

SOLUTIONS FOR BUILDING CONTROL

The shadow management solution



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Depending on the time of day and a building's location, shadows move, affecting the level of sunlight in each room.

Thanks to Somfy's shadow management solution, each solar shading device is controlled individually or per zone, thereby guaranteeing optimum levels of user comfort.

- BENEFITS**
- > Better visual comfort for occupants
 - > Optimisation of standard solar functions
 - > Reduced use of artificial lighting resulting in energy savings
 - > Control on a window or a zone basis

Operating Principle

The shadow management solution enables optimisation of standard solar functions such as sun tracking by activating or deactivating solar shading based on the shadows cast on windows or zones.

Shadow management by Somfy is based on 3D modelling of the building carried out in advance taking the following various factors into account:

- > The building's architecture
- > The building's geographical location
- > The number and position of its windows
- > The position of neighbouring buildings
- > The sun's path relative to the building

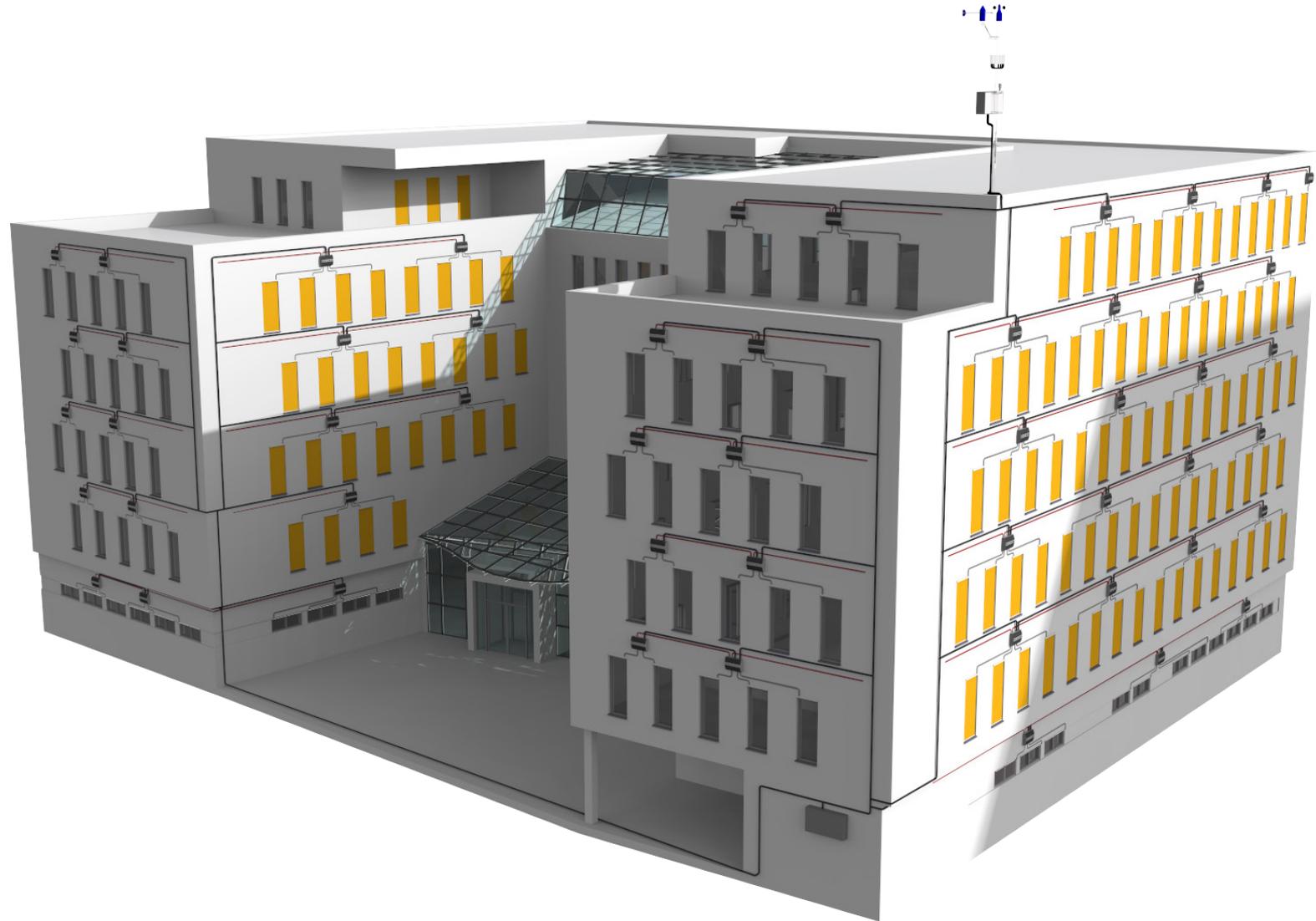
These details are compiled and recorded in a database which is then provided to the integration project and connected to the existing installation.

