**建筑节能设计报告书**

公共建筑

甲类

|  |  |
| --- | --- |
| 工程名称 | 纺织未来--关于昆明三机厂绿色低碳改造服务 |
| 工程地点 | 云南-昆明-官渡 |
| 设计编号 |  |
| 建设单位 |  |
| 设计单位 |  |
| 设 计 人 |  |
| 校 对 人 |  |
| 审 核 人 |  |
| 设计日期 | 2024年11月22日 |



|  |  |
| --- | --- |
| 采用软件 | 节能设计Becs2024 |
| 软件版本 | 20240430(SP1) |
| 研发单位 | 北京绿建软件股份有限公司 |
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# 建筑概况

|  |  |
| --- | --- |
| 工程名称 | 纺织未来--关于昆明三机厂绿色低碳改造服务 |
| 工程地点 | 云南-昆明-官渡 |
| 气候分区 | 温和A区 |
| 建筑面积 | 地上8945㎡ 地下0㎡ |
| 建筑层数 | 地上6 地下0 |
| 建筑高度 | 22.8m |
| 建筑（节能计算）体积 | 33989.33 |
| 建筑（节能计算）外表面积 | 6398.28 |
| 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 |

# 设计依据

1. 《建筑节能与可再生能源利用通用规范》GB55015-2021

2. 《公共建筑节能设计标准》GB50189-2015

3. 《民用建筑热工设计规范》GB50176-2016

4. 《建筑幕墙、门窗通用技术条件》GB/T31433-2015

# 建筑大样



立面图例



1层平面



2层平面



3层平面



4层平面



5层平面



6层平面

# 规定性指标检查

## 工程材料

### 普通材料

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 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 | 数据来源 |
| 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 | 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 | 民用建筑热工设计规范 GB50176-2016 |
| 石灰水泥砂浆 | 0.870 | 10.750 | 1700.0 | 1074.4 | 0.0000 | 民用建筑热工设计规范 GB50176-2016 |
| 耐碱玻纤网布抗裂砂浆 | 0.930 | 11.306 | 1800.0 | 1050.0 | 0.0000 | DB34-T753-2007 |
| c20细石混凝土(ρ=2300) | 1.510 | 15.243 | 2300.0 | 920.0 | 0.0158 | 安徽公共建筑节能设计标准 DB34 T753-2007 |
| 挤塑聚苯板 | 0.030 | 0.340 | 35.0 | 1380.0 | 0.0140 | 民用建筑热工设计规范 GB50176-2016 |
| 蒸压加气混凝土砌块（525-625） | 0.160 | 2.750 | 600.0 | 1050.0 | 0.0000 | 云南省民用建筑节能设计标准 DBJ 53/T-39-2020 |
| 轻骨料混凝土(找坡层) | 0.300 | 5.000 | 1050.0 | 1091.3 | 0.0040 | 安徽省居住建筑节能设计标准 DB34/1466-2019 |
| 玻化微珠保温隔热砂浆 | 0.070 | 1.500 | 300.0 | 1473.3 | 0.0210 | JC/T 2164-2013 |
| SBS改性沥青防水卷材 | 0.230 | 9.370 | 900.0 | 5832.3 | 0.0014 | DB34-T753-2007 |
| C20细石混凝土 | 1.510 | 15.243 | 2300.0 | 920.0 | 0.0158 | DB34-T753-2007 |

### 其他材料

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 材料名称 | 厚度 | 热阻R | 太阳辐射吸收系数 | 备注 |
| mm | (㎡K)/W |
| 界面砂浆 | － | － | － |  |
| 合成高分子防水涂料 | － | － | － |  |

## 围护结构作法简要说明

**1. 屋顶：**上人屋面 (K=0.758,D=2.844)：（由上到下）

C20细石混凝土 40mm＋SBS改性沥青防水卷材 3mm＋合成高分子防水涂料 1.5mm＋水泥砂浆 20mm＋挤塑聚苯板 30mm＋水泥砂浆 20mm＋轻骨料混凝土(找坡层) 30mm＋钢筋混凝土 100mm

**2. 外墙：**外墙（填充墙）构造一 (K=0.701,D=4.174)：（由外到内）

耐碱玻纤网布抗裂砂浆 5mm＋玻化微珠保温隔热砂浆 20mm＋界面砂浆 0mm＋蒸压加气混凝土砌块（525-625） 200mm＋石灰水泥砂浆 20mm

**3. 外窗：**6中透光Low-E+12空气+6透明-铝合金窗框[Kf=6.21W/(㎡·K),框面积20%] (K=2.700)：

传热系数2.700W/㎡.K，窗太阳得热系数0.374

## 体形系数

### 体形系数

|  |  |
| --- | --- |
| 外表面积 | 6398.28 |
| 建筑体积 | 33989.33 |
| 体形系数 | 0.19 |

### 楼层信息表

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 楼层 | 层高(m) | 建筑面积(㎡) | 外表面积(㎡) | 计算体积(m3) |
| 1 | 6.000 | 1490.76 | 1022.40 | 8944.56 |
| 2 | 3.000 | 1490.76 | 1022.40 | 4472.28 |
| 3 | 3.000 | 1490.76 | 1022.40 | 4472.28 |
| 4 | 3.600 | 1490.76 | 613.44 | 5366.74 |
| 5 | 3.600 | 1490.76 | 613.44 | 5366.74 |
| 6 | 3.600 | 1490.76 | 613.44 | 5366.74 |
| 屋顶 | － | － | 1490.76 | － |
| 合计 | 22.80 | 8944.56 | 6398.28 | 33989.33 |

