**建筑****节能设计报告书**

居住建筑

|  |  |
| --- | --- |
| 工程名称 | 新建项目 |
| 工程地点 | 北京-北京 |
| 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 | 2021年1月2日 |



|  |  |
| --- | --- |
| 采用软件 | 节能设计BECS2020 |
| 软件版本 | 20190909 |
| 研发单位 | 北京绿建软件有限公司 |
| 正版授权码 | T13716534471 |

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# 建筑概况

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 工程名称 | 新建项目 | | | | |
| 工程地点 | 北京-北京 | | | | |
| 气候子区 | 寒冷 | | | | |
| 建筑面积 | 地上6852㎡ 地下0㎡ | | | | |
| 建筑层数 | 地上7 地下0 | | | | |
| 建筑高度 | 18.9m | | | | |
| 北向角度 | 90 | | | | |
| 结构类型 |  | | | | |
| 采暖期天数（d） | 125 | | | | |
| 采暖期室外平均温度（C°） | -1.60 | | | | |
| 太阳总辐射平均强度（W/㎡） | 水平102 | 南120 | 北33 | 东59 | 西59 |

# 设计依据

1. 《北京市居住建筑节能设计标准》(DB11／891-2012)

2. 《民用建筑热工设计规范》(GB50176)

3. 《建筑外门窗气密，水密，抗风压性能分级及检测方法》（GB/T 7106-2008）

# 规定性指标检查

## 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 |
| 碎石、卵石混凝土(ρ=2300) | 1.510 | 15.360 | 2300.0 | 920.0 | 0.0173 | 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 |
| 混凝土多孔砖(190六孔砖） | 0.750 | 7.490 | 1450.0 | 709.4 | 0.0000 |  |
| 沥青油毡、油毡纸 | 0.170 | 3.302 | 600.0 | 1470.0 | 0.0000 |  |
| 水泥砂浆 | 0.930 | 11.306 | 1800.0 | 1050.0 | 0.0000 |  |
| 膨胀矿渣珠混凝土(ρ=2000) | 0.770 | 10.369 | 2000.0 | 960.0 | 0.0000 |  |
| 挤塑聚苯板 | 0.033 | 0.347 | 28.0 | 1790.0 | 0.0000 |  |
| 钢筋混凝土 | 1.740 | 17.060 | 2500.0 | 920.0 | 0.0000 |  |
| 石灰石膏砂浆 | 0.760 | 9.330 | 1500.0 | 1050.0 | 0.0000 |  |
| 聚苯乙烯泡沫塑料 | 0.042 | 0.356 | 30.0 | 1380.0 | 0.0000 |  |
| 聚氨酯硬泡沫塑料 | 0.033 | 0.315 | 30.0 | 1380.0 | 0.0000 |  |
| 190三排孔混凝土小砌块（盲孔） | 0.625 | 5.083 | 980.0 | 580.0 | 0.0000 |  |
| 复合硅酸盐保温砂浆 | 0.075 | 1.190 | 350.0 | 742.0 | 0.0000 |  |
| 石灰水泥砂浆（混合砂浆） | 0.870 | 10.750 | 1700.0 | 1050.0 | 0.0975 | 蒸汽渗透系数为测定值 |
| 聚苯颗粒保温浆料(ρ=230) | 0.060 | 1.020 | 230.0 | 1036.0 | 0.0000 |  |

## 体形系数

|  |  |
| --- | --- |
| 外表面积 | 14521.05 |
| 建筑体积 | 18832.97 |
| 体形系数 | 0.77 |
| 标准依据 | 《北京市居住建筑节能设计标准》(DB11／891-2012)第3.1.3条 |
| 标准要求 | 体形系数应符合表3.1.3的规定(s≤0.33) |
| 结论 | 不满足 |

## 窗墙比

### 窗墙比

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 朝向 | 窗面积(㎡) | 墙面积(㎡) | 窗墙比 | 限值 | 结论 |
| 南向 | 1339.47 | 2949.79 | 0.45 | 0.50 | 满足 |
| 北向 | 703.43 | 2949.58 | 0.24 | 0.30 | 满足 |
| 东向 | 413.44 | 2741.97 | 0.15 | 0.35 | 满足 |
| 西向 | 418.81 | 2771.67 | 0.15 | 0.35 | 满足 |
| 《标准》依据 | | 《北京市居住建筑节能设计标准》(DB11／891-2012)第3.1.5条 | | | |
| 标准要求 | | 各朝向窗墙比不应超过表3.1.5的限值，且进行权衡判断时不得大于其最大值 | | | |
| 结论 | | 满足 | | | |

