — 代表本工程无对应项; 2. ——代表参照建筑不要求，取值同设计建筑。

# 测评依据

1. 《建筑能效标识技术标准》(JGJ/T 288-2012)

2. 《公共建筑节能设计标准》(GB50189-2015)

3. 《民用建筑热工设计规范》(GB50176)

# 围护结构

## 工程材料

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 材料名称 | 导热系数λ | 蓄热系数S | 密度ρ | 比热容Cp | 蒸汽渗透系数u | 备注 |
| W/(m.K) | W/(㎡.K) | kg/m3 | J/(kg.K) | g/(m.h.kPa) |
| 水泥砂浆 | 0.930 | 11.370 | 1800.0 | 1050.0 | 0.0210 | 来源：《民用建筑热工设计规范》GB50176-2016 |
| 石灰砂浆 | 0.810 | 10.070 | 1600.0 | 1050.0 | 0.0443 | 来源：《民用建筑热工设计规范》GB50176-2016 |
| 钢筋混凝土 | 1.740 | 17.200 | 2500.0 | 920.0 | 0.0158 | 来源：《民用建筑热工设计规范》GB50176-2016 |
| 挤塑聚苯乙烯泡沫塑料（带表皮） | 0.030 | 0.340 | 35.0 | 1380.0 | 0.0000 | 来源：《民用建筑热工设计规范》GB50176-2016，蒸汽渗透系数没有给出 |
| 加气混凝土、泡沫混凝土(ρ=700) | 0.180 | 3.100 | 700.0 | 1050.0 | 0.0998 | 来源：《民用建筑热工设计规范》GB50176-2016 |
| 混凝土多孔砖(190六孔砖） | 0.750 | 7.490 | 1450.0 | 709.4 | 0.0000 |  |
| 浮石混凝土(ρ=1100)(水泥焦渣) | 0.420 | 6.130 | 1100.0 | 1050.0 | 0.0353 | 蒸汽渗透系数为测定值 |
| 保温砂浆 | 0.290 | 4.440 | 800.0 | 1050.0 | 0.0000 | 蒸汽渗透系数没有给出 |
| 保温砂浆 | 0.290 | 4.440 | 800.0 | 1050.0 | 0.0000 | 蒸汽渗透系数没有给出 |

## 围护结构作法简要说明

**1. 屋顶构造：**屋顶构造一：（由上到下）

 浮石混凝土(ρ=1100)(水泥焦渣) 20mm＋挤塑聚苯乙烯泡沫塑料（带表皮） 20mm＋挤塑聚苯乙烯泡沫塑料（带表皮） 20mm＋保温砂浆 30mm＋加气混凝土、泡沫混凝土(ρ=700) 80mm＋钢筋混凝土 120mm＋保温砂浆 20mm

**2. 外墙构造：**外墙构造一：（由外到内）

 水泥砂浆 20mm＋挤塑聚苯乙烯泡沫塑料（带表皮） 20mm＋水泥砂浆 20mm＋钢筋混凝土 200mm＋石灰砂浆 20mm

**3. 挑空楼板构造：**挑空楼板构造一：（由上到下）

 水泥砂浆 20mm＋钢筋混凝土 120mm＋水泥砂浆 20mm＋挤塑聚苯乙烯泡沫塑料（带表皮） 20mm＋水泥砂浆 20mm

**4. 外窗构造：**断热铝合金窗--Low-E中空玻璃：

 传热系数2.800W/m^2.K，太阳得热系数0.652

## 体形系数

|  |  |
| --- | --- |
| 外表面积 | 11069.80 |
| 建筑体积 | 51993.21 |
| 体形系数 | 0.21 |

## 窗墙比

### 窗墙比

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 朝向 | 立面 | 窗面积(㎡) | 墙面积(㎡) | 窗墙比 |
| 南向 | 南-默认立面 | 581.66 | 2284.41 | 0.25 |
| 北向 | 北-默认立面 | 468.69 | 1556.54 | 0.30 |
| 东向 | 东-默认立面 | 218.26 | 1325.43 | 0.16 |
| 西向 | 西-默认立面 | 300.01 | 1705.63 | 0.18 |

