



WORK ENVIRONMENT AS SECTION OF FACILITY MANAGEMENT

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ABSTRACT:

The aim of the following article is to describe the work environment as a part of facility management. Management of working environment is important from occupational health and safety and economical aspect. Due to the differences of working environment in individual companies a common model of working environment factors evaluation is described in the article for integrated management systems.

KEYWORDS:

work environment, evaluation, system, facility management, health and safety

1. INTRODUCTION – DEFINITION OF WORKING ENVIRONMENT AND FACILITY MANAGEMENT

From a historical point of view working environment definition could be back dated to the times when distribution of labour began to create different working conditions- several thousand years ago. Working environment is a part of labour system which consists of a worker, aim of work, working sequence of method, working equipment and mechanisms, inputs and outputs. So working environment could be understood as a complex of material and intellectual conditions which affects a human. Factors that occur at the work place or related to the conducted work and workplace itself are parts of working environment. These factors are physical, chemical, biological and psycho-social.

Definition of working environment is a matter of interest for management support systems in area of quality, environment, occupational health and work safety. It can be considered as a common ground for integrated management systems. Due to the mentioned fact a system could be processed into one integrated manual or separately. There are two demands on working environment quality [1]:

- + requests for the conditions that are essential for proper completion of product (e.g. cleanliness, microclimate for special technologies etc.)
- + requests for conditions that are necessary for workers to conduct their work properly (e.g. microclimate, order, necessary tools and equipment, noise reduction etc.)

Definition of facility management is familiar to scientific community for more than decade since IFMA – International Facility Management Association was established. It is a method for synchronising workers, work goals and working environment inside the companies using the principles of business administration, architecture, humanitarian and technical sciences [2]. Facility management is characterized by linking three areas of interest - people, process and place (so called 3P). Therefore it is a scope the goal of which is to manage and optimize all the processes supporting workers at their workplaces. Administration of people and processes are conducted by management, so the place becomes a specific area [3].

Range of FM (Facility Management) functions is structured due to the new EN 15221 facility management regulation as follows (see Table 1)

FIGURE1. RANGE OF FACILITY MANAGEMENT FUNCTION [4]

1	Area and infrastructure	2.	People and organization
1.1	Request for area	2.1	Request for health, security and protection
1.2	Request for technical infrastructure	2.2	Request for nutrition
1.3	Request for cleaning	2.3	Request for information and communication
1.4	Request related to external area	2.4	Request for logistics
1.5.	Request related to the workplace	2.5	Request for integrated management, consulting and administration
1.6	Specific request related to the area and infrastructure	2.6	Specific requests of organization

The aim of the article is to outline the systematic approach for the two abovementioned requests - Request related to the workplace and Request for health, security and protection of workers.

Facility management is a method of control of subject's (organization, community, company etc.) support actions. Effectiveness of working environment has an aim of optimal costs, legislative requirements, environmental and energetic requirements and appropriate subject's standards.

Such effectiveness is monitored during the whole working environment life cycle and it is affected by the changing conditions for example the changes in production process. Therefore following questions have to be answered:

- ✚ Where are the boundaries of management?! Support processes integrate many activities in building environment (architecture, ergonomics, economics etc.), their management and influence on employees and working environment.
- ✚ Which are the relevant processes that are not of the core competencies and how they can be optimized?
- ✚ Is there any possibility to outsource the services of facility management (monitoring, analysis, optimal layout design etc.) for workplace in the future? Could facility management be in sourced and become a part of organizational structure?
- ✚ Which is the optimal size and character of the company for introduction of facility management?

Many discussions about the topic will be held when abovementioned regulations of FM will be implemented in Slovak Republic.

2. ENVIRONMENT FACTORS

Work environment factors are partial segment of work environment evaluation system. Workers health, wellbeing and actions could be affected by the work environment evaluation system. Specific influence of environment is given by [5]:

- ✚ work environment is connected to the working goal and therefore is not a stable element of production system (assortment, technology and materials are changing which leads to the change of work parameters),
- ✚ work environment, even at constant conditions, due to the amortization of equipment, poor maintenance etc. is affected in a way of increased noise, vibration, reduced light penetration,
- ✚ even (optimal) influence of working environment conditions on employees is impossible to achieve because of diffusive intensity of impact ,
- ✚ monitoring of environment conditions is various in case of periodicity and is often outsourced,
- ✚ often a conflict occur between the implementation needs of scientific and technical results and economical resources of a company .

