

THE BUILDING PERFORMANCE DATABASE: AN ANALYTICAL TOOL
FOR INDOOR AIR QUALITY RESEARCH

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The Building Performance Database is an on-line database which enables users to access information relating to building materials, energy use, ventilation, lighting, acoustics, pollutant levels, and the health and comfort of occupants. Information was derived from a multitude of studies of office, commercial, institutional and residential buildings conducted by universities and private organizations and agencies such as the National Institute for Occupational Safety and Health and the Centers for Disease Control and Public Works Canada. New studies are being added as reports become available.

The presentation will focus on the structure and organization of BPD, and will provide example applications for the evaluation of indoor air quality and ventilation system performance in office and commercial buildings. In addition, the following points will be discussed.

A. DATABASE CONTENTS

1. Bibliographic data describing the organization(s) conducting the study.
2. Research report summaries.
3. Architectural and engineering data.
4. Macro and micro geographic data.
5. Environmental measurements, e.g. ventilation, temperature, humidity.
6. Measurement methodology and equipment used.
7. Occupant health and comfort information.

B. ANALYTICAL CAPABILITIES

1. All database items may be quickly retrieved and displayed at the terminal.
2. Tables of information can be constructed and displayed in report form.
3. Frequency analysis.
4. Summary statistical analysis.

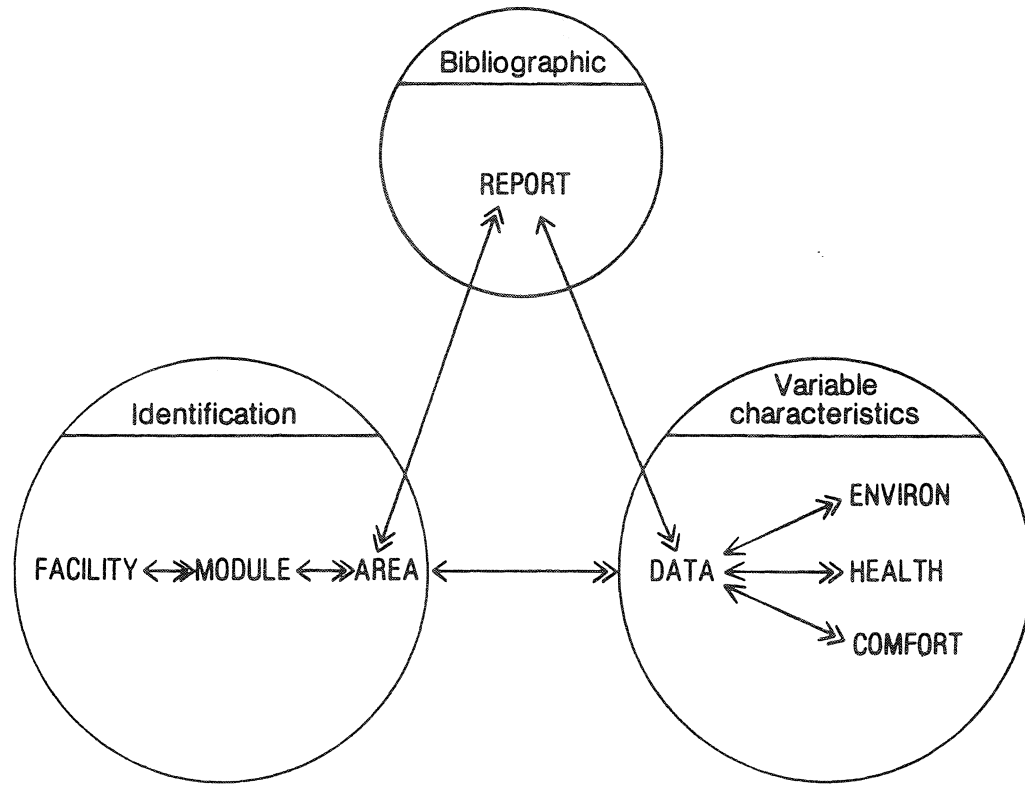
5. Multiplicative models and other powerful statistical tools can be easily applied to the data.
6. Data can be used with other data analysis and graphing packages such as BMDP and TELLAGRAF.

C. WHO SHOULD USE BPD?

Epidemiologists, hygienists, architects, health and building scientists, builders and engineers. Users may search for significant relationships, locate reports which deal with problems similar to those they regularly face, and determine what other studies of interest have been done.

D. HOW TO ACCESS BPD

BPD is implemented on a large mainframe IBM computing facility and may be accessed through any international network; for example, DATAPAC, in Canada; and TELENET and TYMNET, in the United States.



The BPD is divided into 8 interrelated files.
The diagram illustrates this interrelated structure.

