

**Railway Security and Signalling
Airfield Lighting and other
Specialised Technical Systems
Safety, System Engineering, RAMS**



BEVAC
ENGINEERING

OUR CHALLENGE, YOUR MOBILITY



BEVAC Engineering

Chaussée de Nivelles, 300 bte F
B - 1420 Braine-l'Alleud
VAT 0845.718.848

Contacts:

*Eng. Patrick **Dierckx**, Partner/Manager, GSM 0496/16.40.45*
*Eng. Vincent **Vandooren**, Partner/Manager, GSM 0496/10.51.49*

OUR MISSION

BEVAC Engineering's expertise in the world of transport is aimed at meeting the mobility challenge. Our leadership position is based on a rapid understanding of your needs and their smooth integration into your operating environment. Creative, global and completely independent of any supplier, BEVAC Engineering's services extend from research into optimal, multi-criteria technical solutions to the formalisation of system operating procedures.

OUR VISION

Our goal is to strengthen our position as an independent reference within the transport and mobility market. One of our main objectives is to develop our Complex Systems Audit to guarantee that a client's desired requirements are achieved. Since 1964, our speciality has been a personalised and efficient service within a loyal, productive long-term client relationship.

OUR COMPETENCIES

Over the years, we have developed a working methodology based on our experience and recognized theoretical models. Our contribution includes (inter alia):

- the capacity for a rapid and methodical understanding of clients' needs
- the capability to synthesize and present concrete solutions
- a driving force in terms of project organisation as well as overall or partial project management (technical/contractual/administrative)
- the technical and functional analysis that can lead to the preparation of tender documents and the technical and administrative analysis of tender bids.
- the proofing of tender documents written by clients, assuring their completeness, consistency and adequacy with regard to functional and technical needs
- project follow-up: verification of technical and functional compliance, monitoring system validation and commissioning tests, writing meeting reports, assistance with start-up, operational assistance, etc.
- formalisation of functional and operating procedures to integrate systems perfectly into clients' operating environments
- complex Systems Audits (operation, maintenance, safety).

BEVAC Engineering offers its services by delivery, mission or on an hourly/daily basis.

OUR MAIN ACTIVITIES

Technical areas

Railway & underground security and signalling (Engineering, Safety, RAMS), monitoring and regulation of metro (ATS) and tram-LRT/bus systems with information to travellers, command and control systems, CCTV, cabling, fibre optics, control centres, on-board IT equipment.

Airfield run- and taxiway lighting, ground guidance and aircraft docking systems, perimeter security, fences, access control, 400Hz electrical supply systems.

Catenaries, public lighting, traction substations, railroad switch remote control, speed control indicators, crossroad priority devices.

Application areas

Rail networks, urban and inter-urban road networks.

Buildings and industrial complexes.

Airports.

Vehicles (bus, tram, LRT and metro).

MAIN REFERENCES

- Railway & underground security and signalling :

[Belgium] Metro and LRT: Brussels (STIB), Antwerp (De Lijn) & Charleroi (TEC-C)

[Belgium] Tram-LRT: Brussels (STIB) & Charleroi (TEC-C)

[France] Eurotunnel, Tram: Bordeaux

- Airfield lighting, ground guidance, docking systems and other techniques :

[Belgium] Brussels-National Airport (BAC), Brussels-South Charleroi & Liège-Bierset (SOWAER), Ostend, Deurne.

[Netherlands] Schiphol (SPIE), Woensdrecht, Eindhoven

[France] Caen, Roissy

[Suriname] International Airport Paramaribo (JDC)

- Monitoring and regulation of trams en bus including traveller information :

[Belgium] Bus: Liège (TEC-LV) & Hainaut (TEC-HT); Tramway and bus: Charleroi (TEC-C) & Brussels (STIB)

- ATS :

[Belgium] Metro: Brussels (STIB)

- System Engineering :

[Belgium] Underground Railways in Brussel (STIB)

- Technical systems for tramways (Catenaries, public lighting, traction substations, railroad switch remote control, speed control indicators, crossroad priority devices) :

[Belgium] Tram: Charleroi (TEC-C)

[Belgium] Tram: Brussels (STIB)

- Remote command & control systems for Traffic, Energy, Equipments management :

[Belgium] LRT and tram network: Charleroi (TEC-C); road network: Liège (Cointe Tunnel - SPW/SOFICO); Metro, LRT and tram network: Brussels (STIB)



HISTORY

Since 1964, **BEVAC** has specialised in studies for security, signalling, automation and communication systems, mainly in the field of public transport.