The goal of the company management should be elimination of work environment risk factors by application technical and organizational measures because these are the source of additional expenses (risk bonuses for hindered conditions). To achieve a minimum costs for optimal work environment it is necessary to resolve the impact of environmental factors in design stage of work environment life cycle.

3. PROCESS OF WORKING ENVIRONMENT EVALUATION IN DEPENDENCE ON ENVIRONMENTAL FACTORS

Systematic approach to evaluation of work environment in dependence on environmental factors gives the user a guide for solution of existing and future affairs. During the working environment purposely stage user approach is very important since individual experiences of employees allow avoiding half-measures and non-optimal solutions. Due to the mentioned fact an algorithm in Fig. 1 depicts possibilities of individual employee's participation on different phases of work environment evaluation.

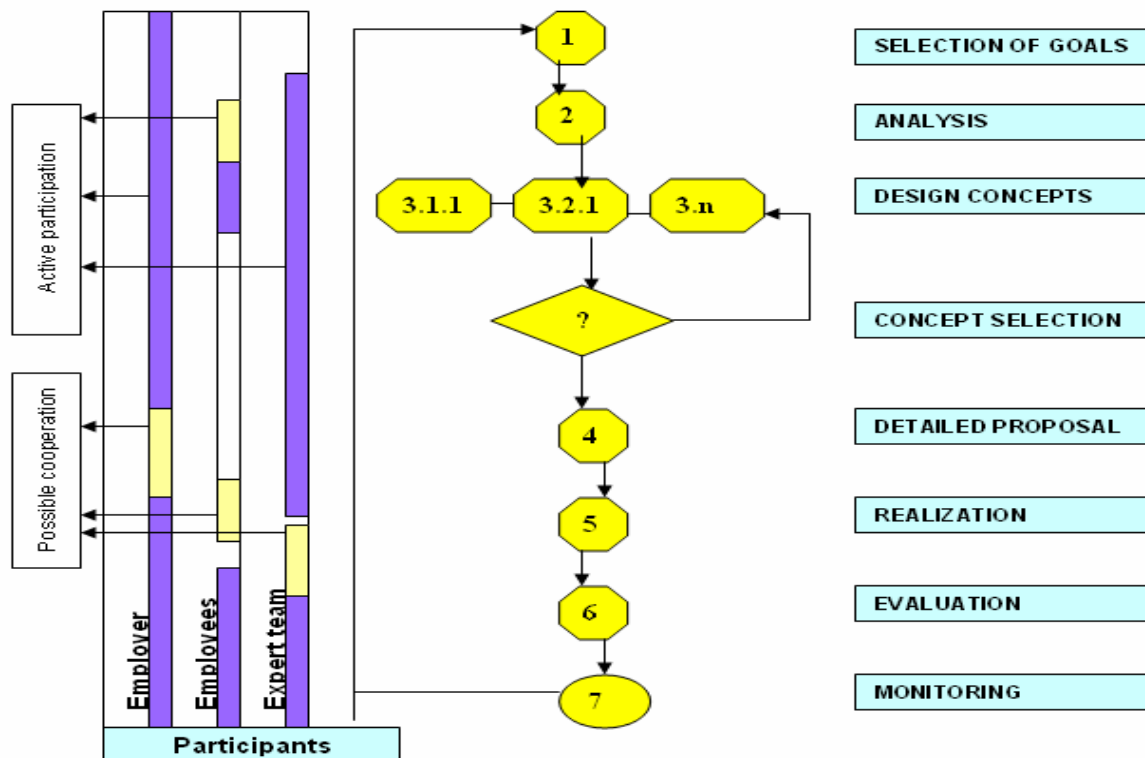


FIGURE 1. Common algorithm of work environment evaluation system

Aim of the presented evaluation is to secure the cyclic monitoring and improvement of processes from identification of risks (of environmental factors inside the workplace) up to realization phase.

