**建筑能效测评报告书**

居住建筑

|  |  |
| --- | --- |
| 工程名称 | XXX |
| 工程地点 | XXX |
| 设计编号 | GZ40057 |
| 建设单位 | XXX |
| 设计单位 | XXX |
| 设 计 人 | XXX |
| 审 核 人 | XXX |
| 审 定 人 | XXX |
| 设计日期 | XXXX年XX月XX日 |



|  |  |
| --- | --- |
| 采用软件 | 能耗计算BESI2020 |
| 软件版本 | 20200909(SP1) |
| 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 | 新建项目 | |
| 工程地点 | 广东-广州 | |
| 地理位置 | 北纬：23.08° | 东经：113.14° |
| 建筑面积(m2) | 地上8987 地下3200 | |
| 建筑层数 | 地上10 地下1 | |
| 建筑高度（m） | 地上33.0 地下4.5 | |
| 建筑体积(m3) | 37321.85 | |
| 建筑外表面积(m2) | 15200.93 | |
| 北向角度 | 90 | |
| 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 | |
| 控温期 | 供冷期:7.14-9.30,供暖期:12.31-1.1 | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | | 标识建筑 | | 比对建筑 | |
| 屋顶传热系数K [W/(m2·K)] | | 0.57 | | 0.90 | |
| 外墙（包括非透明幕墙）传热系数K [W/(m2·K)] | | 0.36 | | 1.50 | |
| 天窗传热系数K [W/(m2·K)] | | － | | － | |
| 天窗遮阳系数 | | － | | － | |
| 外墙表面辐射吸收系数[ρ] | | 0.75 | | 0.70 | |
| 屋顶外表面辐射吸收系数[ρ] | | 0.75 | | 0.70 | |
| 窗墙比 | 南向 | 0.53 | | 0.40 | |
| 北向 | 0.37 | | 0.37 | |
| 东向 | 0.23 | | 0.23 | |
| 西向 | 0.16 | | 0.16 | |
| 平均 | 0.34 | | 0.30 | |
| 窗地比 | | 0.35 | 窗面积:4258.86 | 0.31 | 窗面积:3806.85 |
| 地面面积:12187.47 | 地面面积:12187.47 |

# 测评依据

1. 《建筑能效标识技术标准》(JGJ/T 288-2012)

2. 《夏热冬暖地区居住建筑节能设计标准》(JGJ75-2012)

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 | 11.306 | 1800.0 | 1050.0 | 0.0210 | 来源：《民用建筑热工设计规范（GB50176-93）》 |
| 钢筋混凝土 | 1.740 | 17.060 | 2500.0 | 920.0 | 0.0158 | 来源：《民用建筑热工设计规范（GB50176-93）》 |
| 浮石、凝灰岩 | 0.230 | 3.039 | 600.0 | 920.0 | 0.0000 |  |
| 钢筋混凝土（1） | 1.740 | 17.060 | 2500.0 | 920.0 | 0.0000 |  |
| 水泥砂浆（1） | 0.930 | 11.306 | 1800.0 | 1050.0 | 0.0000 |  |
| 粘土陶粒混凝土(ρ=1200) | 0.530 | 6.969 | 1200.0 | 1050.0 | 0.0000 |  |
| 挤塑聚苯板 | 0.033 | 0.347 | 28.0 | 1790.0 | 0.0000 |  |
| 水泥砂浆（2） | 0.930 | 11.370 | 1800.0 | 1061.9 | 0.0000 |  |
| 硅酸铝保温涂层 | 0.021 | 0.562 | 230.0 | 900.0 | 0.0000 |  |
| 钢筋混凝土（2） | 1.740 | 17.200 | 2500.0 | 935.2 | 0.0000 |  |
| 石灰水泥砂浆 | 0.870 | 10.750 | 1700.0 | 1074.4 | 0.0000 |  |
| 加气混凝土、泡沫混凝土(ρ=500) | 0.140 | 2.310 | 500.0 | 1048.2 | 0.0000 |  |

## 窗墙面积比

### 窗墙面积比

|  |  |  |  |
| --- | --- | --- | --- |
| 朝向 | 窗面积(㎡) | 墙面积(㎡) | 窗墙比 |
| 南向 | 1873.18 | 3552.92 | 0.53 |
| 北向 | 1285.85 | 3510.59 | 0.37 |
| 东向 | 634.48 | 2702.11 | 0.23 |
| 西向 | 465.36 | 2938.43 | 0.16 |
| 平均 | 4258.86 | 12704.05 | 0.34 |

