

# German Residential Building Complex

Unleashing Seamless Charging Experiences with WiFi 6 in a Well-Connected Garage

## Customer at a glance



### Customer Name

German Residential Building Complex



### Industry

Residential Estate



### Organization Size

2,000 square meters



### Location

Wiesbaden, Germany



## Customer Background

In Wiesbaden, a newly built premium residential building complex with freehold flats and, due to its central location, an underground car park underneath was created for the owners and tenants.

“Thanks to the support of Zyxel Networks, the planning effort was significantly reduced. With a cost framework acceptable to the owners, it was possible to establish both WLAN and a charging infrastructure that fully meets all requirements. Moreover, the underground car park is equipped with WLAN telephony, providing residents with added comfort and security.”

**Thorsten Bien**  
General Manager and System Engineer  
Bien Network GmbH

## Summary

To accommodate the increasing number of hybrid and electric vehicle owners, the residential building's owner expanded the power supply line and installed charging stations for over half of the underground parking spaces. However, ensuring a seamless charging process required more than just power. It's necessary to have a reliable internet connection to monitor and control the charging stations. Unfortunately, the garage's isolated location presented an unexpected obstacle—the lack of a mobile phone signal. Despite considering a mobile phone amplification system, budget constraints made it impractical. As a result, we devised a plan to establish an area-wide WLAN network. Deploying this network posed significant challenges. The low ceiling height limited the WLAN signal range, and the garage's angular layout required careful placement of APs to avoid damage from taller vehicles. Additionally, the signals were interfered with and blocked by the presence of parked vehicles. Striking a balance in the number of APs was crucial to avoid excessive interference. Bien Networks, responsible for this project, conducted careful planning and measurements and decided to use Zyxel's Nebula solution along with 21 NWA55AXE WiFi 6 APs and GS1920-8EP switches for a robust WLAN network. Nebula allows the IT service company to see the AP's status via the cloud, providing simplified network management. The switches were strategically positioned for efficient signal distribution and power supply, overcoming the 100-meter range limit. Compact switch housings on the ceiling maintained an unobtrusive appearance compared to traditional cable routes. The successful deployment now provides residents with effortless charging experiences and the convenience of a well-connected garage.

## Challenges

- Ensure reliable WiFi connectivity in the concrete building
- Overcome structural limitation and vehicle interference to optimize signal strength
- Strike a balance in the number of access points to avoid excessive interference

## Benefits

- Seamless and interference-free connectivity, enhancing charging experiences
- Sleek and unobtrusive installation minimizes visual impact
- Simplified network management and user connections for enhanced convenience

## Products used

- NWA55AXE WiFi 6 Outdoor Access Point
- GS1915-8EP Smart Managed PoE Switch