From 1989 onwards, backed by 20 years of expertise, **BEVAC** expanded its sphere of activities into the areas of telematics and airports, becoming an expert-advisor at the European Commission for multiple projects and, among others, at the Belgian "Airways Authority" (RLW/RVA) and later also at the Brussels Airport Company (BAC), SOWAER and Belgocontrol.

Abroad, **BEVAC** developed its activities in co-operation with Belgian government services and through organisations such as Transurb Technirail and BEAC, groupings of public bodies and private Belgian companies, respectively active in the areas of public transport and air transport.

In May 2012, **BEVAC Consulting Engineers SA** became **BEVAC Engineering SPRL**, which continues to offer clients the same high quality services with the same team.

BEVAC is a member of the "International Union of Public Transport" and official advisor to the Belgian Ministry of Communications.

Our expertise in the areas below is described in further detail on the pages that follow:

- Railway & underground Security and Signalling (Engineering, Safety, RAMS)
- Airfield run- and taxiway lighting, aircraft ground guidance, docking and other technical systems
- Monitoring and regulation of metro (ATS) and tram-LRT/bus
- Technical systems for tramways
- Remote command & control systems for Traffic, Energy, Equipments management
- Road and motorway tunnels, buildings and industrial complexes

RAILWAY & UNDERGROUND SECURITY AND SIGNALLING: Engineering, Safety, RAMS

BEVAC has specialised in railway & underground security and signalling since its foundation in 1964. It acts as advisory engineer to several public transport companies, undertaking design studies, drafting the technical and functional requirements, and providing project follow-up and technical and operational assistance during commissioning.

In 1982, BEVAC developed its own software tool, SIGNAC®, capable of simulating the movements of rail vehicles based on their characteristics and those of the chosen network. This software tool allows the user to determine and verify the positioning of signalling, to calculate travel times and to predict energy consumption.

Thanks to its knowledge of the CENELEC 50126 and related standards, BEVAC can offer its clients the expertise and independence to meet their required security objectives and the optimal availability and maintainability of installations that are perfectly integrated into their operating environment (RAMS, procedures for operations and maintenance).

Typical projects:

- Provision, renovation and extension of relay or computer-based SIL 4 signalling installations
- Audit, verification and testing of existing installations
- System engineering, Safety

Belgian customers:

- STIB/MIVB: Brussels inter-urban transport company
- De Lijn: Flanders public transport company
- TEC: Wallonian public transport company
- Alstom

International references:

- Eurotunnel
- Athens tramway (Olympic Games)
- Railway system (express and omnibus) Caulfield-Moorabin, Australia



AIRPORTS:

Run- and taxiway lighting, ground guidance, docking and other technical systems

Since 1989, BEVAC has carried out an important role as advisory engineer to several Belgian and foreign airports, realising system design studies, drafting technical and functional requirements and providing project follow-up and technical and operational assistance during commissioning.

BEVAC's expertise allows airports to attain the required levels of security and fitting out required by the International Civil Aviation Organization (ICAO) and achieve their development objectives.

Typical projects:

- Conception, renewal, extension of day and night ground lighting according to European and international standards
- Beacon remote control and energy supply
- Optimization of taxiways and stands according to aircraft categories
- Audit of existing beacon systems and grid power supplies
- Docking Guidance & Gate Allocation Systems
- Power substation
- Special outdoor cabling
- Perimeter protection and access control
- Fitting out runway underground technical networks (safety lighting, telephony, fire detection, etc.)

Belgian customers:

- The Brussels Airport Company (Brussels National Airport)
- SOWAER (Bierset Airport, Brussels-South Charleroi Airport)
- SPIE (Ostend and Deurne airports)
- ADB(Oslo)
- JDC-Airports (international outsourcing)

International references:

- Marconi Oranje BV (Netherlands)
- Schiphol, Woensdrecht, Eindhoven (Netherlands)
- Caen, Roissy (France)
- Int. Airport of Paramaribo (Suriname)



MONITORING AND REGULATION OF METRO SYSTEMS (ATS)

BEVAC specialises in monitoring and regulation of metro systems, as well as in information for travellers and drivers. Since 1988, BEVAC has participated in the design and installation of the monitoring and regulation system of the Brussels' metro.

In 2007, BEVAC was chosen to renew the system, involving preparation of the design studies, drafting the technical and functional requirements, project follow-up and providing technical and operational assistance during commissioning. BEVAC participates actively to the integration of the new system into the client environment.

Since 2011, BEVAC has employed its expertise in Automatic Train Supervision (ATS) systems on behalf of project PULSAR (metro automation), ensuring continuity in implementation throughout the migration of the installations.