### 外窗表

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 朝向 | 编号 | 尺寸 | 楼层 | 数量 | 单个面积 （㎡） | 合计面积 （㎡） |
| 南向 1262.25 |  | 1.11×2.70 | 1~6 | 6 | 3.00 | 18.02 |
|  | 2.40×2.70 | 1~5 | 30 | 6.48 | 194.40 |
|  | 3.30×2.70 | 2~5 | 54 | 8.91 | 481.14 |
|  | 2.40×2.70 | 6 | 1 | 6.48 | 6.48 |
|  | 0.22×2.70 | 6~7 | 7 | 0.59 | 4.16 |
|  | 2.10×1.50 | 6~7 | 7 | 3.15 | 22.05 |
|  | 2.10×0.30 | 6~7 | 7 | 0.63 | 4.41 |
|  | 1.40×2.70 | 6 | 6 | 3.78 | 22.68 |
|  | 0.98×2.70 | 7 | 1 | 2.65 | 2.65 |
| 63GC | 1.80×0.90 | 5~6 | 3 | 1.62 | 4.86 |
| C0615 | 0.60×1.50 | 5 | 2 | 0.90 | 1.80 |
| C0915 | 0.90×1.50 | 5 | 2 | 1.35 | 2.70 |
| C1515 | 2.20×1.80 | 1~2 | 2 | 3.96 | 7.92 |
| C1515 | 2.56×1.80 | 2 | 1 | 4.61 | 4.61 |
| C1515 | 1.50×1.50 | 3,5~6 | 25 | 2.25 | 56.25 |
| C1515 | 2.10×1.50 | 4 | 1 | 3.15 | 3.15 |
| C1815 | 1.80×1.50 | 1~5 | 68 | 2.70 | 183.60 |
| C1815 | 2.70×1.80 | 1 | 2 | 4.86 | 9.72 |
| C1815 | 2.90×1.80 | 2 | 2 | 5.22 | 10.44 |
| C1815 | 2.43×1.80 | 2 | 1 | 4.37 | 4.37 |
| C1815 | 2.51×1.80 | 3 | 2 | 4.52 | 9.04 |
| C1815 | 2.52×1.50 | 3 | 1 | 3.78 | 3.78 |
| C1815 | 2.58×1.80 | 4 | 1 | 4.65 | 4.65 |
| C2109 | 2.10×0.90 | 6~7 | 7 | 1.89 | 13.23 |
| C2115 | 2.10×1.50 | 1~5 | 27 | 3.15 | 85.05 |
| C2115 | 2.10×1.50 | 1 | 3 | 3.15 | 9.45 |
| mlc23 | 1.35×1.50 | 1 | 42 | 2.03 | 85.05 |
| mlc23 | 1.83×1.80 | 1 | 2 | 3.29 | 6.59 |
| 北向 703.43 |  | 0.90×1.80 | 2 | 3 | 1.62 | 4.86 |
|  | 1.50×1.80 | 3~4 | 10 | 2.70 | 27.00 |
|  | 2.10×1.80 | 4 | 1 | 3.78 | 3.78 |
|  | 2.40×2.70 | 6 | 1 | 6.48 | 6.48 |
|  | 3.72×2.70 | 6 | 6 | 10.04 | 60.26 |
|  | 3.30×2.70 | 7 | 1 | 8.91 | 8.91 |
| 63GC | 1.80×0.90 | 6 | 2 | 1.62 | 3.24 |
| C0615 | 0.60×1.50 | 1~6 | 34 | 0.90 | 30.60 |
| C0615 | 0.73×1.50 | 2 | 2 | 1.09 | 2.18 |
| C0615 | 0.60×1.80 | 2~3 | 2 | 1.08 | 2.16 |
| C0615 | 0.86×1.80 | 2 | 1 | 1.54 | 1.54 |
| C0615 | 1.26×1.50 | 3 | 1 | 1.89 | 1.89 |
| C0615 | 1.00×1.50 | 3 | 2 | 1.49 | 2.99 |
| C0615 | 0.93×1.50 | 4 | 1 | 1.40 | 1.40 |
| C0615 | 1.04×1.50 | 5 | 1 | 1.56 | 1.56 |
| C0615 | 1.04×1.50 | 5 | 1 | 1.57 | 1.57 |
| C0615 | 0.92×1.80 | 5 | 1 | 1.65 | 1.65 |
| C0915 | 0.90×1.50 | 1~6 | 52 | 1.35 | 70.20 |
| C0915 | 1.38×1.50 | 1 | 1 | 2.07 | 2.07 |
| C0915 | 1.50×1.50 | 1 | 2 | 2.25 | 4.50 |
| C0915 | 0.90×1.50 | 1,4 | 7 | 1.35 | 9.45 |
| C0915 | 1.61×1.80 | 2 | 2 | 2.89 | 5.78 |
| C0915 | 1.32×1.80 | 2 | 2 | 2.38 | 4.75 |
| C0915 | 1.62×1.80 | 2 | 2 | 2.92 | 5.83 |
| C0915 | 1.42×1.50 | 2 | 1 | 2.13 | 2.13 |
| C0915 | 1.28×1.50 | 3 | 1 | 1.91 | 1.91 |
| C0915 | 1.36×1.50 | 3 | 2 | 2.04 | 4.08 |
| C0915 | 1.38×1.80 | 3~4 | 12 | 2.48 | 29.81 |
| C0915 | 1.30×1.50 | 3 | 1 | 1.95 | 1.95 |
| C0915 | 1.53×1.80 | 3 | 2 | 2.76 | 5.52 |
| C0915 | 1.14×1.80 | 3 | 2 | 2.05 | 4.10 |
| C0915 | 1.45×1.80 | 3 | 2 | 2.60 | 5.20 |
| C0915 | 1.28×1.80 | 3 | 1 | 2.30 | 2.30 |
| C0915 | 1.59×1.80 | 4 | 1 | 2.86 | 2.86 |
| C0915 | 1.59×1.50 | 4 | 1 | 2.39 | 2.39 |
| C0915 | 1.64×1.50 | 4 | 1 | 2.45 | 2.45 |
| C0915 | 1.50×1.80 | 4 | 1 | 2.70 | 2.70 |
| C0915 | 1.39×1.50 | 4 | 1 | 2.09 | 2.09 |
| C0915 | 1.20×1.80 | 5 | 3 | 2.16 | 6.49 |
| C1215 | 1.20×1.50 | 5 | 9 | 1.80 | 16.20 |
| C1215 | 1.29×1.80 | 5 | 3 | 2.33 | 6.98 |
| C1515 | 2.14×1.80 | 1 | 1 | 3.86 | 3.86 |
| C1515 | 1.50×1.50 | 1~3,5~6 | 35 | 2.25 | 78.75 |
| C1515 | 2.91×1.80 | 1 | 1 | 5.25 | 5.25 |
| C1515 | 2.57×1.80 | 1 | 1 | 4.62 | 4.62 |
| C1515 | 2.50×1.80 | 1 | 1 | 4.51 | 4.51 |
| C1515 | 2.52×1.80 | 1 | 1 | 4.54 | 4.54 |
| C1515 | 2.40×1.80 | 1 | 1 | 4.32 | 4.32 |
| C1515 | 2.73×1.80 | 1 | 1 | 4.91 | 4.91 |
| C1515 | 2.75×1.80 | 1 | 1 | 4.95 | 4.95 |
| C1515 | 2.70×1.50 | 1 | 1 | 4.05 | 4.05 |
| C1515 | 3.06×1.80 | 1 | 1 | 5.51 | 5.51 |
| C1515 | 2.67×1.80 | 2 | 1 | 4.81 | 4.81 |
| C1515 | 2.10×1.80 | 2 | 1 | 3.78 | 3.78 |
| C1515 | 2.56×1.80 | 2,4 | 5 | 4.61 | 23.06 |
| C1515 | 2.48×1.80 | 2~3 | 4 | 4.46 | 17.82 |
| C1515 | 2.60×1.80 | 2 | 1 | 4.68 | 4.68 |
| C1515 | 2.80×1.50 | 2 | 1 | 4.20 | 4.20 |
| C1515 | 2.28×1.80 | 2 | 1 | 4.10 | 4.10 |
| C1515 | 2.96×1.80 | 2 | 1 | 5.32 | 5.32 |
| C1515 | 2.37×1.80 | 2 | 1 | 4.27 | 4.27 |
| C1515 | 2.88×1.50 | 3 | 3 | 4.33 | 12.98 |
| C1515 | 2.59×1.80 | 3 | 1 | 4.66 | 4.66 |
| C1515 | 2.89×1.80 | 3 | 2 | 5.19 | 10.39 |
| C1515 | 2.73×1.80 | 3 | 1 | 4.91 | 4.91 |
| C1515 | 2.78×1.80 | 3 | 1 | 5.00 | 5.00 |
| C1515 | 2.84×1.50 | 4 | 3 | 4.27 | 12.80 |
| C1515 | 2.73×1.50 | 4 | 3 | 4.09 | 12.28 |
| C1515 | 2.76×1.80 | 4 | 1 | 4.97 | 4.97 |
| C1515 | 2.44×1.80 | 5 | 1 | 4.39 | 4.39 |
| C1515 | 2.88×1.80 | 5 | 1 | 5.19 | 5.19 |
| C1815 | 1.80×1.50 | 2~5 | 24 | 2.70 | 64.80 |
| 东向 404.67 |  | 2.20×2.70 | 1~6 | 16 | 5.94 | 95.04 |
|  | 1.50×1.80 | 1~4 | 13 | 2.70 | 35.10 |
|  | 2.10×1.80 | 1~2 | 3 | 3.78 | 11.34 |
|  | 1.56×1.80 | 2~3 | 2 | 2.81 | 5.62 |
|  | 2.58×1.80 | 5 | 1 | 4.64 | 4.64 |
|  | 2.73×1.80 | 5 | 1 | 4.91 | 4.91 |
|  | 2.67×1.80 | 5 | 1 | 4.81 | 4.81 |
|  | 3.30×2.70 | 6 | 6 | 8.91 | 53.46 |
|  | 3.72×2.70 | 7 | 1 | 10.04 | 10.04 |
| C0615 | 0.60×1.50 | 1,3~6 | 14 | 0.90 | 12.60 |
| C0915 | 1.13×1.80 | 3 | 3 | 2.04 | 6.12 |
| C0915 | 0.90×1.50 | 4~6 | 8 | 1.35 | 10.80 |
| C1515 | 2.72×1.50 | 3 | 1 | 4.09 | 4.09 |
| C1515 | 2.90×1.80 | 3 | 1 | 5.22 | 5.22 |
| C1515 | 1.50×1.50 | 4~5 | 4 | 2.25 | 9.00 |
| C1809 | 1.80×0.90 | 2~5 | 23 | 1.62 | 37.26 |
| C1809 | 2.43×1.80 | 3 | 1 | 4.37 | 4.37 |
| C1815 | 2.75×1.80 | 1 | 1 | 4.94 | 4.94 |
| C1815 | 2.40×1.80 | 1 | 1 | 4.32 | 4.32 |
| C1815 | 2.83×1.80 | 1 | 1 | 5.10 | 5.10 |
| C1815 | 1.80×1.50 | 2~3,5 | 9 | 2.70 | 24.30 |
| C1815 | 2.64×1.80 | 2 | 1 | 4.75 | 4.75 |
| C1815 | 2.22×1.80 | 2 | 1 | 4.00 | 4.00 |
| C1815 | 2.31×1.80 | 2 | 1 | 4.17 | 4.17 |
| C1815 | 1.80×0.90 | 5 | 3 | 1.62 | 4.86 |
| C2115 | 2.10×1.50 | 1~6 | 6 | 3.15 | 18.90 |
| mlc23 | 1.35×1.50 | 1 | 1 | 2.03 | 2.03 |
| mlc23 | 2.07×1.80 | 1 | 1 | 3.72 | 3.72 |
| mlc23 | 1.80×1.80 | 1 | 2 | 3.24 | 6.48 |
| mlc23 | 1.80×1.50 | 1 | 1 | 2.70 | 2.70 |
| 西向 410.39 |  | 2.20×2.70 | 1~5 | 15 | 5.94 | 89.10 |
|  | 1.50×1.80 | 1~3,6 | 9 | 2.70 | 24.30 |
|  | 2.10×1.80 | 1~2,4 | 3 | 3.78 | 11.34 |
|  | 0.90×1.80 | 1~2 | 3 | 1.62 | 4.86 |
|  | 1.78×1.80 | 2 | 1 | 3.20 | 3.20 |
|  | 1.72×1.80 | 3 | 1 | 3.10 | 3.10 |
|  | 2.70×1.80 | 3 | 1 | 4.86 | 4.86 |
|  | 2.28×1.80 | 5 | 1 | 4.10 | 4.10 |
|  | 2.62×1.80 | 5 | 1 | 4.71 | 4.71 |
|  | 0.98×2.70 | 6 | 6 | 2.65 | 15.88 |
|  | 2.10×1.50 | 6~7 | 7 | 3.15 | 22.05 |
|  | 2.10×0.30 | 6~7 | 7 | 0.63 | 4.41 |
|  | 0.22×2.70 | 6~7 | 7 | 0.59 | 4.16 |
|  | 1.40×2.70 | 7 | 1 | 3.78 | 3.78 |
| 43gc | 1.20×0.90 | 5 | 2 | 1.08 | 2.16 |
| 53gc | 1.50×0.90 | 2~6 | 20 | 1.35 | 27.00 |
| C0615 | 0.60×1.50 | 1,3~5 | 12 | 0.90 | 10.80 |
| C0915 | 0.90×1.50 | 1~5 | 16 | 1.35 | 21.60 |
| C0915 | 1.32×1.80 | 2 | 2 | 2.38 | 4.75 |
| C0915 | 1.14×1.50 | 3 | 1 | 1.71 | 1.71 |
| C0915 | 0.90×1.80 | 3 | 1 | 1.62 | 1.62 |
| C0915 | 1.37×1.80 | 3 | 1 | 2.46 | 2.46 |
| C0915 | 1.30×1.80 | 3 | 2 | 2.34 | 4.68 |
| C0915 | 1.19×1.50 | 4 | 1 | 1.79 | 1.79 |
| C0915 | 1.32×1.80 | 4 | 1 | 2.38 | 2.38 |
| C1809 | 1.80×0.90 | 2~5 | 17 | 1.62 | 27.54 |
| C1809 | 2.55×1.80 | 3 | 3 | 4.58 | 13.75 |
| C1809 | 2.70×1.80 | 4 | 3 | 4.86 | 14.58 |
| C1809 | 1.80×1.80 | 4 | 1 | 3.24 | 3.24 |
| C1815 | 1.80×1.50 | 1~3,5 | 11 | 2.70 | 29.70 |
| C1815 | 2.47×1.80 | 1 | 1 | 4.45 | 4.45 |
| C1815 | 2.18×1.80 | 2 | 2 | 3.92 | 7.83 |
| C1815 | 2.61×1.80 | 2 | 1 | 4.70 | 4.70 |
| C1815 | 1.80×0.90 | 5 | 2 | 1.62 | 3.24 |
| C2109 | 2.10×0.90 | 6~7 | 7 | 1.89 | 13.23 |
| mlc23 | 1.35×1.50 | 1 | 2 | 2.03 | 4.05 |
| mlc23 | 1.83×1.80 | 1 | 1 | 3.29 | 3.29 |