Process participants participate by following actions [6]:

a/ employer:

- ✓ provides measurements and evaluation of environmental factors (noise, vibration, light, dust, chemical factors etc.) by own resources or by outsourcing (by authorized persons and organizations) or a combination of both. Before beginning of measurements the time schedules for individual professions are created and conditions for regular evaluation outcome are secured. Presence of direct superior and labour union representative is essential during the measurement.
- ✓ registers individual measurement protocols of environmental factors,
- ✓ registers the technical and organizational measures conducted for improvement of work environment and achieved results,
- ✓ develops proposals for internal management documentation in appropriate area,

- ✓ cooperates with individual departments and company medic during the evaluation of health risks,
- ✓ cooperates with regional Public health organization (sanitarian) during the implementation of new methods of measurements and evaluation of work environment factors, categorization and occupational illness investigation,
- ✓ follows the legislation and internal management documentation,
- ✓ takes part in education and consulting courses in scope of work environment factors impact.

b/ employees :

- ✓ cooperate on measurements and time schedule design during the work shift ,
- ✓ take part in proposal for improvement of environmental factors,
- ✓ follow the internal regulation, safety measures a appropriately use the protection accessories,
- ✓ take part in subjective evaluation (questionnaires),

c/ expert team(authorized persons, company medic, national health authorities etc.):

- ✓ take part in different measures by request of employer,
- ✓ conduct risk factors control personally if appropriate state regulation is issued.

4. EVALUATION SYSTEM SPECIFIC AND FEEDBACK

Evaluation system specifics are determined by specific company conditions which will implement the system and processing methods. They could be classified at two distinct levels:

1. at the content level:

- ✚ system is adjusted for two subprocesses: process monitoring and analysis of environment condition data (aim for reduction of costs in production process) and process of work environment evaluation in relation to environmental factors (aimed for improvement of health, safety and wellbeing of employees at the workplace) ,
- ✚ system works at one level only or it is not defined as all and it should be implemented
- ✚ system should be periodically verified following the updated legislation for work environment,
- ✚ system will function properly if feedback is secured to analyze the impact on production process (equipment and workforce),
- ✚ system should positively influence the economical results of the company,

2. at the formal level:

- ✚ exact methodology is not defined, therefore many realized processes in the mentioned area are different not only in content but also in formal way,
- ✚ responsibility for realization of mentioned process depends on organizational structure of the company.

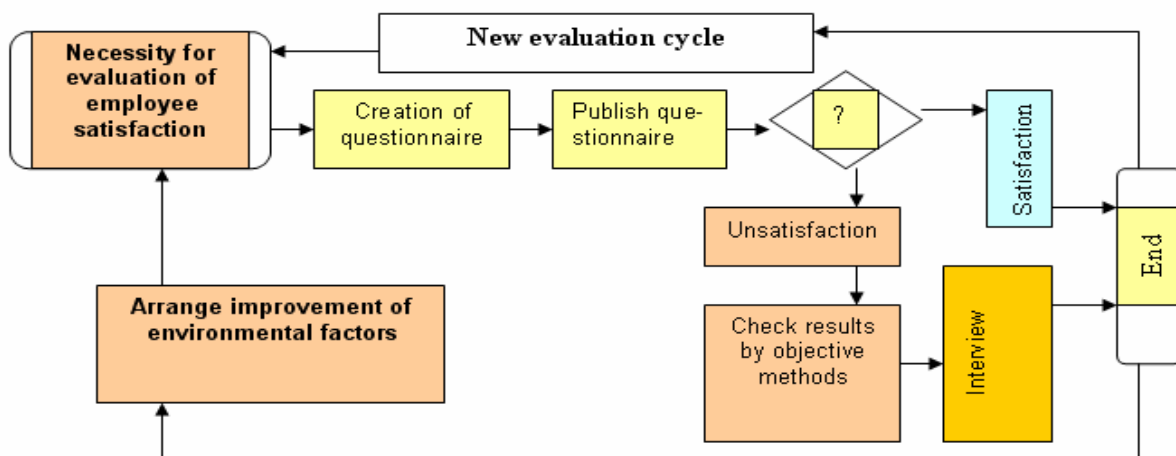


FIGURE 2. Management approach to evaluation of employee satisfaction with environmental factors [6]

Employee satisfaction is conditioned by many factors such as: stimulation measures (material and non-material), social benefits, working conditions (regime and volume of work) and work environment (equipment, environmental factors etc.). If feedback from employees regarding the environmental factors impact is needed than the optimal solution would be to combine subjective and objective methods. See Fig. 2.

