



Speakers & Abstracts Of Berlin Elevcon 2000

see "programme" where final tentative programme 23 March updates are published
last update: 28 March 2000

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Elevcon 2000 Book of Proceedings with the complete papers

are in "[IAEE BOOKS](#)"

ARTIFICIAL NEURAL NETWORKS IN ELEVATOR DISPATCHING

Bruce A. Powell, Otis Elevator Company, USA

David J. Sirag, Jr. United Technologies Research Center, USA

Bradley L. Whitehall Information Resources, Inc., USA

This paper describes a "real world" application of neural networks that has enhanced the control of elevators in high rise buildings. A range of artificial neural networks (ANNs)--from a simple perceptron to complicated networks with hidden layer--have been developed and installed in advanced technology elevator systems. It has been demonstrated that the ANNs provide improved accuracy in estimating the response time for a given elevator to reach the floor of a waiting passenger. This greater accuracy has led to improvement in group control performance as measured generally by passenger waiting times. This paper defines the elevator dispatching problem and some of the research work that has led to the implementation of a neural network based elevator dispatcher in the real world.

IN THE EVENT OF FIRE - USE THE ELEVATORS

Roger E. Howkins, Ove Arup & Partners, UK

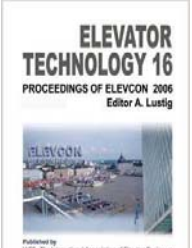
Buildings world-wide normally have instructions posted in elevators, rooms and primary circulation routes, that in the event of fire "Do Not Use the Elevators" In a modern correctly designed, installed and commissioned building this statement is fundamentally flawed, in safety terms when considering the overall building population. Why is it that in a modern building, the elevator systems considered to be unsafe in a fire situation? Is it a realistic demand to expect building occupiers to use evacuation stairs when safety procedures demand a quick efficient and safe means of evacuation from buildings in the event of an emergency, including fire? This paper will examine the risks of fire safety, affecting elevator performance in the event of intelligent and controllable emergency evacuation of a modern building.

ADVANCEMENT IN SAFETY PRACTICE FOR THE LIFT AND ESCALATOR INDUSTRY IN HONG KONG

H.S. Kuok, Chevalier (HK) Limited, Hong Kong

Hong Kong is a modern city with a high population density and a great demand for efficient vertical transportation. Lift and escalator safety has become increasingly important. The Hong Kong Government has imposed strict requirements on the design, construction and maintenance of lifts and escalators in order to safeguard installation and maintenance workers and passengers. The implementation of the new safety audit scheme and the performance monitoring system has contributed to the improvement of the overall safety performance at the work-places. This paper will focus on the current safety practice, including the requirements of the auditing and monitoring systems and the local statutory practice of the lift and escalator industry. In addition to emphasizing the advances in safety practice, I will identify some of the potential hazards related to the lift and escalator safety and highlight effective preventive methods.



HISTORY
ELEVCON 1986-2002
PHOTOS ELEVCON
ISTANBUL 2004
ELE-BERLIN
ELE-SINGAPORE
ELE-MILAN
ELE-ESPAÑA 2003
Ele-China 05
IBEX CHINA
EXHIBITION
ABSTRACTS CHINA
PHOTO BEIJING-05
PHOTOS BEIJ-05 2
ELE ESPANA 05
ELE ESPANA 07
ELE-DAY 07 ABSTRACTS
ELEVCON ELSINKI
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photos_01
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Ele-Thessalonica 2008
DAY 1 DAY 2 DAY 3
FINAL PROGRAMME
list of participants
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ASCENDING CAR OVERSPEED PROTECTION

Roland Stawinoga, IfA – Ingenieurburo fur Aufzugstechnik, Germany

Ever since counterweighted traction lifts have been built, uncontrolled movements of the car in the upward direction have occurred owing to electrical or mechanical faults. This paper discusses the physical constraints and critically reviews the possible and available safety devices to deal with this problem. The review considers the requirements of the relevant safety standards and codes.