## 屋顶

### 屋顶相关构造

#### 屋顶构造

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 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 | 25 | 0.930 | 11.306 | 1.00 | 0.027 | 0.304 |
| 沥青油毡、油毡纸 | 10 | 0.170 | 3.302 | 1.00 | 0.059 | 0.194 |
| 水泥砂浆 | 20 | 0.930 | 11.306 | 1.00 | 0.022 | 0.243 |
| 膨胀矿渣珠混凝土(ρ=2000) | 30 | 0.770 | 10.369 | 1.00 | 0.039 | 0.404 |
| 挤塑聚苯板 | 100 | 0.033 | 0.347 | 1.00 | 3.030 | 1.052 |
| 钢筋混凝土 | 120 | 1.740 | 17.060 | 1.00 | 0.069 | 1.177 |
| 各层之和∑ | 305 | － | － | － | 3.245 | 3.373 |
| 传热系数K=1/(0.15+∑R) | 0.30 | | | | | |
| 考虑热桥后K | 0.29 \* 1.10 = 0.32 | | | | | |
| 标准依据 | 《北京市居住建筑节能设计标准》(DB11／891-2012)第3.2.2条 | | | | | |
| 标准要求 | K值应当符合表3.2.2的要求(K≤0.35) | | | | | |
| 结论 | 满足 | | | | | |

### 屋顶平均热工特性

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 构造名称 | 面积(㎡) | 面积所占比例 | 传热系数K W / (㎡K) | 热惰性指标D |
| 屋顶构造 | 2406.13 | 1.000 | 0.30 | 3.37 |

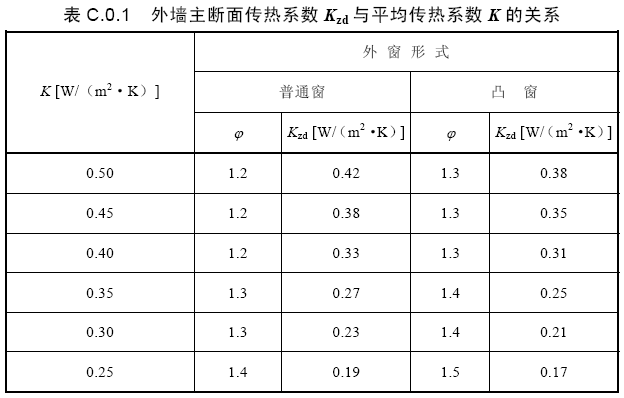
## 外墙

### 外墙相关构造

#### 内天井墙面构造

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 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 | 10 | 0.930 | 11.306 | 1.00 | 0.011 | 0.122 |
| 石灰石膏砂浆 | 10 | 0.760 | 9.330 | 1.00 | 0.013 | 0.123 |
| 聚苯乙烯泡沫塑料 | 15 | 0.042 | 0.356 | 1.00 | 0.357 | 0.127 |
| 聚氨酯硬泡沫塑料 | 70 | 0.033 | 0.315 | 1.00 | 2.121 | 0.668 |
| 190三排孔混凝土小砌块（盲孔） | 190 | 0.625 | 5.083 | 1.00 | 0.304 | 1.545 |
| 水泥砂浆 | 15 | 0.930 | 11.306 | 1.00 | 0.016 | 0.182 |
| 各层之和∑ | 310 | － | － | － | 2.822 | 2.767 |
| 传热系数K=1/(0.15+∑R) | 0.34 | | | | | |

### 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K W / (㎡K) | 热惰性指标D |
| 内天井墙面构造 | 主墙体 | 1610.32 | 1.000 | 0.34 | 2.77 |
| 考虑线性热桥后K | 0.34 × 1.20 = 0.40 | | | | |

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 |
| 内天井墙面构造 | 主墙体 | 2229.30 | 1.000 | 0.34 | 2.77 |
| 考虑线性热桥后K | 0.34 × 1.20 = 0.40 | | | | |

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 |
| 内天井墙面构造 | 主墙体 | 2328.53 | 1.000 | 0.34 | 2.77 |
| 考虑线性热桥后K | 0.34 × 1.20 = 0.40 | | | | |

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 |
| 内天井墙面构造 | 主墙体 | 2347.82 | 1.000 | 0.34 | 2.77 |
| 考虑线性热桥后K | 0.34 × 1.20 = 0.40 | | | | |

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 |
| 内天井墙面构造 | 主墙体 | 8515.97 | 1.000 | 0.34 | 2.77 |
| 考虑线性热桥后K | 0.34 × 1.20 = 0.40 | | | | |
| 标准依据 | 《北京市居住建筑节能设计标准》(DB11／891-2012)第3.2.2条 | | | | |
| 标准要求 | K值应当符合表3.2.2的要求(K≤0.40) | | | | |
| 结论 | 满足 | | | | |

## 挑空楼板

### 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） | 80 | 0.030 | 0.340 | 1.20 | 2.222 | 0.907 |
| 水泥砂浆 | 20 | 0.930 | 11.370 | 1.00 | 0.022 | 0.245 |
| 各层之和∑ | 260 | － | － | － | 2.356 | 2.826 |
| 传热系数K=1/(0.15+∑R) | 0.40 | | | | | |
| 标准依据 | 《北京市居住建筑节能设计标准》(DB11／891-2012)第3.2.2条 | | | | | |
| 标准要求 | K值应符合表3.2.2的要求(K≤0.40) | | | | | |
| 结论 | 满足 | | | | | |