### 外窗表

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 朝向 | 立面 | 编号 | 尺寸 | 楼层 | 数量 | 单个面积（㎡） | 合计面积（㎡） |
| 南向 | 南-默认立面581.66 | C0815 | 0.80×1.50 | 3 | 1 | 1.20 | 1.20 |
| C1621a | 1.65×2.10 | 4 | 2 | 3.47 | 6.93 |
| GC0404 | 0.40×0.40 | 4,6 | 6 | 0.16 | 0.96 |
| GC0504 | 0.50×0.40 | 5 | 3 | 0.20 | 0.60 |
| GC4815 | 4.80×1.50 | 2 | 2 | 7.20 | 14.40 |
| TC2217 | 2.20×1.70 | 5 | 6 | 3.74 | 22.44 |
| TC2223 | 2.20×2.30 | 2~4 | 18 | 5.06 | 91.08 |
| TC2226 | 2.20×2.60 | 1 | 6 | 5.72 | 34.32 |
| TC2423 | 2.40×2.30 | 6~7 | 5 | 5.52 | 27.60 |
| TC2523 | 2.50×2.30 | 3~4 | 2 | 5.75 | 11.50 |
| TC2616 | 2.60×1.60 | 2~4 | 3 | 4.16 | 12.48 |
| TC2617 | 2.60×1.70 | 5 | 1 | 4.42 | 4.42 |
| TC2716 | 2.70×1.60 | 7 | 1 | 4.32 | 4.32 |
| TC3016 | 3.00×1.60 | 4~5 | 2 | 4.80 | 9.60 |
| TC3017 | 3.00×1.70 | 6 | 12 | 5.10 | 61.20 |
| TC3023 | 3.00×2.30 | 4~5,7 | 25 | 6.90 | 172.50 |
| TC3623 | 3.60×2.30 | 7 | 10 | 8.28 | 82.80 |
| TC3717 | 3.70×1.70 | 5 | 1 | 6.29 | 6.29 |
| TC3723 | 3.70×2.30 | 3~4 | 2 | 8.51 | 17.02 |
| 北向 | 北-默认立面468.69 | C1321a | 1.35×2.10 | 1 | 2 | 2.84 | 5.67 |
| C1515 | 1.90×1.50 | 5 | 1 | 2.85 | 2.85 |
| C1515 | 1.50×1.50 | 6~7 | 2 | 2.25 | 4.50 |
| C3021 | 3.00×2.10 | 2 | 1 | 6.30 | 6.30 |
| C3430a | 3.45×3.00 | 4 | 8 | 10.35 | 82.80 |
| C4530 | 4.50×3.00 | 4 | 2 | 13.50 | 27.00 |
| C7221 | 7.20×2.10 | 2 | 1 | 15.12 | 15.12 |
| GC0404 | 0.40×0.40 | 5 | 1 | 0.16 | 0.16 |
| MC-7 | 1.90×2.10 | 3~4 | 2 | 3.99 | 7.98 |
| TC0926 | 0.90×2.60 | 1 | 1 | 2.34 | 2.34 |
| TC1526 | 1.50×2.60 | 1 | 1 | 3.90 | 3.90 |
| TC2417 | 2.40×1.70 | 3 | 7 | 4.08 | 28.56 |
| TC2423 | 2.40×2.30 | 2,4 | 8 | 5.52 | 44.16 |
| TC2626 | 2.60×2.60 | 1 | 2 | 6.76 | 13.52 |
| TC2717 | 2.70×1.70 | 3 | 5 | 4.59 | 22.95 |
| TC2723 | 2.70×2.30 | 2 | 3 | 6.21 | 18.63 |
| TC2726 | 2.70×2.60 | 1 | 4 | 7.02 | 28.08 |
| TC3026 | 3.00×2.60 | 1 | 3 | 7.80 | 23.40 |
| TC3323 | 3.30×2.30 | 4 | 7 | 7.59 | 53.13 |
| TC3623 | 3.60×2.30 | 4 | 1 | 8.28 | 8.28 |
| TC3923 | 3.60×2.30 | 4 | 3 | 8.28 | 24.84 |
| TC4226 | 4.20×2.60 | 1 | 2 | 10.92 | 21.84 |
| TC4227 | 4.20×2.70 | 2 | 2 | 11.34 | 22.68 |
| 东向 | 东-默认立面218.26 | C0521 | 0.50×2.10 | 1 | 2 | 1.05 | 2.10 |
| C0721 | 0.70×2.10 | 1 | 1 | 1.47 | 1.47 |
| C1021 | 1.00×2.10 | 1 | 1 | 2.10 | 2.10 |
| C1930 | 1.90×3.00 | 4 | 1 | 5.70 | 5.70 |
| C2230 | 2.20×3.00 | 4 | 2 | 6.60 | 13.20 |
| C3021 | 3.00×2.10 | 1 | 1 | 6.30 | 6.30 |
| C3230 | 3.20×3.00 | 4 | 2 | 9.60 | 19.20 |
| C3330 | 3.30×3.00 | 4 | 1 | 9.90 | 9.90 |
| C3430 | 3.40×3.00 | 4 | 3 | 10.20 | 30.60 |
| C3530a | 3.55×3.00 | 4 | 1 | 10.65 | 10.65 |
| C3830 | 3.80×3.00 | 4 | 1 | 11.40 | 11.40 |
| C5730 | 5.70×3.00 | 4 | 2 | 17.10 | 34.20 |
| TC1527 | 1.50×2.70 | 2 | 2 | 4.05 | 8.10 |
| TC1923 | 1.90×2.30 | 4 | 3 | 4.37 | 13.11 |
| TC2517 | 2.50×1.70 | 3 | 1 | 4.25 | 4.25 |
| TC2523 | 2.50×2.30 | 2 | 1 | 5.75 | 5.75 |
| TC3326 | 3.00×2.60 | 1 | 2 | 7.80 | 15.60 |
| TC4527 | 4.50×2.70 | 2 | 1 | 12.15 | 12.15 |
| TC4826 | 4.80×2.60 | 1 | 1 | 12.48 | 12.48 |
| 西向 | 西-默认立面300.01 | C0321a | 0.35×2.10 | 1 | 2 | 0.74 | 1.47 |
| C0721 | 0.70×2.10 | 1 | 1 | 1.47 | 1.47 |
| C0815 | 0.80×1.50 | 1 | 1 | 1.20 | 1.20 |
| C1930 | 1.90×3.00 | 4 | 1 | 5.70 | 5.70 |
| C2230 | 2.20×3.00 | 4 | 2 | 6.60 | 13.20 |
| C5730 | 5.70×3.00 | 4 | 2 | 17.10 | 34.20 |
| GC0404 | 0.40×0.40 | 1~4 | 12 | 0.16 | 1.92 |
| GC0504 | 0.50×0.40 | 5~6 | 6 | 0.20 | 1.20 |
| MC-4' | 2.74×1.50 | 1 | 1 | 4.10 | 4.10 |
| TC1223 | 1.20×2.30 | 5~6 | 2 | 2.76 | 5.52 |
| TC1527 | 1.50×2.70 | 2 | 2 | 4.05 | 8.10 |
| TC2416 | 2.40×1.60 | 5 | 1 | 3.84 | 3.84 |
| TC2423 | 2.40×2.30 | 4 | 1 | 5.52 | 5.52 |
| TC2517 | 2.50×1.70 | 3 | 1 | 4.25 | 4.25 |
| TC2523 | 2.50×2.30 | 2,4 | 2 | 5.75 | 11.50 |
| TC2716 | 2.70×1.60 | 4,6 | 2 | 4.32 | 8.64 |
| TC2717 | 2.70×1.70 | 3 | 4 | 4.59 | 18.36 |
| TC2723 | 2.70×2.30 | 2,5 | 8 | 6.21 | 49.68 |
| TC3016 | 3.00×1.60 | 2 | 1 | 4.80 | 4.80 |
| TC3017 | 3.00×1.70 | 3 | 1 | 5.10 | 5.10 |
| TC3023 | 3.00×2.30 | 4~6 | 13 | 6.90 | 89.70 |
| TC3126 | 3.10×2.60 | 1 | 1 | 8.06 | 8.06 |
| TC4826 | 4.80×2.60 | 1 | 1 | 12.48 | 12.48 |

## 可见光透射比

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 朝向 | 立面 | 窗墙比 | 最不利窗编号 | 最不利透射比 | 透射比限值 |
| 南向 | 南-默认立面 | 0.25 | TC2423 | 1.00 | 0.60 |
| 北向 | 北-默认立面 | 0.30 | C1515 | 1.00 | 0.60 |
| 东向 | 东-默认立面 | 0.16 | C3530a | 1.00 | 0.60 |
| 西向 | 西-默认立面 | 0.18 | TC3023 | 1.00 | 0.60 |

## 天窗

### 天窗屋顶比

本工程无此项内容

### 天窗类型

本工程无此项内容

## 屋顶构造

### 屋顶构造一

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 材料名称（由上到下） | 厚度δ | 导热系数λ | 蓄热系数S | 修正系数 | 热阻R | 热惰性指标 |
| (mm) | W/(m.K) | W/(㎡.K) | α | (㎡K)/W | D=R\*S |
| 浮石混凝土(ρ=1100)(水泥焦渣) | 20 | 0.420 | 6.130 | 1.00 | 0.048 | 0.292 |
| 挤塑聚苯乙烯泡沫塑料（带表皮） | 20 | 0.030 | 0.340 | 1.20 | 0.556 | 0.227 |
| 挤塑聚苯乙烯泡沫塑料（带表皮） | 20 | 0.030 | 0.340 | 1.20 | 0.556 | 0.227 |
| 保温砂浆 | 30 | 0.290 | 4.440 | 1.00 | 0.103 | 0.459 |
| 加气混凝土、泡沫混凝土(ρ=700) | 80 | 0.180 | 3.100 | 1.00 | 0.444 | 1.378 |
| 钢筋混凝土 | 120 | 1.740 | 17.200 | 1.00 | 0.069 | 1.186 |
| 保温砂浆 | 20 | 0.290 | 4.440 | 1.00 | 0.069 | 0.306 |
| 各层之和∑ | 310 | － | － | － | 1.845 | 4.075 |
| 外表面太阳辐射吸收系数 | 0.75 |
| 传热系数K=1/(0.16+∑R) | 0.50 |