INTRODUCTION TO ELECTRIC SHOCK PROTECTION

**Dr. Lutfi Al-Sharif, Ph.D., C.Eng., M.I.E.E., D.B.A., Team Delivery Manager (L&E/E&M), Station Systems
London Underground Ltd., United Kingdom**

This paper presents a general overview of the principles of electric shock and the systems of protection used to prevent it in electrical installations. Although mainly built around the United Kingdom Regulations, its principles can be applied to any country. The paper first discusses electric shock and the effects of electric current on the human body. It then outlines the types of earthing systems used. This then leads to the concept of an electric fault, how it develops and how it presents a dangerous condition to people. Protective devices are used to disconnect the supply in case of an electric fault, and these are discussed next. The most used system is the "Equipotential Bonding and Automatic Disconnection of Supply" system, which is further analysed. The paper then finishes by discussing the role of Residual Current Devices (RCD) in further electric shock protection.

MITSUBISHI'S GPQ MACHINE ROOM LESS ELEVATOR FOR THE EUROPEAN MARKET

D.W.L. Offerhaus, L.C. van Wagensveld, W.J.J.M. Kempes, T. Honda, Mitsubishi Elevator Europe B.V., R&D Centre, the Netherlands; Mitsubishi Electric Corporation Inazawa Works, Elevator development dept., Japan

Mitsubishi has developed a machine room less elevator – the GPQ – for the European market, which combines high quality and high performance with greater freedom of building design, due to less restrictions. A variety of safety measures ensure the safety of both passengers and maintenance personnel up to a safety level as demanded by European regulations. As a result of that, the GPQ elevator system has passed the EC-type examination.

ACTUAL STATUS OF THE INTERNATIONAL STANDARDIZATION OF ELEVATOR ROPES

Dr.-Ing. Michael Molkow, Drahtseilerei Gustav Kocks, Germany

The European Lift Rope Draft Standard as well as the recently established ISO work Item NP 4344 of ISO TC 105 WG 3 is covered. The valid ISO Standard 4344 does not even mention some of the most essential barriers against a real International Standard, as there are inch-metric sizes, modern rope constructions and very different tensile strength grade ideas throughout the respective national elevator industries. These and other fields of problems, solved and still not solved ones are presented and the logic behind some of the proposed solutions is described.

WORLD ELEVATOR CODES FOR THE ULTIMATE IN PASSENGER SAFETY

Walter Glaser, Hollister-Whitney Elevator Corp., U.S.A. G.A.L. Manufacturing Corp., U.S.A.

Electrical & mechanical failures in elevators that allow them to leave a floor with opened doors or cause them to or plummet in the overhead, present a hazard to life and limb. In the absence of code requirements, few products have been developed to prevent those accidents and those few have met with limited success. However, as the new world codes are changing to prevent those hazards, a new innovative spirit has been released creating many new product designs. This paper is a discussion of the new codes and new products designed to meet them.

MACHINE ROOM-LESS LIFTS

Dr. Gerhard Schiffner, Thyssen Aufzugswerke GmbH, Germany

In most European countries as well as outside Europe the importance of lifts without machine room is steadily increasing. Compared to hydraulic lifts an even higher market share has been achieved by this type of lift in some parts of Europe. Therefore the preparation of an amendment A2 of EN 81-1/2 was started to specify requirements for lifts without machine room. The report gives a general summary of the current status of the standardization work in Europe and demonstrates on an existing system how the requirements can be met.

THE REDEVELOPMENT OF CENTRAL BERLIN

Potsdamer Platz – big size project for Schindler

Frank Keller & Bernhard Kustos, Schindler Aufzugfabrik GmbH, Berlin, Germany

The unification of Germany and the decision that Berlin became the federal capital and seat of the federal government brought new challenges for the urban and regional planning. The redevelopment of central Berlin experienced great importance and was subject of significant international architectural design competitions. One of the major competitions were held for Potsdamer Platz, a wellknown historical place before the 2nd World War in Berlin. This paper was written in preparation for the excursion we are going to have on Wednesday afternoon. It is not an explicit technical presentation but it gives a general information about huge construction activities in this city, where of course elevators take an important role.

ELFOR THE COMMERZBANK BUILDING IN FRANKFURT

Hans M. Jappsen, Jappsen+Stangier Elevator Consulting Engineers, Germany

This paper describes the chronology of the elevator planing and the effect of the elevating system on the design of the high-rise buildings layout. Elevator system and its adaptation to the architectonic building design and the modifications of buildings design during the planning phase will be explained at the example of the New Commerzbank High Rise Building.