Figure 1. The Structure of the BPD.

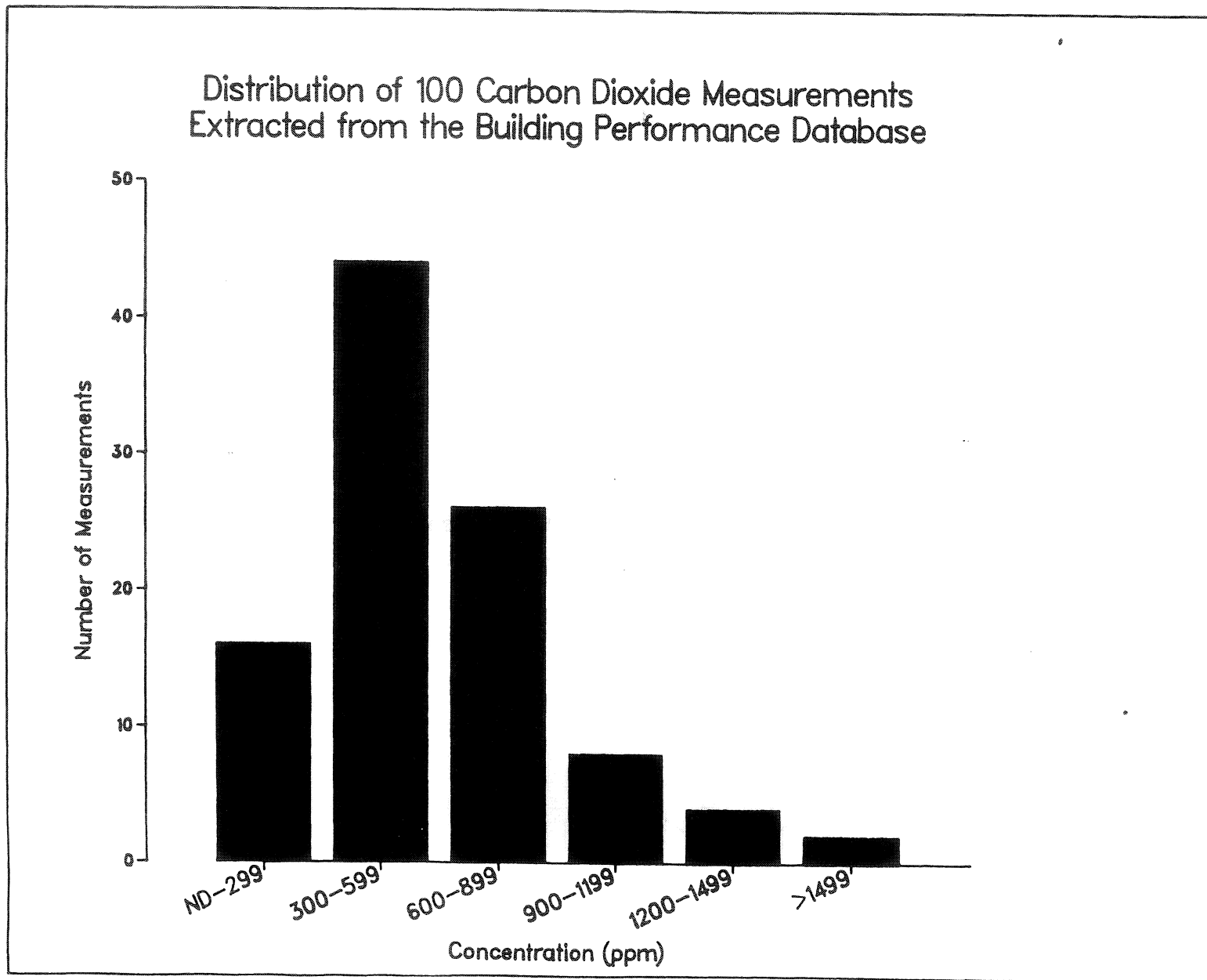


Figure 2. The Distribution of 100 Carbon Dioxide Measurements Extracted from the Building Performance Database.

TABLE 1: CARBON DIOXIDE CONCENTRATION (PPM) VS. TOTAL AIR SUPPLY PER PERSON (CFM).

CFM		0 - 149	150 - 299	300+
CO ₂ (PPM)				
0 - 399	Frequency	4	1	0
	Row %	80.00	20.00	0.00
	Column %	30.77	12.50	0.00
400 - 799	Frequency	6	6	1
	Row %	46.15	46.15	7.69
	Column %	46.15	75.00	100.00
800+	Frequency	3	1	0
	Row %	75.00	25.00	0.00
	Column %	23.08	12.50	0.00

Note that in addition to the frequency, the display shows row and column percentages.