

IRSE

Institution of Railway Signal Engineers

News

October 2019



Ladbroke Grove
what have we learnt

Resilience
and the digital railway

Back to basics
fundamentals of train control systems

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This month's IRSE News features a number of articles exploring the topic of engineering resilience. Resilience on the railway can mean the ability to keep the railway running during equipment failure, or during environmental events such as bad weather, but it can also mean the ability to cope with changes in the workforce and the skillsets expected of them. Resilience also applies to human health with evidence showing that serious harm to physical and mental well-being can be caused by stress at work.

A recent newspaper article claimed that the incidence of mental issues in the construction industry is greater than average, with suicides occurring in extreme cases. There has been a rise in the number of people suffering from stress, anxiety and depression. Contributing factors include homesickness, job insecurity, financial pressures, isolation and bullying. In many countries industry is structured around tiers of subcontractors competing with tight margins. Principal contractors may commit to protect workers, but this doesn't always ripple down the supply chain.

The main causes of the distress appear to be loneliness, being on site sometimes a significant distance away from family for weeks at a time, and working long hours. A union safety advisor on a major construction project was recently quoted as saying that the number of people going absent is similar to 50 years ago, only now it is with stress and mental issues not physical injuries.

This directly affects our industry. We have people working long hours, sometimes away from families and friends and working hard to achieve tight deadlines. Companies have to compete for the next project, which could be at home or overseas. Engineers and technicians may work from home far more than in the past, and travel long distances. They may not always have the security of a depot or office with people to talk to, as they did in the past.

Many companies are aware of the issues and are implementing various mental health programmes, including staff trained as mental health first aiders. Companies need to address the root causes of stress, not just treat its symptoms. We can all help as well, by looking out for our fellow workers and sometimes just picking the phone up and talking to a lone work colleague.

*Paul Darlington
managing editor, IRSE News*

Cover story

Looking west through the throat of Zurich main station (HB) at dusk on 19 March 2018. HB's buffer stops are some 420 metres behind us. The tracks ahead lead to all compass corners. IRSE Swiss Section member André Rüegg told us about HB's interlocking. A Siemens SpDrS-SBB equipped with a desk-mounted track diagram and pushbuttons, its first workday was 15 May 1966. It monitored and controlled HB's signals, points and 106.7Hz track circuits via a network of underground chambers connected by foot tunnels. With the launch of Zurich's S-Bahn in 1990, a ZN/ZNL90 system began setting routes using trains' numbers in the interlockings at HB and nearby stations remotely. Scheduled movements at HB have grown from 993 daily in 1966 to 3100 today. In 2014, an



operations centre at Zurich Airport for the eastern third of Switzerland took control of HB's interlocking. SBB has announced no plans to replace it.

Photo and caption by George Raymond