

## SAPPHIRE – Turkey’s tallest building

Istanbul Sapphire is Turkey’s first “ecological skyscraper”. A luxury residence and Shopping Mall project in one of Istanbul’s main business districts, it is the tallest building in Istanbul and Turkey, with a structural height of 261 meters, including its spire. It is the fourth tallest skyscraper in Europe and the 11<sup>th</sup> tallest residential building in the world.

Istanbul Sapphire was built by Biskon Construction (a subsidiary of the Kiler group of companies). It has 64 floors (54 above ground and 10 basement floors), with communal living floors, extensive parking spaces, direct access to the subway, a large shopping mall and a total of 174 luxury residences on 47 floors.

Istanbul Sapphire was designed by Tabanlıoğlu Architecture with two special glass shells which admit outside air naturally through access points located on every third floor: these floors have inside gardens with natural grass and trees. There is also a vertical garden from 40 to 200 meters above ground level.

The design means residents of the building will not be affected by extreme weather conditions and urban noise. Sunlight and ultraviolet rays are absorbed by a special curtain system which adjusts automatically with the season, day and hour.

It is vital the Istanbul Sapphire’s comfort systems are controlled to the high standards expected by those who live in and visit this prestigious and luxurious development. In addition, the

special ecological features of the skyscraper require precise and versatile control. Biskon Construction therefore gave special attention to the building management system (BMS), which controls the HVAC and common area lighting. The BMS serves the whole building (including the shopping mall), while the environment within each residence is controlled by a home automation system provided by another supplier.

Biskon Construction awarded the BMS contract solely to BTS (Bina Teknolojik Sistemleri), which has an impressive track record of providing systems for prestigious residential and mall buildings in Istanbul; these have included the Kempinski Residences Astoria, the Anthill Residences, the Palladium Residence & Mall and the Ritz Carlton Hotel.

BTS has been Alerton’s dealer in Turkey since 1999 and Alerton was one of the system manufacturers on the vendor list.

Based on its extensive experience of previous projects, BTS designed an integrated system which provides greater control and a higher capacity of monitoring points than was originally specified, and with less cabling and a lower system cost. It uses Alerton’s BACtalk architecture, which employs BACnet at each level: Management, Integration and Field Controller. Biskon Construction accepted BTS’s design for this superior system, which accommodates a total of total 8500 I/Os (Physical + Integration).

## ISTANBUL SAPPHIRE ■ CASE STUDY

The Alerton BMS installed in the Istanbul Sapphire project covers Biskon Construction's intention of a unique ecological skyscraper with luxurious accommodation and facilities.

### Project summary:

8500 I/Os  
174 luxury residences on 47 floors  
160 m indoor vertical garden  
Shopping mall  
Carpark

### Integration details:

5500 I/Os  
**BACnet/IP:**  
- Central building database  
- GE-Edwards fire alarm system  
- McQuay Chillers  
**BACnet MS/TP:**  
- Climate Master water source heat pumps  
- ABB variable speed drives  
- Grundfos variable flow pumps  
**OPC:**  
- WAGO Building surface wind and sunlight control system

### Project details:

57 Air handling units (AHUs)  
292 Exhaust and supply fans  
84 Fan coil unit (FCU) zones  
5 Boilers  
5 Groups of chillers  
12 cooling towers  
23 variable flow pumps  
60 Groups of lighting controls  
500 water source heat pumps  
120 variable speed drives