## 窗地面积比

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 楼层 | 房间编号 | 房间面积 | 窗编号 | 窗面积 | 窗类型 | 窗地比 | 结论 |
| 1 | 1002(最不利房间) | 8.76 | C1215 | 1.80 | 外窗 | 0.2056 | － |

## 可见光透射比

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 房间编号 | 窗地比 | 最不利窗编号 | 最不利透射比 | 透射比限值 |

## 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

### 挤塑聚苯板20+加气砼80＋钢筋砼120

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 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、凝灰岩 | 100 | 0.230 | 3.039 | 1.00 | 0.435 | 1.321 |
| 钢筋混凝土（1） | 40 | 1.740 | 17.060 | 1.00 | 0.023 | 0.392 |
| 水泥砂浆（1） | 10 | 0.930 | 11.306 | 1.00 | 0.011 | 0.122 |
| 水泥砂浆（1） | 20 | 0.930 | 11.306 | 1.00 | 0.022 | 0.243 |
| 粘土陶粒混凝土(ρ=1200) | 80 | 0.530 | 6.969 | 1.00 | 0.151 | 1.052 |
| 挤塑聚苯板 | 30 | 0.033 | 0.347 | 1.00 | 0.909 | 0.315 |
| 钢筋混凝土（1） | 100 | 1.740 | 17.060 | 1.00 | 0.057 | 0.980 |
| 各层之和∑ | 380 | － | － | － | 1.608 | 4.426 |
| 外表面太阳辐射吸收系数 | 0.75 | | | | | |
| 传热系数K=1/(0.16+∑R) | 0.57 | | | | | |

## 外墙构造

### 外墙相关构造

#### 外-挤塑聚苯板20+钢筋砼200

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 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（2） | 25 | 0.930 | 11.370 | 1.00 | 0.027 | 0.306 |
| 硅酸铝保温涂层 | 30 | 0.021 | 0.562 | 1.20 | 1.190 | 0.803 |
| 加气混凝土、泡沫混凝土(ρ=500) | 190 | 0.140 | 2.310 | 1.00 | 1.357 | 3.135 |
| 石灰水泥砂浆 | 20 | 0.870 | 10.750 | 1.00 | 0.023 | 0.247 |
| 各层之和∑ | 265 | － | － | － | 2.597 | 4.491 |
| 外表面太阳辐射吸收系数 | 0.75 | | | | | |
| 传热系数K=1/(0.16+∑R) | 0.36 | | | | | |

### 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K W / (㎡K) | 热惰性指标D | 太阳辐射吸收系数 |
| 外-挤塑聚苯板20+钢筋砼200 | 主墙体 | 1656.64 | 1.000 | 0.36 | 4.49 | 0.75 |

2.　北向

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 构造名称 | 构件类型 | 面积(㎡) | 面积所占比例 | 传热系数K W / (㎡K) | 热惰性指标D | 太阳辐射吸收系数 |
| 外-挤塑聚苯板20+钢筋砼200 | 主墙体 | 2137.39 | 1.000 | 0.36 | 4.49 | 0.75 |

3.　东向

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 构造名称 | 构件类型 | 面积(㎡) | 面积所占比例 | 传热系数K W / (㎡K) | 热惰性指标D | 太阳辐射吸收系数 |
| 外-挤塑聚苯板20+钢筋砼200 | 主墙体 | 1998.33 | 1.000 | 0.36 | 4.49 | 0.75 |
| 标准依据 | 《夏热冬暖地区居住建筑节能设计标准》(JGJ75-2012)第5.0.1条 | | | | | |
| 标准要求 | ...综合评价的建筑...东、西向外墙传热系数仍然要满足第4.0.7条的要求。即K≤2.5,D≥3.0 或 K≤2.0,D≥2.8 或 K≤1.5,D≥2.5 或 K≤0.7 | | | | | |
| 结论 | － | | | | | |

