



CALCULUS OF FLUORESCENT LIGHTING PARAMETERS USING COSLUX PROGRAM

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ABSTRACT

This article presents a model of software properly conceived and designed for the optimization of fluorescent lighting armatures parameters in one or more rooms of a building. The program language is Delphi 7.0 and the friendly interface CosLux program permits us to choose the room and the number of fluorescent lighting armatures, offering as a result the optimal numerical values of the parameters that we must login.

Keywords

software, fluorescent lighting parameters, CosLux program

1. ASPECTS ABOUT DESIGNING THE FLUORESCENT LIGHTING INSTALLATIONS

The introduction of computers in the designing domain the electrical installations of distribution and fluorescent lighting systems have known a great development in the last years.

In the last years, many programs have become available for users because of the extraordinary spread of personal computers and of the communication network Internet, respectively.

The traditional situation in the domain of fluorescent lighting systems computer aided design is the following: every producer or distributor of fluorescent lighting armatures offers their proper calculation program which includes all the necessary input data.

The designer of an interior fluorescent lighting installation must know the lighting standards, determine the constraints and the characteristics of the lighting space and obtain a solution to be easily realized in practice and with a minimum price. The problem of optimization and its best solving is given by a calculation program.

For the photometric design of a fluorescent lighting installation we have to choose the correct types of electric lamps and fluorescent lighting armatures, the fluorescent lighting armatures location is established, the number of lamps and their power is determined, in order to ensure the medium value of lighting uniformity and the distribution of luminance requested by the norms and the minimum price cost solution is selected.

In designing the fluorescent lighting installation the designer should always pay attention to the power consumption, the cost price, the aesthetic aspect, the energy saving through the correlation between the artificial and the natural lighting and to realize a technical compromise – the necessary lighting flow determined from photometric considerations can be obtained with more or less lighting armatures with different power lamps, thus resulting a certain number of variants.

2. THE CALCULATION CosLux PROGRAM

The calculation program used for the design of the lighting installation is CosLux conceived in a proper regime.

The program is characterized by:

- ✚ is flexible regarding the geometry of the room and the acceptance of different types of fluorescent lighting armatures in a variable number;
- ✚ it permits the rapid and easy achievement of some simple calculations but in the same time, some complex situations can be treated in the way desired by the user;
- ✚ it is connected to a vast database, regarding the electric lamps, the fluorescent lighting armatures, the reflection factors of surfaces and it permits the manual introduction of data characteristic to these ones.
- ✚ it has an attractive format and it uses the possibilities of Windows operating system having a user interface very accessible;
- ✚ respects the requirements of the market of computer aided design for fluorescent lighting systems and it is addressed to the specialists as well as to those who work only temporary in the fluorescent lighting systems design;
- ✚ the program has the shape of a notebook (work book, aide-memory, case book, pocket diary), the user interface being very friendly.

3. DESCRIPTION OF PROGRAM DELPHI 7 USED IN A WINDING WORKSHOP

We can consider a winding workshop in which we must determine the location mode of the rooms and the main component parts of the workshop.

In figure 1 it is presented the location mode of the main component parts of the proper workshop as well as the location of the auxiliary rooms, where we noted:

- | | | |
|----------------------------|-----------------------------------|--|
| ✚ I approaches | ✚ 1 hydraulic press | ✚ 8 rise and descend engine |
| ✚ II locker room | ✚ 2 chucking table | ✚ 9 carriage translation engine |
| ✚ III rest-room | ✚ 3 grinder | ✚ 10 bridge crane translation engine |
| ✚ IV office | ✚ 4 supports for insulating coils | ✚ 11 rails for the bridge crane's motion |
| ✚ V room for the tin ladle | ✚ 5 tin ladle | |
| ✚ VI the proper workshop | ✚ 6 ventilation | |
| ✚ VII warehouse | ✚ 7 bridge crane | |

