Concentration of signal boxes of the Belgian rail network

Description

The concentration of signal boxes consists in concentrating 368 existing signal boxes to 31 operational boxes. In addition, 11 locally controlled boxes can also be remotely controlled by one of the 31 final boxes, if necessary (essentially for installations with large sets of sorting sidings for goods wagons). The aim is to enhance safety on the railway network and to ensure better punctuality of trains. Later on, these 31 final signal boxes will be concentrated to 10 boxes spread out over the Belgian territory.

With the concentration of the signal boxes the old system will be replaced by an ultramodern electronic system. This means enhanced safety, greater regularity and better information about railroad traffic. The technology used to safely control and monitor train movements is fully computerised. This technology allows for equipment to be controlled at great distance (signals - point switches) within a radius of 10 to 100 km. This contrasts with the traditional signalling stations which were limited to a distance of 5 to 6 km.

The new centralised system will be more user-friendly and ergonomic and therefore easier to operate than the older equipment. In addition, train-related information will be analysed in an entirely different way, compared to the past, which will be more efficient.

TUC RAIL’s mission

TUC RAIL principally works for Infrabel's Build division, the Belgian railway infrastructure manager. Within Build division the Service Signalling Projects provide project management for this program (budget, planning, risks, etc.).

As part of the implementation of this program, TUC RAIL has been commissioned to deliver the following complete set of services:

- to undertake preliminary studies and take all administrative measures needed to obtain the necessary permits for the implementation of the works;
- to undertake implementation studies for all works (signalling, and corresponding techniques such as power supply, telecommunication networks, etc.);
- to put out and to monitor tenders;
- to supervise work after award of contract;
- to carry out functional testing of installations.

TUC RAIL’s solutions to the program constraints

The program covers the entire Belgian rail network and has a large number of intervening parties, which makes for a very complex management.

TUC RAIL also performs related work needed to carry out concentration and modernisation:

1. replacement, on a large part of the network, of the existing interlocking system (relay technology) by a ultramodern electronic interlocking;
2. partial renewal of the signalling power network;
3. implementation of fibre optic networks for communication between central equipment and signalling elements located along the tracks;
4. project management during installation and equipment of 17 new signal boxes.

Click here to view pictures of the concentration of signal boxes of the Belgian rail network.