ELEVATING BERLIN GLASS LIFT ARCHITECTURE FOR THE GERMAN PARLIAMENT

Berthold Pesch Dipl.-Ing. M. Arch., Stephan Braunfels Architekten, Germany

Since reunification Berlin has seen an unprecedented boom in the building sector owing to the government move and promising forecasts for growth in the service sector. Considering quality and originality of lift design and construction the paper reviews important new projects, focusing on the design of the 16 glass lifts for a German Parliament facilities building.

A NEW SLIDE GUIDE SHOE TO SUPPRESS ELEVATOR VIBRATION

Ken-Ichi Okamoto, Takashi Yumura, Hisao Kuraoka, Kazuki Saragai, Kazushi Kojima, Mitsubishi Electric Corporation, Japan

We have developed a new slide guide shoe to decrease the lateral car vibration of an elevator. The key features of this novel slide guide shoe are its support structure and the specific shoe shape. We first present a simulation model for evaluating lateral elevator vibrations caused by the force generated at the guide shoes. Next, we apply the simulation results to the design of the guide's structural parameters to decrease elevator vibration. Simulation and experimental results show that the slide guide shoes are effective in suppressing lateral car vibration of an elevator.

PLANETARY GEAR REDUCERS - MERELY A QUESTION OF EFFICIENCY?

Dipl.-Ing. Theodor Helmle, alpha getriebebau GmbH, Germany

Planetary gear drive technology is wide spread in highly reliable applications from automatic car gears to space shuttle mission. However in the lift business worm gear drives traditionally have a very strong position an due to the highly competitive marketplace up to date technology usually is introduced with delay compared to other industrial fields. This now is expected to change by the requirement for compact drives in machine-roomless lifts. In this paper a technical and commercial comparison of different drive concepts is given, with particular reference to the effects on lift design, energy consumption and control equipment.

STRUCTURES AND SELECTION OF WIRE ROPES FOR ELEVATORS

Dr. Ing C. Erdem Imrak & MSc.Eng. Mustafa Ozkirim, Mechanical Engineering Faculty, Istanbul Technical University, Turkey

In the elevator installations, wire ropes are used to suspend the cars and the counterweights. Wire ropes in elevators are of round stranded and usually of right hand lay. Service life of elevator ropes depends on a number of factors such as wrap angle and lubrication. In this study types and structures of wire ropes are examined and compared. Then selection of elevator wire ropes is explained and service life of ropes is discussed in accordance with the standards.

WHAT'S UP IN THE HOISTWAY?

Geoff Brewer, Draka Elevator Products, Inc., USA

With much change and innovation within today's Elevator Industry including the development of "hi-tech" drives and controllers in the machine room, does the hoistway need to continue to be the "low-tech" environment of any elevator installation? This paper examines the way we approach the data highway, command and communications functions within an elevator control system. It considers how a degree of standardization can still present total installation flexibility and provide both manufacturer and contractor with improved installation performance, and a higher degree of "Safety" through a Pre-Wire or Modular installation concept. It also looks at the changes in "Installed Safety" and the growing requirement for both LSF (Low Smoke & Fume) and HF (Halogen-Free) cable products within the building structure, and the especially within the elevator hoistway.

THE ELEVATOR MONITORING SYSTEM WITH JAVA

Kenji Sasaki, Sandor Markon, Seiji Yasuda, Fujitec Co., Ltd., Japan

Conventionally, the EMS (Elevator Monitoring System) have been built with a completely closed local network structure. In recent years, networks with the TCP/IP protocol became very common for general purposes, spreading rapidly since they were used for the Internet, and thus also becoming very inexpensive. Recognizing this trend, FUJITEC has developed a TCP/IP network-based EMS using the Java language (developed by Sun Microsystems) in combination with WWW Servers. We have proved that the EMS on this LAN (Local Area Network) is more flexible and more extensible than the traditional solutions. We believe that TCP/IP and WWW with JAVA will become more and more advantageous for an EMS as LANs spread in the building.