4.　西向

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 构造名称 | 构件类型 | 面积(㎡) | 面积所占比例 | 传热系数K W / (㎡K) | 热惰性指标D | 太阳辐射吸收系数 |
| 外-挤塑聚苯板20+钢筋砼200 | 主墙体 | 2394.53 | 1.000 | 0.36 | 4.49 | 0.75 |
| 标准依据 | 《夏热冬暖地区居住建筑节能设计标准》(JGJ75-2012)第5.0.1条 | | | | | |
| 标准要求 | ...综合评价的建筑...东、西向外墙传热系数仍然要满足第4.0.7条的要求。即K≤2.5,D≥3.0 或 K≤2.0,D≥2.8 或 K≤1.5,D≥2.5 或 K≤0.7 | | | | | |
| 结论 | － | | | | | |

5.　总体

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 构造名称 | 构件类型 | 面积(㎡) | 面积所占比例 | 传热系数K W / (㎡K) | 热惰性指标D | 太阳辐射吸收系数 |
| 外-挤塑聚苯板20+钢筋砼200 | 主墙体 | 8186.89 | 1.000 | 0.36 | 4.49 | 0.75 |

## 外窗热工

### 外窗构造

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 序号 | 构造名称 | 构造编号 | 传热系数 | 自遮阳系数 | 可见光透射比 | 备注 |
| 1 | 断热铝合金窗+Low-E中空玻璃 | 51 | 2.00 | 0.75 | 1.000 | 来源《民用建筑热工设计规范》 |
| 2 | 断热铝合金窗+Low-E中空玻璃 | 18 | 2.00 | 0.25 | 1.000 |  |

### 外遮阳类型

#### 平板遮阳



|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 序号 | 编号 | 水平挑出Ah (m) | 距离上沿Eh (m) | 垂直挑出Av (m) | 距离边沿Ev (m) | 挡板高Dh (m) | 挡板透射η\* |
| 1 | 阳台正遮阳板1300 | 1.300 | 0.000 | 0.000 | 0.000 | 3.000 | 0.500 |
| 2 | 阳台正遮阳板1500 | 1.500 | 0.000 | 0.000 | 0.000 | 3.000 | 0.250 |
| 3 | 阳台正遮阳板1550 | 1.550 | 0.000 | 0.000 | 0.000 | 3.000 | 0.250 |
| 4 | 阳台侧遮阳板1250 | 1.250 | 0.000 | 1.250 | 0.000 | 0.000 | 0.500 |
| 5 | 阳台正侧遮阳板1360\*4200 | 1.360 | 0.000 | 1.360 | 0.000 | 3.000 | 0.375 |
| 6 | 阳台正遮阳板1360 | 1.360 | 0.000 | 0.000 | 0.000 | 3.000 | 0.250 |
| 7 | 阳台正遮阳板1960 | 1.960 | 0.000 | 0.000 | 0.000 | 3.000 | 0.250 |
| 8 | 阳台侧遮阳板1354 | 1.354 | 0.000 | 1.354 | 0.000 | 0.000 | 0.500 |

#### 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 | 0.200 | 0.400 | 0.200 |
| 2 | 大窗遮阳1500高 | 0.200 | 0.400 | 0.200 |

### 外遮阳

|  |  |  |
| --- | --- | --- |
| 朝向 | 窗编号 | 外遮阳系数 |
| 东向 | (最不利窗) | 0.67 |
| 西向 | (最不利窗) | 0.67 |