## 外墙构造

### 外墙相关构造

#### 外墙构造一

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 材料名称（由外到内） | 厚度δ | 导热系数λ | 蓄热系数S | 修正系数 | 热阻R | 热惰性指标 |
| (mm) | W/(m.K) | W/(㎡.K) | α | (㎡K)/W | D=R\*S |
| 水泥砂浆 | 20 | 0.930 | 11.370 | 1.00 | 0.022 | 0.245 |
| 挤塑聚苯乙烯泡沫塑料（带表皮） | 20 | 0.030 | 0.340 | 1.20 | 0.556 | 0.227 |
| 水泥砂浆 | 20 | 0.930 | 11.370 | 1.00 | 0.022 | 0.245 |
| 钢筋混凝土 | 200 | 1.740 | 17.200 | 1.00 | 0.115 | 1.977 |
| 石灰砂浆 | 20 | 0.810 | 10.070 | 1.00 | 0.025 | 0.249 |
| 各层之和∑ | 280 | － | － | － | 0.738 | 2.941 |
| 外表面太阳辐射吸收系数 | 0.75 |
| 传热系数K=1/(0.16+∑R) | 1.11 |

#### 热桥柱构造一

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 材料名称（由外到内） | 厚度δ | 导热系数λ | 蓄热系数S | 修正系数 | 热阻R | 热惰性指标 |
| (mm) | W/(m.K) | W/(㎡.K) | α | (㎡K)/W | D=R\*S |
| 水泥砂浆 | 20 | 0.930 | 11.370 | 1.00 | 0.022 | 0.245 |
| 挤塑聚苯乙烯泡沫塑料（带表皮） | 20 | 0.030 | 0.340 | 1.20 | 0.556 | 0.227 |
| 水泥砂浆 | 20 | 0.930 | 11.370 | 1.00 | 0.022 | 0.245 |
| 钢筋混凝土 | 200 | 1.740 | 17.200 | 1.00 | 0.115 | 1.977 |
| 石灰砂浆 | 20 | 0.810 | 10.070 | 1.00 | 0.025 | 0.249 |
| 各层之和∑ | 280 | － | － | － | 0.738 | 2.941 |
| 外表面太阳辐射吸收系数 | 0.75 |
| 传热系数K=1/(0.16+∑R) | 1.11 |

### 外墙主断面传热系数的修正系数ψ

### 外墙平均热工特性

1.　南向

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 构造名称 | 构件类型 | 面积(㎡) | 面积所占比例 | 传热系数KW / (㎡K) | 热惰性指标D | 太阳辐射吸收系数 |
| 外墙构造一 | 主墙体 | 1686.37 | 1.000 | 1.11 | 2.94 | 0.75 |
| 考虑线性热桥后K | 1.11 × 1.00 = 1.11 |

2.　北向

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 构造名称 | 构件类型 | 面积(㎡) | 面积所占比例 | 传热系数KW / (㎡K) | 热惰性指标D | 太阳辐射吸收系数 |
| 外墙构造一 | 主墙体 | 1078.40 | 1.000 | 1.11 | 2.94 | 0.75 |
| 考虑线性热桥后K | 1.11 × 1.00 = 1.11 |

3.　东向

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 构造名称 | 构件类型 | 面积(㎡) | 面积所占比例 | 传热系数KW / (㎡K) | 热惰性指标D | 太阳辐射吸收系数 |
| 外墙构造一 | 主墙体 | 1096.46 | 1.000 | 1.11 | 2.94 | 0.75 |
| 考虑线性热桥后K | 1.11 × 1.00 = 1.11 |

4.　西向

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 构造名称 | 构件类型 | 面积(㎡) | 面积所占比例 | 传热系数KW / (㎡K) | 热惰性指标D | 太阳辐射吸收系数 |
| 外墙构造一 | 主墙体 | 1391.31 | 1.000 | 1.11 | 2.94 | 0.75 |
| 考虑线性热桥后K | 1.11 × 1.00 = 1.11 |

5.　总体

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 构造名称 | 构件类型 | 面积(㎡) | 面积所占比例 | 传热系数KW / (㎡K) | 热惰性指标D | 太阳辐射吸收系数 |
| 外墙构造一 | 主墙体 | 5252.53 | 1.000 | 1.11 | 2.94 | 0.75 |
| 考虑线性热桥后K | 1.11 × 1.00 = 1.11 |

## 挑空楼板构造

### 挑空楼板构造一

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 材料名称（由上到下） | 厚度δ | 导热系数λ | 蓄热系数S | 修正系数 | 热阻R | 热惰性指标 |
| (mm) | W/(m.K) | W/(㎡.K) | α | (㎡K)/W | D=R\*S |
| 水泥砂浆 | 20 | 0.930 | 11.370 | 1.00 | 0.022 | 0.245 |
| 钢筋混凝土 | 120 | 1.740 | 17.200 | 1.00 | 0.069 | 1.186 |
| 水泥砂浆 | 20 | 0.930 | 11.370 | 1.00 | 0.022 | 0.245 |
| 挤塑聚苯乙烯泡沫塑料（带表皮） | 20 | 0.030 | 0.340 | 1.20 | 0.556 | 0.227 |
| 水泥砂浆 | 20 | 0.930 | 11.370 | 1.00 | 0.022 | 0.245 |
| 各层之和∑ | 200 | － | － | － | 0.689 | 2.146 |
| 传热系数K=1/(0.16+∑R) | 1.18 |

## 外窗热工

### 外窗构造

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 序号 | 构造名称 | 构造编号 | 传热系数 | 太阳得热系数 | 可见光透射比 | 备注 |
| 1 | 断热铝合金窗--Low-E中空玻璃 | 74 | 2.80 | 0.65 | 1.000 | 摘自《福建省居住建筑节能设计标准实施细则》55页 |

### 外遮阳类型

#### 百叶遮阳



|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 序号 | 编号 | 挑出A (m) | 百叶间距D (m) | 下垂C (m) |
| 1 | 百叶遮阳0 | 0.244 | 0.400 | 0.141 |

