

CASE STUDY

Athletic track Cacak

Sports lighting

BUCK

PROJECT DATA

Name

Athletic track "Cacak"

Place

Cacak, Serbia

Purpose

Sports lighting

Year of completion

2020.

OBJECT

The Cacak Athletic Stadium was built in 1973. for the JNA Army Games. The project was designed according to all the norms of the Queen of Sports as a modern athletic stadium. It has all the athletic arenas and is one of the few facilities of this type that is not part of the football field. For the citizens of Cacak it is a place where professional athletes prepare for competitions and recreational athletes spend their free time.

CHALLENGES

Outdoor sports fields should have specific lighting of the highest quality. Modern solutions use LED floodlights of high lighting intensity and long service life that include the latest optics for targeted light direction, without unnecessary scattering and glare.

SOLUTIONS

BUCK's new lighting solution is made with 36 pieces of highly efficient **VECTOR 4** LED floodlights installed on twelve poles at the height of 11m, with three floodlights per pole. Symmetrical wide-beam optics VSM (146°) were used, with extremely high light transmittance (> 90%), intended for lighting large spaces.

The positions of the floodlights are precisely defined by photometric calculation to achieve the best illumination level for all levels of competition. The direction of the floodlights is performed with the help of special lasers, which adjust the floodlights according to the coordinate points from the calculation.

The realization of this project achieved a lighting level of 210lk, uniformity of lighting 0.56, or the required level according to the standard for sports lighting (EN 12193: 2007 Light and lighting – sports lighting, class II – competition level, $E_{av} = 200\text{lk}$, uniformity of lighting $U_0 = 0,5$.)

Safe operations and longevity of lighting even at high temperatures are provided thanks to the design of an open modular housing and a massive cooler.

A wide selection of optical components, with appropriate calculations and planning, provides superior lighting, whether it is training or competition in professional leagues with television transmission.

Excellent visual comfort, without light pollution, enables the best player performance and a full spectator experience.



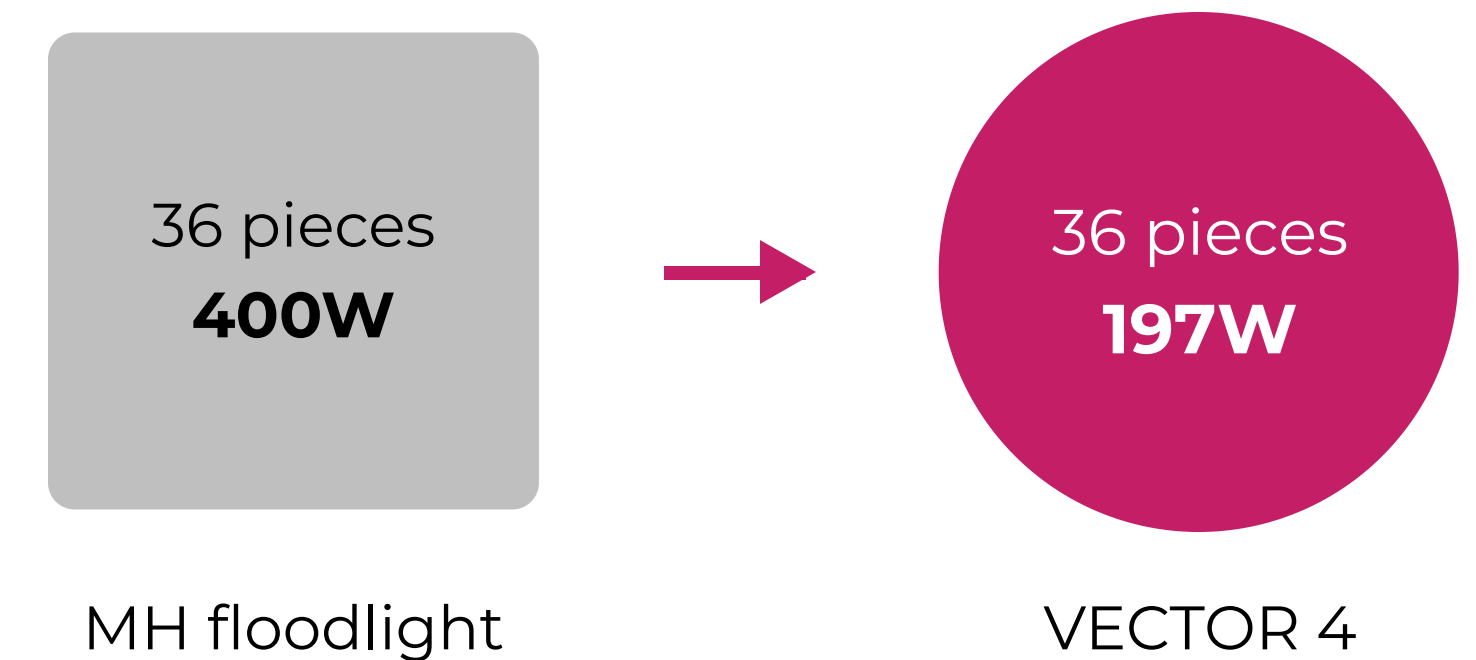
Comparison of MH and VECTOR 4 floodlights