## 非采暖地下室顶板

本工程无此项内容

## 分隔采暖与非采暖空间的隔墙

### 楼梯间隔墙构造一

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 材料名称 | 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 |
| 复合硅酸盐保温砂浆 | 25 | 0.075 | 1.190 | 1.00 | 0.333 | 0.397 |
| 钢筋混凝土 | 200 | 1.740 | 17.200 | 1.00 | 0.115 | 1.977 |
| 石灰水泥砂浆（混合砂浆） | 20 | 0.870 | 10.750 | 1.00 | 0.023 | 0.247 |
| 各层之和∑ | 245 | － | － | － | 0.471 | 2.621 |
| 传热系数K=1/(0.22+∑R) | 1.45 | | | | | |
| 标准依据 | 《北京市居住建筑节能设计标准》(DB11／891-2012)第3.2.2条 | | | | | |
| 标准要求 | K≤1.5 | | | | | |
| 结论 | 满足 | | | | | |

## 户门

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 构造名称 | 面积(㎡) | 面积所占比例 | 传热系数K [W/(㎡.K)] | 是否满足 |
| 双层金属门 | 293.16 | 1.000 | 1.61 | 满足 |
| 标准依据 | 《北京市居住建筑节能设计标准》(DB11／891-2012)第3.2.2条 | | | |
| 标准要求 | K≤2.0 | | | |
| 结论 | 满足 | | | |

## 单元外门

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 构造名称 | 面积(㎡) | 面积所占比例 | 传热系数K [W/(㎡.K)] | 是否满足 |
| 保温门（多功能门） | 19.37 | 1.000 | 1.97 | 满足 |
| 标准依据 | 《北京市居住建筑节能设计标准》(DB11／891-2012)第3.2.2条 | | | |
| 标准要求 | K≤3.0 | | | |
| 结论 | 满足 | | | |

## 天窗类型

本工程无此项内容

## 开敞阳台门

|  |  |  |  |
| --- | --- | --- | --- |
| 构造名称 | 面积(㎡) | 面积所占比例 | 传热系数K [W/(㎡.K)] |
| 单层阳台木制外门 | 94.41 | 1.000 | 1.72 |

|  |  |  |  |
| --- | --- | --- | --- |
| 朝向 | K值 | 限值 | 结论 |
| 南向 | 1.72 | 1.80 | 满足 |
| 北向 | 0.00 | 1.80 | 无 |
| 东向 | 1.72 | 2.00 | 满足 |
| 西向 | 1.72 | 2.00 | 满足 |
| 《标准》依据 | 《北京市居住建筑节能设计标准》(DB11／891-2012)第3.2.2条 | | |
| 标准要求 | 各朝向阳台门的传热系数应满足表3.2.2的要求 | | |
| 结论 | 满足 | | |

## 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 | 6＋12A＋6高透低辐射玻璃 | 65 | 1.70 | 0.64 | 1.000 | 摘自《上海住宅建筑围护结构节能应用技术规程》DG/TJ08-206-2002 |
| 2 | 6＋12A＋6中透低辐射玻璃 | 18 | 1.80 | 0.44 | 0.800 | 同上 |

### 平均传热系数

1. 南向：

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 序号 | 门窗编号 | 楼层 | 数量 | 单个面积（㎡） | 总面积（㎡） | 构造编号 | 传热系数 |
| 1 |  | 1~6 | 6 | 3.003 | 18.017 | 65 | 1.700 |
| 2 |  | 1~5 | 30 | 6.480 | 194.403 | 65 | 1.700 |
| 3 |  | 2~5 | 54 | 8.910 | 481.140 | 65 | 1.700 |
| 4 |  | 6 | 1 | 6.480 | 6.480 | 65 | 1.700 |
| 5 |  | 6~7 | 7 | 0.594 | 4.158 | 65 | 1.700 |
| 6 |  | 6~7 | 7 | 3.150 | 22.050 | 65 | 1.700 |
| 7 |  | 6~7 | 7 | 0.630 | 4.410 | 65 | 1.700 |
| 8 |  | 6 | 6 | 3.780 | 22.680 | 65 | 1.700 |
| 9 |  | 7 | 1 | 2.646 | 2.646 | 65 | 1.700 |
| 10 | 63GC | 5~6 | 3 | 1.620 | 4.860 | 18 | 1.800 |
| 11 | C0615 | 5 | 2 | 0.900 | 1.800 | 18 | 1.800 |
| 12 | C0915 | 5 | 2 | 1.350 | 2.700 | 18 | 1.800 |
| 13 | C1515 | 1~2 | 2 | 3.960 | 7.920 | 18 | 1.800 |
| 14 | C1515 | 2 | 1 | 4.612 | 4.612 | 18 | 1.800 |
| 15 | C1515 | 3,5~6 | 25 | 2.250 | 56.250 | 18 | 1.800 |
| 16 | C1515 | 4 | 1 | 3.150 | 3.150 | 18 | 1.800 |
| 17 | C1815 | 1~5 | 68 | 2.700 | 183.600 | 18 | 1.800 |
| 18 | C1815 | 1 | 2 | 4.860 | 9.720 | 18 | 1.800 |
| 19 | C1815 | 2 | 2 | 5.220 | 10.440 | 18 | 1.800 |
| 20 | C1815 | 2 | 1 | 4.374 | 4.374 | 18 | 1.800 |
| 21 | C1815 | 3 | 2 | 4.520 | 9.040 | 18 | 1.800 |
| 22 | C1815 | 3 | 1 | 3.783 | 3.783 | 18 | 1.800 |
| 23 | C1815 | 4 | 1 | 4.651 | 4.651 | 18 | 1.800 |
| 24 | C2109 | 6~7 | 7 | 1.890 | 13.230 | 18 | 1.800 |
| 25 | C2115 | 1~5 | 27 | 3.150 | 85.050 | 18 | 1.800 |
| 26 | C2115 | 1 | 3 | 3.150 | 9.450 | 18 | 1.800 |
| 27 | mlc23 | 1 | 42 | 2.025 | 85.050 | 18 | 1.800 |
| 28 | mlc23 | 1 | 2 | 3.294 | 6.588 | 18 | 1.800 |
| 朝向总面积(㎡) | | | 1262.251 | 朝向平均传热系数 | | | 1.740 |