5. HEALTH AND SAFE WORK ENVIRONMENT VS. PRODUCTIVITY

Economical effects of health and safe working environment in companies are presented in Fig.4 [7].

Mathematically it could be described as follows:

$$\begin{aligned}
 &\text{A: health and safety} && \text{B : costs of health and safety system} \\
 &\text{for uninterrupted shifts} && = \frac{\text{B}}{\text{C}} \\
 & && \text{C: number of interrupted shifts}
 \end{aligned}$$

Presented relation A (e.g. for monthly or annual time period) is possible to update with:

- + include personal costs into the B- value if risk occupation is involved and refund should be paid,
- + include personal into B-value if occupational illness is involved caused by environmental factors,
- + employee inoperability is projected to the C- value if substitution is not found.

Health and safety support in some companies is conducted by employee motivation by addition of constant financial sum to the salary employees without monthly absence. This motivates employees to follow health and safety regulation inside companies.

Economical effects of healthy and safe working environment are manifested in:

- a) monetary effects
 - + reduction of lead times
 - + reduction of workforce fluctuation and absenteeism
 - + reduction of payments social payments
 - + improvement of production and service quality
- b) non-monetary effects
 - + employee satisfaction
 - + positive employer-employee relationship
 - + improvement of working conditions
 - + improvement of company image

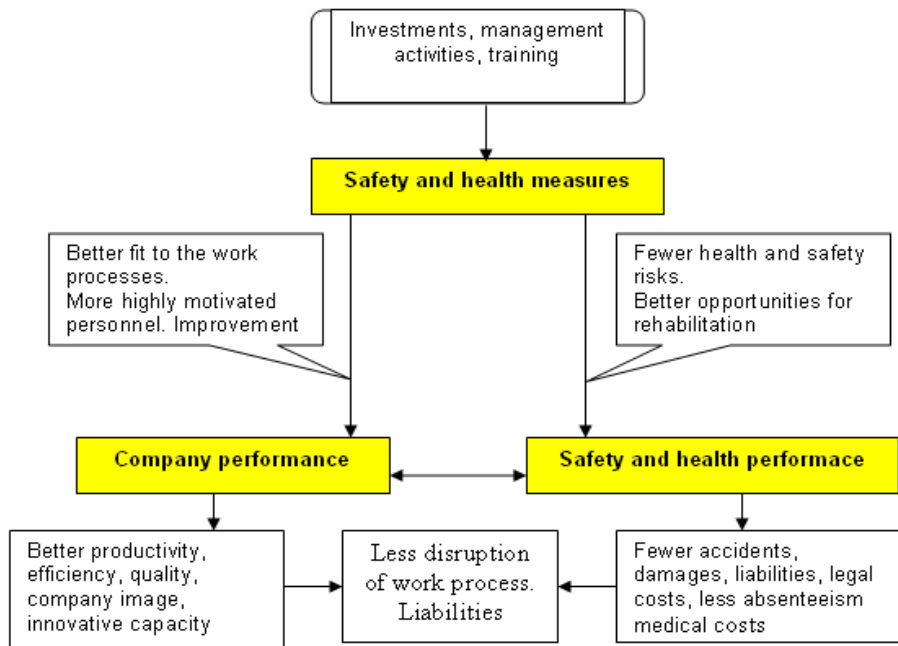


FIGURE 3. Economic effects of safety and health at company level

Improvement of working environment requires considerable investments and not all the companies can afford it. Therefore not only complex but also partial solutions could be implemented.

6. THE CONCLUSIONS

Facility Management support process – evaluation of work environment in relation to environmental factors resides in health and safety care of employees. It is a constant process of improvement of working conditions and it is considered to be an equivalent and inseparable part of planning and fulfilment of work goals. The aim of the system is to prevent the risk as well as to include an employer, an employee and interested public authorities into the decision making process. Economical approaches to health and safety could not supplement the value of human needs.

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