### 平均遮阳系数

1. 南向：

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 序号 | 门窗编号 | 楼层 | 数量 | 单个面积（㎡） | 总面积（㎡） | 构造编号 | 自遮阳系数 | 外遮阳编号 | 外遮阳系数 | 综合遮阳系数 |
| 1 |  | 1 | 3 | 16.319 | 48.958 | 51 | 0.750 |  | 1.000 | 0.750 |
| 2 |  | 1 | 1 | 107.100 | 107.100 | 51 | 0.750 |  | 1.000 | 0.750 |
| 3 |  | 1 | 4 | 16.042 | 64.167 | 51 | 0.750 | 百叶遮阳0 | 0.444 | 0.333 |
| 4 |  | 1 | 1 | 14.837 | 14.837 | 51 | 0.750 | 百叶遮阳0 | 0.444 | 0.333 |
| 5 |  | 1 | 1 | 58.950 | 58.950 | 51 | 0.750 |  | 1.000 | 0.750 |
| 6 |  | 1 | 1 | 12.067 | 12.067 | 51 | 0.750 |  | 1.000 | 0.750 |
| 7 |  | 1 | 1 | 48.600 | 48.600 | 51 | 0.750 |  | 1.000 | 0.750 |
| 8 |  | 1 | 1 | 24.299 | 24.299 | 51 | 0.750 |  | 1.000 | 0.750 |
| 9 |  | 1 | 1 | 9.600 | 9.600 | 51 | 0.750 | 阳台正遮阳板1500 | 0.385 | 0.289 |
| 10 |  | 1 | 1 | 9.600 | 9.600 | 51 | 0.750 | 阳台正遮阳板1500 | 0.385 | 0.289 |
| 11 |  | 1~5 | 12 | 9.600 | 115.202 | 51 | 0.750 | 阳台正遮阳板1500 | 0.385 | 0.289 |
| 12 |  | 1~3 | 6 | 8.220 | 49.320 | 51 | 0.750 | 阳台正遮阳板1550 | 0.383 | 0.287 |
| 13 |  | 2 | 1 | 21.784 | 21.784 | 51 | 0.750 | 百叶遮阳0 | 0.444 | 0.333 |
| 14 |  | 2 | 1 | 14.235 | 14.235 | 51 | 0.750 | 百叶遮阳0 | 0.444 | 0.333 |
| 15 |  | 2 | 1 | 12.919 | 12.919 | 51 | 0.750 | 百叶遮阳0 | 0.444 | 0.333 |
| 16 |  | 2~10 | 40 | 5.700 | 228.000 | 51 | 0.750 |  | 1.000 | 0.750 |
| 17 |  | 2~10 | 25 | 12.600 | 315.000 | 51 | 0.750 | 阳台正侧遮阳板1360\*4200 | 0.365 | 0.274 |
| 18 |  | 2~7 | 10 | 12.600 | 126.000 | 51 | 0.750 |  | 1.000 | 0.750 |
| 19 |  | 2~7 | 11 | 12.600 | 138.600 | 51 | 0.750 | 阳台正遮阳板1360 | 0.393 | 0.294 |
| 20 |  | 2~8 | 7 | 11.460 | 80.220 | 51 | 0.750 | 阳台正遮阳板1960 | 0.366 | 0.274 |
| 21 |  | 2~5 | 4 | 9.600 | 38.399 | 51 | 0.750 | 阳台正遮阳板1500 | 0.385 | 0.289 |
| 22 |  | 3~6,8~9 | 6 | 5.700 | 34.200 | 51 | 0.750 | 阳台侧遮阳板1354 | 0.520 | 0.390 |
| 23 | C0915 | 1~5 | 18 | 1.350 | 24.300 | 18 | 0.250 |  | 1.000 | 0.250 |
| 24 | C1215 | 1~6 | 49 | 1.800 | 88.200 | 18 | 0.250 |  | 1.000 | 0.250 |
| 25 | C1215N | 2~9 | 61 | 1.800 | 109.800 | 18 | 0.250 |  | 1.000 | 0.250 |
| 26 | C1515 | 1 | 1 | 2.250 | 2.250 | 18 | 0.250 |  | 1.000 | 0.250 |
| 27 | C1824 | 1 | 1 | 4.320 | 4.320 | 18 | 0.250 |  | 1.000 | 0.250 |
| 28 | C2024 | 1~5 | 5 | 4.800 | 24.000 | 18 | 0.250 |  | 1.000 | 0.250 |
| 29 | C3015 | 1 | 1 | 4.500 | 4.500 | 18 | 0.250 |  | 1.000 | 0.250 |
| 30 | C3525N | 2~6 | 5 | 8.750 | 43.750 | 18 | 0.250 |  | 1.000 | 0.250 |
| 朝向总面积(㎡) | | | | | 1873.176 | 朝向综合遮阳系数 | | | 0.701 | 0.446 |

