**建筑节能设计报告书**

公共建筑

甲类

|  |  |
| --- | --- |
| 工程名称 | 新建项目 |
| 工程地点 | 河南-焦作 |
| 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 | 2025年2月20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 | 新建项目 |
| 工程地点 | 河南-焦作 |
| 气候分区 | 寒冷B区 |
| 建筑面积 | 地上12893㎡ 地下0㎡ |
| 建筑层数 | 地上4 地下0 |
| 建筑高度 | 16.2m |
| 建筑（节能计算）体积 | 53936.01 |
| 建筑（节能计算）外表面积 | 14729.93 |
| 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 |

# 设计依据

1. 《建筑节能与可再生能源利用通用规范》GB55015-2021

2. 《绿色建筑评价标准》GB/T 50378-2019

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

# 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 | 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 |
| 石灰砂浆 | 0.810 | 10.070 | 1600.0 | 1050.0 | 0.0443 | 民用建筑热工设计规范 GB50176-2016 |
| 软木板(ρ=150) | 0.058 | 1.090 | 150.0 | 1890.0 | 0.0285 |  |
| 钢筋混凝土(1) | 1.740 | 17.060 | 2500.0 | 920.0 | 0.0158 |  |
| 矿棉、岩棉、玻璃棉松散料(ρ=70-120) | 0.045 | 0.510 | 95.0 | 840.0 | 0.4880 |  |
| 加气混凝土、泡沫混凝土(ρ=700)(1) | 0.190 | 2.693 | 500.0 | 1050.0 | 0.0998 |  |
| 混凝土多孔砖(190六孔砖）(1) | 0.750 | 7.490 | 1450.0 | 709.4 | 0.0000 |  |
| 聚苯颗粒保温砂浆(1) | 0.060 | 0.950 | 230.0 | 900.0 | 0.0000 |  |
| 树脂瓦 | 0.325 | 15.320 | 1200.0 | 1000.0 | 0.0000 |  |
| 保温砂浆 | 0.290 | 4.440 | 800.0 | 1000.0 | 0.0000 |  |
| 不流动空气层-温度20摄氏度 | 0.026 | 0.048 | 1.2 | 1005.0 | 0.0000 |  |
| 沥青、乳化沥青膨胀珍珠岩(ρ=300) | 0.093 | 1.773 | 300.0 | 1550.0 | 0.0675 |  |
| 沥青油毡、油毡纸 | 0.170 | 3.302 | 600.0 | 1470.0 | 0.0000 |  |

# 围护结构作法简要说明

**1. 屋顶：**屋顶构造一 (K=0.272,D=3.211)：（由上到下）

 树脂瓦 10mm＋保温砂浆 20mm＋不流动空气层-温度20摄氏度 40mm＋加气混凝土、泡沫混凝土(ρ=700)(1) 20mm＋矿棉、岩棉、玻璃棉松散料(ρ=70-120) 40mm＋沥青、乳化沥青膨胀珍珠岩(ρ=300) 80mm＋沥青油毡、油毡纸 5mm

**2. 外墙：**外墙构造一 (K=0.285,D=3.532)：（由外到内）

 加气混凝土、泡沫混凝土(ρ=700)(1) 20mm＋保温砂浆 20mm＋矿棉、岩棉、玻璃棉松散料(ρ=70-120) 100mm＋沥青、乳化沥青膨胀珍珠岩(ρ=300) 80mm＋加气混凝土、泡沫混凝土(ρ=700)(1) 20mm

**3. 外窗：**多腔封闭塑料型材框+中空玻璃 (K=1.900)：

 传热系数1.900W/㎡.K，窗太阳得热系数0.261

**4. 幕墙：**多腔封闭塑料型材框+中空玻璃 (K=1.900)：

 传热系数1.900W/㎡.K，窗太阳得热系数0.261

# 体形系数

## 体形系数

|  |  |
| --- | --- |
| 外表面积 | 14729.93 |
| 建筑体积 | 53936.01 |
| 体形系数 | 0.27 |

## 楼层信息表

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 楼层 | 层高(m) | 建筑面积(㎡) | 外表面积(㎡) | 计算体积(m3) |
| 1 | 4.800 | 3780.00 | 3304.08 | 18143.99 |
| 2 | 4.200 | 3494.61 | 4184.42 | 14677.37 |
| 3 | 4.200 | 3550.70 | 3112.30 | 14912.94 |
| 4 | 3.000 | 2067.24 | 2061.89 | 6201.72 |
| 屋顶 | － | － | 2067.24 | － |
| 合计 | 16.20 | 12892.55 | 14729.93 | 53936.01 |

# 窗墙比

## 窗墙比

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 朝向 | 立面 | 窗面积(㎡) | 墙面积(㎡) | 窗墙比 |
| 南向 | 立面1 | 358.87 | 1487.78 | 0.24 |
| 北向 | 立面2 | 489.00 | 1782.43 | 0.27 |
| 东向 | 立面3 | 948.63 | 3268.73 | 0.29 |
| 西向 | 立面4 | 916.84 | 3231.67 | 0.28 |