2. 北向：

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 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 |  | 2 | 3 | 1.620 | 4.860 | 18 | 1.800 |
| 2 |  | 3~4 | 10 | 2.700 | 27.000 | 18 | 1.800 |
| 3 |  | 4 | 1 | 3.780 | 3.780 | 18 | 1.800 |
| 4 |  | 6 | 1 | 6.480 | 6.480 | 65 | 1.700 |
| 5 |  | 6 | 6 | 10.044 | 60.264 | 65 | 1.700 |
| 6 |  | 7 | 1 | 8.910 | 8.910 | 65 | 1.700 |
| 7 | 63GC | 6 | 2 | 1.620 | 3.240 | 18 | 1.800 |
| 8 | C0615 | 1~6 | 34 | 0.900 | 30.600 | 18 | 1.800 |
| 9 | C0615 | 2 | 2 | 1.092 | 2.184 | 18 | 1.800 |
| 10 | C0615 | 2~3 | 2 | 1.080 | 2.160 | 18 | 1.800 |
| 11 | C0615 | 2 | 1 | 1.541 | 1.541 | 18 | 1.800 |
| 12 | C0615 | 3 | 1 | 1.890 | 1.890 | 18 | 1.800 |
| 13 | C0615 | 3 | 2 | 1.493 | 2.985 | 18 | 1.800 |
| 14 | C0615 | 4 | 1 | 1.395 | 1.395 | 18 | 1.800 |
| 15 | C0615 | 5 | 1 | 1.563 | 1.563 | 18 | 1.800 |
| 16 | C0615 | 5 | 1 | 1.566 | 1.566 | 18 | 1.800 |
| 17 | C0615 | 5 | 1 | 1.647 | 1.647 | 18 | 1.800 |
| 18 | C0915 | 1~6 | 52 | 1.350 | 70.200 | 18 | 1.800 |
| 19 | C0915 | 1 | 1 | 2.070 | 2.070 | 18 | 1.800 |
| 20 | C0915 | 1 | 2 | 2.250 | 4.500 | 18 | 1.800 |
| 21 | C0915 | 1,4 | 7 | 1.350 | 9.450 | 18 | 1.800 |
| 22 | C0915 | 2 | 2 | 2.889 | 5.778 | 18 | 1.800 |
| 23 | C0915 | 2 | 2 | 2.376 | 4.752 | 18 | 1.800 |
| 24 | C0915 | 2 | 2 | 2.916 | 5.832 | 18 | 1.800 |
| 25 | C0915 | 2 | 1 | 2.126 | 2.126 | 18 | 1.800 |
| 26 | C0915 | 3 | 1 | 1.913 | 1.913 | 18 | 1.800 |
| 27 | C0915 | 3 | 2 | 2.040 | 4.080 | 18 | 1.800 |
| 28 | C0915 | 3~4 | 12 | 2.484 | 29.808 | 18 | 1.800 |
| 29 | C0915 | 3 | 1 | 1.950 | 1.950 | 18 | 1.800 |
| 30 | C0915 | 3 | 2 | 2.759 | 5.519 | 18 | 1.800 |
| 31 | C0915 | 3 | 2 | 2.052 | 4.104 | 18 | 1.800 |
| 32 | C0915 | 3 | 2 | 2.601 | 5.202 | 18 | 1.800 |
| 33 | C0915 | 3 | 1 | 2.295 | 2.295 | 18 | 1.800 |
| 34 | C0915 | 4 | 1 | 2.862 | 2.862 | 18 | 1.800 |
| 35 | C0915 | 4 | 1 | 2.385 | 2.385 | 18 | 1.800 |
| 36 | C0915 | 4 | 1 | 2.453 | 2.453 | 18 | 1.800 |
| 37 | C0915 | 4 | 1 | 2.700 | 2.700 | 18 | 1.800 |
| 38 | C0915 | 4 | 1 | 2.088 | 2.088 | 18 | 1.800 |
| 39 | C0915 | 5 | 3 | 2.162 | 6.485 | 18 | 1.800 |
| 40 | C1215 | 5 | 9 | 1.800 | 16.200 | 18 | 1.800 |
| 41 | C1215 | 5 | 3 | 2.327 | 6.982 | 18 | 1.800 |
| 42 | C1515 | 1 | 1 | 3.856 | 3.856 | 18 | 1.800 |
| 43 | C1515 | 1~3,5~6 | 35 | 2.250 | 78.750 | 18 | 1.800 |
| 44 | C1515 | 1 | 1 | 5.245 | 5.245 | 18 | 1.800 |
| 45 | C1515 | 1 | 1 | 4.617 | 4.617 | 18 | 1.800 |
| 46 | C1515 | 1 | 1 | 4.505 | 4.505 | 18 | 1.800 |
| 47 | C1515 | 1 | 1 | 4.536 | 4.536 | 18 | 1.800 |
| 48 | C1515 | 1 | 1 | 4.320 | 4.320 | 18 | 1.800 |
| 49 | C1515 | 1 | 1 | 4.914 | 4.914 | 18 | 1.800 |
| 50 | C1515 | 1 | 1 | 4.952 | 4.952 | 18 | 1.800 |
| 51 | C1515 | 1 | 1 | 4.050 | 4.050 | 18 | 1.800 |
| 52 | C1515 | 1 | 1 | 5.508 | 5.508 | 18 | 1.800 |
| 53 | C1515 | 2 | 1 | 4.806 | 4.806 | 18 | 1.800 |
| 54 | C1515 | 2 | 1 | 3.778 | 3.778 | 18 | 1.800 |
| 55 | C1515 | 2,4 | 5 | 4.612 | 23.058 | 18 | 1.800 |
| 56 | C1515 | 2~3 | 4 | 4.455 | 17.820 | 18 | 1.800 |
| 57 | C1515 | 2 | 1 | 4.682 | 4.682 | 18 | 1.800 |
| 58 | C1515 | 2 | 1 | 4.199 | 4.199 | 18 | 1.800 |
| 59 | C1515 | 2 | 1 | 4.099 | 4.099 | 18 | 1.800 |
| 60 | C1515 | 2 | 1 | 5.319 | 5.319 | 18 | 1.800 |
| 61 | C1515 | 2 | 1 | 4.268 | 4.268 | 18 | 1.800 |
| 62 | C1515 | 3 | 3 | 4.326 | 12.978 | 18 | 1.800 |
| 63 | C1515 | 3 | 1 | 4.662 | 4.662 | 18 | 1.800 |
| 64 | C1515 | 3 | 2 | 5.193 | 10.386 | 18 | 1.800 |
| 65 | C1515 | 3 | 1 | 4.905 | 4.905 | 18 | 1.800 |
| 66 | C1515 | 3 | 1 | 4.999 | 4.999 | 18 | 1.800 |
| 67 | C1515 | 4 | 3 | 4.266 | 12.798 | 18 | 1.800 |
| 68 | C1515 | 4 | 3 | 4.094 | 12.281 | 18 | 1.800 |
| 69 | C1515 | 4 | 1 | 4.968 | 4.968 | 18 | 1.800 |
| 70 | C1515 | 5 | 1 | 4.387 | 4.387 | 18 | 1.800 |
| 71 | C1515 | 5 | 1 | 5.186 | 5.186 | 18 | 1.800 |
| 72 | C1815 | 2~5 | 24 | 2.700 | 64.800 | 18 | 1.800 |
| 朝向总面积(㎡) | | | 703.427 | 朝向平均传热系数 | | | 1.789 |

3. 东向：

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 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 |  | 1~6 | 16 | 5.940 | 95.040 | 65 | 1.700 |
| 2 |  | 1~4 | 13 | 2.700 | 35.100 | 18 | 1.800 |
| 3 |  | 1~2 | 3 | 3.780 | 11.340 | 18 | 1.800 |
| 4 |  | 2~3 | 2 | 2.808 | 5.616 | 18 | 1.800 |
| 5 |  | 5 | 1 | 4.635 | 4.635 | 18 | 1.800 |
| 6 |  | 5 | 1 | 4.914 | 4.914 | 18 | 1.800 |
| 7 |  | 5 | 1 | 4.806 | 4.806 | 18 | 1.800 |
| 8 |  | 6 | 6 | 8.910 | 53.460 | 65 | 1.700 |
| 9 |  | 7 | 1 | 10.044 | 10.044 | 65 | 1.700 |
| 10 | C0615 | 1,3~6 | 14 | 0.900 | 12.600 | 18 | 1.800 |
| 11 | C0915 | 3 | 3 | 2.039 | 6.118 | 18 | 1.800 |
| 12 | C0915 | 4~6 | 8 | 1.350 | 10.800 | 18 | 1.800 |
| 13 | C1515 | 3 | 1 | 4.086 | 4.086 | 18 | 1.800 |
| 14 | C1515 | 3 | 1 | 5.222 | 5.222 | 18 | 1.800 |
| 15 | C1515 | 4~5 | 4 | 2.250 | 9.000 | 18 | 1.800 |
| 16 | C1809 | 2~5 | 23 | 1.620 | 37.260 | 18 | 1.800 |
| 17 | C1809 | 3 | 1 | 4.374 | 4.374 | 18 | 1.800 |
| 18 | C1815 | 1 | 1 | 4.941 | 4.941 | 18 | 1.800 |
| 19 | C1815 | 1 | 1 | 4.320 | 4.320 | 18 | 1.800 |
| 20 | C1815 | 1 | 1 | 5.096 | 5.096 | 18 | 1.800 |
| 21 | C1815 | 2~3,5 | 9 | 2.700 | 24.300 | 18 | 1.800 |
| 22 | C1815 | 2 | 1 | 4.748 | 4.748 | 18 | 1.800 |
| 23 | C1815 | 2 | 1 | 3.996 | 3.996 | 18 | 1.800 |
| 24 | C1815 | 2 | 1 | 4.165 | 4.165 | 18 | 1.800 |
| 25 | C1815 | 5 | 3 | 1.620 | 4.860 | 18 | 1.800 |
| 26 | C2115 | 1~6 | 6 | 3.150 | 18.900 | 18 | 1.800 |
| 27 | mlc23 | 1 | 1 | 2.025 | 2.025 | 18 | 1.800 |
| 28 | mlc23 | 1 | 1 | 3.721 | 3.721 | 18 | 1.800 |
| 29 | mlc23 | 1 | 2 | 3.240 | 6.480 | 18 | 1.800 |
| 30 | mlc23 | 1 | 1 | 2.700 | 2.700 | 18 | 1.800 |
| 朝向总面积(㎡) | | | 404.667 | 朝向平均传热系数 | | | 1.761 |

