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# ASHRAE Standard 169-2020: Climatic Data for Building Design

### KRISHNAJI PAWAR - CEO & FOUNDER

### LEED AP(BD+C),GSAS CGP,GCP,ISO 14001

# BUILDING ENERGY MODELING : STEP-BY-STEP PROCEDURES FOR LEED CERTIFICATION

This document provides climatic data for building design and equipment standards, covering various factors like temperature, humidity, wind conditions, solar irradiation, latitude, longitude, and elevation. It also includes statistical data, such as mean temperatures, average temperatures, and heating and cooling degrees.

# Learning Objectives

- **Introduction and Course Outline**

- **Building Energy Modeling Checklists**

- **Scaling an imported drawing from AutoCAD**

- ASHRAE Standard 169-2020

- **BEM software inputs for the project section, facade, systems, and zones**

- **Setup and Running the Building Energy Modeling Simulation**

- **Review BEM Software Output Reports.**

- **Sample Energy Modeling Report**

- **Summary and Resources**

- **BEMP Practice Test V.4.1**

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# INTRODUCTION

- Framework for collecting, presenting, and applying climate data in building design.
- Established by ASHRAE for understanding and utilizing climatic conditions.
- Includes environmental parameters like temperature, humidity, wind speed, solar radiation, and precipitation.
- Essential for designing heating, ventilation, and air conditioning systems and assessing building performance.
- Outlines acceptable sources for climatic data: National Weather Service reports, climate normals, local meteorological stations, historical weather databases.
- Provides guidelines for presenting climatic data, including tables, graphs, and charts.
- Emphasizes integration of climatic data into building design, including energy modeling, passive design strategies, and resilience planning.

# KEY COMPONENTS OF ASHRAE STANDARD 169-2020

- Classifies climatic data into several categories: temperature, humidity, wind, solar radiation, and precipitation.
- Outlines acceptable sources for climatic data: National Weather Service reports, climate normals from the National Oceanic and Atmospheric Administration, local meteorological stations, and historical weather databases.
- Provides guidelines for the presentation of climatic data, recommending formats such as tables, graphs, and charts.



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# APPLICATION IN BUILDING DESIGN

- Emphasizes the integration of climatic data into the building design process.
- Includes energy modeling, passive design strategies, and resilience planning.

**Demonstrative Examples**

- Temperature Considerations: Buildings in regions with high summer temperatures and high humidity may require dehumidification systems.
- Solar Radiation Analysis: Analyzing solar radiation data to determine optimal window placements and shading devices.
- Wind Direction Impact: Using wind data to guide the placement of operable windows and vents to promote airflow.

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# CONCLUSION

- ASHRAE Standard 169-2020 provides a foundation for integrating climatic data into building design.
- It equips professionals with the tools necessary to create energy-efficient, comfortable, and resilient buildings.

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## CONTACT US

ENERGY MODELING SPECIALIST
BEYOND SMART CITIES

📞 +91 6363032722

✉️ info@beyondsmartcities.in

🌐 learn.beyondsmartcities.in

📍 #55,HMR  Layout ,Bengaluru ,India