### 平均传热系数

1. 南向：

南-默认立面

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 序号 | 门窗编号 | 楼层 | 数量 | 单个面积（㎡） | 总面积（㎡） | 构造编号 | 传热系数 |
| 1 | C0815 | 3 | 1 | 1.200 | 1.200 | 74 | 2.800 |
| 2 | C1621a | 4 | 2 | 3.465 | 6.930 | 74 | 2.800 |
| 3 | GC0404 | 4,6 | 6 | 0.160 | 0.960 | 74 | 2.800 |
| 4 | GC0504 | 5 | 3 | 0.200 | 0.600 | 74 | 2.800 |
| 5 | GC4815 | 2 | 2 | 7.200 | 14.400 | 74 | 2.800 |
| 6 | TC2217 | 5 | 6 | 3.740 | 22.440 | 74 | 2.800 |
| 7 | TC2223 | 2~4 | 18 | 5.060 | 91.080 | 74 | 2.800 |
| 8 | TC2226 | 1 | 6 | 5.720 | 34.320 | 74 | 2.800 |
| 9 | TC2423 | 6~7 | 5 | 5.520 | 27.600 | 74 | 2.800 |
| 10 | TC2523 | 3~4 | 2 | 5.750 | 11.500 | 74 | 2.800 |
| 11 | TC2616 | 2~4 | 3 | 4.160 | 12.480 | 74 | 2.800 |
| 12 | TC2617 | 5 | 1 | 4.420 | 4.420 | 74 | 2.800 |
| 13 | TC2716 | 7 | 1 | 4.320 | 4.320 | 74 | 2.800 |
| 14 | TC3016 | 4~5 | 2 | 4.800 | 9.600 | 74 | 2.800 |
| 15 | TC3017 | 6 | 12 | 5.100 | 61.200 | 74 | 2.800 |
| 16 | TC3023 | 4~5,7 | 25 | 6.900 | 172.500 | 74 | 2.800 |
| 17 | TC3623 | 7 | 10 | 8.280 | 82.800 | 74 | 2.800 |
| 18 | TC3717 | 5 | 1 | 6.290 | 6.290 | 74 | 2.800 |
| 19 | TC3723 | 3~4 | 2 | 8.510 | 17.020 | 74 | 2.800 |
| 立面总面积(㎡) | 581.660 | 立面平均传热系数 | 2.800 |

2. 北向：

北-默认立面

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 序号 | 门窗编号 | 楼层 | 数量 | 单个面积（㎡） | 总面积（㎡） | 构造编号 | 传热系数 |
| 1 | C1321a | 1 | 2 | 2.835 | 5.670 | 74 | 2.800 |
| 2 | C1515 | 5 | 1 | 2.850 | 2.850 | 74 | 2.800 |
| 3 | C1515 | 6~7 | 2 | 2.250 | 4.500 | 74 | 2.800 |
| 4 | C3021 | 2 | 1 | 6.300 | 6.300 | 74 | 2.800 |
| 5 | C3430a | 4 | 8 | 10.350 | 82.800 | 74 | 2.800 |
| 6 | C4530 | 4 | 2 | 13.500 | 27.000 | 74 | 2.800 |
| 7 | C7221 | 2 | 1 | 15.120 | 15.120 | 74 | 2.800 |
| 8 | GC0404 | 5 | 1 | 0.160 | 0.160 | 74 | 2.800 |
| 9 | MC-7 | 3~4 | 2 | 3.990 | 7.980 | 74 | 2.800 |
| 10 | TC0926 | 1 | 1 | 2.340 | 2.340 | 74 | 2.800 |
| 11 | TC1526 | 1 | 1 | 3.900 | 3.900 | 74 | 2.800 |
| 12 | TC2417 | 3 | 7 | 4.080 | 28.560 | 74 | 2.800 |
| 13 | TC2423 | 2,4 | 8 | 5.520 | 44.160 | 74 | 2.800 |
| 14 | TC2626 | 1 | 2 | 6.760 | 13.520 | 74 | 2.800 |
| 15 | TC2717 | 3 | 5 | 4.590 | 22.950 | 74 | 2.800 |
| 16 | TC2723 | 2 | 3 | 6.210 | 18.630 | 74 | 2.800 |
| 17 | TC2726 | 1 | 4 | 7.020 | 28.080 | 74 | 2.800 |
| 18 | TC3026 | 1 | 3 | 7.800 | 23.400 | 74 | 2.800 |
| 19 | TC3323 | 4 | 7 | 7.590 | 53.130 | 74 | 2.800 |
| 20 | TC3623 | 4 | 1 | 8.280 | 8.280 | 74 | 2.800 |
| 21 | TC3923 | 4 | 3 | 8.280 | 24.840 | 74 | 2.800 |
| 22 | TC4226 | 1 | 2 | 10.920 | 21.840 | 74 | 2.800 |
| 23 | TC4227 | 2 | 2 | 11.340 | 22.680 | 74 | 2.800 |
| 立面总面积(㎡) | 468.690 | 立面平均传热系数 | 2.800 |

3. 东向：

东-默认立面

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 序号 | 门窗编号 | 楼层 | 数量 | 单个面积（㎡） | 总面积（㎡） | 构造编号 | 传热系数 |
| 1 | C0521 | 1 | 2 | 1.050 | 2.100 | 74 | 2.800 |
| 2 | C0721 | 1 | 1 | 1.470 | 1.470 | 74 | 2.800 |
| 3 | C1021 | 1 | 1 | 2.100 | 2.100 | 74 | 2.800 |
| 4 | C1930 | 4 | 1 | 5.700 | 5.700 | 74 | 2.800 |
| 5 | C2230 | 4 | 2 | 6.600 | 13.200 | 74 | 2.800 |
| 6 | C3021 | 1 | 1 | 6.300 | 6.300 | 74 | 2.800 |
| 7 | C3230 | 4 | 2 | 9.600 | 19.200 | 74 | 2.800 |
| 8 | C3330 | 4 | 1 | 9.900 | 9.900 | 74 | 2.800 |
| 9 | C3430 | 4 | 3 | 10.200 | 30.600 | 74 | 2.800 |
| 10 | C3530a | 4 | 1 | 10.650 | 10.650 | 74 | 2.800 |
| 11 | C3830 | 4 | 1 | 11.400 | 11.400 | 74 | 2.800 |
| 12 | C5730 | 4 | 2 | 17.100 | 34.200 | 74 | 2.800 |
| 13 | TC1527 | 2 | 2 | 4.050 | 8.100 | 74 | 2.800 |
| 14 | TC1923 | 4 | 3 | 4.370 | 13.110 | 74 | 2.800 |
| 15 | TC2517 | 3 | 1 | 4.250 | 4.250 | 74 | 2.800 |
| 16 | TC2523 | 2 | 1 | 5.750 | 5.750 | 74 | 2.800 |
| 17 | TC3326 | 1 | 2 | 7.800 | 15.600 | 74 | 2.800 |
| 18 | TC4527 | 2 | 1 | 12.150 | 12.150 | 74 | 2.800 |
| 19 | TC4826 | 1 | 1 | 12.480 | 12.480 | 74 | 2.800 |
| 立面总面积(㎡) | 218.260 | 立面平均传热系数 | 2.800 |