2. 北向：

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 序号 | 门窗编号 | 楼层 | 数量 | 单个面积（㎡） | 总面积（㎡） | 构造编号 | 自遮阳系数 | 外遮阳编号 | 外遮阳系数 | 综合遮阳系数 |
| 1 |  | 1 | 1 | 48.600 | 48.600 | 51 | 0.750 |  | 1.000 | 0.750 |
| 2 |  | 1 | 1 | 58.500 | 58.500 | 51 | 0.750 |  | 1.000 | 0.750 |
| 3 |  | 1 | 1 | 28.800 | 28.800 | 51 | 0.750 |  | 1.000 | 0.750 |
| 4 |  | 1 | 1 | 60.297 | 60.297 | 51 | 0.750 |  | 1.000 | 0.750 |
| 5 |  | 1 | 1 | 13.727 | 13.727 | 51 | 0.750 |  | 1.000 | 0.750 |
| 6 |  | 1 | 1 | 14.787 | 14.787 | 51 | 0.750 |  | 1.000 | 0.750 |
| 7 |  | 2 | 1 | 4.458 | 4.458 | 51 | 0.750 | 百叶遮阳0 | 0.474 | 0.355 |
| 8 |  | 2 | 1 | 5.811 | 5.811 | 51 | 0.750 | 百叶遮阳0 | 0.474 | 0.355 |
| 9 |  | 2 | 1 | 7.308 | 7.308 | 51 | 0.750 | 百叶遮阳0 | 0.474 | 0.355 |
| 10 |  | 2~6 | 5 | 5.700 | 28.500 | 51 | 0.750 |  | 1.000 | 0.750 |
| 11 |  | 2~5 | 4 | 12.600 | 50.400 | 51 | 0.750 |  | 1.000 | 0.750 |
| 12 |  | 2 | 1 | 43.014 | 43.014 | 51 | 0.750 |  | 1.000 | 0.750 |
| 13 |  | 6 | 1 | 12.600 | 12.600 | 51 | 0.750 | 阳台正侧遮阳板1360\*4200 | 0.360 | 0.270 |
| 14 | C0915 | 1 | 12 | 1.350 | 16.200 | 18 | 0.250 |  | 1.000 | 0.250 |
| 15 | C1021 | 1~5 | 18 | 2.058 | 37.044 | 18 | 0.250 |  | 1.000 | 0.250 |
| 16 | C1215 | 1~5 | 33 | 1.800 | 59.400 | 18 | 0.250 |  | 1.000 | 0.250 |
| 17 | C1215N | 2~10 | 143 | 1.800 | 257.400 | 18 | 0.250 |  | 1.000 | 0.250 |
| 18 | C2024 | 1~6 | 10 | 4.800 | 48.000 | 18 | 0.250 |  | 1.000 | 0.250 |
| 19 | C2515 | 1~5 | 20 | 3.750 | 75.000 | 18 | 0.250 |  | 1.000 | 0.250 |
| 20 | C3015 | 1~3 | 3 | 4.500 | 13.500 | 18 | 0.250 |  | 1.000 | 0.250 |
| 21 | C3525N | 2~10 | 46 | 8.750 | 402.500 | 18 | 0.250 |  | 1.000 | 0.250 |
| 朝向总面积(㎡) | | | | | 1285.846 | 朝向综合遮阳系数 | | | 0.987 | 0.386 |