Typical projects:

- Integrated follow-up and regulation of ATS software in the client's operating environment (HASTUS, management of train scheduling, reporting, etc.)
- Centralised management of drivers in real time and automated broadcasting of their service information
- Broadcasting traveller waiting times, destinations and specific route information on platforms and the internet
- Simulation of train movements and interactions in the field, providing operator training and testing of the ATS implementation

Belgian customer:

- STIB/MIVB (Metro): Brussels inter-urban transport company

MONITORING AND REGULATION OF LRT, TRAM AND BUS SYSTEMS

BEVAC specialises in systems to aid the operation of buses and trams running above ground or underground and provide traveller information.

Since 1997, BEVAC has worked for public transport companies as an expert-advisor on S.A.E.I.V. systems, preparing design studies, drafting technical and functional requirements and providing project follow-up and technical and operational assistance during commissioning.

BEVAC's expertise in on-board equipment for rolling stock positions us as a privileged partner in the installation of intelligent multi-system platforms (on-board computers with open ICT architecture).

Typical projects:

- Centralised and on-board software
- On-board equipment (Driver command console, on-board computer, displays, communication router, network switch, communication antenna, GPS, etc.)
- Data transmission by radio or mobile networks (GSM 3G)
- Information boards for travellers at bus/tram stops

Belgian customers:

- STIB/MIVB (Bus & Tram): Brussels inter-urban transport company
- TEC Liège-Verviers (Bus): Public transport company of the province of Liège-Verviers
- TEC Hainaut (Bus): Public transport company of the province of Hainaut
- TEC Charleroi (Bus & Tram): Public transport company of the Charleroi region

TECHNICAL INSTALLATIONS FOR TRAMWAYS EN LRT :

**Catenaries, public lighting,
traction substations,
railroad switch remote control,
speed control, crossroad
prioritisation.**

Since its foundation, BEVAC has been involved in different projects related to electro-mechanical equipment for tramways.

BEVAC's role as an expert-advisor to public transport companies includes the preparation of design studies, drafting the technical and functional requirements, project follow-up, and providing technical and operational assistance during equipment commissioning.

BEVAC has all the necessary technical expertise for the installation of tramways either above ground or in tunnels.

Typical projects:

- Catenaries/aerial contact lines (LAC)
- Public lighting for streets and routes
- Traction substations
- Security of the movements
- Railroad switch remote control (ground and on-board equipment)
- Automatic speed control (ground signals and on-board equipment)
- Crossroads traffic lights command and management
- Signalling

Belgian Customers:

- STIB/MIVB: Brussels inter-urban transport company
- TEC Charleroi: Public transport company for the Charleroi region

REMOTE COMMAND & CONTROL SYSTEMS

Traffic, Energy, Equipments management

BEVAC acts as an expert-advisor to public transport companies and road developers. Its services include design studies, drafting technical and functional requirements, project follow-up, and technical and operational assistance during commissioning of command and control systems for traffic management and supervision by technical teams.

Typical projects:

Public transport:

- Traffic control (video surveillance of network stations, stops and waiting points, information to customers, etc.)
- Remote command and control of signalling installations, power distribution (high and low voltage, catenary) and related equipment (video surveillance, fire detection, communications, pumping, station access gates, escalators, lifts, etc.)

Road management:

- Traffic control (video surveillance, automatic incident detection, telephone assistance, etc.)
- Remote command and control of electromechanical equipment for road and motorway tunnels (high and low voltage, emergency power supply, lighting, ventilation, pumping stations, fire detection, access control, etc.)

Belgian Customers:

- STIB/MIVB: Brussels inter-urban transport company
- TEC: Public transport company of the Region of Wallonia
- Public Authorities of the Region of Wallonia (SPW) / SOFICO

ROAD AND MOTORWAY TUNNELS, BUILDINGS AND INDUSTRIAL COMPLEXES

BEVAC offers a wide range of services related to the technical equipment for road and motorway tunnels as well as buildings and industrial complexes (special technology).

BEVAC's competencies cover, among other things, the areas of video surveillance, telephony, structured networks, traffic control centre equipment, and the supervision of electromechanical installations (high and low voltage, emergency power supply, lighting, ventilation, pumping stations, fire detection, access control, etc.).

Typical projects:

- Site security (access control, fire detection, video surveillance, etc.)
- Pumping installation
- Cavity and channel lighting
- Fibre optic networks
- Telecommunication equipment (telephony, GSM, radio, message distribution, etc.)
- Person and vehicle Identification
- Integrated cabling in buildings
- Centralised technical management
- Optimisation of telephone lines

Belgian Customers:

- Uccle (Brussels)
- Saint-Lambert and Leopold stations (Liège)
- Public Authorities of the Region of Wallonia (SPW)/SOFICO - Cointe Tunnel, Bon Air Passage

Projects abroad:

- Equipment for high security prisons