



### Złote Tarasy

Commercial, Office and Entertainment Centre in Warsaw, Poland

#### PROJECT AT A GLANCE

Project Type: HVAC, ACC, CCTV,  
Third party integration

Location: Warsaw, Poland

Number of Buildings: 4

Total Area: 225,000 m<sup>2</sup>

Andover Continuum Equipment Installed:

- 44 - CX9900
- 1083 - i2867
- 238 - AC1-plus
- 27 - DVXi
- 18 - Continuum workstation

Network: TCP/IP, BACnet

Applications:

- HVAC
- Lighting control system
- Access control system
- CCTV
- Fire alarm
- Refrigeration system
- Electricity management
- Transport system
- Monitoring and settlement system

Total System Points: 20,000

TAC Partner:

NTI Sp. z o.o.

## Złote Tarasy: TAC success with advanced integration solutions

### LARGEST PROJECT OF ITS KIND IN POLAND

The Złote Tarasy, or “Golden Terraces,” is the largest multifunctional project which has ever been implemented in Poland. It stands among the highest class investments in Central and Eastern Europe. It took six years to design such a huge project and make all the arrangements necessary to start its construction, which began in 2002 and continued through the end of 2007. The complex is home to some 200 stores, several dozen restaurants and cafes, music clubs, a fitness club, an underground parking garage, and two Class-A office buildings—the Lumen and Skylight Tower.

### UNIQUE AND IMPRESSIVE STRUCTURE

The heart of the complex is a multi-level cascading terrace—an indoor courtyard which features granite, sandstone, greenery and water fountains. It is crowned by a magnificent, undulating glass roof which is 10,250 m<sup>2</sup> in area. The roof’s unique structure is a particularly innovative idea, as it required solutions that have, due to their scale, never been implemented in Poland. With its unique profile and sophisticated design, it has a good chance of becoming the symbol of modern Warsaw.

### THE CHALLENGE

The roof mimics the shape of tree tops as seen from a bird’s eye view. Its billowy structure is composed of nearly five thousand triangular glass panels and hundreds of tons of steel, and is supported by eleven bearings that suggest the look of tree trunks. Panes with three degrees of light transmission have been used for glazing to avoid excessive heating inside the building. The roof is also equipped with a system which protects it against adverse weather conditions such as snow and lightning. Special gutters ensure that the rainwater will be drained off even from the concave parts of the roof.

The roof’s technical data:

- 10,250 m<sup>2</sup> – roof surface area
- 1,400 tons – roof weight
- 600 tons – glass weight
- 4,780 – number of glass triangles in the roof
- 7,120 – number of steel elements



Inside the main shopping gallery

A key task of the project was to create a friendly public space, vibrant with life, in the heart of Warsaw's Central Business Area. The restaurants, bars and shops located under the signature roof are integrated into green areas with water fountains, thereby creating the feel of a modern day marketplace—an ideal place for meetings, evening walks, culture and entertainment events.

The project also includes two Class-A office buildings, both of which are separated from the shopping galleries in a manner ensuring both security and ideal working conditions. The office buildings have independent entrances, inaccessible to the guests of the shopping and entertainment areas.

Offices in *Złote Tarasy* have been designed for companies that value a prestigious location, the highest standards, state-of-the-art technologies and a close proximity to shopping, entertainment, dining and other services.

### THE SOLUTION

The Continuum™ automatic control and building management system used in the facility had to satisfy complex needs in terms of size and functionality of the *Złote Tarasy*. As requested by the customer, TAC partner company NTI Sp. z o.o., supported by the TAC's Commercial and Technical Team, provided and installed two independent Building Management Systems (BMSs) for the entire project—one for the Skylight Tower office building and the other for the main building, which includes the Shopping Arcade, parking garage, and the Lumen office building. Both systems integrate a total of more than 20,000 points from all the buildings' subsystems.

### INTEGRATED SYSTEMS

#### The Ventilation and Air Conditioning System

The building control system based on CX9900 controllers enables the user to control and monitor about 40 air handlers and more than 350 exhaust fans, pumps and devices in heat and cold distribution substations.

#### Lighting Control System

The building control system based on CX9900 controllers enables the user to control and monitor more than 1,000 lighting circuits.

#### Access Control System

The system based on CX9900 controllers enables the user to control access in about 250 entrances.

#### CCTV

Based on DVXi devices from Integral Technologies®, a digital system for viewing, recording and transmitting images from 420 cameras has been integrated with the Continuum BMS system. Thanks to integration at the database level of the CCTV and access control systems, it is possible to switch cameras on when the controlled entrances are activated and to easily select camera images using the icons on the architectural projections of the building.

#### Fire Alarm System

By using specifically developed X-driver in the Continuum system, it is possible to monitor 4,500 points (chiefly fire damper positions) in the Zettler™ Expert fire detection and alarm system.



#### **Refrigeration System**

By using the BACnet®/IP data communication protocol, the Continuum system enables the user to monitor the refrigeration system controlled by the Trane® instrumentation and control system.

#### **Electricity Management System**

By using Modbus® protocol, the Continuum system enables the user to read and visualize data captured from the building's power distribution wiring system managed by Schneider Modicon controllers of the TSX PREMIUM series.

#### **Transport System**

ODBC interfaces were used to input data on the failures and operational status of control systems for 35 Thyssen® escalators and 45 KONE® lifts to the BMS Continuum system.

#### **Monitoring and Settlement System for Utilities Consumption**

Three independent metering systems in the M-Bus network have been installed in the building. These are: Actaris® water meters, Siemens® heat/cold consumption meters and Kamstrup® electricity meters. Each network has been connected with the BMS through individually selected communication interface (Plain English® driver). This solution enables the user to remotely read values from about 1,000 meters across the building complex and significantly simplifies the settlement procedure.

The SQL Server database of the BMS system for the main building has been placed on a redundant server which supports fifteen workstations. Although dedicated to individual subsystems, the stations feature universal functionality which allows them to support each subsystem after changing the current configuration. Similar functionality is provided for the Skylight Tower building by a separate server and four workstations.

#### **THE BOTTOM LINE**

The design and functionality of the complex has already been applauded by international experts. Złote Tarasy has achieved the title of the best commercial project in the world by MAPIC Plaza Retail Future Project Awards and MIPIM Architectural Review Future Project Awards.

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