## 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 |  | 7.60×4.40 | 1 | 1 | 33.44 | 33.44 | 358.87 |
|  | 1.98×4.40 | 1 | 1 | 8.71 | 8.71 |
|  | 3.66×4.40 | 1 | 1 | 16.10 | 16.10 |
|  | 1.88×4.40 | 1 | 1 | 8.27 | 8.27 |
|  | 2.40×1.80 | 1~3 | 25 | 4.32 | 108.00 |
|  | 1.04×1.80 | 1 | 1 | 1.86 | 1.86 |
|  | 1.36×1.80 | 1 | 1 | 2.45 | 2.45 |
|  | 2.19×1.80 | 2 | 1 | 3.94 | 3.94 |
|  | 0.21×1.80 | 2 | 1 | 0.38 | 0.38 |
|  | 7.60×3.90 | 2~3 | 2 | 29.64 | 59.28 |
|  | 7.52×3.90 | 2~3 | 2 | 29.33 | 58.66 |
|  | 3.68×3.90 | 2~3 | 2 | 14.35 | 28.70 |
|  | 3.33×1.50 | 4 | 1 | 5.00 | 5.00 |
|  | 7.60×1.50 | 4 | 1 | 11.40 | 11.40 |
|  | 4.66×1.50 | 4 | 1 | 6.99 | 6.99 |
|  | 3.78×1.50 | 4 | 1 | 5.67 | 5.67 |
| 北向 | 立面2 |  | 2.25×1.80 | 1 | 1 | 4.05 | 4.05 | 489.00 |
|  | 3.82×4.40 | 1 | 2 | 16.81 | 33.62 |
|  | 7.52×4.40 | 1 | 1 | 33.09 | 33.09 |
|  | 3.78×4.40 | 1 | 2 | 16.63 | 33.26 |
|  | 2.40×1.80 | 1~3 | 23 | 4.32 | 99.36 |
| (玻璃幕墙) |  | 1~2 |  |  | 31.18 |
|  | 0.85×1.80 | 2 | 1 | 1.52 | 1.52 |
|  | 1.55×1.80 | 2 | 1 | 2.79 | 2.79 |
|  | 0.31×1.80 | 2 | 1 | 0.56 | 0.56 |
|  | 2.50×1.80 | 2 | 1 | 4.50 | 4.50 |
|  | 7.60×3.90 | 2~3 | 4 | 29.64 | 118.56 |
|  | 7.52×3.90 | 2~3 | 2 | 29.33 | 58.66 |
|  | 2.40×1.80 | 2 | 1 | 4.32 | 4.32 |
|  | 1.80×1.50 | 3 | 1 | 2.70 | 2.70 |
|  | 1.38×1.80 | 3 | 1 | 2.48 | 2.48 |
|  | 1.02×1.80 | 3 | 1 | 1.84 | 1.84 |
|  | 0.35×1.80 | 3 | 1 | 0.64 | 0.64 |
|  | 7.52×1.50 | 4 | 2 | 11.28 | 22.56 |
|  | 7.60×1.50 | 4 | 2 | 11.40 | 22.80 |
| DC2418 | 1.56×1.80 | 2 | 1 | 2.80 | 2.80 |
| DC2418 | 2.40×1.80 | 3 | 1 | 4.32 | 4.32 |
| DC4018 | 1.89×1.80 | 3 | 1 | 3.41 | 3.41 |
| 东向 | 立面3 |  | 2.25×1.80 | 1 | 1 | 4.05 | 4.05 | 948.64 |
|  | 0.15×1.80 | 1 | 1 | 0.26 | 0.26 |
|  | 55.52×2.00 | 1~2 | 3 | 111.04 | 333.12 |
|  | 3.78×2.00 | 1 | 1 | 7.56 | 7.56 |
|  | 5.00×2.00 | 1 | 2 | 10.00 | 20.00 |
|  | 2.00×2.00 | 1 | 1 | 4.00 | 4.00 |
|  | 6.00×2.00 | 1 | 1 | 12.00 | 12.00 |
|  | 5.24×2.00 | 1 | 1 | 10.48 | 10.48 |
|  | 3.00×2.00 | 1 | 2 | 6.00 | 12.00 |
|  | 8.00×2.00 | 1 | 1 | 16.00 | 16.00 |
|  | 2.00×2.00 | 1 | 1 | 4.00 | 4.00 |
|  | 4.50×2.00 | 1 | 1 | 9.00 | 9.00 |
|  | 4.00×2.00 | 1 | 1 | 8.00 | 8.00 |
|  | 4.00×2.00 | 1 | 1 | 8.00 | 8.00 |
|  | 1.33×1.80 | 2 | 1 | 2.39 | 2.39 |
|  | 2.50×1.80 | 2 | 1 | 4.50 | 4.50 |
|  | 0.20×1.80 | 2 | 1 | 0.36 | 0.36 |
|  | 0.93×1.80 | 2 | 1 | 1.68 | 1.68 |
|  | 1.47×1.80 | 2 | 1 | 2.64 | 2.64 |
|  | 1.80×1.50 | 2~3 | 6 | 2.70 | 16.20 |
|  | 1.80×1.50 | 2~3 | 2 | 2.70 | 5.40 |
|  | 1.80×1.50 | 2~3 | 9 | 2.69 | 24.25 |
|  | 1.79×1.50 | 2~3 | 2 | 2.69 | 5.38 |
|  | 1.79×1.50 | 2~3 | 2 | 2.69 | 5.38 |
|  | 1.80×1.50 | 2~3 | 3 | 2.70 | 8.09 |
|  | 1.80×1.50 | 2~3 | 4 | 2.70 | 10.79 |
| (玻璃幕墙) |  | 2 |  |  | 152.53 |
|  | 1.80×1.50 | 3 | 1 | 2.69 | 2.69 |
|  | 1.80×1.50 | 3 | 1 | 2.69 | 2.69 |
|  | 63.44×2.00 | 3 | 1 | 126.88 | 126.88 |
|  | 1.64×1.80 | 3 | 1 | 2.96 | 2.96 |
|  | 2.38×1.80 | 3 | 1 | 4.29 | 4.29 |
|  | 1.34×1.80 | 3 | 1 | 2.41 | 2.41 |
|  | 1.06×1.80 | 3 | 1 | 1.90 | 1.90 |
|  | 63.44×1.50 | 4 | 1 | 95.16 | 95.16 |
| DC2418 | 2.40×1.80 | 1~2 | 3 | 4.32 | 12.96 |
| DC2418 | 2.40×1.80 | 3 | 1 | 4.32 | 4.32 |
| DC2418 | 1.36×1.80 | 3 | 1 | 2.45 | 2.45 |
| DC2418 | 1.03×1.80 | 3 | 1 | 1.86 | 1.86 |
| 西向 | 立面4 |  | 2.74×3.00 | 1 | 1 | 8.22 | 8.22 | 916.84 |
|  | 5.60×3.00 | 1~3 | 3 | 16.80 | 50.40 |
|  | 7.52×3.00 | 1~3 | 11 | 22.56 | 248.16 |
|  | 3.76×3.00 | 1 | 1 | 11.28 | 11.28 |
|  | 3.72×3.00 | 1 | 1 | 11.17 | 11.17 |
|  | 3.72×3.00 | 1 | 1 | 11.16 | 11.16 |
|  | 6.78×3.00 | 1 | 1 | 20.34 | 20.34 |
|  | 3.80×3.00 | 1 | 1 | 11.39 | 11.39 |
|  | 3.80×3.00 | 1 | 1 | 11.40 | 11.40 |
|  | 3.76×3.00 | 1 | 1 | 11.28 | 11.28 |
|  | 1.62×1.80 | 1 | 1 | 2.91 | 2.91 |
|  | 1.57×1.80 | 1 | 1 | 2.82 | 2.82 |
|  | 1.97×1.80 | 1 | 1 | 3.55 | 3.55 |
|  | 0.43×1.80 | 1 | 1 | 0.77 | 0.77 |
| (玻璃幕墙) |  | 1 |  |  | 151.64 |
|  | 0.71×1.80 | 2 | 1 | 1.28 | 1.28 |
|  | 1.69×1.80 | 2 | 1 | 3.04 | 3.04 |
|  | 7.52×3.90 | 2 | 1 | 29.33 | 29.33 |
|  | 9.52×3.00 | 2~3 | 2 | 28.56 | 57.12 |
|  | 2.40×1.80 | 2 | 1 | 4.31 | 4.31 |
|  | 2.40×1.80 | 2 | 1 | 4.31 | 4.31 |
|  | 2.40×1.80 | 2 | 1 | 4.32 | 4.32 |
|  | 2.40×1.80 | 2 | 2 | 4.32 | 8.64 |
|  | 1.80×1.50 | 2~3 | 2 | 2.69 | 5.39 |
|  | 1.80×1.50 | 2~3 | 3 | 2.69 | 8.08 |
|  | 1.79×1.50 | 2~3 | 2 | 2.69 | 5.38 |
|  | 1.80×1.50 | 2~3 | 3 | 2.69 | 8.08 |
|  | 1.80×1.50 | 2~3 | 11 | 2.70 | 29.70 |
|  | 2.40×1.80 | 2 | 2 | 4.32 | 8.64 |
|  | 0.48×1.80 | 3 | 1 | 0.87 | 0.87 |
|  | 1.80×1.50 | 3 | 1 | 2.70 | 2.70 |
|  | 1.91×1.80 | 3 | 1 | 3.44 | 3.44 |
|  | 1.80×1.50 | 3 | 3 | 2.70 | 8.09 |
|  | 2.02×1.80 | 3 | 1 | 3.64 | 3.64 |
|  | 0.38×1.80 | 3 | 1 | 0.68 | 0.68 |
|  | 0.48×1.80 | 3 | 1 | 0.87 | 0.87 |
|  | 1.91×1.80 | 3 | 1 | 3.44 | 3.44 |
|  | 1.79×1.50 | 3 | 1 | 2.69 | 2.69 |
|  | 1.80×1.50 | 3 | 2 | 2.70 | 5.40 |
|  | 1.57×1.80 | 3 | 1 | 2.83 | 2.83 |
|  | 2.04×1.80 | 3 | 1 | 3.68 | 3.68 |
|  | 2.40×1.80 | 4 | 15 | 4.32 | 64.80 |
| DC1815 | 1.80×1.50 | 3 | 2 | 2.70 | 5.40 |
| DC2418 | 2.40×1.80 | 1~2 | 4 | 4.32 | 17.28 |
| DC2418 | 1.33×1.80 | 2 | 1 | 2.39 | 2.39 |
| DC2418 | 1.07×1.80 | 2 | 1 | 1.93 | 1.93 |
| DC2418 | 0.84×1.80 | 2 | 1 | 1.52 | 1.52 |
| DC2418 | 1.30×1.80 | 2 | 1 | 2.34 | 2.34 |
| DC2418 | 1.10×1.80 | 2 | 1 | 1.97 | 1.97 |
| DC3118 | 1.68×1.80 | 2 | 1 | 3.03 | 3.03 |
| DC3118 | 1.46×1.80 | 2 | 1 | 2.63 | 2.63 |
| DC3218 | 2.01×1.80 | 2 | 1 | 3.62 | 3.62 |
| DC3218 | 1.21×1.80 | 2 | 1 | 2.17 | 2.17 |
| DC3418 | 3.41×1.80 | 2 | 1 | 6.14 | 6.14 |
| DC3418 | 3.45×1.80 | 2 | 1 | 6.20 | 6.20 |
| DC3818 | 3.77×1.80 | 2 | 1 | 6.79 | 6.79 |
| DC4518 | 2.58×1.80 | 2 | 1 | 4.64 | 4.64 |
| DC4518 | 1.92×1.80 | 2 | 1 | 3.46 | 3.46 |
| DC4518 | 2.06×1.80 | 2 | 1 | 3.70 | 3.70 |
| DC4518 | 2.44×1.80 | 2 | 1 | 4.40 | 4.40 |