Based on this analysis, shadow management manages the movement of shadows from one window/zone to another through the use of a sun sensor, located on a mast on the roof of the building, per facade exposed.

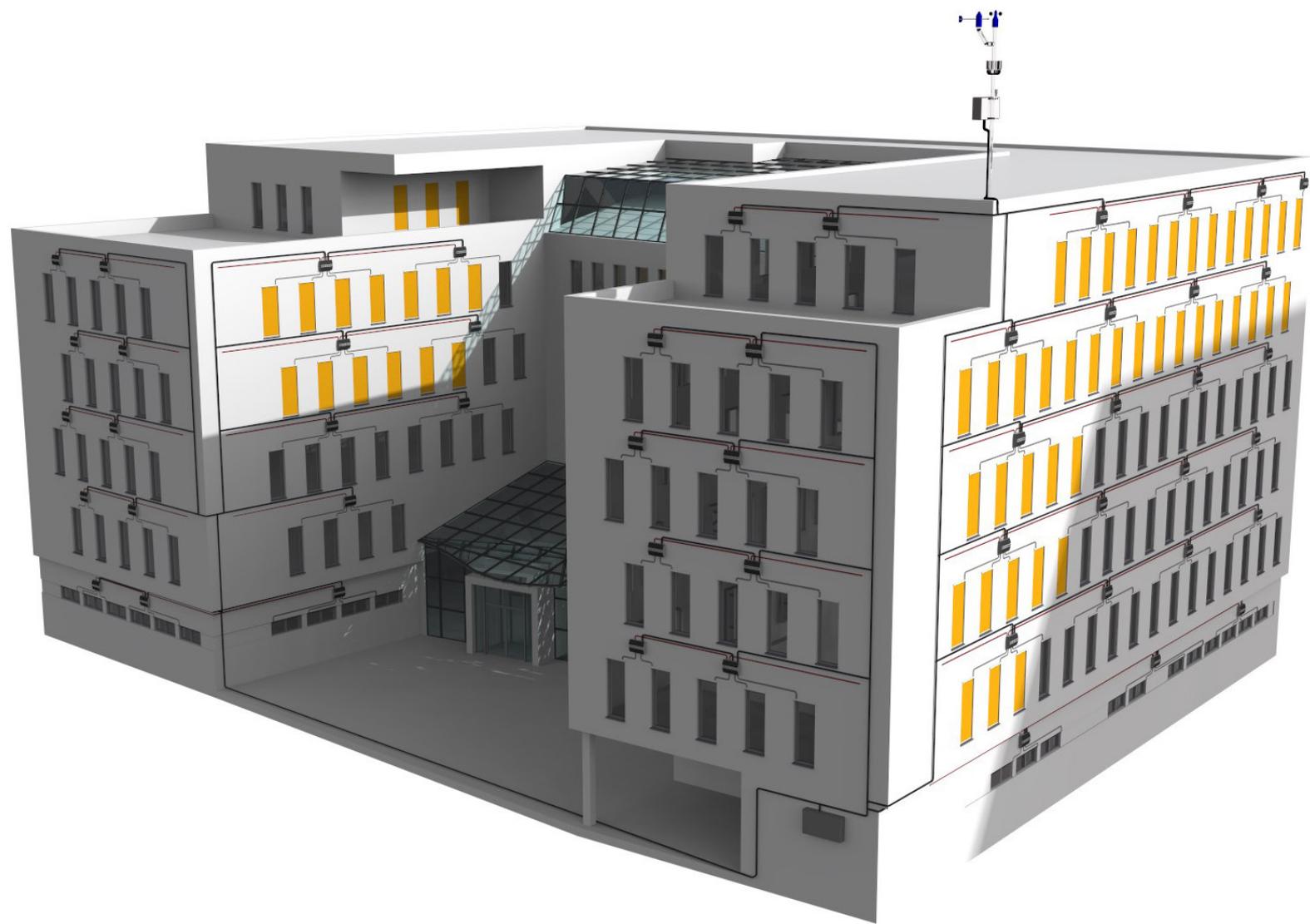
The shadows cast by the surrounding buildings or changes in weather conditions are managed in real-time.

Thus, only windows/zones exposed to the sun have their solar shading lowered.