4. 西向：

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 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 |  | 1~5 | 15 | 5.940 | 89.100 | 65 | 1.700 |
| 2 |  | 1~3,6 | 9 | 2.700 | 24.300 | 18 | 1.800 |
| 3 |  | 1~2,4 | 3 | 3.780 | 11.340 | 18 | 1.800 |
| 4 |  | 1~2 | 3 | 1.620 | 4.860 | 18 | 1.800 |
| 5 |  | 2 | 1 | 3.195 | 3.195 | 18 | 1.800 |
| 6 |  | 3 | 1 | 3.096 | 3.096 | 18 | 1.800 |
| 7 |  | 3 | 1 | 4.860 | 4.860 | 18 | 1.800 |
| 8 |  | 5 | 1 | 4.104 | 4.104 | 18 | 1.800 |
| 9 |  | 5 | 1 | 4.714 | 4.714 | 18 | 1.800 |
| 10 |  | 6 | 6 | 2.646 | 15.876 | 65 | 1.700 |
| 11 |  | 6~7 | 7 | 3.150 | 22.050 | 65 | 1.700 |
| 12 |  | 6~7 | 7 | 0.630 | 4.410 | 65 | 1.700 |
| 13 |  | 6~7 | 7 | 0.594 | 4.158 | 65 | 1.700 |
| 14 |  | 7 | 1 | 3.780 | 3.780 | 65 | 1.700 |
| 15 | 43gc | 5 | 2 | 1.080 | 2.160 | 18 | 1.800 |
| 16 | 53gc | 2~6 | 20 | 1.350 | 27.000 | 18 | 1.800 |
| 17 | C0615 | 1,3~5 | 12 | 0.900 | 10.800 | 18 | 1.800 |
| 18 | C0915 | 1~5 | 16 | 1.350 | 21.600 | 18 | 1.800 |
| 19 | C0915 | 2 | 2 | 2.376 | 4.752 | 18 | 1.800 |
| 20 | C0915 | 3 | 1 | 1.710 | 1.710 | 18 | 1.800 |
| 21 | C0915 | 3 | 1 | 1.620 | 1.620 | 18 | 1.800 |
| 22 | C0915 | 3 | 1 | 2.457 | 2.457 | 18 | 1.800 |
| 23 | C0915 | 3 | 2 | 2.340 | 4.680 | 18 | 1.800 |
| 24 | C0915 | 4 | 1 | 1.790 | 1.790 | 18 | 1.800 |
| 25 | C0915 | 4 | 1 | 2.380 | 2.380 | 18 | 1.800 |
| 26 | C1809 | 2~5 | 17 | 1.620 | 27.540 | 18 | 1.800 |
| 27 | C1809 | 3 | 3 | 4.583 | 13.748 | 18 | 1.800 |
| 28 | C1809 | 4 | 3 | 4.860 | 14.580 | 18 | 1.800 |
| 29 | C1809 | 4 | 1 | 3.240 | 3.240 | 18 | 1.800 |
| 30 | C1815 | 1~3,5 | 11 | 2.700 | 29.700 | 18 | 1.800 |
| 31 | C1815 | 1 | 1 | 4.451 | 4.451 | 18 | 1.800 |
| 32 | C1815 | 2 | 2 | 3.915 | 7.830 | 18 | 1.800 |
| 33 | C1815 | 2 | 1 | 4.700 | 4.700 | 18 | 1.800 |
| 34 | C1815 | 5 | 2 | 1.620 | 3.240 | 18 | 1.800 |
| 35 | C2109 | 6~7 | 7 | 1.890 | 13.230 | 18 | 1.800 |
| 36 | mlc23 | 1 | 2 | 2.025 | 4.050 | 18 | 1.800 |
| 37 | mlc23 | 1 | 1 | 3.294 | 3.294 | 18 | 1.800 |
| 朝向总面积(㎡) | | | 410.395 | 朝向平均传热系数 | | | 1.766 |

### 总体热工性能

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 朝向 | 面积 | 传热系数 | 遮阳系数 | 窗墙比 | 标准要求 | 结论 |
| 南向 | 1262.25 | 1.74 | 0.56 | 0.45 | K≤1.80 | 满足 |
| 北向 | 703.43 | 1.79 | 0.46 | 0.24 | K≤1.80 | 满足 |
| 东向 | 404.67 | 1.76 | 0.52 | 0.15 | K≤2.00 | 满足 |
| 西向 | 410.39 | 1.77 | 0.51 | 0.15 | K≤2.00 | 满足 |
| 综合平均 | 2780.74 | 1.76 | 0.52 | 0.25 |  |  |
| 标准依据 | 《北京市居住建筑节能设计标准》(DB11／891-2012)第3.2.2条 | | | | | |
| 标准要求 | 各朝向外窗传热系数和遮阳系数满足表3.2.2的要求 | | | | | |
| 结论 | 满足 | | | | | |

注：本表所统计的外窗包含凸窗。

### 外遮阳类型

#### 自定义遮阳

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 序号 | 编号 | 夏季遮阳系数 | 冬季遮阳系数 | 平均遮阳系数 | 备注 |
| 1 | 活动遮阳0 | 1.000 | 1.000 | 1.000 |  |

### 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 |  | 1~6 | 6 | 3.003 | 18.017 | 65 | 0.640 |  | 1.000 | 0.640 |
| 2 |  | 1~5 | 30 | 6.480 | 194.403 | 65 | 0.640 |  | 1.000 | 0.640 |
| 3 |  | 2~5 | 54 | 8.910 | 481.140 | 65 | 0.640 |  | 1.000 | 0.640 |
| 4 |  | 6 | 1 | 6.480 | 6.480 | 65 | 0.640 |  | 1.000 | 0.640 |
| 5 |  | 6~7 | 7 | 0.594 | 4.158 | 65 | 0.640 |  | 1.000 | 0.640 |
| 6 |  | 6~7 | 7 | 3.150 | 22.050 | 65 | 0.640 |  | 1.000 | 0.640 |
| 7 |  | 6~7 | 7 | 0.630 | 4.410 | 65 | 0.640 |  | 1.000 | 0.640 |
| 8 |  | 6 | 6 | 3.780 | 22.680 | 65 | 0.640 |  | 1.000 | 0.640 |
| 9 |  | 7 | 1 | 2.646 | 2.646 | 65 | 0.640 |  | 1.000 | 0.640 |
| 10 | 63GC | 5~6 | 3 | 1.620 | 4.860 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 11 | C0615 | 5 | 2 | 0.900 | 1.800 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 12 | C0915 | 5 | 2 | 1.350 | 2.700 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 13 | C1515 | 1~2 | 2 | 3.960 | 7.920 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 14 | C1515 | 2 | 1 | 4.612 | 4.612 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 15 | C1515 | 3,5~6 | 25 | 2.250 | 56.250 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 16 | C1515 | 4 | 1 | 3.150 | 3.150 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 17 | C1815 | 1~5 | 68 | 2.700 | 183.600 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 18 | C1815 | 1 | 2 | 4.860 | 9.720 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 19 | C1815 | 2 | 2 | 5.220 | 10.440 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 20 | C1815 | 2 | 1 | 4.374 | 4.374 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 21 | C1815 | 3 | 2 | 4.520 | 9.040 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 22 | C1815 | 3 | 1 | 3.783 | 3.783 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 23 | C1815 | 4 | 1 | 4.651 | 4.651 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 24 | C2109 | 6~7 | 7 | 1.890 | 13.230 | 18 | 0.440 |  | 1.000 | 0.440 |
| 25 | C2115 | 1~5 | 27 | 3.150 | 85.050 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 26 | C2115 | 1 | 3 | 3.150 | 9.450 | 18 | 0.440 |  | 1.000 | 0.440 |
| 27 | mlc23 | 1 | 42 | 2.025 | 85.050 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 28 | mlc23 | 1 | 2 | 3.294 | 6.588 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 朝向总面积(㎡) | | | | | 1262.251 | 朝向综合遮阳系数 | | | 1.000 | 0.560 |