## 窗墙比

### 窗墙比

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 朝向 | 立面 | 窗面积(㎡) | 墙面积(㎡) | 窗墙比 |
| 南向 | 立面1 | 581.40 | 1745.28 | 0.33 |
| 北向 | 立面2 | 655.20 | 1745.28 | 0.38 |
| 东向 | 立面3 | 0.00 | 708.48 | 0.00 |
| 西向 | 立面4 | 129.60 | 708.48 | 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 （㎡） | 总面积 （㎡） |
| 南向 | 立面1 | C5212 | 4.80×3.00 | 1~3 | 21 | 14.40 | 302.40 | 581.40 |
| C5212 | 3.00×1.80 | 1~6 | 11 | 5.40 | 59.40 |
| C5212 | 1.80×0.60 | 4~5 | 4 | 1.08 | 4.32 |
| C5212 | 4.80×2.10 | 4~5 | 13 | 10.08 | 131.04 |
| C5212 | 2.40×1.80 | 6 | 9 | 4.32 | 38.88 |
| C5212 | 3.60×1.80 | 6 | 1 | 6.48 | 6.48 |
| C5212[2330] | 2.27×3.00 | 2~3 | 2 | 6.81 | 13.62 |
| C5212[2421] | 2.40×2.10 | 4 | 2 | 5.04 | 10.08 |
| C5212[2530] | 2.53×3.00 | 2~3 | 2 | 7.59 | 15.18 |
| 北向 | 立面2 | C5212 | 4.80×3.00 | 1~3 | 27 | 14.40 | 388.80 | 655.20 |
| C5212 | 4.80×2.10 | 4~5 | 20 | 10.08 | 201.60 |
| C5212 | 2.40×1.80 | 6 | 15 | 4.32 | 64.80 |
| 西向 | 立面4 | C5212 | 4.80×3.00 | 1~3 | 8 | 14.40 | 115.20 | 129.60 |
| C5212[1230] | 1.19×3.00 | 1 | 1 | 3.57 | 3.57 |
| C5212[3630] | 3.61×3.00 | 1 | 1 | 10.83 | 10.83 |

## 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

### 上人屋面

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 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 |
| C20细石混凝土 | 40 | 1.510 | 15.243 | 1.00 | 0.026 | 0.404 |
| SBS改性沥青防水卷材 | 3 | 0.230 | 9.370 | 1.00 | 0.013 | 0.122 |
| 合成高分子防水涂料 | 1.5 | － | － | － | － | － |
| 水泥砂浆 | 20 | 0.930 | 11.370 | 1.00 | 0.022 | 0.245 |
| 挤塑聚苯板 | 30 | 0.030 | 0.340 | 1.05 | 0.952 | 0.340 |
| 水泥砂浆 | 20 | 0.930 | 11.370 | 1.00 | 0.022 | 0.245 |
| 轻骨料混凝土(找坡层) | 30 | 0.300 | 5.000 | 1.50 | 0.067 | 0.500 |
| 钢筋混凝土 | 100 | 1.740 | 17.200 | 1.00 | 0.057 | 0.989 |
| 各层之和∑ | 244.5 | － | － | － | 1.159 | 2.844 |
| 外表面太阳辐射吸收系数 | 0.75 | | | | | |
| 传热系数K=1/(0.16+∑R) | 0.76 | | | | | |
| 标准依据 | 《建筑节能与可再生能源利用通用规范》GB55015-2021第3.1.10条 | | | | | |
| 标准要求 | K应满足表3.1.10-6的规定(K≤0.80) | | | | | |
| 结论 | 满足 | | | | | |

## 外墙

### 外墙相关构造

#### 外墙（填充墙）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 |
| 耐碱玻纤网布抗裂砂浆 | 5 | 0.930 | 11.306 | 1.00 | 0.005 | 0.061 |
| 玻化微珠保温隔热砂浆 | 20 | 0.070 | 1.500 | 1.20 | 0.238 | 0.429 |
| 界面砂浆 | － | － | － | － | － | － |
| 蒸压加气混凝土砌块（525-625） | 200 | 0.160 | 2.750 | 1.25 | 1.000 | 3.438 |
| 石灰水泥砂浆 | 20 | 0.870 | 10.750 | 1.00 | 0.023 | 0.247 |
| 各层之和∑ | 245 | － | － | － | 1.266 | 4.174 |
| 外表面太阳辐射吸收系数 | 0.75 | | | | | |
| 传热系数K=1/(0.16+∑R) | 0.70 | | | | | |