# 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

## 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 |
| 树脂瓦 | 10 | 0.325 | 15.320 | 1.00 | 0.031 | 0.471 |
| 保温砂浆 | 20 | 0.290 | 4.440 | 1.00 | 0.069 | 0.306 |
| 不流动空气层-温度20摄氏度 | 40 | 0.026 | 0.048 | 1.00 | 1.538 | 0.074 |
| 加气混凝土、泡沫混凝土(ρ=700)(1) | 20 | 0.190 | 2.693 | 1.00 | 0.105 | 0.283 |
| 矿棉、岩棉、玻璃棉松散料(ρ=70-120) | 40 | 0.045 | 0.510 | 1.00 | 0.889 | 0.453 |
| 沥青、乳化沥青膨胀珍珠岩(ρ=300) | 80 | 0.093 | 1.773 | 1.00 | 0.860 | 1.525 |
| 沥青油毡、油毡纸 | 5 | 0.170 | 3.302 | 1.00 | 0.029 | 0.097 |
| 各层之和∑ | 215 | － | － | － | 3.522 | 3.211 |
| 外表面太阳辐射吸收系数 | 0.75[默认] |
| 传热系数K=1/(0.15+∑R) | 0.27 |
| 标准依据 | 《绿色建筑评价标准》GB/T 50378-2019第3.2.8条、《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 | 屋顶传热系数比《建筑节能与可再生能源利用通用规范》GB55015-2021表3.1.10-1~3.1.10-6的要求提高20%(K≤0.32) |
| 结论 | 满足 |

# 外墙

## 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 |
| 加气混凝土、泡沫混凝土(ρ=700)(1) | 20 | 0.190 | 2.693 | 1.00 | 0.105 | 0.283 |
| 保温砂浆 | 20 | 0.290 | 4.440 | 1.00 | 0.069 | 0.306 |
| 矿棉、岩棉、玻璃棉松散料(ρ=70-120) | 100 | 0.045 | 0.510 | 1.00 | 2.222 | 1.133 |
| 沥青、乳化沥青膨胀珍珠岩(ρ=300) | 80 | 0.093 | 1.773 | 1.00 | 0.860 | 1.525 |
| 加气混凝土、泡沫混凝土(ρ=700)(1) | 20 | 0.190 | 2.693 | 1.00 | 0.105 | 0.283 |
| 各层之和∑ | 240 | － | － | － | 3.362 | 3.532 |
| 外表面太阳辐射吸收系数 | 0.75[默认] |
| 传热系数K=1/(0.15+∑R) | 0.29 |

### 梁柱构造一

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 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 |
| 加气混凝土、泡沫混凝土(ρ=700)(1) | 20 | 0.190 | 2.693 | 1.00 | 0.105 | 0.283 |
| 保温砂浆 | 20 | 0.290 | 4.440 | 1.00 | 0.069 | 0.306 |
| 沥青、乳化沥青膨胀珍珠岩(ρ=300) | 50 | 0.093 | 1.773 | 1.00 | 0.538 | 0.953 |
| 钢筋混凝土(1) | 150 | 1.740 | 17.060 | 1.00 | 0.086 | 1.471 |
| 矿棉、岩棉、玻璃棉松散料(ρ=70-120) | 100 | 0.045 | 0.510 | 1.00 | 2.222 | 1.133 |
| 保温砂浆 | 20 | 0.290 | 4.440 | 1.00 | 0.069 | 0.306 |
| 不流动空气层-温度20摄氏度 | 20 | 0.026 | 0.048 | 1.00 | 0.769 | 0.037 |
| 加气混凝土、泡沫混凝土(ρ=700)(1) | 20 | 0.190 | 2.693 | 1.00 | 0.105 | 0.283 |
| 各层之和∑ | 400 | － | － | － | 3.964 | 4.774 |
| 外表面太阳辐射吸收系数 | 0.75[默认] |
| 传热系数K=1/(0.15+∑R) | 0.24 |