4. 西向：

西-默认立面

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 序号 | 门窗编号 | 楼层 | 数量 | 单个面积（㎡） | 总面积（㎡） | 构造编号 | 传热系数 |
| 1 | C0321a | 1 | 2 | 0.735 | 1.470 | 74 | 2.800 |
| 2 | C0721 | 1 | 1 | 1.470 | 1.470 | 74 | 2.800 |
| 3 | C0815 | 1 | 1 | 1.200 | 1.200 | 74 | 2.800 |
| 4 | C1930 | 4 | 1 | 5.700 | 5.700 | 74 | 2.800 |
| 5 | C2230 | 4 | 2 | 6.600 | 13.200 | 74 | 2.800 |
| 6 | C5730 | 4 | 2 | 17.100 | 34.200 | 74 | 2.800 |
| 7 | GC0404 | 1~4 | 12 | 0.160 | 1.920 | 74 | 2.800 |
| 8 | GC0504 | 5~6 | 6 | 0.200 | 1.200 | 74 | 2.800 |
| 9 | MC-4' | 1 | 1 | 4.104 | 4.104 | 74 | 2.800 |
| 10 | TC1223 | 5~6 | 2 | 2.760 | 5.520 | 74 | 2.800 |
| 11 | TC1527 | 2 | 2 | 4.050 | 8.100 | 74 | 2.800 |
| 12 | TC2416 | 5 | 1 | 3.840 | 3.840 | 74 | 2.800 |
| 13 | TC2423 | 4 | 1 | 5.520 | 5.520 | 74 | 2.800 |
| 14 | TC2517 | 3 | 1 | 4.250 | 4.250 | 74 | 2.800 |
| 15 | TC2523 | 2,4 | 2 | 5.750 | 11.500 | 74 | 2.800 |
| 16 | TC2716 | 4,6 | 2 | 4.320 | 8.640 | 74 | 2.800 |
| 17 | TC2717 | 3 | 4 | 4.590 | 18.360 | 74 | 2.800 |
| 18 | TC2723 | 2,5 | 8 | 6.210 | 49.680 | 74 | 2.800 |
| 19 | TC3016 | 2 | 1 | 4.800 | 4.800 | 74 | 2.800 |
| 20 | TC3017 | 3 | 1 | 5.100 | 5.100 | 74 | 2.800 |
| 21 | TC3023 | 4~6 | 13 | 6.900 | 89.700 | 74 | 2.800 |
| 22 | TC3126 | 1 | 1 | 8.060 | 8.060 | 74 | 2.800 |
| 23 | TC4826 | 1 | 1 | 12.480 | 12.480 | 74 | 2.800 |
| 立面总面积(㎡) | 300.014 | 立面平均传热系数 | 2.800 |

### 综合太阳得热系数

1. 南向：

南-默认立面

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 序号 | 门窗编号 | 楼层 | 数量 | 单个面积（㎡） | 总面积（㎡） | 构造编号 | 窗太阳得热系数 | 外遮阳编号 | 外遮阳系数 | 综合太阳得热系数 |
| 1 | C0815 | 3 | 1 | 1.200 | 1.200 | 74 | 0.652 | 百叶遮阳0 | 0.605 | 0.394 |
| 2 | C1621a | 4 | 2 | 3.465 | 6.930 | 74 | 0.652 | 百叶遮阳0 | 0.596 | 0.389 |
| 3 | GC0404 | 4,6 | 6 | 0.160 | 0.960 | 74 | 0.652 | 百叶遮阳0 | 0.622 | 0.406 |
| 4 | GC0504 | 5 | 3 | 0.200 | 0.600 | 74 | 0.652 | 百叶遮阳0 | 0.615 | 0.401 |
| 5 | GC4815 | 2 | 2 | 7.200 | 14.400 | 74 | 0.652 | 百叶遮阳0 | 0.591 | 0.385 |
| 6 | TC2217 | 5 | 6 | 3.740 | 22.440 | 74 | 0.652 | 百叶遮阳0 | 0.594 | 0.387 |
| 7 | TC2223 | 2~4 | 18 | 5.060 | 91.080 | 74 | 0.652 | 百叶遮阳0 | 0.594 | 0.387 |
| 8 | TC2226 | 1 | 6 | 5.720 | 34.320 | 74 | 0.652 | 百叶遮阳0 | 0.594 | 0.387 |
| 9 | TC2423 | 6~7 | 5 | 5.520 | 27.600 | 74 | 0.652 | 百叶遮阳0 | 0.593 | 0.387 |
| 10 | TC2523 | 3~4 | 2 | 5.750 | 11.500 | 74 | 0.652 | 百叶遮阳0 | 0.593 | 0.387 |
| 11 | TC2616 | 2~4 | 3 | 4.160 | 12.480 | 74 | 0.652 | 百叶遮阳0 | 0.593 | 0.387 |
| 12 | TC2617 | 5 | 1 | 4.420 | 4.420 | 74 | 0.652 | 百叶遮阳0 | 0.593 | 0.387 |
| 13 | TC2716 | 7 | 1 | 4.320 | 4.320 | 74 | 0.652 | 百叶遮阳0 | 0.593 | 0.386 |
| 14 | TC3016 | 4~5 | 2 | 4.800 | 9.600 | 74 | 0.652 | 百叶遮阳0 | 0.592 | 0.386 |
| 15 | TC3017 | 6 | 12 | 5.100 | 61.200 | 74 | 0.652 | 百叶遮阳0 | 0.592 | 0.386 |
| 16 | TC3023 | 4~5,7 | 25 | 6.900 | 172.500 | 74 | 0.652 | 百叶遮阳0 | 0.592 | 0.386 |
| 17 | TC3623 | 7 | 10 | 8.280 | 82.800 | 74 | 0.652 | 百叶遮阳0 | 0.591 | 0.386 |
| 18 | TC3717 | 5 | 1 | 6.290 | 6.290 | 74 | 0.652 | 百叶遮阳0 | 0.591 | 0.386 |
| 19 | TC3723 | 3~4 | 2 | 8.510 | 17.020 | 74 | 0.652 | 百叶遮阳0 | 0.591 | 0.386 |
| 立面总面积(㎡) | 581.660 | 综合太阳得热系数 | 0.593 | 0.386 |