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 |  | 2 | 3 | 1.620 | 4.860 | 18 | 0.440 |  | 1.000 | 0.440 |
| 2 |  | 3~4 | 10 | 2.700 | 27.000 | 18 | 0.440 |  | 1.000 | 0.440 |
| 3 |  | 4 | 1 | 3.780 | 3.780 | 18 | 0.440 |  | 1.000 | 0.440 |
| 4 |  | 6 | 1 | 6.480 | 6.480 | 65 | 0.640 |  | 1.000 | 0.640 |
| 5 |  | 6 | 6 | 10.044 | 60.264 | 65 | 0.640 |  | 1.000 | 0.640 |
| 6 |  | 7 | 1 | 8.910 | 8.910 | 65 | 0.640 |  | 1.000 | 0.640 |
| 7 | 63GC | 6 | 2 | 1.620 | 3.240 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 8 | C0615 | 1~6 | 34 | 0.900 | 30.600 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 9 | C0615 | 2 | 2 | 1.092 | 2.184 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 10 | C0615 | 2~3 | 2 | 1.080 | 2.160 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 11 | C0615 | 2 | 1 | 1.541 | 1.541 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 12 | C0615 | 3 | 1 | 1.890 | 1.890 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 13 | C0615 | 3 | 2 | 1.493 | 2.985 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 14 | C0615 | 4 | 1 | 1.395 | 1.395 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 15 | C0615 | 5 | 1 | 1.563 | 1.563 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 16 | C0615 | 5 | 1 | 1.566 | 1.566 | 18 | 0.440 |  | 1.000 | 0.440 |
| 17 | C0615 | 5 | 1 | 1.647 | 1.647 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 18 | C0915 | 1~6 | 52 | 1.350 | 70.200 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 19 | C0915 | 1 | 1 | 2.070 | 2.070 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 20 | C0915 | 1 | 2 | 2.250 | 4.500 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 21 | C0915 | 1,4 | 7 | 1.350 | 9.450 | 18 | 0.440 |  | 1.000 | 0.440 |
| 22 | C0915 | 2 | 2 | 2.889 | 5.778 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 23 | C0915 | 2 | 2 | 2.376 | 4.752 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 24 | C0915 | 2 | 2 | 2.916 | 5.832 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 25 | C0915 | 2 | 1 | 2.126 | 2.126 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 26 | C0915 | 3 | 1 | 1.913 | 1.913 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 27 | C0915 | 3 | 2 | 2.040 | 4.080 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 28 | C0915 | 3~4 | 12 | 2.484 | 29.808 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 29 | C0915 | 3 | 1 | 1.950 | 1.950 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 30 | C0915 | 3 | 2 | 2.759 | 5.519 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 31 | C0915 | 3 | 2 | 2.052 | 4.104 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 32 | C0915 | 3 | 2 | 2.601 | 5.202 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 33 | C0915 | 3 | 1 | 2.295 | 2.295 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 34 | C0915 | 4 | 1 | 2.862 | 2.862 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 35 | C0915 | 4 | 1 | 2.385 | 2.385 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 36 | C0915 | 4 | 1 | 2.453 | 2.453 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 37 | C0915 | 4 | 1 | 2.700 | 2.700 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 38 | C0915 | 4 | 1 | 2.088 | 2.088 | 18 | 0.440 |  | 1.000 | 0.440 |
| 39 | C0915 | 5 | 3 | 2.162 | 6.485 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 40 | C1215 | 5 | 9 | 1.800 | 16.200 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 41 | C1215 | 5 | 3 | 2.327 | 6.982 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 42 | C1515 | 1 | 1 | 3.856 | 3.856 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 43 | C1515 | 1~3,5~6 | 35 | 2.250 | 78.750 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 44 | C1515 | 1 | 1 | 5.245 | 5.245 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 45 | C1515 | 1 | 1 | 4.617 | 4.617 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 46 | C1515 | 1 | 1 | 4.505 | 4.505 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 47 | C1515 | 1 | 1 | 4.536 | 4.536 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 48 | C1515 | 1 | 1 | 4.320 | 4.320 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 49 | C1515 | 1 | 1 | 4.914 | 4.914 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 50 | C1515 | 1 | 1 | 4.952 | 4.952 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 51 | C1515 | 1 | 1 | 4.050 | 4.050 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 52 | C1515 | 1 | 1 | 5.508 | 5.508 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 53 | C1515 | 2 | 1 | 4.806 | 4.806 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 54 | C1515 | 2 | 1 | 3.778 | 3.778 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 55 | C1515 | 2,4 | 5 | 4.612 | 23.058 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 56 | C1515 | 2~3 | 4 | 4.455 | 17.820 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 57 | C1515 | 2 | 1 | 4.682 | 4.682 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 58 | C1515 | 2 | 1 | 4.199 | 4.199 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 59 | C1515 | 2 | 1 | 4.099 | 4.099 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 60 | C1515 | 2 | 1 | 5.319 | 5.319 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 61 | C1515 | 2 | 1 | 4.268 | 4.268 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 62 | C1515 | 3 | 3 | 4.326 | 12.978 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 63 | C1515 | 3 | 1 | 4.662 | 4.662 | 18 | 0.440 |  | 1.000 | 0.440 |
| 64 | C1515 | 3 | 2 | 5.193 | 10.386 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 65 | C1515 | 3 | 1 | 4.905 | 4.905 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 66 | C1515 | 3 | 1 | 4.999 | 4.999 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 67 | C1515 | 4 | 3 | 4.266 | 12.798 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 68 | C1515 | 4 | 3 | 4.094 | 12.281 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 69 | C1515 | 4 | 1 | 4.968 | 4.968 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 70 | C1515 | 5 | 1 | 4.387 | 4.387 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 71 | C1515 | 5 | 1 | 5.186 | 5.186 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 72 | C1815 | 2~5 | 24 | 2.700 | 64.800 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 朝向总面积(㎡) | | | | | 703.427 | 朝向综合遮阳系数 | | | 1.000 | 0.462 |

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 |  | 1~6 | 16 | 5.940 | 95.040 | 65 | 0.640 | 活动遮阳0 | 1.000 | 0.640 |
| 2 |  | 1~4 | 13 | 2.700 | 35.100 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 3 |  | 1~2 | 3 | 3.780 | 11.340 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 4 |  | 2~3 | 2 | 2.808 | 5.616 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 5 |  | 5 | 1 | 4.635 | 4.635 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 6 |  | 5 | 1 | 4.914 | 4.914 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 7 |  | 5 | 1 | 4.806 | 4.806 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 8 |  | 6 | 6 | 8.910 | 53.460 | 65 | 0.640 | 活动遮阳0 | 1.000 | 0.640 |
| 9 |  | 7 | 1 | 10.044 | 10.044 | 65 | 0.640 | 活动遮阳0 | 1.000 | 0.640 |
| 10 | C0615 | 1,3~6 | 14 | 0.900 | 12.600 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 11 | C0915 | 3 | 3 | 2.039 | 6.118 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 12 | C0915 | 4~6 | 8 | 1.350 | 10.800 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 13 | C1515 | 3 | 1 | 4.086 | 4.086 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 14 | C1515 | 3 | 1 | 5.222 | 5.222 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 15 | C1515 | 4~5 | 4 | 2.250 | 9.000 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 16 | C1809 | 2~5 | 23 | 1.620 | 37.260 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 17 | C1809 | 3 | 1 | 4.374 | 4.374 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 18 | C1815 | 1 | 1 | 4.941 | 4.941 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 19 | C1815 | 1 | 1 | 4.320 | 4.320 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 20 | C1815 | 1 | 1 | 5.096 | 5.096 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 21 | C1815 | 2~3,5 | 9 | 2.700 | 24.300 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 22 | C1815 | 2 | 1 | 4.748 | 4.748 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 23 | C1815 | 2 | 1 | 3.996 | 3.996 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 24 | C1815 | 2 | 1 | 4.165 | 4.165 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 25 | C1815 | 5 | 3 | 1.620 | 4.860 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 26 | C2115 | 1~6 | 6 | 3.150 | 18.900 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 27 | mlc23 | 1 | 1 | 2.025 | 2.025 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 28 | mlc23 | 1 | 1 | 3.721 | 3.721 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 29 | mlc23 | 1 | 2 | 3.240 | 6.480 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 30 | mlc23 | 1 | 1 | 2.700 | 2.700 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 朝向总面积(㎡) | | | | | 404.667 | 朝向综合遮阳系数 | | | 1.000 | 0.518 |