## 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KW / (㎡K) | 热惰性指标D | 太阳辐射吸收系数 |
| 外墙构造一 | 主墙体 | 1140.96 | 1.000 | 0.29 | 3.53 | 0.75 |
| 平均传热系数K | 0.29 × 1.20 = 0.35 |

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 | 1308.97 | 1.000 | 0.29 | 3.53 | 0.75 |
| 平均传热系数K | 0.29 × 1.20 = 0.35 |

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 | 2659.76 | 1.000 | 0.29 | 3.53 | 0.75 |
| 平均传热系数K | 0.29 × 1.20 = 0.35 |

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 | 2124.80 | 1.000 | 0.29 | 3.53 | 0.75 |
| 平均传热系数K | 0.29 × 1.20 = 0.35 |

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 | 7234.49 | 1.000 | 0.29 | 3.53 | 0.75 |
| 平均传热系数K | 0.29 × 1.20 = 0.35 |
| 标准依据 | 《绿色建筑评价标准》GB/T 50378-2019第3.2.8条、《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 | 外墙传热系数比《建筑节能与可再生能源利用通用规范》GB55015-2021表3.1.10-1~3.1.10-6的要求提高20%(K≤0.40) |
| 结论 | 满足 |

# 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 | 多腔封闭塑料型材框+中空玻璃 | 25 | 1.90 | 0.26 | 0.800 |  |
| 窗编号 |
| ，DC2418，DC1815，DC3118，DC3218，DC3418，DC3818，DC4518，DC4018 |
| 2 | 多腔封闭塑料型材框+中空玻璃 | 29 | 1.90 | 0.26 | 1.000 |  |
| 窗编号 |
| 幕墙 |

## 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 |  | 1 | 1 | 33.440 | 33.440 | 25 | 1.900 |
| 2 |  | 1 | 1 | 8.712 | 8.712 | 25 | 1.900 |
| 3 |  | 1 | 1 | 16.104 | 16.104 | 25 | 1.900 |
| 4 |  | 1 | 1 | 8.272 | 8.272 | 25 | 1.900 |
| 5 |  | 1~3 | 25 | 4.320 | 108.000 | 25 | 1.900 |
| 6 |  | 1 | 1 | 1.864 | 1.864 | 25 | 1.900 |
| 7 |  | 1 | 1 | 2.453 | 2.453 | 25 | 1.900 |
| 8 |  | 2 | 1 | 3.940 | 3.940 | 25 | 1.900 |
| 9 |  | 2 | 1 | 0.379 | 0.379 | 25 | 1.900 |
| 10 |  | 2~3 | 2 | 29.640 | 59.280 | 25 | 1.900 |
| 11 |  | 2~3 | 2 | 29.328 | 58.656 | 25 | 1.900 |
| 12 |  | 2~3 | 2 | 14.352 | 28.704 | 25 | 1.900 |
| 13 |  | 4 | 1 | 4.999 | 4.999 | 25 | 1.900 |
| 14 |  | 4 | 1 | 11.400 | 11.400 | 25 | 1.900 |
| 15 |  | 4 | 1 | 6.994 | 6.994 | 25 | 1.900 |
| 16 |  | 4 | 1 | 5.670 | 5.670 | 25 | 1.900 |
| 立面总面积(㎡) | 358.868 | 立面平均传热系数 | 1.900 |

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 |  | 1 | 1 | 4.045 | 4.045 | 25 | 1.900 |
| 2 |  | 1 | 2 | 16.808 | 33.616 | 25 | 1.900 |
| 3 |  | 1 | 1 | 33.088 | 33.088 | 25 | 1.900 |
| 4 |  | 1 | 2 | 16.632 | 33.264 | 25 | 1.900 |
| 5 |  | 1~3 | 23 | 4.320 | 99.360 | 25 | 1.900 |
| 6 | (玻璃幕墙) | 1~2 |  |  | 31.175 | 29 | 1.900 |
| 7 |  | 2 | 1 | 1.524 | 1.524 | 25 | 1.900 |
| 8 |  | 2 | 1 | 2.794 | 2.794 | 25 | 1.900 |
| 9 |  | 2 | 1 | 0.559 | 0.559 | 25 | 1.900 |
| 10 |  | 2 | 1 | 4.499 | 4.499 | 25 | 1.900 |
| 11 |  | 2~3 | 4 | 29.640 | 118.560 | 25 | 1.900 |
| 12 |  | 2~3 | 2 | 29.328 | 58.656 | 25 | 1.900 |
| 13 |  | 2 | 1 | 4.318 | 4.318 | 25 | 1.900 |
| 14 |  | 3 | 1 | 2.700 | 2.700 | 25 | 1.900 |
| 15 |  | 3 | 1 | 2.477 | 2.477 | 25 | 1.900 |
| 16 |  | 3 | 1 | 1.840 | 1.840 | 25 | 1.900 |
| 17 |  | 3 | 1 | 0.637 | 0.637 | 25 | 1.900 |
| 18 |  | 4 | 2 | 11.280 | 22.560 | 25 | 1.900 |
| 19 |  | 4 | 2 | 11.400 | 22.800 | 25 | 1.900 |
| 20 | DC2418 | 2 | 1 | 2.799 | 2.799 | 25 | 1.900 |
| 21 | DC2418 | 3 | 1 | 4.319 | 4.319 | 25 | 1.900 |
| 22 | DC4018 | 3 | 1 | 3.408 | 3.408 | 25 | 1.900 |
| 立面总面积(㎡) | 488.999 | 立面平均传热系数 | 1.900 |

