THE USE OF ENERGY-EFFICIENT LIGHTING IN DINING AREAS

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Abstract: 40% of the energy currently produced in the world and 37% of all energy resources are in housing and public buildings used. The buildings account for a significant share of energy consumption (40-60%). Electricity consumption for lighting reduction two main ways: reducing the nominal power of the lighting: with reducing the time of using the lighting is defined. Quality and quantity (the amount of product from the source) affect our health, comfort (eye calming), safety (both for eyes, skin), the environment (the amount of greenhouse gases) and our economy (price). Many countries are spending a large amount of their electricity budget on the lighting system. To achieve efficient use of electricity, states are switching to energy-efficient lighting, which is the most economical, safe for people and the environment and a reliable way to save energy. In the lighting industry, it is necessary to optimize existing control and lighting equipment and use cost-effective lighting to reduce energy consumption with high light quality.

Keywords: Effective lighting**,** dining areas, LED, lighting, Energy saving

I. INTRODUCTION

Effective lighting in dining areas: An important aspect of energy-saving kitchen design is how to brighten up your cooking space. The main thing here is to optimize natural light and connect it with a practical, energy-saving artificial lighting system. Effective LED technology plays here. LED lights revolutionized the lighting of our homes. Compared to conventional incandescent or halogen lamps, LEDs consume significantly less energy, converting about 70% of it into light and wasting only 30% as heat. This is in stark contrast to conventional lamps that change numbers. In addition to saving energy, LED lights are also economical [1]. While initial investment may be slightly higher, LEDs last much longer than traditional ones, saving you replacement costs. The strategic location of LED lighting can also increase the aesthetic appeal and functionality of your kitchen [2].

II. THEORY

Natural lighting and lighting tools: Natural illumination is a product of light produced from the sun as well as sunlight returning from the Earth and the sky. Natural light has heat and light constants, which are equal to 1317 W/m2 for heat coming from the sun and 137,000 lk for light. The advantages of natural light are that it contains extremely useful ultraviolet and infrared rays, which serve to make the environment healthier, that is, it has the property of killing germs [3]. Natural light is used using three types of devices, i.e. from the roof through the lantern, from the wall through the window, and mixed-state systems [4]. Requirements for naturally lit systems include:

- ensuring that the amount of light is selected depending on the function of the premises, divided in directed or scattered cases;
- ensuring that insulation and lighting are not less than standards.

Lighting lamps are divided into three classes according to the nature of light distribution:

- direct beam propagator;
- light emitter;
- light-repellent lamps.

a) the class of direct light emitting lamps includes lamps that emit about 90% of their own light along the lower semicircle.

b) light-emitting lamps are based on the distribution of their light between the upper and lower circles, spreading the total light along the upper and lower spheres, and giving the opportunity to evenly distribute light, eliminating any shadows. Such lamps are installed in buildings where the ceiling and walls have a light-repellent property.

C) in light-repellent lamps, mostly more than 90% of light is directed to the upper sphere, and lighting is mainly at the expense of returned light. Such luminaires, providing soft and gentle lighting without shadows, are used mainly in museum, theater buildings [9-15].

Degree of illumination of the dining area. In the dining room, 150 lux light level is sufficient. According to the desired ambiance, light level can be reduced to 100 lux or increased to 200 lux. In the dining rooms, it is recommended to use light sources in warm white color, at 2700K color temperature [5].

III. MAIN PART

We can replace the lighting lights in the dining area with lighting equipment that is energy efficient and modern, or use existing lighting equipment wisely. To reduce electricity consumption in electric lighting networks, it is necessary to correctly select lamps and Luminaires, use them wisely and maintain the voltage at the desired level [6]. Electricity consumption is associated with the accepted lighting norms, types of lighting fixtures and their operating modes [16-24]. The lighting device should provide the required viewing conditions, spending as little electricity and money as possible. The conditions of vision are determined by the plan and distribution of clarity in the field of vision [7]. The calculation and measurement of clarity in practical conditions is associated with a lot of difficulties. Therefore, when normalizing the level of illumination of the surface of the dining table, its coefficient of Return is taken into account. The quality of illumination is not determined only by the degree of illumination [8]

IV. CONCLUSION

Nowadays, energy conservation is becoming an urgent problem. Energy saving in dining areas by increasing the efficiency of natural light in the use of electric lighting, as well as reducing the number of lighting devices, this leads to a decrease in the total energy consumption of the room and building.

When designing or reconstructing a building – it is necessary to fully implement rooms that are not used or partially used, without windows and walls that do not protrude. In addition, the reduction of lighting devices in areas where direct natural light falls and the application of photosensors leads to an increase in energy efficiency.

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