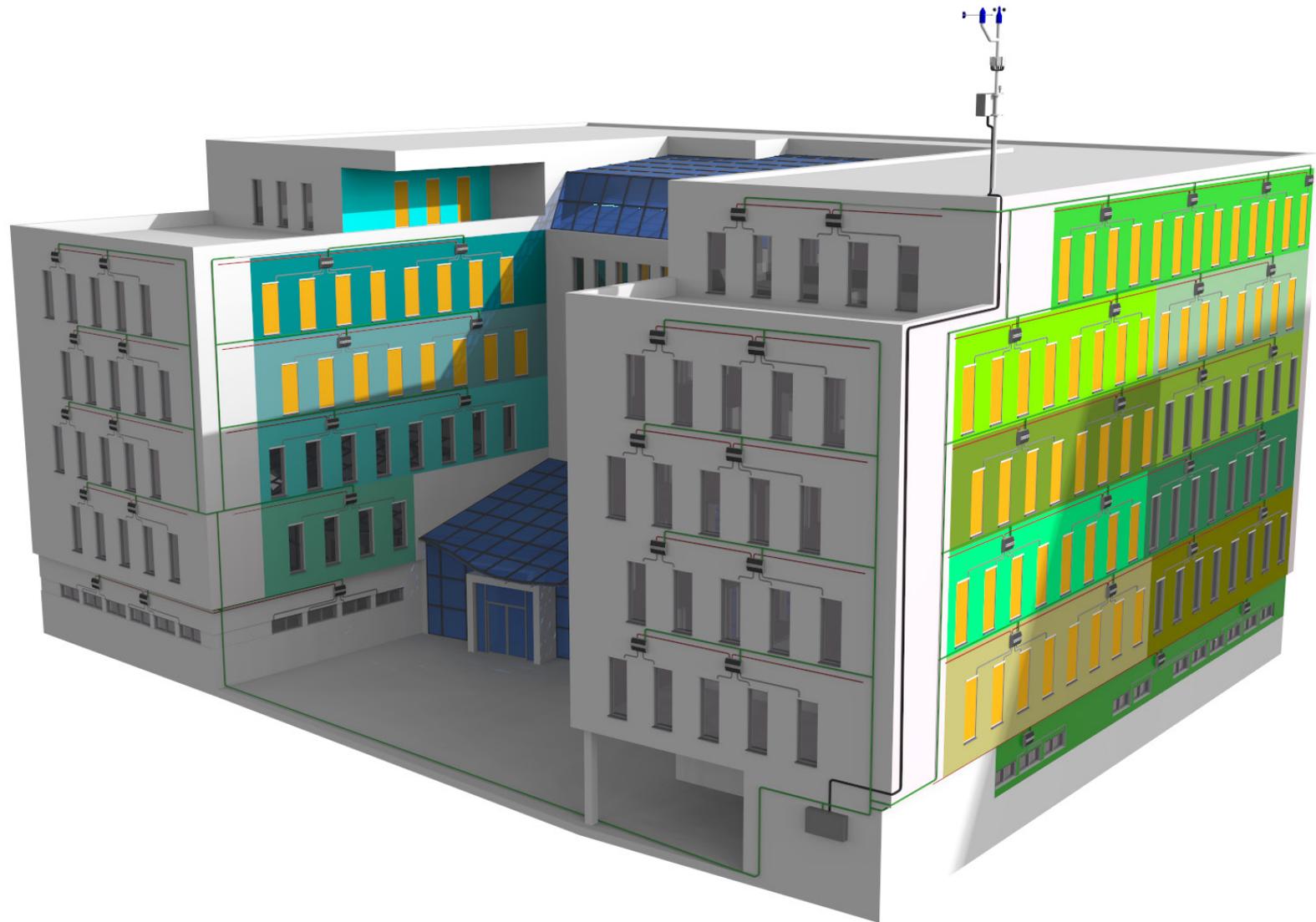
WITHOUT shadow management solution



WITH WINDOW shadow management solution



WITH ZONE shadow management solution



Technical description

The shadow management solution is installed on a **Shadow Device** connected to the BMS (Building Management System).

Management of this function depends on the predefined physical location of each window/zone and which constitutes part of the information extracted from the database.

This list of window/zone locations is provided by Somfy based on the building plans supplied.

The integration work package uses this list in a database which enables interfacing with the physical network for the installation.



Documents to be supplied in order to set up this solution:

At the planning stage:

- > Ground/location plan (PDF)
- > 3D drawing of the building (SKP / RVT / DXF)

During implementation:

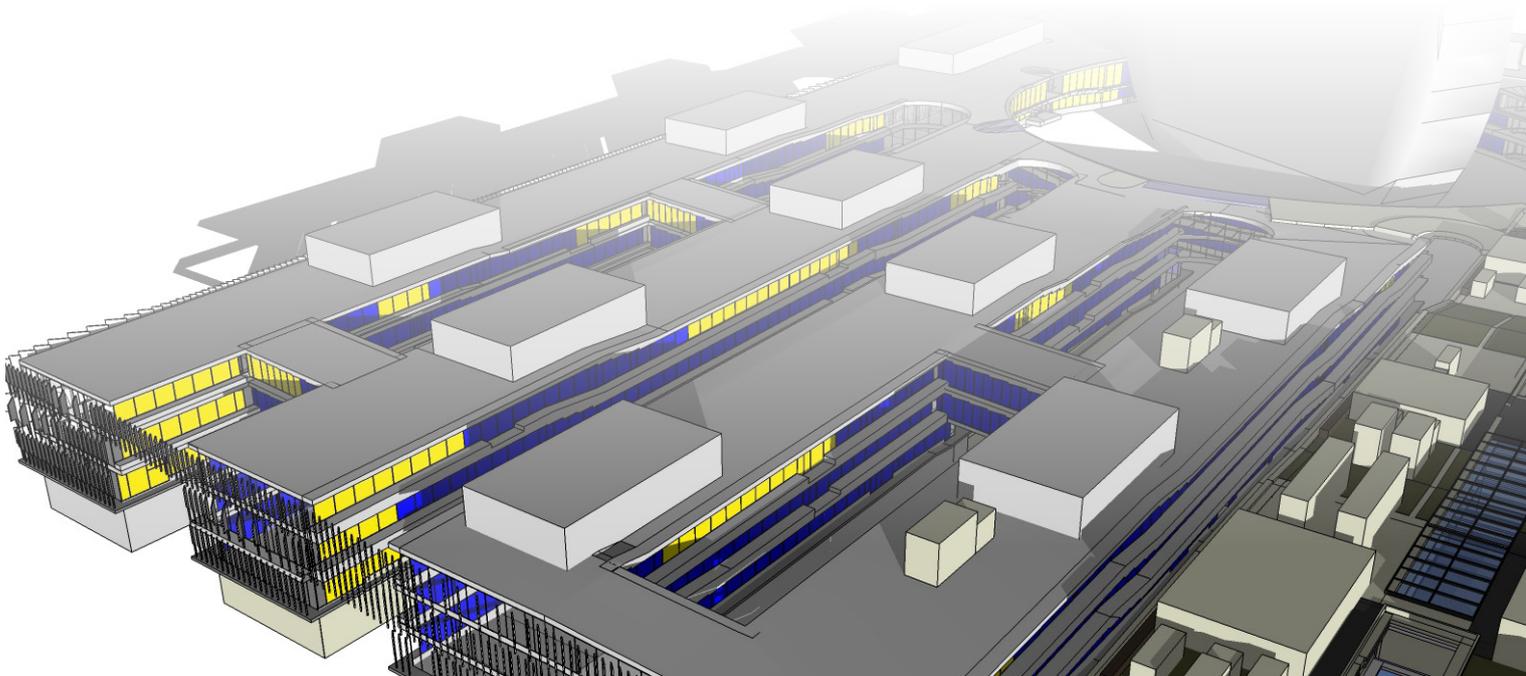
- > 3D digital model (RVT / SKP)
- > Implementation plan (DWG / DXF)

For further information, please consult the functional description.

PATENT INFORMATION

“Shadow management using modelling” patent pending n° FR1160133

3D modelling of the building provided by Somfy



References

SWEDBANK HQ, Sundbyberg, Sweden

The new headquarters of Sweden's largest bank.



> One of Sweden's most modern and innovative office buildings

Swedbank offers a wide range of financial services and products in its home markets. In 2014, they relocated all the bank's operations to a new modern and energy efficient 45,000 sq.m. office with an estimated 2,500 workstations.

Because of the triple-V structure which breaks up the volume, the challenge were to manage the shadow cast by the building itself. The solution resided in the installation of the animeo KNX solution with shadow management capabilities. Controlling approximately 1,100 interior roller blinds, the solution also includes remote access. Thanks to the shadow management solution, the balance between natural and artificial light is optimized, contributing to the employees comfort and to the building's energy savings.

KNX solution with shadow management capabilities. Controlling approximately 1,100 interior roller blinds, the solution also includes remote access. Thanks to the shadow management solution, the balance between natural and artificial light is optimized, contributing to the employees comfort and to the building's energy savings.



Swedbank's façade

BBVA HQ, Madrid, Spain

The leading bank in Spain: Banco Bilbao Vizcaya Argentaria S.A.



> «One of the most challenging projects we have ever faced.»

Located on the northern outskirts of Madrid. BBVA's new headquarters are not just a building but are more like a small city with bridges, corridors, streets and restaurants. The building, which obtained LEED certification, is around 100,000 sq.m. for the 6,000 people who work there. It is the largest construction in Spain to be built after the crisis. A big challenge for Somfy Spain which installed an animeo LonMark solution which manage 4,000 exterior

screens. Various constructions will also necessitate the shadow management solution, e.g. the elliptical tower - La Vela - shadows the offices in the basement.

In addition, a regulation system enables management of the lighting and solar controls according to the natural light levels.

This combination of solutions improves the building's energy efficiency and offers employees a more comfortable working environment.



View from one of the many patios



La Vela and the offices in the basement

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