3. 东向：

立面3

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 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 |  | 1 | 1 | 4.054 | 4.054 | 25 | 1.900 |
| 2 |  | 1 | 1 | 0.265 | 0.265 | 25 | 1.900 |
| 3 |  | 1~2 | 3 | 111.040 | 333.120 | 25 | 1.900 |
| 4 |  | 1 | 1 | 7.559 | 7.559 | 25 | 1.900 |
| 5 |  | 1 | 2 | 10.000 | 20.000 | 25 | 1.900 |
| 6 |  | 1 | 1 | 4.000 | 4.000 | 25 | 1.900 |
| 7 |  | 1 | 1 | 12.000 | 12.000 | 25 | 1.900 |
| 8 |  | 1 | 1 | 10.480 | 10.480 | 25 | 1.900 |
| 9 |  | 1 | 2 | 6.000 | 12.000 | 25 | 1.900 |
| 10 |  | 1 | 1 | 16.000 | 16.000 | 25 | 1.900 |
| 11 |  | 1 | 1 | 4.002 | 4.002 | 25 | 1.900 |
| 12 |  | 1 | 1 | 9.000 | 9.000 | 25 | 1.900 |
| 13 |  | 1 | 1 | 8.001 | 8.001 | 25 | 1.900 |
| 14 |  | 1 | 1 | 7.998 | 7.998 | 25 | 1.900 |
| 15 |  | 2 | 1 | 2.387 | 2.387 | 25 | 1.900 |
| 16 |  | 2 | 1 | 4.499 | 4.499 | 25 | 1.900 |
| 17 |  | 2 | 1 | 0.360 | 0.360 | 25 | 1.900 |
| 18 |  | 2 | 1 | 1.676 | 1.676 | 25 | 1.900 |
| 19 |  | 2 | 1 | 2.642 | 2.642 | 25 | 1.900 |
| 20 |  | 2~3 | 6 | 2.700 | 16.200 | 25 | 1.900 |
| 21 |  | 2~3 | 2 | 2.699 | 5.399 | 25 | 1.900 |
| 22 |  | 2~3 | 9 | 2.694 | 24.247 | 25 | 1.900 |
| 23 |  | 2~3 | 2 | 2.692 | 5.383 | 25 | 1.900 |
| 24 |  | 2~3 | 2 | 2.691 | 5.382 | 25 | 1.900 |
| 25 |  | 2~3 | 3 | 2.696 | 8.088 | 25 | 1.900 |
| 26 |  | 2~3 | 4 | 2.697 | 10.787 | 25 | 1.900 |
| 27 | (玻璃幕墙) | 2 |  |  | 152.527 | 29 | 1.900 |
| 28 |  | 3 | 1 | 2.693 | 2.693 | 25 | 1.900 |
| 29 |  | 3 | 1 | 2.695 | 2.695 | 25 | 1.900 |
| 30 |  | 3 | 1 | 126.880 | 126.880 | 25 | 1.900 |
| 31 |  | 3 | 1 | 2.959 | 2.959 | 25 | 1.900 |
| 32 |  | 3 | 1 | 4.292 | 4.292 | 25 | 1.900 |
| 33 |  | 3 | 1 | 2.413 | 2.413 | 25 | 1.900 |
| 34 |  | 3 | 1 | 1.904 | 1.904 | 25 | 1.900 |
| 35 |  | 4 | 1 | 95.160 | 95.160 | 25 | 1.900 |
| 36 | DC2418 | 1~2 | 3 | 4.320 | 12.959 | 25 | 1.900 |
| 37 | DC2418 | 3 | 1 | 4.318 | 4.318 | 25 | 1.900 |
| 38 | DC2418 | 3 | 1 | 2.448 | 2.448 | 25 | 1.900 |
| 39 | DC2418 | 3 | 1 | 1.859 | 1.859 | 25 | 1.900 |
| 立面总面积(㎡) | 948.635 | 立面平均传热系数 | 1.900 |

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 |  | 1 | 1 | 8.220 | 8.220 | 25 | 1.900 |
| 2 |  | 1~3 | 3 | 16.800 | 50.400 | 25 | 1.900 |
| 3 |  | 1~3 | 11 | 22.560 | 248.161 | 25 | 1.900 |
| 4 |  | 1 | 1 | 11.283 | 11.283 | 25 | 1.900 |
| 5 |  | 1 | 1 | 11.167 | 11.167 | 25 | 1.900 |
| 6 |  | 1 | 1 | 11.157 | 11.157 | 25 | 1.900 |
| 7 |  | 1 | 1 | 20.340 | 20.340 | 25 | 1.900 |
| 8 |  | 1 | 1 | 11.393 | 11.393 | 25 | 1.900 |
| 9 |  | 1 | 1 | 11.403 | 11.403 | 25 | 1.900 |
| 10 |  | 1 | 1 | 11.277 | 11.277 | 25 | 1.900 |
| 11 |  | 1 | 1 | 2.911 | 2.911 | 25 | 1.900 |
| 12 |  | 1 | 1 | 2.822 | 2.822 | 25 | 1.900 |
| 13 |  | 1 | 1 | 3.547 | 3.547 | 25 | 1.900 |
| 14 |  | 1 | 1 | 0.771 | 0.771 | 25 | 1.900 |
| 15 | (玻璃幕墙) | 1 |  |  | 151.644 | 29 | 1.900 |
| 16 |  | 2 | 1 | 1.281 | 1.281 | 25 | 1.900 |
| 17 |  | 2 | 1 | 3.037 | 3.037 | 25 | 1.900 |
| 18 |  | 2 | 1 | 29.328 | 29.328 | 25 | 1.900 |
| 19 |  | 2~3 | 2 | 28.560 | 57.120 | 25 | 1.900 |
| 20 |  | 2 | 1 | 4.314 | 4.314 | 25 | 1.900 |
| 21 |  | 2 | 1 | 4.315 | 4.315 | 25 | 1.900 |
| 22 |  | 2 | 1 | 4.316 | 4.316 | 25 | 1.900 |
| 23 |  | 2 | 2 | 4.318 | 8.636 | 25 | 1.900 |
| 24 |  | 2~3 | 2 | 2.693 | 5.385 | 25 | 1.900 |
| 25 |  | 2~3 | 3 | 2.694 | 8.082 | 25 | 1.900 |
| 26 |  | 2~3 | 2 | 2.690 | 5.379 | 25 | 1.900 |
| 27 |  | 2~3 | 3 | 2.695 | 8.084 | 25 | 1.900 |
| 28 |  | 2~3 | 11 | 2.700 | 29.698 | 25 | 1.900 |
| 29 |  | 2 | 2 | 4.319 | 8.638 | 25 | 1.900 |
| 30 |  | 3 | 1 | 0.868 | 0.868 | 25 | 1.900 |
| 31 |  | 3 | 1 | 2.698 | 2.698 | 25 | 1.900 |
| 32 |  | 3 | 1 | 3.440 | 3.440 | 25 | 1.900 |
| 33 |  | 3 | 3 | 2.696 | 8.089 | 25 | 1.900 |
| 34 |  | 3 | 1 | 3.639 | 3.639 | 25 | 1.900 |
| 35 |  | 3 | 1 | 0.679 | 0.679 | 25 | 1.900 |
| 36 |  | 3 | 1 | 0.872 | 0.872 | 25 | 1.900 |
| 37 |  | 3 | 1 | 3.441 | 3.441 | 25 | 1.900 |
| 38 |  | 3 | 1 | 2.692 | 2.692 | 25 | 1.900 |
| 39 |  | 3 | 2 | 2.699 | 5.397 | 25 | 1.900 |
| 40 |  | 3 | 1 | 2.828 | 2.828 | 25 | 1.900 |
| 41 |  | 3 | 1 | 3.676 | 3.676 | 25 | 1.900 |
| 42 |  | 4 | 15 | 4.320 | 64.800 | 25 | 1.900 |
| 43 | DC1815 | 3 | 2 | 2.700 | 5.400 | 25 | 1.900 |
| 44 | DC2418 | 1~2 | 4 | 4.320 | 17.279 | 25 | 1.900 |
| 45 | DC2418 | 2 | 1 | 2.391 | 2.391 | 25 | 1.900 |
| 46 | DC2418 | 2 | 1 | 1.925 | 1.925 | 25 | 1.900 |
| 47 | DC2418 | 2 | 1 | 1.517 | 1.517 | 25 | 1.900 |
| 48 | DC2418 | 2 | 1 | 2.342 | 2.342 | 25 | 1.900 |
| 49 | DC2418 | 2 | 1 | 1.974 | 1.974 | 25 | 1.900 |
| 50 | DC3118 | 2 | 1 | 3.032 | 3.032 | 25 | 1.900 |
| 51 | DC3118 | 2 | 1 | 2.629 | 2.629 | 25 | 1.900 |
| 52 | DC3218 | 2 | 1 | 3.620 | 3.620 | 25 | 1.900 |
| 53 | DC3218 | 2 | 1 | 2.172 | 2.172 | 25 | 1.900 |
| 54 | DC3418 | 2 | 1 | 6.138 | 6.138 | 25 | 1.900 |
| 55 | DC3418 | 2 | 1 | 6.202 | 6.202 | 25 | 1.900 |
| 56 | DC3818 | 2 | 1 | 6.789 | 6.789 | 25 | 1.900 |
| 57 | DC4518 | 2 | 1 | 4.641 | 4.641 | 25 | 1.900 |
| 58 | DC4518 | 2 | 1 | 3.459 | 3.459 | 25 | 1.900 |
| 59 | DC4518 | 2 | 1 | 3.700 | 3.700 | 25 | 1.900 |
| 60 | DC4518 | 2 | 1 | 4.398 | 4.398 | 25 | 1.900 |
| 立面总面积(㎡) | 916.838 | 立面平均传热系数 | 1.900 |