A HIGHLY HUMAN-FRIENDLY REMOTE MONITORING SYSTEM

Yuji Tanaka, Fujitec Co., LTD., Japan

The remote monitoring system of the elevator has developed in the direction of improving serviceability by the mechanization and efficiency improvement at maintenance. Now, we think that the time has come to review a basic monitoring function whether it is really possible to respond promptly in the all events of elevator failures, or whether quick response is fairly offered to all users. We have thus developed a new remote monitoring system, featuring high-speed multimedia communication over ISDN, in-car video monitoring, universal design and remote inspection. Our new remote maintenance system has enabled many people to use elevators with a sense of safety in addition to the improvement of availability.

REMOTE ALARM SYSTEMS A NEW EUROPEAN APPROACH

Gerhard Thumm, Thyssen Aufzugswerke, Germany

More people than we might be aware of are afraid of using a lift, as they imagine to be trapped in the lift car. The new European directive has addressed this item and is asking as a new general safety requirement for a so-called "two way communication system allowing permanent contact with a rescue service". The paper highlights the actual status of the European standardization work in this field and introduces a typical system of TELESERVICE not only handling the alarm situation of trapped people but allowing an overall remote service of a lift installation.

COMMUNICATION OF INFORMATION IN ELEVATOR TFT DISPLAYS

John Trett B.Sc. AMIEE, C. E. Electronics Division of Programmed Technology Ltd., UK

The 'Elite' Indicator for the Lift Car uses TFT technology screens, which can communicate any information required to the passengers. Full computer text and graphics are available not only to display position and direction, but floor information, timed messages, priority and emergency messages, building information, advertisements, time, temperature, date, and to communicate outside the building. The communication links, graphics and programming are demonstrated showing the immense possibilities of this system for architects, planners and building owners.

DEFLECTOR DEVICES ENHANCE SAFETY ON ESCALATORS

Barry J. Fowkes, Kleeneze Sealtech Ltd., England.

Since 1982 when safety deflector devices were first introduced on escalators in the UK, the product has gained recognition in many parts of the world. The inclusion of such devices to new specifications of escalators and retro-fitting to existing installations, has made escalator travel for numerous passengers, much safer. In many countries, the product is permitted to be installed, in others it is "illegal" - but under certain conditions can still be introduced and occasionally, in some countries, they are mandatory. There are benefits for all concerned by appropriate means being adopted in attempting to prevent serious injury when using escalators.

ESCALATOR DRIVEN BY THE HIGH PERFORMANCE INVERTER SYSTEM

**Kil-Moon Yoon , Jeong-Gi Shin, Jae-young Heo, Geun-Ho Lee, Cheol-Ho Jang, Jae-Pil Lee, Jong-Ho Suh
LG- OTIS Elevator R & D Center, Korea**

Line starting using contactors is a conventional method for escalator system. Recently, consumer's requirements for energy saving and variable functions are increasing. To satisfy these demands, LG- OTIS Elevator has developed an escalator that is driven by inverter system. In this paper, technical schemes of the developed escalator are introduced and the performance of the proposed system is experimentally verified.

THE GLASS FIBER STEP "SMARTSTEP", A NEW GENERATION OF ESCALATOR STEPS

Dr. Wolfgang Stein & Dipl.-Ing. Hartmuth Willnauer, Thyssen Fahrtreppen GmbH, Germany

Escalators not only transport people in malls, department stores, fair- and convention centers, but by means of their attractive design they also encourage visitors to look around. Hence the coloration of the steps has been a long standing request of architects and customers. But traditional lacquer was too quickly damaged, resulting in an unattractive look of the step band. The new „smartstep“ however, made of a completely dyed material solves this problem; in addition it offers a

number of new creative possibilities by combining the coloured step body with demarcation- or decoration strips of a different colour.

A PARAMETER-CONTROLLED 3-D CAD TOOL FOR LIFT DESIGN

Thies vom Hofe, DigiPara GmbH, Germany

Designing and modernising lift installations both call for accurate scale drawings of the shaft, showing the precise positions of all the key components and documenting the plans for different target groups. The LIFTdesigner software automates the generation of general arrangement drawings and carries out engineering calculations using the CAD data and project data, producing documentation for safety-relevant components and performing important distance, collision and safety clearance checks. During the design work 3-D component-oriented models can easily be modified by adjusting individual parameters or component characteristics as required by the project. The program is fully customisable, supporting user component definition, VBA programming interface and templates for user drawing layouts. The approach and special features of the LIFTdesigner package will be described and compared with traditional methods.