By comparing the Lighting System of MH floodlight and **VECTOR 4** floodlight, on the example of an athletic track in Cacak, we can see that they are in the ratio of 36pcs x 400W to 36pcs x 197W, where the **savings in power are 2.2 times**. It is crucial to emphasize the characteristic of VECTOR's fast ignition and the achievement of 100% power mode, in contrast to the MH floodlight where the re-ignition interval is 7min, whereby each ignition damages the lighting source.

VECTOR 4 floodlight for sports lighting

BUCK **VECTOR 4** LED floodlights are designed as energy-efficient lighting for sports activities both indoors and outdoors.

VECTOR 4 is a programmable floodlight that works via wireless communication and therefore uses the advantages of this technology, such as: AOC (Adjustable Output Current), CLO (Constant Light Output). Additional advantages of Buck LED lighting are that it has different types of protection: short circuit, overload, as well as thermal and overvoltage protection. It also has an 8-step autonomous smoke function.



Savings in power: 50.75%

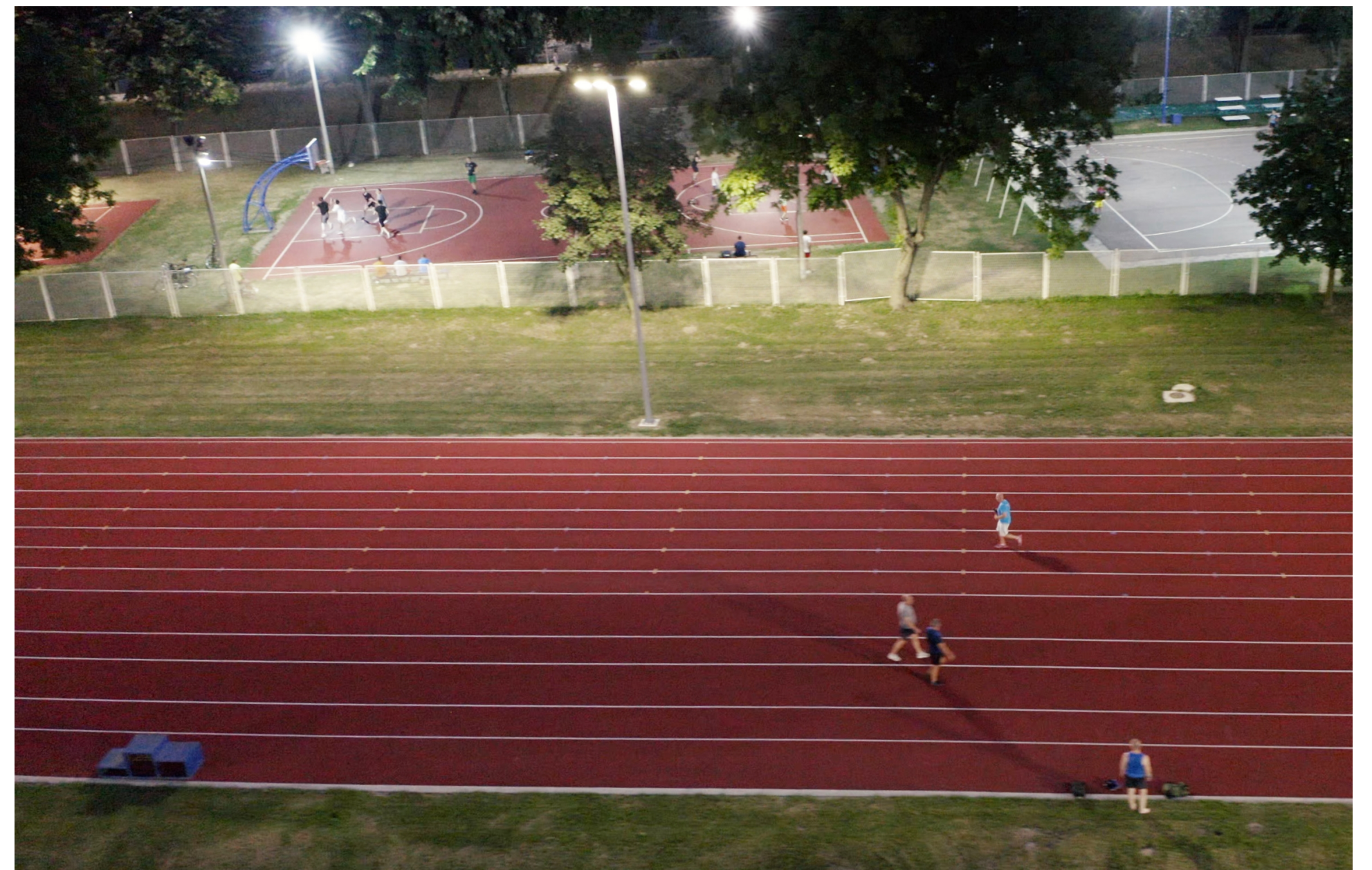
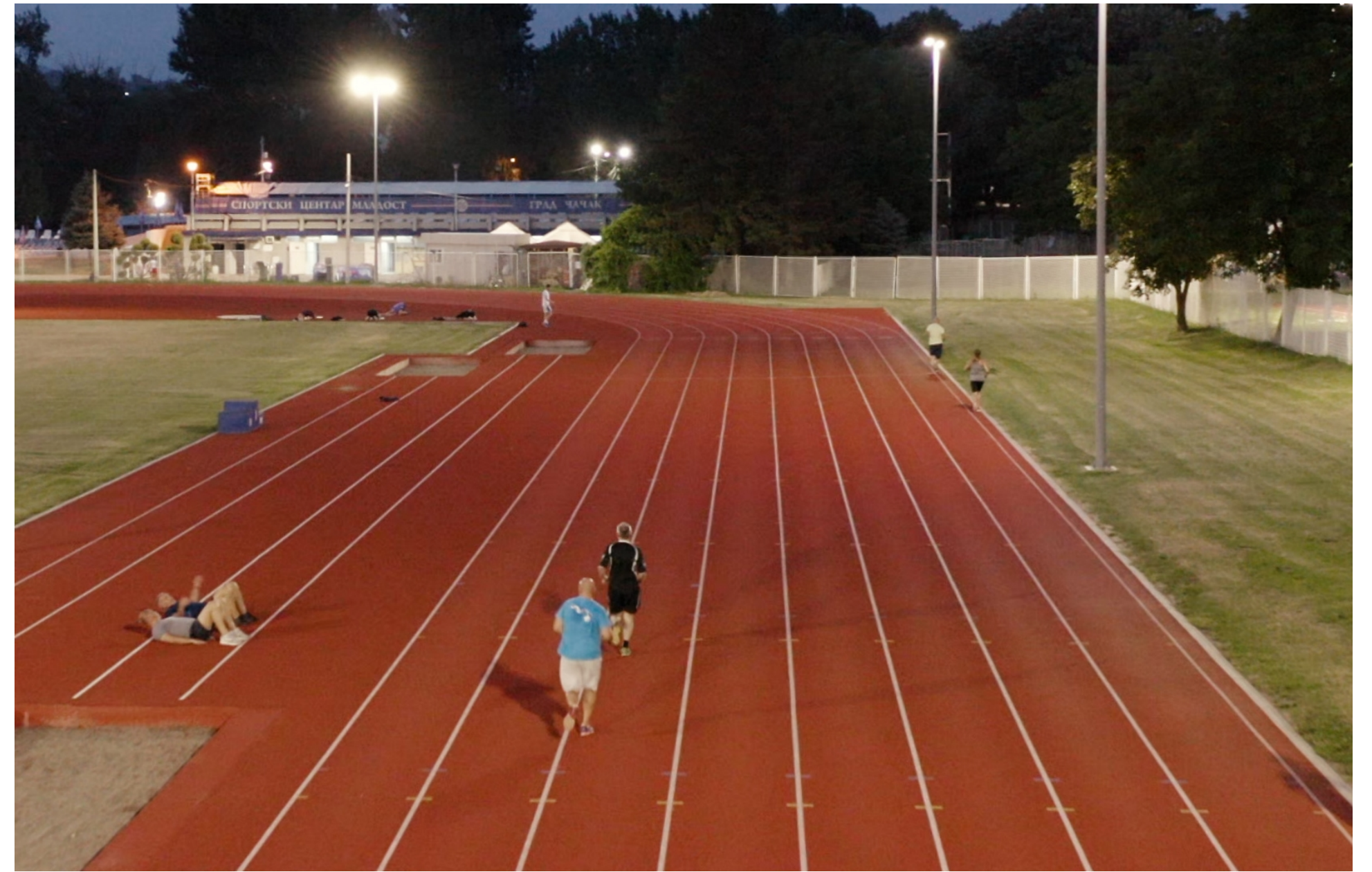


Realized advantages on the project

From the economic perspective, the entire investment is profitable only on the basis of savings in electricity consumption and maintenance. With the realization of this project, the city got a modern sports facility with LED lighting that provides top performance. The athletic stadium has returned on the first place in the sports life of the city, and athletics is in the focus of interest of young people. The best reference are satisfied athletes and the audience that comes for the spectacle and notices the difference in quality.

Benefits for the investor

Long service life of installed equipment and minimalized maintenance costs.



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