## 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 |  | 1 | 1 | 33.440 | 33.440 | 25 | 0.261 |  | 1.000 | 0.261 |
| 2 |  | 1 | 1 | 8.712 | 8.712 | 25 | 0.261 |  | 1.000 | 0.261 |
| 3 |  | 1 | 1 | 16.104 | 16.104 | 25 | 0.261 |  | 1.000 | 0.261 |
| 4 |  | 1 | 1 | 8.272 | 8.272 | 25 | 0.261 |  | 1.000 | 0.261 |
| 5 |  | 1~3 | 25 | 4.320 | 108.000 | 25 | 0.261 |  | 1.000 | 0.261 |
| 6 |  | 1 | 1 | 1.864 | 1.864 | 25 | 0.261 |  | 1.000 | 0.261 |
| 7 |  | 1 | 1 | 2.453 | 2.453 | 25 | 0.261 |  | 1.000 | 0.261 |
| 8 |  | 2 | 1 | 3.940 | 3.940 | 25 | 0.261 |  | 1.000 | 0.261 |
| 9 |  | 2 | 1 | 0.379 | 0.379 | 25 | 0.261 |  | 1.000 | 0.261 |
| 10 |  | 2~3 | 2 | 29.640 | 59.280 | 25 | 0.261 |  | 1.000 | 0.261 |
| 11 |  | 2~3 | 2 | 29.328 | 58.656 | 25 | 0.261 |  | 1.000 | 0.261 |
| 12 |  | 2~3 | 2 | 14.352 | 28.704 | 25 | 0.261 |  | 1.000 | 0.261 |
| 13 |  | 4 | 1 | 4.999 | 4.999 | 25 | 0.261 |  | 1.000 | 0.261 |
| 14 |  | 4 | 1 | 11.400 | 11.400 | 25 | 0.261 |  | 1.000 | 0.261 |
| 15 |  | 4 | 1 | 6.994 | 6.994 | 25 | 0.261 |  | 1.000 | 0.261 |
| 16 |  | 4 | 1 | 5.670 | 5.670 | 25 | 0.261 |  | 1.000 | 0.261 |
| 立面总面积(㎡) | 358.868 | 综合太阳得热系数 | 0.261 |

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 |  | 1 | 1 | 4.045 | 4.045 | 25 | 0.261 |  | 1.000 | 0.261 |
| 2 |  | 1 | 2 | 16.808 | 33.616 | 25 | 0.261 |  | 1.000 | 0.261 |
| 3 |  | 1 | 1 | 33.088 | 33.088 | 25 | 0.261 |  | 1.000 | 0.261 |
| 4 |  | 1 | 2 | 16.632 | 33.264 | 25 | 0.261 |  | 1.000 | 0.261 |
| 5 |  | 1~3 | 23 | 4.320 | 99.360 | 25 | 0.261 |  | 1.000 | 0.261 |
| 6 | (玻璃幕墙) | 1~2 |  |  | 31.175 | 29 | 0.261 |  | 1.000 | 0.261 |
| 7 |  | 2 | 1 | 1.524 | 1.524 | 25 | 0.261 |  | 1.000 | 0.261 |
| 8 |  | 2 | 1 | 2.794 | 2.794 | 25 | 0.261 |  | 1.000 | 0.261 |
| 9 |  | 2 | 1 | 0.559 | 0.559 | 25 | 0.261 |  | 1.000 | 0.261 |
| 10 |  | 2 | 1 | 4.499 | 4.499 | 25 | 0.261 |  | 1.000 | 0.261 |
| 11 |  | 2~3 | 4 | 29.640 | 118.560 | 25 | 0.261 |  | 1.000 | 0.261 |
| 12 |  | 2~3 | 2 | 29.328 | 58.656 | 25 | 0.261 |  | 1.000 | 0.261 |
| 13 |  | 2 | 1 | 4.318 | 4.318 | 25 | 0.261 |  | 1.000 | 0.261 |
| 14 |  | 3 | 1 | 2.700 | 2.700 | 25 | 0.261 |  | 1.000 | 0.261 |
| 15 |  | 3 | 1 | 2.477 | 2.477 | 25 | 0.261 |  | 1.000 | 0.261 |
| 16 |  | 3 | 1 | 1.840 | 1.840 | 25 | 0.261 |  | 1.000 | 0.261 |
| 17 |  | 3 | 1 | 0.637 | 0.637 | 25 | 0.261 |  | 1.000 | 0.261 |
| 18 |  | 4 | 2 | 11.280 | 22.560 | 25 | 0.261 |  | 1.000 | 0.261 |
| 19 |  | 4 | 2 | 11.400 | 22.800 | 25 | 0.261 |  | 1.000 | 0.261 |
| 20 | DC2418 | 2 | 1 | 2.799 | 2.799 | 25 | 0.261 |  | 1.000 | 0.261 |
| 21 | DC2418 | 3 | 1 | 4.319 | 4.319 | 25 | 0.261 |  | 1.000 | 0.261 |
| 22 | DC4018 | 3 | 1 | 3.408 | 3.408 | 25 | 0.261 |  | 1.000 | 0.261 |
| 立面总面积(㎡) | 488.999 | 综合太阳得热系数 | 0.261 |