3. 东向：

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 序号 | 门窗编号 | 楼层 | 数量 | 单个面积（㎡） | 总面积（㎡） | 构造编号 | 自遮阳系数 | 外遮阳编号 | 外遮阳系数 | 综合遮阳系数 |
| 1 |  | 1 | 1 | 16.042 | 16.042 | 51 | 0.750 | 百叶遮阳0 | 0.564 | 0.423 |
| 2 |  | 1 | 1 | 23.112 | 23.112 | 51 | 0.750 | 百叶遮阳0 | 0.564 | 0.423 |
| 3 |  | 1 | 1 | 44.560 | 44.560 | 51 | 0.750 | 百叶遮阳0 | 0.564 | 0.423 |
| 4 |  | 1 | 1 | 21.150 | 21.150 | 51 | 0.750 | 百叶遮阳0 | 0.564 | 0.423 |
| 5 |  | 1~3 | 3 | 4.500 | 13.500 | 51 | 0.750 | 百叶遮阳0 | 0.564 | 0.423 |
| 6 |  | 2 | 1 | 5.539 | 5.539 | 51 | 0.750 | 百叶遮阳0 | 0.564 | 0.423 |
| 7 |  | 2 | 1 | 4.589 | 4.589 | 51 | 0.750 | 百叶遮阳0 | 0.564 | 0.423 |
| 8 |  | 2 | 1 | 4.680 | 4.680 | 51 | 0.750 | 百叶遮阳0 | 0.564 | 0.423 |
| 9 |  | 2~8 | 7 | 12.658 | 88.606 | 51 | 0.750 | 阳台侧遮阳板1250 | 0.667 | 0.500 |
| 10 |  | 2~8 | 7 | 5.767 | 40.369 | 51 | 0.750 | 阳台侧遮阳板1250 | 0.565 | 0.424 |
| 11 |  | 2~8 | 7 | 11.399 | 79.796 | 51 | 0.750 | 阳台侧遮阳板1250 | 0.655 | 0.492 |
| 12 | C0615 | 1~6 | 6 | 0.897 | 5.382 | 18 | 0.250 | 百叶遮阳0 | 0.564 | 0.141 |
| 13 | C1015 | 1 | 2 | 1.500 | 3.000 | 18 | 0.250 | 百叶遮阳0 | 0.564 | 0.141 |
| 14 | C1215 | 1~6 | 25 | 1.800 | 45.000 | 18 | 0.250 | 百叶遮阳0 | 0.564 | 0.141 |
| 15 | C1215N | 2~9 | 22 | 1.800 | 39.600 | 18 | 0.250 | 百叶遮阳0 | 0.564 | 0.141 |
| 16 | C1520 | 1~6 | 15 | 3.000 | 45.000 | 18 | 0.250 | 百叶遮阳0 | 0.564 | 0.141 |
| 17 | C1522 | 1 | 1 | 3.300 | 3.300 | 18 | 0.250 | 百叶遮阳0 | 0.564 | 0.141 |
| 18 | C3020 | 1~6 | 15 | 6.000 | 90.000 | 18 | 0.250 | 百叶遮阳0 | 0.564 | 0.141 |
| 19 | C3515N | 2~8 | 7 | 8.750 | 61.250 | 18 | 0.250 | 大窗遮阳1500高 | 0.564 | 0.141 |
| 朝向总面积(㎡) | | | | | 634.475 | 朝向综合遮阳系数 | | | 0.590 | 0.313 |

4. 西向：

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 序号 | 门窗编号 | 楼层 | 数量 | 单个面积（㎡） | 总面积（㎡） | 构造编号 | 自遮阳系数 | 外遮阳编号 | 外遮阳系数 | 综合遮阳系数 |
| 1 |  | 1 | 1 | 6.488 | 6.488 | 51 | 0.750 | 百叶遮阳0 | 0.629 | 0.472 |
| 2 |  | 1 | 2 | 7.409 | 14.818 | 51 | 0.750 | 百叶遮阳0 | 0.629 | 0.472 |
| 3 |  | 1 | 1 | 45.775 | 45.775 | 51 | 0.750 | 百叶遮阳0 | 0.629 | 0.472 |
| 4 |  | 1 | 1 | 42.106 | 42.106 | 51 | 0.750 | 百叶遮阳0 | 0.629 | 0.472 |
| 5 |  | 1~6 | 15 | 5.400 | 81.000 | 51 | 0.750 | 阳台正遮阳板1300 | 0.674 | 0.506 |
| 6 |  | 1~6 | 6 | 3.600 | 21.600 | 51 | 0.750 | 百叶遮阳0 | 0.629 | 0.472 |
| 7 |  | 1~6 | 6 | 9.600 | 57.601 | 51 | 0.750 | 阳台正遮阳板1500 | 0.570 | 0.427 |
| 8 |  | 1~3 | 3 | 4.500 | 13.500 | 51 | 0.750 | 百叶遮阳0 | 0.629 | 0.472 |
| 9 |  | 2 | 1 | 21.022 | 21.022 | 51 | 0.750 | 百叶遮阳0 | 0.629 | 0.472 |
| 10 | C1015 | 1 | 2 | 1.500 | 3.000 | 18 | 0.250 | 大窗遮阳1500高 | 0.629 | 0.157 |
| 11 | C1215 | 1~5 | 18 | 1.800 | 32.400 | 18 | 0.250 | 百叶遮阳0 | 0.629 | 0.157 |
| 12 | C1215N | 2~10 | 23 | 1.800 | 41.400 | 18 | 0.250 | 百叶遮阳0 | 0.629 | 0.157 |
| 13 | C1515 | 1 | 1 | 2.250 | 2.250 | 18 | 0.250 | 大窗遮阳1500高 | 0.629 | 0.157 |
| 14 | C1515 | 2~6 | 5 | 2.250 | 11.250 | 18 | 0.250 | 百叶遮阳0 | 0.629 | 0.157 |
| 15 | C1522 | 1 | 3 | 3.300 | 9.900 | 18 | 0.250 | 百叶遮阳0 | 0.629 | 0.157 |
| 16 | C3515N | 2~8 | 7 | 8.750 | 61.250 | 18 | 0.250 | 大窗遮阳1500高 | 0.629 | 0.157 |
| 朝向总面积(㎡) | | | | | 465.360 | 朝向综合遮阳系数 | | | 0.629 | 0.363 |