2. 北向：

北-默认立面

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 序号 | 门窗编号 | 楼层 | 数量 | 单个面积（㎡） | 总面积（㎡） | 构造编号 | 窗太阳得热系数 | 外遮阳编号 | 外遮阳系数 | 综合太阳得热系数 |
| 1 | C1321a | 1 | 2 | 2.835 | 5.670 | 74 | 0.652 | 百叶遮阳0 | 0.683 | 0.445 |
| 2 | C1515 | 5 | 1 | 2.850 | 2.850 | 74 | 0.652 | 百叶遮阳0 | 0.682 | 0.445 |
| 3 | C1515 | 6~7 | 2 | 2.250 | 4.500 | 74 | 0.652 | 百叶遮阳0 | 0.682 | 0.445 |
| 4 | C3021 | 2 | 1 | 6.300 | 6.300 | 74 | 0.652 | 百叶遮阳0 | 0.682 | 0.445 |
| 5 | C3430a | 4 | 8 | 10.350 | 82.800 | 74 | 0.652 | 百叶遮阳0 | 0.682 | 0.444 |
| 6 | C4530 | 4 | 2 | 13.500 | 27.000 | 74 | 0.652 | 百叶遮阳0 | 0.682 | 0.444 |
| 7 | C7221 | 2 | 1 | 15.120 | 15.120 | 74 | 0.652 | 百叶遮阳0 | 0.681 | 0.444 |
| 8 | GC0404 | 5 | 1 | 0.160 | 0.160 | 74 | 0.652 | 百叶遮阳0 | 0.686 | 0.447 |
| 9 | MC-7 | 3~4 | 2 | 3.990 | 7.980 | 74 | 0.652 | 百叶遮阳0 | 0.682 | 0.445 |
| 10 | TC0926 | 1 | 1 | 2.340 | 2.340 | 74 | 0.652 | 百叶遮阳0 | 0.683 | 0.446 |
| 11 | TC1526 | 1 | 1 | 3.900 | 3.900 | 74 | 0.652 | 百叶遮阳0 | 0.682 | 0.445 |
| 12 | TC2417 | 3 | 7 | 4.080 | 28.560 | 74 | 0.652 | 百叶遮阳0 | 0.682 | 0.445 |
| 13 | TC2423 | 2,4 | 8 | 5.520 | 44.160 | 74 | 0.652 | 百叶遮阳0 | 0.682 | 0.445 |
| 14 | TC2626 | 1 | 2 | 6.760 | 13.520 | 74 | 0.652 | 百叶遮阳0 | 0.682 | 0.445 |
| 15 | TC2717 | 3 | 5 | 4.590 | 22.950 | 74 | 0.652 | 百叶遮阳0 | 0.682 | 0.445 |
| 16 | TC2723 | 2 | 3 | 6.210 | 18.630 | 74 | 0.652 | 百叶遮阳0 | 0.682 | 0.445 |
| 17 | TC2726 | 1 | 4 | 7.020 | 28.080 | 74 | 0.652 | 百叶遮阳0 | 0.682 | 0.445 |
| 18 | TC3026 | 1 | 3 | 7.800 | 23.400 | 74 | 0.652 | 百叶遮阳0 | 0.682 | 0.445 |
| 19 | TC3323 | 4 | 7 | 7.590 | 53.130 | 74 | 0.652 | 百叶遮阳0 | 0.682 | 0.444 |
| 20 | TC3623 | 4 | 1 | 8.280 | 8.280 | 74 | 0.652 | 百叶遮阳0 | 0.682 | 0.444 |
| 21 | TC3923 | 4 | 3 | 8.280 | 24.840 | 74 | 0.652 | 百叶遮阳0 | 0.682 | 0.444 |
| 22 | TC4226 | 1 | 2 | 10.920 | 21.840 | 74 | 0.652 | 百叶遮阳0 | 0.682 | 0.444 |
| 23 | TC4227 | 2 | 2 | 11.340 | 22.680 | 74 | 0.652 | 百叶遮阳0 | 0.682 | 0.444 |
| 立面总面积(㎡) | 468.690 | 综合太阳得热系数 | 0.682 | 0.445 |

3. 东向：

东-默认立面

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 序号 | 门窗编号 | 楼层 | 数量 | 单个面积（㎡） | 总面积（㎡） | 构造编号 | 窗太阳得热系数 | 外遮阳编号 | 外遮阳系数 | 综合太阳得热系数 |
| 1 | C0521 | 1 | 2 | 1.050 | 2.100 | 74 | 0.652 | 百叶遮阳0 | 0.580 | 0.378 |
| 2 | C0721 | 1 | 1 | 1.470 | 1.470 | 74 | 0.652 | 百叶遮阳0 | 0.575 | 0.375 |
| 3 | C1021 | 1 | 1 | 2.100 | 2.100 | 74 | 0.652 | 百叶遮阳0 | 0.572 | 0.373 |
| 4 | C1930 | 4 | 1 | 5.700 | 5.700 | 74 | 0.652 | 百叶遮阳0 | 0.568 | 0.371 |
| 5 | C2230 | 4 | 2 | 6.600 | 13.200 | 74 | 0.652 | 百叶遮阳0 | 0.568 | 0.370 |
| 6 | C3021 | 1 | 1 | 6.300 | 6.300 | 74 | 0.652 | 百叶遮阳0 | 0.567 | 0.370 |
| 7 | C3230 | 4 | 2 | 9.600 | 19.200 | 74 | 0.652 | 百叶遮阳0 | 0.567 | 0.369 |
| 8 | C3330 | 4 | 1 | 9.900 | 9.900 | 74 | 0.652 | 百叶遮阳0 | 0.567 | 0.369 |
| 9 | C3430 | 4 | 3 | 10.200 | 30.600 | 74 | 0.652 | 百叶遮阳0 | 0.566 | 0.369 |
| 10 | C3530a | 4 | 1 | 10.650 | 10.650 | 74 | 0.652 | 百叶遮阳0 | 0.566 | 0.369 |
| 11 | C3830 | 4 | 1 | 11.400 | 11.400 | 74 | 0.652 | 百叶遮阳0 | 0.566 | 0.369 |
| 12 | C5730 | 4 | 2 | 17.100 | 34.200 | 74 | 0.652 | 百叶遮阳0 | 0.566 | 0.369 |
| 13 | TC1527 | 2 | 2 | 4.050 | 8.100 | 74 | 0.652 | 百叶遮阳0 | 0.569 | 0.371 |
| 14 | TC1923 | 4 | 3 | 4.370 | 13.110 | 74 | 0.652 | 百叶遮阳0 | 0.568 | 0.371 |
| 15 | TC2517 | 3 | 1 | 4.250 | 4.250 | 74 | 0.652 | 百叶遮阳0 | 0.567 | 0.370 |
| 16 | TC2523 | 2 | 1 | 5.750 | 5.750 | 74 | 0.652 | 百叶遮阳0 | 0.567 | 0.370 |
| 17 | TC3326 | 1 | 2 | 7.800 | 15.600 | 74 | 0.652 | 百叶遮阳0 | 0.567 | 0.370 |
| 18 | TC4527 | 2 | 1 | 12.150 | 12.150 | 74 | 0.652 | 百叶遮阳0 | 0.566 | 0.369 |
| 19 | TC4826 | 1 | 1 | 12.480 | 12.480 | 74 | 0.652 | 百叶遮阳0 | 0.566 | 0.369 |
| 立面总面积(㎡) | 218.260 | 综合太阳得热系数 | 0.567 | 0.370 |