3. 东向：

立面3

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 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 |  | 1 | 1 | 4.054 | 4.054 | 25 | 0.261 |  | 1.000 | 0.261 |
| 2 |  | 1 | 1 | 0.265 | 0.265 | 25 | 0.261 |  | 1.000 | 0.261 |
| 3 |  | 1~2 | 3 | 111.040 | 333.120 | 25 | 0.261 |  | 1.000 | 0.261 |
| 4 |  | 1 | 1 | 7.559 | 7.559 | 25 | 0.261 |  | 1.000 | 0.261 |
| 5 |  | 1 | 2 | 10.000 | 20.000 | 25 | 0.261 |  | 1.000 | 0.261 |
| 6 |  | 1 | 1 | 4.000 | 4.000 | 25 | 0.261 |  | 1.000 | 0.261 |
| 7 |  | 1 | 1 | 12.000 | 12.000 | 25 | 0.261 |  | 1.000 | 0.261 |
| 8 |  | 1 | 1 | 10.480 | 10.480 | 25 | 0.261 |  | 1.000 | 0.261 |
| 9 |  | 1 | 2 | 6.000 | 12.000 | 25 | 0.261 |  | 1.000 | 0.261 |
| 10 |  | 1 | 1 | 16.000 | 16.000 | 25 | 0.261 |  | 1.000 | 0.261 |
| 11 |  | 1 | 1 | 4.002 | 4.002 | 25 | 0.261 |  | 1.000 | 0.261 |
| 12 |  | 1 | 1 | 9.000 | 9.000 | 25 | 0.261 |  | 1.000 | 0.261 |
| 13 |  | 1 | 1 | 8.001 | 8.001 | 25 | 0.261 |  | 1.000 | 0.261 |
| 14 |  | 1 | 1 | 7.998 | 7.998 | 25 | 0.261 |  | 1.000 | 0.261 |
| 15 |  | 2 | 1 | 2.387 | 2.387 | 25 | 0.261 |  | 1.000 | 0.261 |
| 16 |  | 2 | 1 | 4.499 | 4.499 | 25 | 0.261 |  | 1.000 | 0.261 |
| 17 |  | 2 | 1 | 0.360 | 0.360 | 25 | 0.261 |  | 1.000 | 0.261 |
| 18 |  | 2 | 1 | 1.676 | 1.676 | 25 | 0.261 |  | 1.000 | 0.261 |
| 19 |  | 2 | 1 | 2.642 | 2.642 | 25 | 0.261 |  | 1.000 | 0.261 |
| 20 |  | 2~3 | 6 | 2.700 | 16.200 | 25 | 0.261 |  | 1.000 | 0.261 |
| 21 |  | 2~3 | 2 | 2.699 | 5.399 | 25 | 0.261 |  | 1.000 | 0.261 |
| 22 |  | 2~3 | 9 | 2.694 | 24.247 | 25 | 0.261 |  | 1.000 | 0.261 |
| 23 |  | 2~3 | 2 | 2.692 | 5.383 | 25 | 0.261 |  | 1.000 | 0.261 |
| 24 |  | 2~3 | 2 | 2.691 | 5.382 | 25 | 0.261 |  | 1.000 | 0.261 |
| 25 |  | 2~3 | 3 | 2.696 | 8.088 | 25 | 0.261 |  | 1.000 | 0.261 |
| 26 |  | 2~3 | 4 | 2.697 | 10.787 | 25 | 0.261 |  | 1.000 | 0.261 |
| 27 | (玻璃幕墙) | 2 |  |  | 152.527 | 29 | 0.261 |  | 1.000 | 0.261 |
| 28 |  | 3 | 1 | 2.693 | 2.693 | 25 | 0.261 |  | 1.000 | 0.261 |
| 29 |  | 3 | 1 | 2.695 | 2.695 | 25 | 0.261 |  | 1.000 | 0.261 |
| 30 |  | 3 | 1 | 126.880 | 126.880 | 25 | 0.261 |  | 1.000 | 0.261 |
| 31 |  | 3 | 1 | 2.959 | 2.959 | 25 | 0.261 |  | 1.000 | 0.261 |
| 32 |  | 3 | 1 | 4.292 | 4.292 | 25 | 0.261 |  | 1.000 | 0.261 |
| 33 |  | 3 | 1 | 2.413 | 2.413 | 25 | 0.261 |  | 1.000 | 0.261 |
| 34 |  | 3 | 1 | 1.904 | 1.904 | 25 | 0.261 |  | 1.000 | 0.261 |
| 35 |  | 4 | 1 | 95.160 | 95.160 | 25 | 0.261 |  | 1.000 | 0.261 |
| 36 | DC2418 | 1~2 | 3 | 4.320 | 12.959 | 25 | 0.261 |  | 1.000 | 0.261 |
| 37 | DC2418 | 3 | 1 | 4.318 | 4.318 | 25 | 0.261 |  | 1.000 | 0.261 |
| 38 | DC2418 | 3 | 1 | 2.448 | 2.448 | 25 | 0.261 |  | 1.000 | 0.261 |
| 39 | DC2418 | 3 | 1 | 1.859 | 1.859 | 25 | 0.261 |  | 1.000 | 0.261 |
| 立面总面积(㎡) | 948.635 | 综合太阳得热系数 | 0.261 |