#### 热桥柱

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 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 |
| 耐碱玻纤网布抗裂砂浆 | 5 | 0.930 | 11.306 | 1.00 | 0.005 | 0.061 |
| 玻化微珠保温隔热砂浆 | 20 | 0.070 | 1.500 | 1.20 | 0.238 | 0.429 |
| 界面砂浆 | － | － | － | － | － | － |
| 钢筋混凝土 | 200 | 1.740 | 17.200 | 1.00 | 0.115 | 1.977 |
| 石灰水泥砂浆 | 20 | 0.870 | 10.750 | 1.00 | 0.023 | 0.247 |
| 各层之和∑ | 245 | － | － | － | 0.381 | 2.713 |
| 外表面太阳辐射吸收系数 | 0.75 | | | | | |
| 传热系数K=1/(0.16+∑R) | 1.85 | | | | | |

### 外墙主断面传热系数的修正系数ψ

**外墙主体部位传热系数的修正系数ψ**

|  |  |  |  |
| --- | --- | --- | --- |
| 气候分区 | 外保温 | 夹心保温 (自保温) | 内保温 |
| 严寒地区 | 1.30 | — | — |
| 寒冷地区 | 1.20 | 1.25 |  |
| 夏热冬冷地区 | 1.10 | 1.20 | 1.20 |
| 夏热冬暖地区 | 1.00 | 1.05 | 1.05 |

### 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 |
| 外墙（填充墙）构造一 | 主墙体 | 1152.00 | 1.000 | 0.70 | 4.17 | 0.75 |
| 平均传热系数K | 0.70 × 1.00 = 0.70 | | | | | |

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 |
| 外墙（填充墙）构造一 | 主墙体 | 1075.68 | 1.000 | 0.70 | 4.17 | 0.75 |
| 平均传热系数K | 0.70 × 1.00 = 0.70 | | | | | |

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 |
| 外墙（填充墙）构造一 | 主墙体 | 705.18 | 1.000 | 0.70 | 4.17 | 0.75 |
| 平均传热系数K | 0.70 × 1.00 = 0.70 | | | | | |

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 |
| 外墙（填充墙）构造一 | 主墙体 | 578.88 | 1.000 | 0.70 | 4.17 | 0.75 |
| 平均传热系数K | 0.70 × 1.00 = 0.70 | | | | | |

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 |
| 外墙（填充墙）构造一 | 主墙体 | 3511.74 | 1.000 | 0.70 | 4.17 | 0.75 |
| 平均传热系数K | 0.70 × 1.00 = 0.70 | | | | | |
| 标准依据 | 《建筑节能与可再生能源利用通用规范》GB55015-2021第3.1.10条 | | | | | |
| 标准要求 | K应满足表3.1.10-6的规定(K≤1.50) | | | | | |
| 结论 | 满足 | | | | | |

## 挑空楼板

本工程无此项内容

## 外窗热工

### 外窗

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 序号 | 构造名称 | 构造 编号 | 传热 系数 | 窗太阳 得热系数 | 可见光 透射比 | 数据来源 |
| 1 | 6中透光Low-E+12空气+6透明-铝合金窗框[Kf=6.21W/(㎡·K),框面积20%] | 28 | 2.70 | 0.37 | 0.620 |  |
| 窗编号 | | | | |
| C5212，C5212[1230]，C5212[3630]，C5212[2330]，C5212[2421]，C5212[2530] | | | | |

### 外遮阳类型

本工程无此项内容

### 平均传热系数

1. 南向：

立面1

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 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 | C5212 | 1~3 | 21 | 14.400 | 302.400 | 28 | 2.700 |
| 2 | C5212 | 1~6 | 11 | 5.400 | 59.400 | 28 | 2.700 |
| 3 | C5212 | 4~5 | 4 | 1.080 | 4.320 | 28 | 2.700 |
| 4 | C5212 | 4~5 | 13 | 10.080 | 131.040 | 28 | 2.700 |
| 5 | C5212 | 6 | 9 | 4.320 | 38.880 | 28 | 2.700 |
| 6 | C5212 | 6 | 1 | 6.480 | 6.480 | 28 | 2.700 |
| 7 | C5212[2330] | 2~3 | 2 | 6.810 | 13.620 | 28 | 2.700 |
| 8 | C5212[2421] | 4 | 2 | 5.040 | 10.080 | 28 | 2.700 |
| 9 | C5212[2530] | 2~3 | 2 | 7.590 | 15.180 | 28 | 2.700 |
| 立面总面积(㎡) | | | 581.400 | 立面平均传热系数 | | | 2.700 |

2. 北向：

立面2

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 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 | C5212 | 1~3 | 27 | 14.400 | 388.800 | 28 | 2.700 |
| 2 | C5212 | 4~5 | 20 | 10.080 | 201.600 | 28 | 2.700 |
| 3 | C5212 | 6 | 15 | 4.320 | 64.800 | 28 | 2.700 |
| 立面总面积(㎡) | | | 655.200 | 立面平均传热系数 | | | 2.700 |

3. 东向：

4. 西向：

立面4

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 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 | C5212 | 1~3 | 8 | 14.400 | 115.200 | 28 | 2.700 |
| 2 | C5212[1230] | 1 | 1 | 3.570 | 3.570 | 28 | 2.700 |
| 3 | C5212[3630] | 1 | 1 | 10.830 | 10.830 | 28 | 2.700 |
| 立面总面积(㎡) | | | 129.600 | 立面平均传热系数 | | | 2.700 |

