# LET'S START COMMUNICATING - WHAT'S IN A WORD II

V. Quentin Bates
Lerch, Bates & Associates, Inc.
8080 South Lincoln, Suite 300
Littleton, CO 80122, USA

## ABSTRACT

At Elevcon '93, I presented a paper discussing the need for words, definitions and common methods for measuring elevator performance. With well defined words, understanding can be simplified when ideas, studies and tests are discussed, and those discussed items can be critiqued by other elevator engineers. This paper updates that presentation, reports on terms published by NEII (National Elevator Industry, Inc.) in the United States and includes the original "Performance Terminology Matrix" from that publication. Review and comment are encouraged, along with the suggestion that IAEE members and friends use these words, definitions and measurements in technical papers and presentations. Let's start communicating using words that convey common, agreed upon meaning - not DINOSAURS.

At the 1993 proceedings of this august Group, I presented a paper, "What's In A Word". Those who were here may recall my reference to the word, DINOSAUR, and the inability of that single world to adequately define over 350 different species ranging from pigeon size to something over 90 feet in length and weighing some 20,000 pounds.

During this conference, I venture to predict, words relating to elevator performance and its measurement will be used which may allow a range of interpretations in the same manner as, "DINOSAUR". Let's review just one:

- AVERAGE INTERVAL (AI)

For elevator performance calculations, average interval has general acceptance as the standard by which the quality of elevator service is evaluated. The mechanics for such calculation are defined by the formula, AI = Round Trip Time/# Of Elevators. Even with this well accepted definition and formula which has been used for over 50 years, disagreement may arise. For example, in the calculation of round trip time:

What is an appropriate acceleration rate?
What is an appropriate door opening time, door hold open time, door closing time?
What are appropriate times for passenger transfer?
Is high call reversal to be considered?

One is left with the proposition that even this well defined and accepted standard, performance evaluation is art rather than science.

Notwithstanding limitations, average interval is a very useful aid in communicating and understanding without lengthy explanation when used properly. As a matter of interest, each calculation made by a Lerch, Bates Consultant includes a summary of the values used in the calculation at the bottom of each printout page.

EXAMPLE ONE
CALCULATION VALUES

DATA USED

HCR PERFORMANCE AUTOMATICALLY

| | | | |
|---|---|---|---|
| SAMPLE LOCAL RUN W/HCR: | 69.53 FT | OBSTRUCTION FACTOR: | 10% |
| ADDITIONAL TIME TO RTT: | 0.0 SEC | DOOR OPENING TIME: | 1.8 SEC |
| PASSENGER BOARDING TIME: | 1.2 SEC | (- PREOPEN TIME:) | 0.6 SEC |
| PASSENGER EXITING TIME: | 1.1 SEC | DOOR CLOSING TIME: | 2.6 SEC |
| INTERLOCK & SWITCH TIME: | 0.0 SEC | INTERPT. RAY TIME: | 0.0 SEC |
| ACCEL/DECEL RATE: | 3.2 FT/SEC2 | JERK RATE: | 6.0 FT/SEC3 |

Possibly such source data adds clarity to the to the resultant values. However, there are still problems. As seeming well accepted as the term, "Average Interval", is, how often have you seen or heard phrases such as these:

"The average waiting time measured during five minutes of heavy incoming traffic was 21 seconds."

Or

"The waiting interval calculated for heavy one way traffic was 21 seconds."

Or

"Elevator response to waiting passengers averaged about 21 seconds during the incoming peak."?

What is your interpretation? Do each of these phrases mean the same thing? Are there differences in "waiting time", "response time" and "waiting interval"? And, does it make a difference? I suggest it does make a great difference!, and that as, "students-of-transportation", we need to be vitally concerned. Without answering those questions results of studies and conclusions drawn have no value. They can not be understood. Others cannot test their validity when data presented is ill-defined or flawed by measurement methods.

My 1993 paper outlined work being done in the United States by a committee assembled under the auspices of the National Elevator Industries, Inc., an elevator industry organization of elevator manufacturers. This committee is only one of a number of bodies grappling with standardization of words, definitions and measurement of individual and group elevator performance. In Australia, for example, an industry committee has been formulating standards for definition of ride quality especially as related to vertical and horizontal acceleration, and its measurement.

NEII has published information developed by their Performance Standards Committee. I am a member of that committee and know firsthand the effort, the quality of discussion, the compromise to achieve consensus, and the review support provided by engineers of major elevator manufacturers, code specialists and elevator consultants in the United States over a six year period. The document is only static in periodic printings. Between those printings, comments and suggestions are reviewed, additions and changes developed, and next edition draft continuously updated.

My primary interest in this NEII Guideline is the, "Performance Terminology Matrix". Therein is a basis for meaningful communication between practitioners of elevator arts and those with interest in their findings and recommendations. As members and friends of the IAEE, we need to have such standards to facilitate our discussions and to achieve common terminology in our presentation papers.

The NEII Terminology Matrix was prepared primarily for use of practitioners in the United States, but the guidelines could easily be applied on a global basis when English is used ... IF, we can overcome a lack of information, the syndrome of not-invented-here and an unwillingness to change to terms and definitions which differ from those more commonly used in our particular countries. I suggest the IAEE membership and friends consider adopting this matrix as a general standard. I further suggest each of us review the matrix which is included with this paper and discuss it. Comments and constructive criticism can be input here and hereafter by sending them to me, or the Committee Chairman:

Albert J. Saxer, Chairman
National Elevator Industry, Inc.,
185 Bridge Plaza North,
Room 310,
Fort Lee,
New Jersey 07024,
USA

Quent Bates, Member
at Lerch, Bates & Associates
8089 S. Lincoln, Suite 300
Littleton, CO 80122 USA
Phone: (303) 795-7956, Fax: (303) 797-7109
E-Mail: lba010@ix.netcom.com

May I repeat with a subscript - "LET'S START COMMUNICATING RATHER THAN CONFUSING" by promoting this Terminology Matrix as the English standard for identifying and measuring elevator performance.