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 |  | 1 | 1 | 8.220 | 8.220 | 25 | 0.261 |  | 1.000 | 0.261 |
| 2 |  | 1~3 | 3 | 16.800 | 50.400 | 25 | 0.261 |  | 1.000 | 0.261 |
| 3 |  | 1~3 | 11 | 22.560 | 248.161 | 25 | 0.261 |  | 1.000 | 0.261 |
| 4 |  | 1 | 1 | 11.283 | 11.283 | 25 | 0.261 |  | 1.000 | 0.261 |
| 5 |  | 1 | 1 | 11.167 | 11.167 | 25 | 0.261 |  | 1.000 | 0.261 |
| 6 |  | 1 | 1 | 11.157 | 11.157 | 25 | 0.261 |  | 1.000 | 0.261 |
| 7 |  | 1 | 1 | 20.340 | 20.340 | 25 | 0.261 |  | 1.000 | 0.261 |
| 8 |  | 1 | 1 | 11.393 | 11.393 | 25 | 0.261 |  | 1.000 | 0.261 |
| 9 |  | 1 | 1 | 11.403 | 11.403 | 25 | 0.261 |  | 1.000 | 0.261 |
| 10 |  | 1 | 1 | 11.277 | 11.277 | 25 | 0.261 |  | 1.000 | 0.261 |
| 11 |  | 1 | 1 | 2.911 | 2.911 | 25 | 0.261 |  | 1.000 | 0.261 |
| 12 |  | 1 | 1 | 2.822 | 2.822 | 25 | 0.261 |  | 1.000 | 0.261 |
| 13 |  | 1 | 1 | 3.547 | 3.547 | 25 | 0.261 |  | 1.000 | 0.261 |
| 14 |  | 1 | 1 | 0.771 | 0.771 | 25 | 0.261 |  | 1.000 | 0.261 |
| 15 | (玻璃幕墙) | 1 |  |  | 151.644 | 29 | 0.261 |  | 1.000 | 0.261 |
| 16 |  | 2 | 1 | 1.281 | 1.281 | 25 | 0.261 |  | 1.000 | 0.261 |
| 17 |  | 2 | 1 | 3.037 | 3.037 | 25 | 0.261 |  | 1.000 | 0.261 |
| 18 |  | 2 | 1 | 29.328 | 29.328 | 25 | 0.261 |  | 1.000 | 0.261 |
| 19 |  | 2~3 | 2 | 28.560 | 57.120 | 25 | 0.261 |  | 1.000 | 0.261 |
| 20 |  | 2 | 1 | 4.314 | 4.314 | 25 | 0.261 |  | 1.000 | 0.261 |
| 21 |  | 2 | 1 | 4.315 | 4.315 | 25 | 0.261 |  | 1.000 | 0.261 |
| 22 |  | 2 | 1 | 4.316 | 4.316 | 25 | 0.261 |  | 1.000 | 0.261 |
| 23 |  | 2 | 2 | 4.318 | 8.636 | 25 | 0.261 |  | 1.000 | 0.261 |
| 24 |  | 2~3 | 2 | 2.693 | 5.385 | 25 | 0.261 |  | 1.000 | 0.261 |
| 25 |  | 2~3 | 3 | 2.694 | 8.082 | 25 | 0.261 |  | 1.000 | 0.261 |
| 26 |  | 2~3 | 2 | 2.690 | 5.379 | 25 | 0.261 |  | 1.000 | 0.261 |
| 27 |  | 2~3 | 3 | 2.695 | 8.084 | 25 | 0.261 |  | 1.000 | 0.261 |
| 28 |  | 2~3 | 11 | 2.700 | 29.698 | 25 | 0.261 |  | 1.000 | 0.261 |
| 29 |  | 2 | 2 | 4.319 | 8.638 | 25 | 0.261 |  | 1.000 | 0.261 |
| 30 |  | 3 | 1 | 0.868 | 0.868 | 25 | 0.261 |  | 1.000 | 0.261 |
| 31 |  | 3 | 1 | 2.698 | 2.698 | 25 | 0.261 |  | 1.000 | 0.261 |
| 32 |  | 3 | 1 | 3.440 | 3.440 | 25 | 0.261 |  | 1.000 | 0.261 |
| 33 |  | 3 | 3 | 2.696 | 8.089 | 25 | 0.261 |  | 1.000 | 0.261 |
| 34 |  | 3 | 1 | 3.639 | 3.639 | 25 | 0.261 |  | 1.000 | 0.261 |
| 35 |  | 3 | 1 | 0.679 | 0.679 | 25 | 0.261 |  | 1.000 | 0.261 |
| 36 |  | 3 | 1 | 0.872 | 0.872 | 25 | 0.261 |  | 1.000 | 0.261 |
| 37 |  | 3 | 1 | 3.441 | 3.441 | 25 | 0.261 |  | 1.000 | 0.261 |
| 38 |  | 3 | 1 | 2.692 | 2.692 | 25 | 0.261 |  | 1.000 | 0.261 |
| 39 |  | 3 | 2 | 2.699 | 5.397 | 25 | 0.261 |  | 1.000 | 0.261 |
| 40 |  | 3 | 1 | 2.828 | 2.828 | 25 | 0.261 |  | 1.000 | 0.261 |
| 41 |  | 3 | 1 | 3.676 | 3.676 | 25 | 0.261 |  | 1.000 | 0.261 |
| 42 |  | 4 | 15 | 4.320 | 64.800 | 25 | 0.261 |  | 1.000 | 0.261 |
| 43 | DC1815 | 3 | 2 | 2.700 | 5.400 | 25 | 0.261 |  | 1.000 | 0.261 |
| 44 | DC2418 | 1~2 | 4 | 4.320 | 17.279 | 25 | 0.261 |  | 1.000 | 0.261 |
| 45 | DC2418 | 2 | 1 | 2.391 | 2.391 | 25 | 0.261 |  | 1.000 | 0.261 |
| 46 | DC2418 | 2 | 1 | 1.925 | 1.925 | 25 | 0.261 |  | 1.000 | 0.261 |
| 47 | DC2418 | 2 | 1 | 1.517 | 1.517 | 25 | 0.261 |  | 1.000 | 0.261 |
| 48 | DC2418 | 2 | 1 | 2.342 | 2.342 | 25 | 0.261 |  | 1.000 | 0.261 |
| 49 | DC2418 | 2 | 1 | 1.974 | 1.974 | 25 | 0.261 |  | 1.000 | 0.261 |
| 50 | DC3118 | 2 | 1 | 3.032 | 3.032 | 25 | 0.261 |  | 1.000 | 0.261 |
| 51 | DC3118 | 2 | 1 | 2.629 | 2.629 | 25 | 0.261 |  | 1.000 | 0.261 |
| 52 | DC3218 | 2 | 1 | 3.620 | 3.620 | 25 | 0.261 |  | 1.000 | 0.261 |
| 53 | DC3218 | 2 | 1 | 2.172 | 2.172 | 25 | 0.261 |  | 1.000 | 0.261 |
| 54 | DC3418 | 2 | 1 | 6.138 | 6.138 | 25 | 0.261 |  | 1.000 | 0.261 |
| 55 | DC3418 | 2 | 1 | 6.202 | 6.202 | 25 | 0.261 |  | 1.000 | 0.261 |
| 56 | DC3818 | 2 | 1 | 6.789 | 6.789 | 25 | 0.261 |  | 1.000 | 0.261 |
| 57 | DC4518 | 2 | 1 | 4.641 | 4.641 | 25 | 0.261 |  | 1.000 | 0.261 |
| 58 | DC4518 | 2 | 1 | 3.459 | 3.459 | 25 | 0.261 |  | 1.000 | 0.261 |
| 59 | DC4518 | 2 | 1 | 3.700 | 3.700 | 25 | 0.261 |  | 1.000 | 0.261 |
| 60 | DC4518 | 2 | 1 | 4.398 | 4.398 | 25 | 0.261 |  | 1.000 | 0.261 |
| 立面总面积(㎡) | 916.838 | 综合太阳得热系数 | 0.261 |

## 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 | 358.87 | 1.90 | 0.26 | 0.24 | K≤2.00, SHGC≤0.38 | 满足 |
| 北向 | 立面2 | 489.00 | 1.90 | 0.26 | 0.27 | K≤2.00, SHGC(不要求) | 满足 |
| 东向 | 立面3 | 948.64 | 1.90 | 0.26 | 0.29 | K≤2.00, SHGC≤0.38 | 满足 |
| 西向 | 立面4 | 916.84 | 1.90 | 0.26 | 0.28 | K≤2.00, SHGC≤0.38 | 满足 |
| 综合平均 |  | 2713.34 | 1.90 | 0.26 | 0.28 |  |  |
| 标准依据 | 《绿色建筑评价标准》GB/T 50378-2019第3.2.8条、《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 | 外窗热工比《建筑节能与可再生能源利用通用规范》GB55015-2021表3.1.10-3的要求提升20% |
| 结论 | 满足 |

注：本表所统计的外窗包含凸窗。

# 规定性指标检查结论

|  |  |  |
| --- | --- | --- |
| 序号 | 检查项 | 结论 |
| 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 | 满足 |
| 结论 | 满足 |

□说明：本工程围护结构热工性能**满足**比《建筑节能与可再生能源利用通用规范》GB55015-2021的规定提高20%的要求