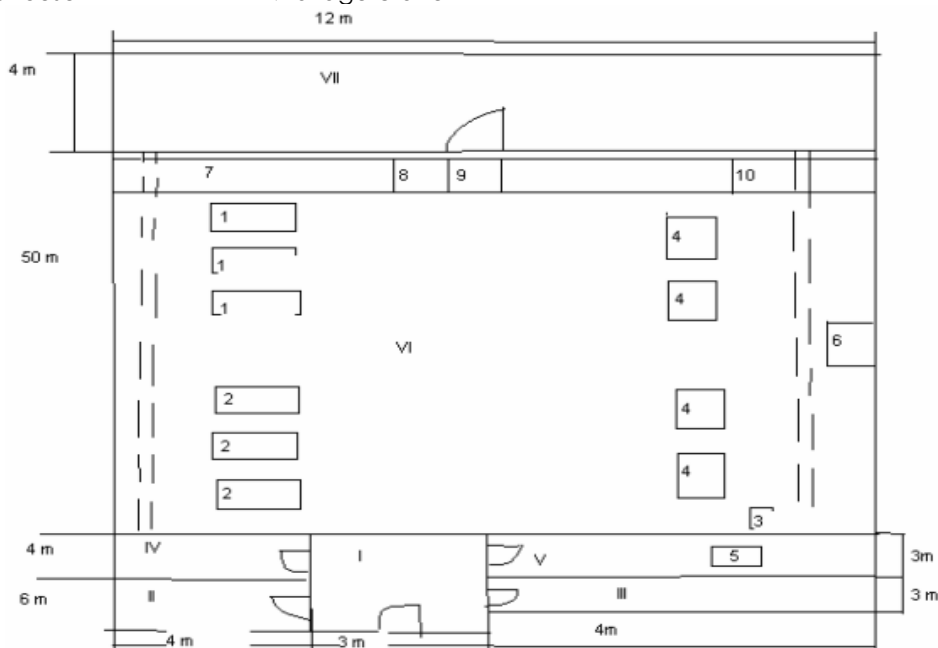


Figure 1. The location mode of the rooms and the main component parts of the workshop

The electric consumption optimization program is achieved in Delphi 7.0 and it presents the characteristics presented in paragraph 2.

The program's interface with the user permits the selection of length, width and height of the workshop and the values of electric consumption for the electric consumers in the room (Figure 2).

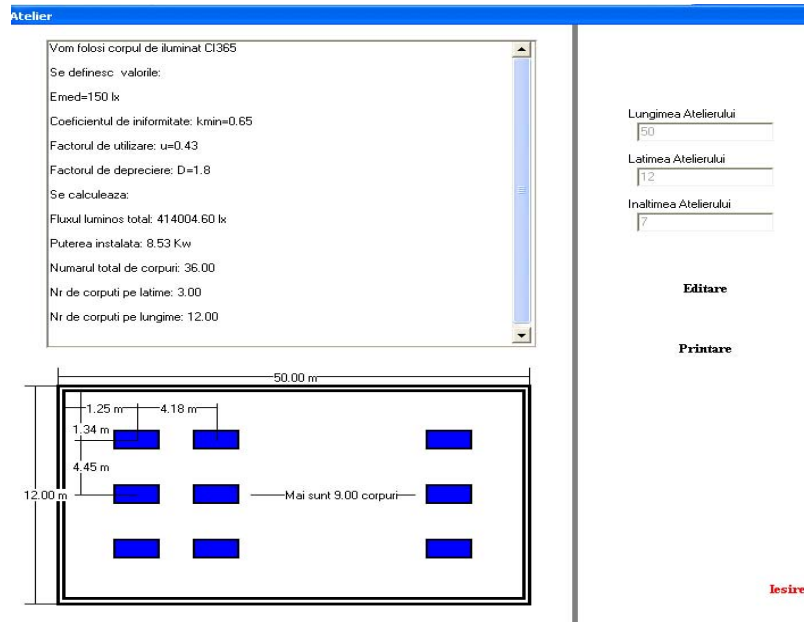


Figure 2. The CosLux program interface with the user

4. CONCLUSIONS

The present program respects the requirements of the market of computer aided design of lighting systems and it is addressed to the specialists as well as to those who work only temporary in the design of lighting systems.

Through the use of this calculation program, a practical solution is obtained having a lower price which is the objective of every firm in the domain of activity of lighting installations design.

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