4. 西向：

西-默认立面

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 序号 | 门窗编号 | 楼层 | 数量 | 单个面积（㎡） | 总面积（㎡） | 构造编号 | 窗太阳得热系数 | 外遮阳编号 | 外遮阳系数 | 综合太阳得热系数 |
| 1 | C0321a | 1 | 2 | 0.735 | 1.470 | 74 | 0.652 | 百叶遮阳0 | 0.595 | 0.388 |
| 2 | C0721 | 1 | 1 | 1.470 | 1.470 | 74 | 0.652 | 百叶遮阳0 | 0.584 | 0.380 |
| 3 | C0815 | 1 | 1 | 1.200 | 1.200 | 74 | 0.652 | 百叶遮阳0 | 0.582 | 0.380 |
| 4 | C1930 | 4 | 1 | 5.700 | 5.700 | 74 | 0.652 | 百叶遮阳0 | 0.576 | 0.376 |
| 5 | C2230 | 4 | 2 | 6.600 | 13.200 | 74 | 0.652 | 百叶遮阳0 | 0.576 | 0.375 |
| 6 | C5730 | 4 | 2 | 17.100 | 34.200 | 74 | 0.652 | 百叶遮阳0 | 0.574 | 0.374 |
| 7 | GC0404 | 1~4 | 12 | 0.160 | 1.920 | 74 | 0.652 | 百叶遮阳0 | 0.592 | 0.386 |
| 8 | GC0504 | 5~6 | 6 | 0.200 | 1.200 | 74 | 0.652 | 百叶遮阳0 | 0.588 | 0.383 |
| 9 | MC-4' | 1 | 1 | 4.104 | 4.104 | 74 | 0.652 | 百叶遮阳0 | 0.575 | 0.375 |
| 10 | TC1223 | 5~6 | 2 | 2.760 | 5.520 | 74 | 0.652 | 百叶遮阳0 | 0.579 | 0.377 |
| 11 | TC1527 | 2 | 2 | 4.050 | 8.100 | 74 | 0.652 | 百叶遮阳0 | 0.578 | 0.377 |
| 12 | TC2416 | 5 | 1 | 3.840 | 3.840 | 74 | 0.652 | 百叶遮阳0 | 0.576 | 0.375 |
| 13 | TC2423 | 4 | 1 | 5.520 | 5.520 | 74 | 0.652 | 百叶遮阳0 | 0.576 | 0.375 |
| 14 | TC2517 | 3 | 1 | 4.250 | 4.250 | 74 | 0.652 | 百叶遮阳0 | 0.575 | 0.375 |
| 15 | TC2523 | 2,4 | 2 | 5.750 | 11.500 | 74 | 0.652 | 百叶遮阳0 | 0.575 | 0.375 |
| 16 | TC2716 | 4,6 | 2 | 4.320 | 8.640 | 74 | 0.652 | 百叶遮阳0 | 0.575 | 0.375 |
| 17 | TC2717 | 3 | 4 | 4.590 | 18.360 | 74 | 0.652 | 百叶遮阳0 | 0.575 | 0.375 |
| 18 | TC2723 | 2,5 | 8 | 6.210 | 49.680 | 74 | 0.652 | 百叶遮阳0 | 0.575 | 0.375 |
| 19 | TC3016 | 2 | 1 | 4.800 | 4.800 | 74 | 0.652 | 百叶遮阳0 | 0.575 | 0.375 |
| 20 | TC3017 | 3 | 1 | 5.100 | 5.100 | 74 | 0.652 | 百叶遮阳0 | 0.575 | 0.375 |
| 21 | TC3023 | 4~6 | 13 | 6.900 | 89.700 | 74 | 0.652 | 百叶遮阳0 | 0.575 | 0.375 |
| 22 | TC3126 | 1 | 1 | 8.060 | 8.060 | 74 | 0.652 | 百叶遮阳0 | 0.575 | 0.375 |
| 23 | TC4826 | 1 | 1 | 12.480 | 12.480 | 74 | 0.652 | 百叶遮阳0 | 0.574 | 0.374 |
| 立面总面积(㎡) | 300.014 | 综合太阳得热系数 | 0.575 | 0.375 |

### 总体热工性能

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 朝向 | 立面 | 面积 | 传热系数 | 综合太阳得热系数 | 窗墙比 |
| 南向 | 南-默认立面 | 581.66 | 2.80 | 0.39 | 0.25 |
| 北向 | 北-默认立面 | 468.69 | 2.80 | 0.44 | 0.30 |
| 东向 | 东-默认立面 | 218.26 | 2.80 | 0.37 | 0.16 |
| 西向 | 西-默认立面 | 300.01 | 2.80 | 0.38 | 0.18 |
| 综合平均 |  | 1568.62 | 2.80 | 0.40 | 0.23 |

注：本表所统计的外窗包含凸窗。

# 标识建筑

## 房间类型

### 房间表

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 房间类型 | 空调温度℃ | 供暖温度℃ | 新风量 | 人员密度 | 照明功率密度 | 电器设备功率 |
| 办公-普通办公室 | 26 | 20 | 30(m3/h.人) | 8(㎡/人) | 9(W/㎡) | 15(W/㎡) |
| 空房间 | － | － | 20(m3/h.人) | 50(㎡/人) | 0(W/㎡) | 0(W/㎡) |

### 作息时间表

详见附录

## 系统类型

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 系统编号 | 系统类型 | 供冷能效比 | 供热能效比 | 面积(㎡) | 包含的房间 |
| 默认 | 双管制风机盘管 | － | － | 6217.07 | 所有房间 |

## 制冷系统

### 冷水机组

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 名称 | 类型 | 额定耗电量(kW) | 额定制冷量(kW) | 额定性能系数(COP) | 台数 |
| 水冷-螺杆式冷水机组 | 水冷-螺杆式冷水机组 | 100 | 500 | 5.00 | 1 |

### 水泵系统

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类型 | 轴功率(kW) | 扬程(m) | 供回水温差(°C) | 设计工作点效率(%) | 台数 |
| 冷却水泵 | 10 | 25 | 5 | 80 | 1 |
| 冷冻水泵 | 8 | 30 | 5 | 80 | 1 |

### 运行工况

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 负荷率(%) | 机组制冷量(kW) | 机组功率(kW) | 性能系数(COP) | 冷却水泵功率(kW) | 冷冻水泵功率(kW) | 冷却塔功率(kW) |
| 25 | 125 | 30 | 4.17 | 10 | 8 | － |
| 50 | 250 | 55 | 4.55 | 10 | 8 | － |
| 75 | 375 | 75 | 5.00 | 10 | 8 | － |
| 100 | 500 | 100 | 5.00 | 10 | 8 | － |

### 制冷能耗

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 负荷区间(%) | 区间负荷(kWh) | 运行时长(h) | 性能系数(COP) | 制冷机组(kWh) | 冷却水泵(kWh) | 冷冻水泵(kWh) | 冷却塔(kWh) |
| 0~25 | 26376 | 522 | 4.17 | 6330 | 5220 | 4176 | － |
| 25~50 | 48053 | 257 | 4.55 | 10572 | 2570 | 2056 | － |
| 50~75 | 107732 | 341 | 5.00 | 21546 | 3410 | 2728 | － |
| 75~100 | 154162 | 349 | 5.00 | 30832 | 3490 | 2792 | － |
| >100 | 282318 | 491 | － | 49100 | 4910 | 3928 | － |
| 合计 | 618640 | 1960 |  | 118381 | 19600 | 15680 | － |

## 供暖系统

### 热泵系统

#### 热泵机组

|  |  |  |  |
| --- | --- | --- | --- |
| 名称 | 额定制热量(kW) | 额定性能系数 COP | 台数 |
| 风冷-螺杆式 | 500 | 4.00 | 1 |

#### 热水循环泵

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类型 | 轴功率(kW) | 扬程(m) | 供回水温差(°C) | 设计工作点效率(%) | 台数 |
| 单速 | 8 | 30 | 15 | 80 | 1 |

#### 运行工况

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 负荷率(%) | 机组制热量(kW) | 机组功率(kW) | 性能系数(COP) | 供暖水泵功率(kW) |
| 25 | 125 | 31.25 | 4.00 | 8 |
| 50 | 250 | 62.5 | 4.00 | 8 |
| 75 | 375 | 93.75 | 4.00 | 8 |
| 100 | 500 | 125 | 4.00 | 8 |