### 综合太阳得热系数

1. 南向：

立面1

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 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 | C5212 | 1~3 | 21 | 14.400 | 302.400 | 28 | 0.374 |  | 1.000 | 0.374 |
| 2 | C5212 | 1~6 | 11 | 5.400 | 59.400 | 28 | 0.374 |  | 1.000 | 0.374 |
| 3 | C5212 | 4~5 | 4 | 1.080 | 4.320 | 28 | 0.374 |  | 1.000 | 0.374 |
| 4 | C5212 | 4~5 | 13 | 10.080 | 131.040 | 28 | 0.374 |  | 1.000 | 0.374 |
| 5 | C5212 | 6 | 9 | 4.320 | 38.880 | 28 | 0.374 |  | 1.000 | 0.374 |
| 6 | C5212 | 6 | 1 | 6.480 | 6.480 | 28 | 0.374 |  | 1.000 | 0.374 |
| 7 | C5212[2330] | 2~3 | 2 | 6.810 | 13.620 | 28 | 0.374 |  | 1.000 | 0.374 |
| 8 | C5212[2421] | 4 | 2 | 5.040 | 10.080 | 28 | 0.374 |  | 1.000 | 0.374 |
| 9 | C5212[2530] | 2~3 | 2 | 7.590 | 15.180 | 28 | 0.374 |  | 1.000 | 0.374 |
| 立面总面积(㎡) | | | | | 581.400 | 综合太阳得热系数 | | | | 0.374 |

2. 北向：

立面2

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 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 | C5212 | 1~3 | 27 | 14.400 | 388.800 | 28 | 0.374 |  | 1.000 | 0.374 |
| 2 | C5212 | 4~5 | 20 | 10.080 | 201.600 | 28 | 0.374 |  | 1.000 | 0.374 |
| 3 | C5212 | 6 | 15 | 4.320 | 64.800 | 28 | 0.374 |  | 1.000 | 0.374 |
| 立面总面积(㎡) | | | | | 655.200 | 综合太阳得热系数 | | | | 0.374 |

3. 东向：

4. 西向：

立面4

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 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 | C5212 | 1~3 | 8 | 14.400 | 115.200 | 28 | 0.374 |  | 1.000 | 0.374 |
| 2 | C5212[1230] | 1 | 1 | 3.570 | 3.570 | 28 | 0.374 |  | 1.000 | 0.374 |
| 3 | C5212[3630] | 1 | 1 | 10.830 | 10.830 | 28 | 0.374 |  | 1.000 | 0.374 |
| 立面总面积(㎡) | | | | | 129.600 | 综合太阳得热系数 | | | | 0.374 |

### 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 | 标准要求 | 结论 |
| 南向 | 立面1 | 581.40 | 2.70 | 0.37 | 0.33 | K≤3.00, SHGC≤0.35 | 不满足 |
| 北向 | 立面2 | 655.20 | 2.70 | 0.37 | 0.38 | K≤3.00, SHGC≤0.40 | 满足 |
| 西向 | 立面4 | 129.60 | 2.70 | 0.37 | 0.18 | K≤5.20, SHGC(不要求) | 满足 |
| 综合平均 |  | 1366.20 | 2.70 | 0.37 | 0.28 |  |  |
| 标准依据 | 《建筑节能与可再生能源利用通用规范》GB55015-2021第3.1.10条 | | | | | | |
| 标准要求 | 外窗传热系数和综合太阳得热系数满足表3.1.10-6的要求 | | | | | | |
| 结论 | 不满足 | | | | | | |

注：本表所统计的外窗包含凸窗。

## 可开启窗扇

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 楼层 | 房间编号 | 房间类型 | | 门窗类型 | 门窗编号 | 开启比例 | 可开启窗扇 |
| 1 | 1001(最不利房间) | 羽毛球馆 | | 外窗 | C5212 | 0.30 | 有可开启窗扇 |
| 外窗 | C5212 | 0.30 |
| 外窗 | C5212 | 0.30 |
| 外窗 | C5212 | 0.30 |
| 外窗 | C5212 | 0.30 |
| 外窗 | C5212 | 0.30 |
| 外窗 | C5212 | 0.30 |
| 外窗 | C5212[1230] | 0.30 |
| 外窗 | C5212 | 0.30 |
| 外窗 | C5212 | 0.30 |
| 外窗 | C5212 | 0.30 |
| 外窗 | C5212 | 0.30 |
| 外窗 | C5212 | 0.30 |
| 外窗 | C5212 | 0.30 |
| 外窗 | C5212 | 0.30 |
| 外窗 | C5212 | 0.30 |
| 外窗 | C5212 | 0.30 |
| 外窗 | C5212 | 0.30 |
| 外窗 | C5212 | 0.30 |
| 通风换气装置 | | | 无通风换气装置 | | | | | |
| 标准依据 | | | 《建筑节能与可再生能源利用通用规范》GB55015-2021第3.1.14条 | | | | | |
| 标准要求 | | | 主要功能房间的外窗应设置可开启窗扇或通风换气装置 | | | | | |
| 结论 | | | 满足 | | | | | |