A COMPUTER-AIDED DESIGN FOR THE SPECIFICATION AND PERFORMANCE EVALUATION OF ELEVATOR SYSTEMS

Y.C. Choa, J.H. Parka, H.C. Changa, Zavarin Gagova, W.H. Kwona, C.S. Kimb, P.H. Hanb and J.H. Seob

***Control Information Systems Lab., School of Electrical Engineering, Seoul National University, Seoul, 151-742, Korea
Building Systems Research Laboratory, LG-OTIS Inc. Incheon, Korea***

This paper presents a computer-aided design tool (ESES-Tool) which helps system designer to decide the specification of elevator systems and predict system performances given building environment and objectives. Owing to various possible combinations of building conditions such as group divisions, available service floors and car dynamics, the searching space is inherently huge, which makes it difficult to decide appropriate (or optimal) specification of the elevator system. A genetic algorithm is employed to find near-optimal elevator specifications and to reduce the searching time. The search result is tested by the fast simulation with event-driven techniques. Also, system performances such as mean, max, variance of HRT (hall call response time) and passengers' service time are also analyzed under several system options at the simulation stage of ESES-tool.

PERFORMANCE MEASUREMENT OF VERTICAL TRANSPORTATION EQUIPMENT

Michael V. Farinola, M. V. Farinola, INC., USA

The author is Michael V. Farinola President of M V Farinola, Inc. an elevator systems consulting firm from Wilmington, Delaware USA. The presentation will include discussion on U.S. Industry standards (NEII and ASME) as well as consultant and owner (end user) expectations on performance. The paper will include the most recent Methodology presently employed by consultants and most major manufacturers to measure lift performance. The methodology discussion will include a brief description of hardware utilized to collect data, including Tri-axis data logger, Tachometer, Traffic study computerized tools (simulated performance) and data collection forms for on site use (to calculate actual performance). Some discussion of Generally Accepted Performance Criteria (Parameters) for specific lift components will be presented as well. These criteria will include a short review of such areas as Velocity, Jerk, Acceleration, Door Performance, Transfer time, Handling Capacity, Intervals, Round trip times, Probable Stops, Waiting times and Mean time between equipment shut downs.

CHECKER FOR ELEVATOR SYSTEMS

Christoph Kressirer, Wittur AG, Germany

This paper begins with a brief description and evaluation of why a system for travel comfort was developed. It then presents a theoretical background of how the system works, and the results, which can be achieved by the Checker. Following this, practical measured data for

different lifts and suggestions on how to interpret the results in order to improve travelling comfort of hydraulic and traction lifts together with a summary of the Checker's advantages will be given.

PREVENTIVE AND PLANNED MAINTENANCE OF ELEVATORS

Dr. Ing C. Erdem Imrak & MSc. Eng. Mustafa Ozkirim, Mechanical Engineering Faculty, Istanbul Technical University, Turkey.

Maintenance is not only action when damage appears but also contains required operations for establishing and evaluating the current situation of elevator installations. By applying planned and periodical maintenance, continuous and reliable service time of elevators will be increased and the need for repair will be reduced. In this study elevator maintenance methods are discussed and preventive maintenance methods of elevator installations are hold and examined considering the regulations and standards.

ELEVGRAPHY FOR LIFT ENERGY CODE IN HONG KONG

Albert T.P. So, City University of Hong Kong, Thomas Li, City University of Hong Kong and S.K. Liu, Chevalier (HK) Ltd.

The Code of Practice for Energy Efficiency of Lift and Escalator Installations (Lift Energy Code) was drafted in 1998 in Hong Kong. Quite different from the conventional statutory regulations on lifts and escalators in Hong Kong, the Lift Energy Code places the emphasis on the performance of the installations in terms of motor drives, traffic analysis and electric power quality etc. In this paper, I shall introduce the various items inside the code. Furthermore, in order to check whether an installation complies with the electrical requirements inside the Lift Energy Code, a new system, Elevgraphy, was developed. Elevgraphy is a system consisting of a synchronised high-speed oscillogram and a synchronised comfort recorder. A software package, ElevWare, is used to analyse the raw data to produce 12 Elevgrams for each lift for either a full-load up or full-load down journey. Besides an assessment for the compliance of the Lift Energy Code, Elevgraphy is a useful system for condition based maintenance of elevator systems.

