Abstracts

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General

2.1.136(55733)
Filipkowski, S.
Ergonomic investigation of machinery used in the building industry (In German)
Proceedings of the symposium on 'Ergonomics in machine design'. Prague 2–7 Oct. 1967. ILO, Geneva, 1969, 2, 1089–1095

The Productivity Section of the Institute of Labour in Warsaw carried out an ergonomic investigation relating to the construction of an excavator. The research served two objects: firstly to determine (in agreement with the manufacturer), the ergonomic requirements for the mass production of this machine which at present exists only as a prototype; secondly to work out a methodology which can be applied to other types of machinery. The investigation consisted of a simplified ergonomic analysis based on a special check-list, design studies of the prototype, observation of the machine during operation and the study of photographs. The author describes the results of this investigation and the method used.

2.1.137(55813)
Spiewak, F.
Application of psychology in the Polish coalmining industry
Proceedings of the symposium on 'Ergonomics in machine design'. Prague 2–7 Oct. 1967. ILO, Geneva, 1969, 2, 1071–1076

In Poland, compulsory psychological testing of miners performing responsible work is practised. This testing is carried out in 19 mining-psychology laboratories which were organised in the years 1960-1966 in all hard-coal districts, brown-coal districts and the central mining rescue station. This paper deals with the organisation of these laboratories and their procedures and methods of testing. The collaboration of psychologists and doctors is discussed concerning the abilities of tested men to perform a particular job, and the importance of this kind of testing for productivity and safety in coalmining.

Visual displays

2.1.138(56153)
Meister, D. and Sullivan, D. J.
Guide to human engineering design for visual displays
Abstr. in Scientific and Technical Aerospace Reports (No N70 – 11687) (AD–693237)

The report is a compilation of the available human factors information related to the design of visual displays. The subjects covered include human performance, display characteristics and the interactions that must be considered in the design of visual display systems.

2.1.139(56158)
Lees, J. and Farman, M.
An investigation of the design and performance of traffic control devices
Journal of Typographic Research, 1970, 4.1, 7–38

This paper reports on a study (performed for the United States Bureau of Public Roads) involving a comparative analysis of the design elements of the major highway sign systems of the world. Shape, colour, symbols, pictographs, and verbal messages were studied through design exercises, laboratory investigations, and road tests. The study—carried out by a multi-disciplinary team of psychologists, engineers, and graphic designers—also included extensive reviews of existing research on highway signs, traffic control devices, and the design of signs. The introduction examines the history of highway sign development and regulation as well as a discussion of an automobile driver's processing of information.

Auditory displays

2.1.140(56175)
Hörner, O. and Paul, W.
Subscriber equipment
Reports on Telephone Engineering, 1969, 2.3, 140–149

Telephone subscriber equipment is a man-machine link during telephoning hence its design is equally influenced by man (his anatomy and behaviour) and machine (the exchange system and the technical features of the subscriber equipment). This theme is developed by describing the evolution of Siemens telephones caused by technological, constructional design and styling advances; colour photographs of a range of equipment are given. The human factors aspects stressed are the need to design for both right- and left-handed people whether sitting or standing, the use of a keyboard compared to a dial, how design can influence behaviour (especially in using loudspeaker and video telephones), etc. System prerequisites, technical prerequisites of subscriber equipment, styling and cost effectiveness are also discussed. Future advances in the use of technology and the creation of new styles and new services (especially the use of the video telephone for the visual display of documentary information) are suggested.

Workspace layout and equipment design

2.1.141(56185)
Lippert, S.
Travel in single corridor nursing units
Tufts–New England Medical Center, Planning Office Report No 3, Mar. 1970, 118 pp

Through the use of simple models of nursing unit layouts, equations are

developed for the calculation of nurses travel in terms of random or ordered tours. The equations cover cases from one bed in the nursing unit to as many as 84. Graphic representation of such tours is given for examples when minimal room dimensions are assigned. The models are shown to have a practical value beyond the simple assumptions. Examples are given of some of the many kinds of comparisons which can be made. The arrangements covered are for one-bed and two-bed patient rooms on one or both sides of a linear corridor. The equations permit the architect to insert various dimensions of room width, bed-to-bed distance within the patient's room and distance from the corridor centre-line to the bedside of the patient.

