PROTOCOL OF THE LEVEL OF PREVENTIVE ACTION. IMPORTANCE OF PARTICIPATION IN THE PREVENTION.

[1] Antonio José Carpio de los Pinos; [2] María de las Nieves González García

[1] Doctorando en Innovación Tecnológica para la Edificación, a.aparejador@gmail.com
[2] Universidad Politécnica de Madrid, mariadelasnieves.gonzalez@upm.es

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INTRODUCTION

This research is based on the critical analysis of several risk assessment methodologies and their application in building works. There is a need to establish the parameters that better reflect the reality of a work environment, covering the four techniques to combat against risk (health, safety, ergonomics and social psychology) and based on risk tolerance; adding the factor of constructive reality, the risks associated with the complexity of the work units, their location and interdependence [1]; the economic response factor of the contractor with the direct implementation of the construction systems and means of prevention [2]; and the social factor with the interest, participation and mood of the workers [3]. These factors include the documentary environment [4], the construction environment [5] and the social environment as fundamental elements associated with the execution of a work [6].

The difficulty and characteristics of the constructive environment of the work establish a directly proportional value of complexity that affects the initial guidelines established in the documentary environment. However, the development of prevention systems, social activity, roles, hierarchies and stress add a value that influences as a corrective factor and indirectly in the construction environment [7]. Therefore, the evaluation of preventive action is defined, based on the new formula of the level of Preventive Action (L_{pac}) by the product of documentary influence with the relationship between the constructive influence and the social influence.

METHODOLOGY

The parameters corresponding to each one of the influences of the execution and the level of the preventive action have been established. Regarding the constructive influence the projected constructional complexity is studied locating areas that present conflict by execution, coordination and situation. With regard to social influence, a priori, the general social conditions affected by the market situation and the working conditions of workers are assessed [8].

$$L_{pac} = P \cdot C \cdot \left(\frac{R_r \cdot B_r \cdot E}{E_c \cdot I_w \cdot L_s}\right) = Ab_r \cdot A_{pac}$$

Fig. 1. Preventive Action Level formula.

PROTOCOL

The Preventive action level assessment criteria has been established based on the development of the William T. Fine evaluation formula (figure 1) and extracting the fundamental concept that identifies the methods of evaluation of the INSHT (with the risk tolerance), ANACT (The importance of work), RNUR

(personal satisfaction) and FINE (the justification of preventive action). With all this the risk tolerance with the probability and consequences defined in the environment documentary with the absolute risk (Ab_r) it is evaluated. The relative risk (R_r) evaluates the complexity of the work unit with the graphing, the setting out, workers, qualification, means, tools and the material. The border risk (B_r) evaluates the position of the work unit regard to the hazard zone. The degree of exposure (E) evaluates the frequency of the worker's exposure to danger. The economic capacity (E_c) evaluates the organizational process performance and safety of work, individually and in groups. The relative importance (I_w) evaluates the participatory interest, individual and group, of workers in prevention. The level of satisfaction (L_s) evaluates the personal perception of the worker, his safety and the environment of the work.

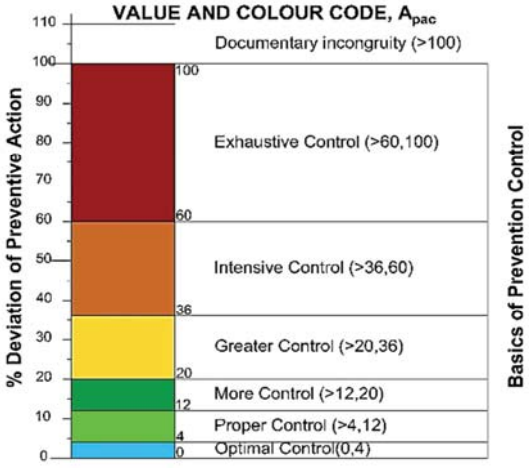

Fig. 2: range of values obtained for preventive control

The first phase of the protocol defines a characteristic value inherent to the observed work situation. The second phase assesses the impact on the risk of the construction environment and the social environment. The third phase indicates the basis of prevention control with the value obtained from the Preventive Action Level (L_{pac}) in relation to absolute risk (Ab_r), as a deviation from the initial preventive action (figure 2). The fourth phase indicates the recommendation actions. And in the fifth phase the improvement of the preventive action during the work process is verified.

CONCLUSIONS

The protocol of action is based on technical observation and data collection regarding the safety, hygienic and ergonomic environment; and a social psychology survey on-site. The fundamental factor for optimal control is the participation of workers in risk prevention; being the corrector parameter more efficient.

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