TIMING CONSIDERATIONS AND INEMATICS PARAMETERS OF ELEVATOR GROUP CONTROL SYSTEMS

Zavarin Gagov, Young Cheol Cho, Wook Hyun Kwon, Control Information Systems Lab., School of Electrical Engineering, Seoul National University, Seoul, 151-742, Korea
BaeHoon Han, LGIS Building Systems Research Laboratory, LG Industrial Systems Inc. Incheon, Korea

In this paper we concentrate on some important timing characteristics of Elevator Group Control (EGC) systems. The main discussion and calculations should be considered as a further development of Three Passages (TP) concept, already presented in our previous papers. To achieve better global performance of EGC, especially to reduce hall call waiting time, detailed kinematics model of elevator car and calculation methodology are presented. The importance of detailed kinematics considerations is demonstrated with calculations with data taken from real high-speed EGC system, existent in 63-floor building - Seoul, Korea.

IMPROVEMENT OF SINGLE ELEVATOR OPERATION BY USING PRIOR STAND BY CONTROL

Kenichi Yamashita, Atsuya Fujinori, Toshimitsu Tobita, Hitachi, Ltd. Elevators & E1, Hitachinaka, Ibaraki, Japan, Hitachi Mite Engineering Co., Ltd,
Ryou Okabe, Hitachinaka, Ibaraki, Japan, Hitachi Building Systems Co., Ltd
Kenji Kawano, Adachi, Tokyo, Japan

This paper introduces an operation control method with a learning function for single elevators. The method learns passengers' "punctual" elevator use, e.g. a regular time to leave for work in the morning in a residential building, and serves an elevator prior to the learned floor which stands by for each learned passenger. Computer simulation

shows it can serve an elevator prior to the learned floor and the passenger can board the elevator immediately when arriving passengers number is 2 persons or less per 5 minutes. Measured operation data at an actual residential building show waiting time was about 10% shorter than with the conventional method.

WHO'S BEHIND THE CALL?

Roger E. Howkins, Ove Arup & Partners, London W1P 6BQ, UK

The building occupants are waiting too long for the lifts, and large queues are forming at peak times. What can be done? Results from a traffic analyser study are provided, but provide insufficient information for analysis as the equipment counts "calls" and not "people". A manual lift study provides the necessary data to simulate the morning, lunchtime and evening peaks. The simulation provides confirmation that the current lift service could be improved with modernisation. Further options, including the installation of additional lifts, are assessed taking into account the client's changing needs for the building.

ON TRAFFIC PLANNING METHODOLOGY

Marja-Liisa Siikonen, KONE Corporation, PO Box 8 FIN-00331 Helsinki, Finland

Measurements in office buildings show that passenger traffic intensity is often highest during the lunch hour period. Up-peak boosters are used to increase handling capacity during heavy incoming traffic. Boosters decrease round trip time and the number of stops elevators make. Control methods such as floor zoning, or guiding passengers with the same destination to the same cars are used. If up-peak boosters are used at the planning stage, handling capacity during the lunch hour period becomes critical. During mixed interfloor traffic pattern, efficient call allocation algorithms provide better service than up-peak boosters. This paper considers traffic planning methods and the capability of different control algorithms to handle lunch hour traffic.

BEYOND THE UP PEAK

Dr. Richard D. Peters, Peters Research Ltd., Boundary House, Missenden Road, Great Kingshill, Bucks HP15 6EB, UK

Dr. Anthony C. M. Sung, Department of Building Engineering, UMIST, M60 1QD, UK

The up peak round trip time calculation (UPRTTC) was designed to be performed by hand. Implemented in software, the UPRTTC can now be performed quickly and efficiently. However, the UPRTTC is incapable of assessing the performance of all but up peak traffic in buildings with the main entrance on the lowest floor. More flexible analysis techniques are possible with calculations designed specifically to be implemented on computers. In this paper the authors compare two established software based techniques - General Analysis and Simulation - with the UPRTTC, discuss their relative merits, and compare the outcomes for some example buildings.

