

Cooling Load Factors

14.01 Diversity Factors

Diversity factors are an engineer's judgement applied to various people, lighting, equipment, and total loads to consider actual usage. Actual diversities may vary depending on building type and occupancy. Diversities listed here are for office buildings and similar facilities.

A. Room/Space Peak Loads:

1. People $1.0 \times \text{Calc. Load}$
2. Lights $1.0 \times \text{Calc. Load}$
3. Equipment $1.0 \times \text{Calc. Load}^*$

*Calc. Load may have diversity factor calculated with individual pieces of equipment or as a group or not at all.

B. Floor/Zone Block Loads:

1. People $0.90 \times \text{Sum of Peak Room/Space People Loads}$
2. Lights $0.95 \times \text{Sum of Peak Room/Space Lighting Loads}$
3. Equipment $0.90 \times \text{Sum of Peak Room/Space Equipment Loads}$
4. Floor/Zone Total Loads $0.90 \times \text{Sum of Peak Room/Space Total Loads}$

C. Building Block Loads:

1. People $0.75 \times \text{Sum of Peak Room/Space People Loads}$
2. Lighting $0.95 \times \text{Sum of Peak Room/Space Lighting Loads}$
3. Equipment $0.75 \times \text{Sum of Peak Room/Space Equipment Loads}$
4. Building Total Load $0.85 \times \text{Sum of Peak Room/Space Total Loads}$

14.02 Safety Factors

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| A. Room/Space Peak Loads | $1.1 \times \text{Calc. Load}$ |
| B. Floor/Zone Loads (Sum of Peak) | $1.0 \times \text{Calc. Load}$ |
| C. Floor/Zone Loads (Block) | $1.1 \times \text{Calc. Load}$ |
| D. Building Loads (Sum of Peak) | $1.0 \times \text{Calc. Load}$ |
| E. Building Loads (Block) | $1.1 \times \text{Calc. load}$ |
| F. ASHRAE Standard 90.1-1989 | 10% Maximum Safety Factor |

14.03 Cooling Load Factors

A. Lighting Load Factors:

1. Fluorescent Lights $1.25 \times \text{Bulb Watts}$
2. Incandescent Lights $1.00 \times \text{Bulb Watts}$
3. HID Lighting $1.25 \times \text{Bulb Watts}$

B. Return Air Plenum (RAP) Factors:

1. Heat of Lights to Space with RAP $0.76 \times \text{Lighting Load}$
2. Heat of Lights to RAP $0.24 \times \text{Lighting Load}$
3. Heat of Roof to space with RAP $0.30 \times \text{Roof Load}$
4. Heat of Roof to RAP $0.70 \times \text{Roof Load}$

C. Ducted Exhaust or Return Air (DERA) Factors:

1. Heat of Lights to Space with DERA $1.00 \times \text{Lighting Load}$
2. Heat of Roof to Space with DERA $1.00 \times \text{Roof Load}$

D. Other Cooling Load Factors (CLF) are in accordance with ASHRAE Recommendations:

1. $\text{CLF} \times \text{Other Loads}$

14.04 ASHRAE Standard 90.1-1989**A. Pick-Up Loads 10% Maximum System Capacity Allowance for Morning Cool Down Cycles****B. Safety Factor 10% Maximum**