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 |  | 1~5 | 15 | 5.940 | 89.100 | 65 | 0.640 | 活动遮阳0 | 1.000 | 0.640 |
| 2 |  | 1~3,6 | 9 | 2.700 | 24.300 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 3 |  | 1~2,4 | 3 | 3.780 | 11.340 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 4 |  | 1~2 | 3 | 1.620 | 4.860 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 5 |  | 2 | 1 | 3.195 | 3.195 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 6 |  | 3 | 1 | 3.096 | 3.096 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 7 |  | 3 | 1 | 4.860 | 4.860 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 8 |  | 5 | 1 | 4.104 | 4.104 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 9 |  | 5 | 1 | 4.714 | 4.714 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 10 |  | 6 | 6 | 2.646 | 15.876 | 65 | 0.640 | 活动遮阳0 | 1.000 | 0.640 |
| 11 |  | 6~7 | 7 | 3.150 | 22.050 | 65 | 0.640 | 活动遮阳0 | 1.000 | 0.640 |
| 12 |  | 6~7 | 7 | 0.630 | 4.410 | 65 | 0.640 | 活动遮阳0 | 1.000 | 0.640 |
| 13 |  | 6~7 | 7 | 0.594 | 4.158 | 65 | 0.640 | 活动遮阳0 | 1.000 | 0.640 |
| 14 |  | 7 | 1 | 3.780 | 3.780 | 65 | 0.640 | 活动遮阳0 | 1.000 | 0.640 |
| 15 | 43gc | 5 | 2 | 1.080 | 2.160 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 16 | 53gc | 2~6 | 20 | 1.350 | 27.000 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 17 | C0615 | 1,3~5 | 12 | 0.900 | 10.800 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 18 | C0915 | 1~5 | 16 | 1.350 | 21.600 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 19 | C0915 | 2 | 2 | 2.376 | 4.752 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 20 | C0915 | 3 | 1 | 1.710 | 1.710 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 21 | C0915 | 3 | 1 | 1.620 | 1.620 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 22 | C0915 | 3 | 1 | 2.457 | 2.457 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 23 | C0915 | 3 | 2 | 2.340 | 4.680 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 24 | C0915 | 4 | 1 | 1.790 | 1.790 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 25 | C0915 | 4 | 1 | 2.380 | 2.380 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 26 | C1809 | 2~5 | 17 | 1.620 | 27.540 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 27 | C1809 | 3 | 3 | 4.583 | 13.748 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 28 | C1809 | 4 | 3 | 4.860 | 14.580 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 29 | C1809 | 4 | 1 | 3.240 | 3.240 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 30 | C1815 | 1~3,5 | 11 | 2.700 | 29.700 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 31 | C1815 | 1 | 1 | 4.451 | 4.451 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 32 | C1815 | 2 | 2 | 3.915 | 7.830 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 33 | C1815 | 2 | 1 | 4.700 | 4.700 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 34 | C1815 | 5 | 2 | 1.620 | 3.240 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 35 | C2109 | 6~7 | 7 | 1.890 | 13.230 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 36 | mlc23 | 1 | 2 | 2.025 | 4.050 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 37 | mlc23 | 1 | 1 | 3.294 | 3.294 | 18 | 0.440 | 活动遮阳0 | 1.000 | 0.440 |
| 朝向总面积(㎡) | | | | | 410.395 | 朝向综合遮阳系数 | | | 1.000 | 0.508 |

5. 平均遮阳系数：

|  |  |
| --- | --- |
|  | =0.521 |

|  |  |  |  |
| --- | --- | --- | --- |
| 朝向 | 面积（㎡） | 权重系数b | 遮阳系数 |
| 南向 | 1262.251 | 1.00 | 0.560 |
| 北向 | 703.427 | 1.00 | 0.462 |
| 东向 | 404.667 | 1.00 | 0.518 |
| 西向 | 410.395 | 1.00 | 0.508 |
| 整个建筑平均遮阳系数 | | 0.521 | |

### 外窗遮阳系数

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 朝向 | 房间编号 | 窗构造 编号 | 遮阳系数 | 标准要求 | 窗墙比 | 是否满足 |
| 东向 | 1076 | 18 | 0.44 | 0.45 | 0.31 | 满足 |
| 西向 | 1085 | 18 | 有 | 不允许 | 0.27 | 满足 |
| 标准依据 | | 《北京市居住建筑节能设计标准》(DB11／891-2012)第3.2.4条 | | | | |
| 标准要求 | | 寒冷（B）区外窗综合遮阳系数应符合3.2.4的要求。 | | | | |
| 结论 | | 满足 | | | | |

注：达标朝向只列出一项，不达标朝向最多列出10项

### 外窗全遮蔽外遮阳

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 朝向 | 房间编号 | 窗构造编号 | 遮阳系数 | 标准要求 | 是否满足 |
| 东向 | 1080 | 18 | 有 | 不允许 | 满足 |
| 西向 | 1085 | 18 | 有 | 不允许 | 满足 |
| 标准依据 | | 《北京市居住建筑节能设计标准》(DB11／891-2012)第3.2.10条 | | | |
| 标准要求 | | 《北京市居住建筑节能设计标准》(DB11／891-2012)第3.2.10条 | | | |
| 结论 | | 满足 | | | |

注：达标朝向只列出一项，不达标朝向最多列出10项

## 是否有凸窗

|  |  |  |  |
| --- | --- | --- | --- |
| 朝向 | 是否有凸窗 | 标准要求 | 结论 |
| 北向 | 无凸窗 | 不得设置凸窗 | 满足 |
| 《标准》依据 | 《北京市居住建筑节能设计标准》(DB11／891-2012)第3.2.6条 | | |
| 标准要求 | 北向不得设置凸窗 | | |
| 结论 | 满足 | | |

## 凸窗板

本工程无此项内容

## 变形缝

本工程无此项内容

## 外窗气密性

|  |  |
| --- | --- |
| 最不利气密性等级 | － |
| 外窗气密性措施 |  |
| 标准依据 | 《北京市居住建筑节能设计标准》(DB11／891-2012)第3.2.9条，分级与检测方法《建筑外门窗气密，水密，抗风压性能分级及检测方法》（GB/T 7106-2008） |
| 标准要求 | 外窗气密性不应低于《建筑外门窗气密，水密，抗风压性能分级及检测方法》（GB/T 7106-2008）的7级 |
| 结论 | － |

## 规定性指标检查结论

|  |  |  |  |
| --- | --- | --- | --- |
| 序号 | 检查项 | 结论 | 可否性能权衡 |
| 1 | 体形系数 | 不满足 | 可 |
| 2 | 窗墙比 | 满足 |  |
| 3 | 屋顶 | 满足 |  |
| 4 | 外墙 | 满足 |  |
| 5 | 挑空楼板 | 满足 |  |
| 6 | 分隔采暖与非采暖空间的隔墙 | 满足 |  |
| 7 | 户门 | 满足 |  |
| 8 | 单元外门 | 满足 |  |
| 9 | 天窗类型 | 无屋顶透光部分 |  |
| 10 | 开敞阳台门 | 满足 |  |
| 11 | 外窗热工 | 满足 |  |
| 12 | 是否有凸窗 | 满足 |  |
| 13 | 外窗气密性 | 满足 |  |
| 结论 | | 不满足 | 可 |

# 热工性能权衡判断

## 说明

本建筑按《北京市居住建筑节能设计标准》(DB11／891-2012)之规定进行强制性条文和必须满足条款的规定性指标检查，结果未能达标，按标准规定继续进行热工性能权衡判断。

## 权衡计算

注：计算过程见【能耗计算】耗热量计算表.

|  |  |  |
| --- | --- | --- |
|  | 设计建筑 | 限值 |
| 耗热量指标(W/㎡) | 18.65 | 10.50 |
| 耗煤量指标(kg/㎡) | 10.24 | 5.77 |
| 标准依据 | 《北京市居住建筑节能设计标准》(DB11／891-2012)》3.3.2 | |
| 标准要求 | 建筑物耗热量指标不应大于表3.3.2的限值 | |
| 结论 | 不满足 | |

## 结论

|  |  |  |
| --- | --- | --- |
| 序号 | 检查项 | 结论 |
| 1 | 窗墙比 | 满足 |
| 2 | 屋顶构造 | 满足 |
| 3 | 外墙构造 | 满足 |
| 4 | 分隔采暖与非采暖空间的隔墙 | 满足 |
| 5 | 户门 | 满足 |
| 6 | 挑空楼板构造 | 满足 |
| 7 | 外窗热工 | 满足 |
| 8 | 阳台门 | 满足 |
| 9 | 权衡计算 | 不满足 |
| 结论 | | 不满足 |