#### 制热能耗

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 负荷区间(%) | 区间负荷(kWh) | 运行时长(h) | 性能系数(COP) | 热泵机组(kWh) | 供暖水泵(kWh) |
| 0~25 | 27877 | 717 | 4.00 | 6969 | 5736 |
| 25~50 | 24392 | 142 | 4.00 | 6098 | 1136 |
| 50~75 | 12040 | 40 | 4.00 | 3010 | 320 |
| 75~100 | 2523 | 6 | 4.00 | 631 | 48 |
| >100 | 1571 | 3 | － | 375 | 24 |
| 合计 | 68402 | 908 |  | 17083 | 7264 |

## 照明

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 房间类型 | 单位面积电耗(kWh/㎡) | 房间个数 | 房间合计面积(㎡) | 合计电耗(kWh) |
| 办公-普通办公室 | 15.12 | 75 | 6217 | 94002 |
| 空房间 | 0.00 | 16 | 520 | 0 |
| 总计 | 94002 |

# 比对建筑

## 房间类型

### 房间表

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 房间类型 | 空调温度℃ | 供暖温度℃ | 新风量 | 人员密度 | 照明功率密度 | 电器设备功率 |
| 办公-普通办公室 | 26 | 20 | 30(m3/h.人) | 8(㎡/人) | 9(W/㎡) | 15(W/㎡) |
| 空房间 | － | － | 20(m3/h.人) | 50(㎡/人) | 0(W/㎡) | 0(W/㎡) |

### 作息时间表

同标识建筑

## 系统类型

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 系统编号 | 系统类型 | 供冷能效比 | 供热能效比 | 面积(㎡) | 包含的房间 |
| 默认 | 双管制风机盘管 | － | － | 6217.07 | 同标识建筑 |

## 制冷系统

### 冷水机组

#### 机组选型

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 名称 | 类型 | 额定耗电量(kW) | 额定制冷量(kW) | 额定性能系数(COP) | 台数 |
| 水冷-螺杆式冷水机组 | 水冷-螺杆式冷水机组 | 0 | 500 | 0.00 | 1 |

#### 机组能耗

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 负荷率(%) | 机组制冷量(kW) | 性能系数COP | 区间负荷(kWh) | 机组电耗(kWh) |
| 25 | 125 | 0.00 | 0 | 0 |
| 50 | 250 | 0.00 | 0 | 0 |
| 75 | 375 | 0.00 | 0 | 0 |
| 100 | 500 | 0.00 | 0 | 0 |
| 合计 | 0.00 | 0 | 0 |

### 冷却水泵

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 负荷率(%) | 台数 | 区间时长(h) | 输送能效比ERe | 最大冷负荷(kW) | 水泵电耗(kWh) |
| 25 | 1 | 473 | 0.0214 | 683 | 30898 |
| 50 | 1 | 365 |
| 75 | 1 | 447 |
| 100 | 1 | 471 |

### 冷冻水泵

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 负荷率(%) | 台数 | 区间时长(h) | 输送能效比ER0 | 最大冷负荷(kW) | 水泵电耗(kWh) |
| 25 | 1 | 473 | 0.0241 | 683 | 28899 |
| 50 | 1 | 365 |
| 75 | 1 | 447 |
| 100 | 1 | 471 |

## 供暖系统

### 热水锅炉能耗

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 燃料类型 | 容量/峰值负荷(MW) | 台数 | 锅炉热效率 | 外网热输送效率 | 累计热负荷(kWh) | 热/电系数(kWh/kWh) | 折合电耗(kWh) |
| 烟煤II | 0.29 | 1 | 0.73 | 0.92 | 104031 | 2.93 | 52860 |

### 热水循环水泵能耗

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 负荷率(%) | 开启台数 | 区间时长(h) | 输送能效比EHR0 | 最大热负荷(kWh) | 供暖水泵电耗(kWh) |
| 25 | 1 | 574 | 0.00865 | 294 | 2722 |
| 50 | 1 | 200 |
| 75 | 1 | 159 |
| 100 | 1 | 136 |

## 照明

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 房间类型 | 单位面积电耗(kWh/㎡) | 房间个数 | 房间合计面积(㎡) | 合计电耗(kWh) |
| 办公-普通办公室 | 15.12 | 75 | 6217 | 94002 |
| 空房间 | 0.00 | 16 | 520 | 0 |
| 总计 | 94002 |

# 计算结果

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 能耗分类 | 能耗子类 | 标识建筑(kWh/㎡) | 比对建筑(kWh/㎡) | 基础建筑(kWh/㎡) | 比对节能率（%） | 基础节能率（%） |
| 建筑负荷 | 耗冷量 | 50.14 | 48.02 | 120.04 | -4.42% | 58.23% |
| 耗热量 | 5.54 | 8.43 | 21.08 | 34.25% | 73.70% |
| 冷热合计 | 55.68 | 56.45 | 141.12 | 1.36% | 60.54% |
| 供冷电耗 | 中央冷源 | 9.59 | 8.00 | 20.01 | 7.21% | 62.88% |
| 冷却水泵 | 1.59 | 2.50 | 6.26 |
| 冷冻水泵 | 1.27 | 2.34 | 5.86 |
| 多联机/单元式空调 | 0.00 | 0.00 | 0.00 |
| 供冷合计 | 12.45 | 13.42 | 33.55 |
| 供暖电耗 | 中央热源 | 1.38 | 4.28 | 10.71 | 56.20% | 82.48% |
| 供暖水泵 | 0.59 | 0.22 | 0.55 |
| 多联机/单元式热泵 | 0.00 | 0.00 | 0.00 |
| 供暖合计 | 1.97 | 4.50 | 11.26 |
| 采暖空调电耗 | 14.43 | 17.93 | 44.81 | 19.52% | 67.81% |
| 照明电耗 | 7.62 | 7.62 | 19.05 | 0.00% | 60.00% |
| 合计电耗 | 22.04 | 25.54 | 63.86 | 13.70% | 65.48% |





# 附录

## 工作日/节假日人员逐时在室率(%)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 房间类型 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 办公-普通办公室 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 50 | 100 | 100 | 100 | 30 | 100 | 100 | 100 | 100 | 50 | 20 | 10 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 空房间 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 50 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 70 | 50 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 50 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 70 | 50 | 0 | 0 | 0 |

注：上行：工作日；下行：节假日

## 工作日/节假日照明开关时间表(%)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 房间类型 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 办公-普通办公室 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 36 | 62 | 56 | 54 | 43 | 53 | 55 | 58 | 67 | 40 | 18 | 10 | 10 | 10 | 10 | 10 | 10 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 空房间 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 50 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 80 | 90 | 100 | 100 | 100 | 10 | 10 | 10 |
| 10 | 10 | 10 | 10 | 10 | 10 | 10 | 50 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 80 | 90 | 100 | 100 | 100 | 10 | 10 | 10 |

注：上行：工作日；下行：节假日

## 工作日/节假日设备逐时使用率(%)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 房间类型 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 办公-普通办公室 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 50 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 50 | 20 | 10 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 空房间 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 50 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 70 | 50 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 50 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 70 | 50 | 0 | 0 | 0 |

注：上行：工作日；下行：节假日

## 工作日/节假日空调系统运行时间表(1:开,0:关)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 系统编号 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 默认 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

注：上行：工作日；下行：节假日