注：达标时只列出一项，不达标时列出全部不达标项

## 非中空窗面积比

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 朝向 | 立面 | 非中空玻璃面积(㎡) | 透光面积(㎡) | 非中空面积比 | 限值 | 结论 |
| 南向 | 立面1 | 0.00 | 581.40 | 0.00 | 0.15 | 满足 |
| 北向 | 立面2 | 0.00 | 655.20 | 0.00 | 0.15 | 满足 |
| 东向 | 立面3 | 0.00 | 0.00 | 0.00 | 0.15 | 无 |
| 西向 | 立面4 | 0.00 | 129.60 | 0.00 | 0.15 | 满足 |
| 标准依据 | | 《建筑节能与可再生能源利用通用规范》GB55015-2021第3.1.13条 | | | | |
| 标准要求 | | 非中空玻璃的面积不应超过同一立面透光面积的15% | | | | |
| 结论 | | 满足 | | | | |

## 规定性指标检查结论

|  |  |  |  |
| --- | --- | --- | --- |
| 序号 | 检查项 | 结论 | 可否性能权衡 |
| 1 | 天窗类型 | 无屋顶透光部分 |  |
| 2 | 屋顶 | 满足 |  |
| 3 | 外墙 | 满足 |  |
| 4 | 外窗热工 | 不满足 | 可 |
| 5 | 可开启窗扇 | 满足 |  |
| 6 | 非中空窗面积比 | 满足 |  |
| 结论 | | 不满足 | 可 |

□说明：本工程规定性指标设计**不满足**要求，需依据《建筑节能与可再生能源利用通用规范》GB55015-2021的要求进行节能设计的权衡判断。

# 权衡判断基本要求

|  |  |  |  |
| --- | --- | --- | --- |
| 检查项 | 设计值 | 权衡判断基本要求 | 结论 |
| 屋顶 | K=0.76; D=2.84 | K≤0.80 | 满足 |
| 外墙 | K=0.70; D=4.17 | K<=1.0 | 满足 |
| 外窗热工－总体热工性能－南向－立面1 | K=2.70 | K≤3.00 | 满足 |
| 外窗热工－总体热工性能－北向－立面2 | K=2.70 | K≤3.00 | 满足 |
| 外窗热工－总体热工性能－西向－立面4 | K=2.70 | K≤3.00 | 满足 |
| 可开启窗扇 | 有可开启窗扇 | 有可开启窗扇或通风换气装置 | 满足 |
| 非中空窗面积比－南向－立面1 | 0.00 | ≤0.15 | 满足 |
| 非中空窗面积比－北向－立面2 | 0.00 | ≤0.15 | 满足 |
| 非中空窗面积比－东向－立面3 | 0.00 | ≤0.15 | 满足 |
| 非中空窗面积比－西向－立面4 | 0.00 | ≤0.15 | 满足 |

■结论：建筑相关参数**满足**权衡判断的基本要求，可进行围护结构的权衡判断。

# 权衡指标

## 计算条件

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | 设计建筑 | | | 参照建筑 | | |
| 天窗屋顶比 | | | － | | | － | | |
| 屋顶传热系数K  和热惰性指标 D | | | K=0.76  D=2.84 | | | K=0.80  D=－－ | | |
| 外墙传热系数K  和热惰性指标 D | | | K=0.70  D=4.17 | | | K=1.50  D=－－ | | |
| 挑空楼板传热系数K  和热惰性指标 D | | | K=－  D=－ | | | K=－  D=－ | | |
| 天窗传热系数K  和太阳得热系数 SHGC | | | K=－  SHGC=－ | | | K=－  SHGC=－ | | |
| 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 | 立面1 | 0.33 | 2.70 | 0.37 | 0.33 | 3.00 | 0.35 |
| 北向 | 立面2 | 0.38 | 2.70 | 0.37 | 0.38 | 3.00 | 0.40 |
| 西向 | 立面4 | 0.18 | 2.70 | 0.37 | 0.18 | 5.20 | －－ |
|  |  |  |  |  |  |  |  |
| 室内参数和气象条件设置 | | | 按《公共建筑节能设计标准》附录B设置 | | | | | |

备注：

1. 传热系数的单位W/(m2.k)，其他参数无量纲.

2. 屋顶和外墙的传热系数K和热情性指标D指平均值.

3. 设计建筑：“—”代表本工程无对应项.

4. 参照建筑：“— —”代表参照建筑不要求，取值同设计建筑.