THE ADVANTAGE OF PMSM ELEVATOR TECHNOLOGY IN HIGH RISE BUILDINGS

Johannes de Jong & Harri Hakala, KONE Corporation, Finland

In 1995 KONE introduced PMSM technology in the low rise volume market with its revolutionary MonoSpace?. The small EcoDisc? machine allowed the complete elimination of the machine room, as it fitted in the hoistway. Gearless EcoDisc? technology reduces the energy consumption by some 50 to 60% compared to conventional geared and hydraulic installations. The next stage was the introduction of EcoDisc? PMSM elevator technology in medium and high rise buildings. In the gearless high speed range, the EcoDisc? technology, reduces the energy consumption by no less than 30 to 40%, while reducing the machine weight by approximately 50% in comparison to already very efficient asynchronous VVVF gearless technology. The smaller energy losses and the smaller electrical requirements also provide considerable savings in machine room cooling, emergency power generators and the machine room riser sizes. PMSM motor technology with its excellent controllability will also provide enhanced ride comfort.

NEW PARTIAL MODERNIZATION FOR D.C. GEAR-LESS HIGH-SPEED ELEVATORS

T. Tanahashi, M. Kawamura, S. Okuda & M. Fukuta, Mitsubishi Electric

Corporation Inazawa works, Japan

Mitsubishi Electric Corporation has developed a new drive-control system for partial modernization of D.C. gear-less high-speed elevators. The new drive-control system with the following characteristics consists of the chopper circuit and its technology is based on the technology of the inverter circuit which has been widely applied for the high-speed elevators.

Characteristics;

1. Reduced harmonic current in comparison with the Thyristor Leonard system

1. Reduced energy consumption of 40% in comparison with the Ward Leonard system.

1. Superior performances (ride comfort, landing accuracy etc.) as our latest elevators

1. Many optional features are available

Current applicable D.C. gear-less high-speed elevators are those with speeds of 120 240m/min and capacities below 1,600kg, and they are going to be widely applied. This article introduces a new drive-control system with a chopper circuit.

CENTRE OF CONVEYOR AND LIFT TECHNOLOGY

Dr.-Ing. Dietmar Kuntscher, Centre of Conveyor and Lift Technology Rosswein, Germany

The centre was founded in 1995 in Rosswein. Rosswein is a 105 years old place of educational establishment of masters, technicians and engineers in the fields of steel construction and conveyor engineering as well as others. Since the fifties of the last century there has been a laboratory for the students, which has been instructed with problems of development and testing by private companies. The new centre supports the industry and companies with research, development and education of staff. An experimental tower with three variable lift shafts is going to build. The centre is registered as Notified Body No. 0734, according to Lift Directive 95/16/EC.

THE PAYLIFT CONCEPT

Lennart Svensson-Hilford & Lutz Richter, Schindler Elevator and Escalator Company, Germany

The PayLift concept is based on the fundamental idea that we don't sell elevators but rather charge only for the actual transportation performed. This means users pay according to the user-pays-principle, i.e. only for individual transportation similar to all other means of transportation such as train, airplane or taxi. At present, the investment costs of an elevator facility are off set over the rent and the operating and maintenance costs off set up to 80% over the monthly incidental expenses. The basis for allocation is the floor space of the office or apartment. There is no present provision for allocating costs based on individual use such as for electricity, water or heating. The PayLift concept also provides for individual travel desires – such as single travel, door opening times, type of music, information, etc.- that can be selected by the passengers themselves using an information terminal.

WORKSHOP I

ESCAPE STRATEGIES USING ELEVATORS IN THE EVENT OF A FIRE

Convenor: Roger Howkins, Ove Arup & Partners, UK

As the idea of containment of fire is fundamental to the design of modern high rise buildings and experience has shown that it is rarely necessary to evacuate more than those in the immediate vicinity. The issues to discuss would be controls, communication and elevators working in hostile conditions.

WORKSHOP II

CONTROL BUTTONS AND DEVICES FOR THE DISABLED

Convenor: John Inglis, Amron Lift Resources, Australia

There is a need world wide to harmonize control buttons and devices for use in lifts and this must include persons with disabilities that would find it difficult to operate some of the devices that have been supplied in the past. The workshop will discuss many of the problems associated with these units such as button size, button shape, and pressure to operat. In addition how new technology can help to improve audible, visual and space requirements for these devices. Those attending the workshop are invited to bring with them overhead transparencies of their ideas on this very

important subject.

**the abstracts and speakers list is subject to changes. this list is
updated 28 March 2000**