5. 平均遮阳系数：

|  |  |
| --- | --- |
|  | =0.385 |

|  |  |  |  |
| --- | --- | --- | --- |
| 朝向 | 面积（㎡） | 权重系数b | 遮阳系数 |
| 南向 | 1873.176 | 1.00 | 0.446 |
| 北向 | 1285.846 | 0.80 | 0.386 |
| 东向 | 634.475 | 1.00 | 0.313 |
| 西向 | 465.360 | 1.25 | 0.363 |
| 整个建筑平均遮阳系数 | | 0.385 | |

## 通风开口面积

# 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 | 渗透风 换气次数 | 人员密度 | 照明功率 密度 | 电器设备 功率 |
| 主卧室 | 26 | 18 | 0.5(次/h) | 0(次/h) | 32(㎡/人) | 6(W/㎡) | 5(W/㎡) |
| 卫生间 | － | － | 0.5(次/h) | 0(次/h) | 0(㎡/人) | 6(W/㎡) | 0(W/㎡) |
| 空房间 | － | － | 0(m3/h.人) | 0(次/h) | 0(㎡/人) | 0(W/㎡) | 0(W/㎡) |
| 起居室 | 26 | 18 | 0.5(次/h) | 0(次/h) | 32(㎡/人) | 6(W/㎡) | 5(W/㎡) |
| 过厅 | 26 | 18 | 0.5(次/h) | 0(次/h) | 32(㎡/人) | 6(W/㎡) | 5(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 | 单元式房间空调器 | 2.30 | 1.90 | 7093.98 | 所有房间 |

## 制冷系统

### 多联机/单元式空调能耗

|  |  |  |  |
| --- | --- | --- | --- |
| 系统 | 能效比 | 耗冷量(kWh) | 耗电量(kWh) |
| 默认 | 2.30 | 412100 | 179174 |

## 供暖系统

### 多联机/单元式热泵能耗

|  |  |  |  |
| --- | --- | --- | --- |
| 系统 | 能效比 | 耗热量(kWh) | 耗电量(kWh) |
| 默认 | 1.90 | 452 | 238 |

# 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 | 渗透风 换气次数 | 人员密度 | 照明功率 密度 | 电器设备 功率 |
| 主卧室 | 26 | 18 | 0.5(次/h) | 0(次/h) | 32(㎡/人) | 6(W/㎡) | 5(W/㎡) |
| 卫生间 | － | － | 0.5(次/h) | 0(次/h) | 0(㎡/人) | 6(W/㎡) | 0(W/㎡) |
| 空房间 | － | － | 0(m3/h.人) | 0(次/h) | 0(㎡/人) | 0(W/㎡) | 0(W/㎡) |
| 起居室 | 26 | 18 | 0.5(次/h) | 0(次/h) | 32(㎡/人) | 6(W/㎡) | 5(W/㎡) |
| 过厅 | 26 | 18 | 0.5(次/h) | 0(次/h) | 32(㎡/人) | 6(W/㎡) | 5(W/㎡) |

### 作息时间表

同标识建筑

## 系统类型

|  |  |  |  |
| --- | --- | --- | --- |
| 系统类型 | 供冷 能效比 | 供热 能效比 | 包含房间 |
| 单元式房间空调器 | 3.00 | 1.70 | 所有房间 |

## 制冷系统

|  |  |  |  |
| --- | --- | --- | --- |
| 系统类型 | 供冷 能效比 | 冷负荷 (kWh) | 电耗(kWh) |
| 单元式房间空调器 | 3.00 | 519976 | 173325 |