## 房间类型

### 房间参数表

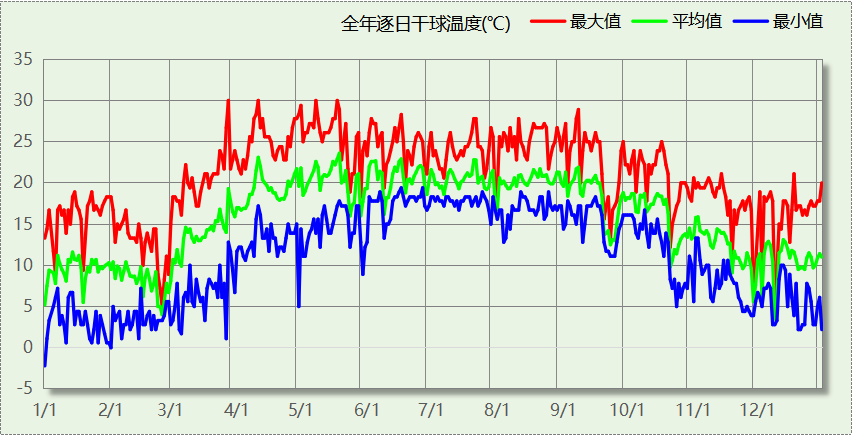
|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 房间类型 | 空调温度 ℃ | 供暖温度 ℃ | 新风量 | 人员密度 | 照明功率 密度 | 电器设备 功率 |
| 实验教室 | 26 | 20 | 30(m3/h.人) | 6(㎡/人) | 8(W/㎡) | 5(W/㎡) |
| 报告厅 | 26 | 20 | 30(m3/h.人) | 6(㎡/人) | 8(W/㎡) | 5(W/㎡) |
| 普通办公室 | 26 | 20 | 30(m3/h.人) | 10(㎡/人) | 8(W/㎡) | 15(W/㎡) |
| 普通办公室 | 26 | 20 | 30(m3/h.人) | 6(㎡/人) | 8(W/㎡) | 5(W/㎡) |
| 普通教室 | 26 | 20 | 30(m3/h.人) | 6(㎡/人) | 8(W/㎡) | 5(W/㎡) |
| 更衣室 | 26 | 20 | 30(m3/h.人) | 6(㎡/人) | 8(W/㎡) | 5(W/㎡) |
| 琴房 | 26 | 20 | 30(m3/h.人) | 6(㎡/人) | 8(W/㎡) | 5(W/㎡) |
| 空房间 | － | － | 0(m3/h.人) | 0(人) | 0(W/㎡) | 0(W/㎡) |
| 羽毛球馆 | 26 | 22 | 30(m3/h.人) | 25(㎡/人) | 6(W/㎡) | 15(W/㎡) |
| 舞蹈教室 | 26 | 20 | 30(m3/h.人) | 6(㎡/人) | 8(W/㎡) | 5(W/㎡) |

### 作息时间表

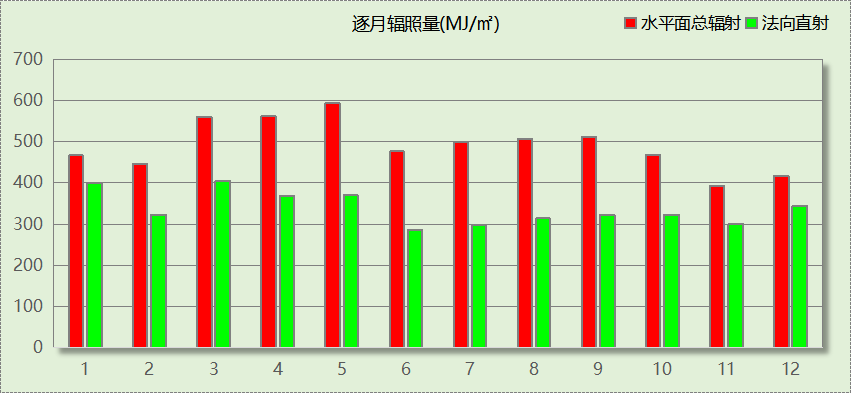
详见附录

## 气象数据

### 逐日干球温度表



### 逐月辐照量表



## 负荷分项统计

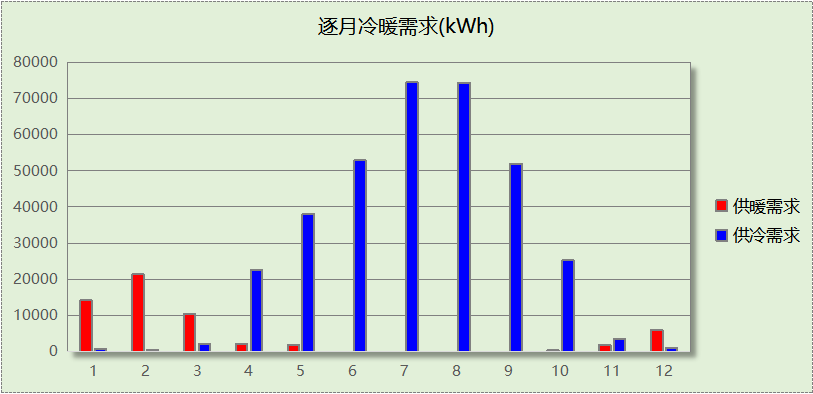
设计建筑：

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 分类 | 围护传热 | 室内得热 | 窗日射 | 新风/渗透 | 热回收 | 合计 |
| 供暖(kWh/㎡) | -9.11 | 4.23 | 2.87 | -4.45 | 0.00 | -6.45 |
| 供冷(kWh/㎡) | -3.17 | 31.20 | 5.77 | 4.97 | 0.00 | 38.77 |