2.1.142(56187)
Borsky, I. and Gruss, K.
Contribution to the construction of agricultural machines from the point of view of occupational physiology and hygiene (In German)
Proceedings of the symposium on 'Ergonomics in machine design'. Prague 2–7 Oct. 1967. ILO, Geneva, 1969, 2, 746–855

On the basis of several years' experience in the assessment of agricultural machines, tools and equipment from the standpoint of occupational health and physiology, the authors describe some important and frequently-occurring constructional shortcomings in these machines that have an unfavourable effect on the comfort and health of operators. From the physiological point of view, the shortcomings concern mainly the seats, the arrangement of the work place and the spatial distribution of controls. From the health point of view, the principal unfavourable factors are excessive noise, vibration and dust. Special questions concerning the construction of machines arise in the agricultural application of various chemical substances. Examples are quoted to show how to improve the operator's working environment and comfort by suitable construction.

2.1.143(56191)
Podzimek, K., Zeman, M. and Kvanisčka, B.
Design development of some shoemaking machines
Proceedings of the symposium on 'Ergonomics in machine design'. Prague 2–7 Oct. 1967. ILO, Geneva, 1969, 2, 865–373

The design deficiencies of the older types of soling and pounding shoemaking machines are described in the paper. Also considered are the individual working risks resulting from the unsuitable ergonomic design of the machines. Ergonomic requirements have been applied in designing the new shoemaking machinery. Thus the position of the human body at work has improved, and physical exertion as well as the risks from noise and mechanical vibrations have decreased.

2.1.144(56200)
Seeber, A.
The design of defect-indication systems in control rooms
Proceedings of the symposium on 'Ergonomics in machine design'. Prague 2–7 Oct. 1967, ILO, Geneva, 1969, 2, 795–801

For the technical supervision of electrical switchgear, defect indication is necessary. For this purpose special display panels are designed. They permit the identification of defect causes by reading co-ordinates in the viewing fields. The present experimental investigation deals with the problem of how defect indications could be read more quickly and accurately by modifications of the information display. The different designs were produced by grouping signalling instruments with the presentation of information remaining constant. Different arrangements of the panels were tried (different spacing on the viewing field, sub-grouping by marking). The results led to proposals for the construction of systems of defect indication which are shown to depend on the size and the form of the display; on the number of signalling instruments and on other variables.

2.1.145(56202)
Konstantinov, V. N.
Adjustable stools and seats
Proceedings of the symposium on 'Ergonomics in machine design'. Prague 2–7 Oct. 1967, ILO, Geneva, 1969, 1, 607–616

The construction of adjustable stools and seats for individual use permits regulations of the goemetric and vibrational parameters corresponding to the dimensions and the mass of the human body, to the specific working activity, and to the requirements of static, kinetic and dynamic comfort. The paper emphasises the general theoretical premisses and the methods used in connection with the design of adjustable stools and seats. Analytical data are given respecting the results of complex mechanical, physiological and psychological experiments made on constructed models.

2.1.146(56203)
Louda, L. and Tihelková, D.
Specification for tractor seat design
Proceedings of the symposium on 'Ergonomics in machine design'. Prague 2–7 Oct. 1967, ILO, Geneva, 1969, 2, 669–673

In the years 1957-58 comparison tests were carried out on 18 various types of tractor seats on Czechoslovakian and foreign production. (The tests were carried out on a vibrator (shaking table) with film recording of the tractor driver's body movements.) The results made it possible to develop a seat for tractors of the unified Zetor type, which have been produced since 1960. In 1966 in co-operation with the tractor production plan ZKL Brno-Lisen and the Institute for Motor Vehicle Research in Prague, further comparison tests of tractor seats were carried out. Seats produced abroad (Fritzmeier and Spiromatic) and the prototype of a tractor seat with pneumatic springs of Czechoslovakian manufacture were compared with the seat of the Zetor tractor produced in 1960. When testing tractor seats on an obstacle track, the mechanical vibrations on the tractor seat and on the driver's body were measured. The measurements were made by inductive pickup connected to the loop oscillograph and by film recording. Evaluation of the test results made it possible to grant the request for production of the new pneumatic spring element for tractors of the new unified Zetor type and series production is now in preparation.

Illumination

2.1.147(56217)
Hicks, H. V.
Supplementary headlight improves driver's 'seeing' distance without dazzling oncoming driver
SAE Journal, 1970, 78.3, 40–42

A simple projector lamp, with an automatic shutter to cut off part of the beam–preventing glare for the oncoming driver–more than doubles the driver's seeing distance along the outside of the road.

2.1.148(56218)
Lion, J. S., Richardson, E. and Browne, R. C.
A study of the performance of industrial inspectors under two kinds of lighting
Proceedings of the symposium on 'Ergonomics in machine design'. Prague 2–7 Oct. 1967. ILO, Geneva, 1969, 2, 919–930

Forty-nine subjects were told to pick out faulty objects passing on a