## 供暖系统

|  |  |  |  |
| --- | --- | --- | --- |
| 系统类型 | 供热 能效比 | 热负荷 (kWh) | 电耗(kWh) |
| 单元式房间空调器 | 1.70 | 410 | 241 |

# 计算结果

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 能耗分类 | 能耗子类 | 标识建筑  (kWh/㎡) | 比对建筑  (kWh/㎡) | 比对节能率  （%） | 基础建筑  (kWh/㎡) | 基础节能率  （%） |
| 建筑负荷 | 耗冷量 | 33.81 | 42.66 | 20.75% |  |  |
| 耗热量 | 0.04 | 0.03 | -10.42% |  |  |
| 冷热合计 | 33.85 | 42.70 | 20.72% |  |  |
| 供冷电耗 | 中央冷源 | 0.00 | 0.00 | -3.37% |  |  |
| 冷却水泵 | 0.00 | 0.00 |
| 冷冻水泵 | 0.00 | 0.00 |
| 多联机/单元式空调 | 14.70 | 14.22 |
| 供冷合计 | 14.70 | 14.22 |
| 供暖电耗 | 中央热源 | 0.00 | 0.00 | 1.20% |  |  |
| 供暖水泵 | 0.00 | 0.00 |
| 多联机/单元式热泵 | 0.02 | 0.02 |
| 供暖合计 | 0.02 | 0.02 |
| 采暖空调电耗 | | 14.72 | 14.24 | -3.37% | 28.48 | 48.32% |

# 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 |
| 主卧室 | 61 | 61 | 62 | 61 | 61 | 58 | 40 | 21 | 17 | 16 | 15 | 16 | 18 | 18 | 15 | 14 | 14 | 14 | 15 | 18 | 24 | 37 | 52 | 57 |
| 57 | 57 | 58 | 58 | 58 | 59 | 55 | 42 | 30 | 21 | 15 | 14 | 17 | 17 | 14 | 14 | 13 | 13 | 14 | 17 | 23 | 32 | 46 | 52 |
| 卫生间 | 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 | 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 | 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 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 起居室 | 16 | 16 | 16 | 15 | 16 | 24 | 31 | 19 | 15 | 14 | 14 | 19 | 22 | 19 | 13 | 14 | 18 | 35 | 49 | 54 | 50 | 35 | 21 | 15 |
| 14 | 13 | 13 | 13 | 13 | 18 | 22 | 24 | 29 | 32 | 34 | 37 | 35 | 32 | 26 | 28 | 33 | 39 | 44 | 47 | 45 | 34 | 23 | 16 |
| 过厅 | 16 | 16 | 16 | 15 | 16 | 24 | 31 | 19 | 15 | 14 | 14 | 19 | 22 | 19 | 13 | 14 | 18 | 35 | 49 | 54 | 50 | 35 | 21 | 15 |
| 14 | 13 | 13 | 13 | 13 | 18 | 22 | 24 | 29 | 32 | 34 | 37 | 35 | 32 | 26 | 28 | 33 | 39 | 44 | 47 | 45 | 34 | 23 | 16 |

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 |
| 主卧室 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50 | 50 | 50 | 10 | 10 | 10 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50 | 50 | 50 | 10 | 10 | 10 |
| 卫生间 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 0 |
| 空房间 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 0 |
| 起居室 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 100 | 100 | 100 | 100 | 50 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 100 | 100 | 100 | 100 | 50 |
| 过厅 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 100 | 100 | 100 | 100 | 50 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 100 | 100 | 100 | 100 | 50 |

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 |
| 主卧室 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 70 | 10 | 10 | 10 | 10 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 70 | 10 | 10 | 10 | 10 |
| 卫生间 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 空房间 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 起居室 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 69 | 69 | 23 | 23 | 23 | 23 | 23 | 100 | 100 | 100 | 100 | 69 |
| 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 69 | 69 | 23 | 23 | 23 | 23 | 23 | 100 | 100 | 100 | 100 | 69 |
| 过厅 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 69 | 69 | 23 | 23 | 23 | 23 | 23 | 100 | 100 | 100 | 100 | 69 |
| 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 69 | 69 | 23 | 23 | 23 | 23 | 23 | 100 | 100 | 100 | 100 | 69 |

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)

采暖期：

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 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 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

供冷期：

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| 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 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

注：上行：工作日；下行：节假日