参照建筑：

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 分类 | 围护传热 | 室内得热 | 窗日射 | 新风/渗透 | 热回收 | 合计 |
| 供暖(kWh/㎡) | -16.56 | 7.66 | 4.13 | -7.69 | 0.00 | -12.46 |
| 供冷(kWh/㎡) | -3.99 | 27.45 | 4.41 | 5.99 | 0.00 | 33.86 |

## 逐月负荷



## 逐月电耗

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 设计建筑 | | 参照建筑 | |
| 月 | 供冷(kWh/㎡) | 供暖(kWh/㎡) | 供冷(kWh/㎡) | 供暖(kWh/㎡) |
| 1 | 0.02 | 0.69 | 0.00 | 1.37 |
| 2 | 0.00 | 1.04 | 0.00 | 1.79 |
| 3 | 0.07 | 0.51 | 0.02 | 0.83 |
| 4 | 0.72 | 0.11 | 0.55 | 0.17 |
| 5 | 1.22 | 0.08 | 1.10 | 0.10 |
| 6 | 1.69 | 0.00 | 1.56 | 0.00 |
| 7 | 2.38 | 0.00 | 2.21 | 0.00 |
| 8 | 2.37 | 0.00 | 2.20 | 0.00 |
| 9 | 1.66 | 0.00 | 1.45 | 0.00 |
| 10 | 0.80 | 0.00 | 0.55 | 0.05 |
| 11 | 0.11 | 0.09 | 0.03 | 0.36 |
| 12 | 0.04 | 0.29 | 0.00 | 0.78 |
| 合计 | 11.08 | 2.82 | 9.67 | 5.45 |

## 权衡指标

|  |  |  |
| --- | --- | --- |
|  | 设计建筑 | 参照建筑 |
| 全年供暖和空调总耗电量(kWh/㎡) | 13.90 | 15.12 |
| 供冷耗电量(kWh/㎡) | 11.08 | 9.67 |
| 供热耗电量(kWh/㎡) | 2.82 | 5.45 |
| 耗冷量(kWh/㎡) | 38.77 | 33.86 |
| 耗热量(kWh/㎡) | 6.45 | 12.46 |
| 标准依据 | 《建筑节能与可再生能源利用通用规范》GB55015-2021附录C.0.2条 | |
| 标准要求 | 设计建筑的能耗不大于参照建筑的能耗 | |
| 结论 | 满足 | |

■说明：本建筑围护结构热工性能权衡判断**满足**《建筑节能与可再生能源利用通用规范》GB55015-2021的要求。建筑节能设计符合要求

## 附录

### 工作日/节假日室内空调温度时间表(℃)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 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 |
| 实验教室 | 37 | 37 | 37 | 37 | 37 | 37 | 28 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 37 | 37 | 37 | 37 | 37 | 37 |
| 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 |
| 报告厅 | 37 | 37 | 37 | 37 | 37 | 37 | 28 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 37 | 37 | 37 | 37 | 37 | 37 |
| 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 |
| 普通办公室 | 37 | 37 | 37 | 37 | 37 | 37 | 28 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 37 | 37 | 37 | 37 | 37 | 37 |
| 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 |
| 普通办公室 | 37 | 37 | 37 | 37 | 37 | 37 | 28 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 37 | 37 | 37 | 37 | 37 | 37 |
| 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 |
| 普通教室 | 37 | 37 | 37 | 37 | 37 | 37 | 28 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 37 | 37 | 37 | 37 | 37 | 37 |
| 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 |
| 更衣室 | 37 | 37 | 37 | 37 | 37 | 37 | 28 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 37 | 37 | 37 | 37 | 37 | 37 |
| 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 |
| 琴房 | 37 | 37 | 37 | 37 | 37 | 37 | 28 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 37 | 37 | 37 | 37 | 37 | 37 |
| 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 |
| 空房间 | 37 | 37 | 37 | 37 | 37 | 37 | 28 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 37 | 37 | 37 | 37 | 37 | 37 |
| 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 |
| 羽毛球馆 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| 舞蹈教室 | 37 | 37 | 37 | 37 | 37 | 37 | 28 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 37 | 37 | 37 | 37 | 37 | 37 |
| 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 |

注：上行：工作日；下行：节假日

### 工作日/节假日室内供暖温度时间表(℃)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 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 |
| 实验教室 | 5 | 5 | 5 | 5 | 5 | 12 | 18 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 18 | 12 | 5 | 5 | 5 | 5 |
| 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 报告厅 | 5 | 5 | 5 | 5 | 5 | 12 | 18 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 18 | 12 | 5 | 5 | 5 | 5 |
| 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 普通办公室 | 5 | 5 | 5 | 5 | 5 | 12 | 18 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 18 | 12 | 5 | 5 | 5 | 5 |
| 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 普通办公室 | 5 | 5 | 5 | 5 | 5 | 12 | 18 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 18 | 12 | 5 | 5 | 5 | 5 |
| 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 普通教室 | 5 | 5 | 5 | 5 | 5 | 12 | 18 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 18 | 12 | 5 | 5 | 5 | 5 |
| 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 更衣室 | 5 | 5 | 5 | 5 | 5 | 12 | 18 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 18 | 12 | 5 | 5 | 5 | 5 |
| 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 琴房 | 5 | 5 | 5 | 5 | 5 | 12 | 18 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 18 | 12 | 5 | 5 | 5 | 5 |
| 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 空房间 | 12 | 12 | 12 | 12 | 12 | 12 | 18 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 12 | 12 | 12 | 12 | 12 | 12 |
| 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| 羽毛球馆 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 |
| 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 |
| 舞蹈教室 | 5 | 5 | 5 | 5 | 5 | 12 | 18 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 18 | 12 | 5 | 5 | 5 | 5 |
| 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |

注：上行：工作日；下行：节假日

### 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 |
| 实验教室 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 50 | 95 | 95 | 95 | 80 | 80 | 95 | 95 | 95 | 95 | 30 | 30 | 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 |
| 报告厅 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 50 | 95 | 95 | 95 | 80 | 80 | 95 | 95 | 95 | 95 | 30 | 30 | 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 |
| 普通办公室 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 50 | 95 | 95 | 95 | 80 | 80 | 95 | 95 | 95 | 95 | 30 | 30 | 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 |
| 普通办公室 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 50 | 95 | 95 | 95 | 80 | 80 | 95 | 95 | 95 | 95 | 30 | 30 | 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 |
| 普通教室 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 50 | 95 | 95 | 95 | 80 | 80 | 95 | 95 | 95 | 95 | 30 | 30 | 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 |
| 更衣室 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 50 | 95 | 95 | 95 | 80 | 80 | 95 | 95 | 95 | 95 | 30 | 30 | 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 |
| 琴房 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 50 | 95 | 95 | 95 | 80 | 80 | 95 | 95 | 95 | 95 | 30 | 30 | 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 | 20 | 50 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 70 | 50 | 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 |
| 羽毛球馆 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 70 | 70 | 70 | 70 | 70 | 70 |
| 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 70 | 70 | 70 | 70 | 70 | 70 |
| 舞蹈教室 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 50 | 95 | 95 | 95 | 80 | 80 | 95 | 95 | 95 | 95 | 30 | 30 | 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

### 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 |
| 实验教室 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 50 | 95 | 95 | 95 | 80 | 80 | 95 | 95 | 95 | 95 | 30 | 30 | 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 |
| 报告厅 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 50 | 95 | 95 | 95 | 80 | 80 | 95 | 95 | 95 | 95 | 30 | 30 | 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 |
| 普通办公室 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 50 | 95 | 95 | 95 | 80 | 80 | 95 | 95 | 95 | 95 | 30 | 30 | 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 |
| 普通办公室 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 50 | 95 | 95 | 95 | 80 | 80 | 95 | 95 | 95 | 95 | 30 | 30 | 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 |
| 普通教室 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 50 | 95 | 95 | 95 | 80 | 80 | 95 | 95 | 95 | 95 | 30 | 30 | 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 |
| 更衣室 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 50 | 95 | 95 | 95 | 80 | 80 | 95 | 95 | 95 | 95 | 30 | 30 | 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 |
| 琴房 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 50 | 95 | 95 | 95 | 80 | 80 | 95 | 95 | 95 | 95 | 30 | 30 | 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 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 50 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 80 | 90 | 100 | 100 | 100 | 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 |
| 羽毛球馆 | 10 | 10 | 10 | 10 | 10 | 10 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 50 | 50 | 60 | 90 | 90 | 90 | 90 | 80 | 10 | 10 |
| 10 | 10 | 10 | 10 | 10 | 10 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 50 | 50 | 60 | 90 | 90 | 90 | 90 | 80 | 10 | 10 |
| 舞蹈教室 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 50 | 95 | 95 | 95 | 80 | 80 | 95 | 95 | 95 | 95 | 30 | 30 | 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

### 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 |
| 实验教室 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 50 | 95 | 95 | 95 | 50 | 50 | 95 | 95 | 95 | 95 | 30 | 30 | 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 |
| 报告厅 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 50 | 95 | 95 | 95 | 50 | 50 | 95 | 95 | 95 | 95 | 30 | 30 | 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 |
| 普通办公室 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 50 | 95 | 95 | 95 | 50 | 50 | 95 | 95 | 95 | 95 | 30 | 30 | 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 |
| 普通办公室 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 50 | 95 | 95 | 95 | 50 | 50 | 95 | 95 | 95 | 95 | 30 | 30 | 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 |
| 普通教室 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 50 | 95 | 95 | 95 | 50 | 50 | 95 | 95 | 95 | 95 | 30 | 30 | 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 |
| 更衣室 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 50 | 95 | 95 | 95 | 50 | 50 | 95 | 95 | 95 | 95 | 30 | 30 | 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 |
| 琴房 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 50 | 95 | 95 | 95 | 50 | 50 | 95 | 95 | 95 | 95 | 30 | 30 | 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 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 羽毛球馆 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 80 | 80 | 80 | 80 | 80 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 80 | 80 | 80 | 80 | 80 | 0 | 0 |
| 舞蹈教室 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 50 | 95 | 95 | 95 | 50 | 50 | 95 | 95 | 95 | 95 | 30 | 30 | 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

### 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

### 工作日/节假日新风运行时间表(%)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 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 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 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