Bentley
Advancing Infrastructure

CASE STUDY

Utilities Kingston Streamlines and Simplifies Design Analysis

SPIDAcalc™ Helps Engineering Teams Conduct Seamless Nonlinear Analysis

A MULTI-UTILITY MODEL PUTTING THE CUSTOMER FIRST

Utilities Kingston (UK) is a leading city-owned, multi-utility provider dedicated to the responsible management of integrated services for Kingston, Ontario. They provide services to more than 120,000 customers, which include clean drinking water, gas, and electricity, as well as widely accessible and affordable fiber optic broadband with connectivity up to 10 gigabits per second (Gbps).

This shared model forms a unique community-based company, where the complicated task of managing multiple utilities is more reliable, safe, and cost-effective. They strive to provide timely project completion, less disruptive infrastructure repairs to the community, efficient coordination of projects, and a one-stop shop for their customers' utility services. It is completely funded by separate utility-specific user fees that promote utility conservation and sustainability.

MOVING FROM MANUAL TO MODERN WORKFLOWS

Poles within UK's electric service area had to meet new standards in safety and environmental regulations. In 2015, the CSA code required nonlinear analysis. "We knew the regulatory requirement for nonlinear analysis was coming, and our two-dimensional spreadsheet application was not going to cut it," said Dan Micallef, engineering technologist at UK. As the organization moved toward adopting the right software, they wanted to ensure their designs were CSA-compliant and that standards were met throughout the utility.

Additionally, they conducted calculations manually with one spreadsheet per pole. However, complicated designs and construction prints were difficult, time consuming, and not always consistent and reliable. The team was also unable to complete nonlinear analysis on a spreadsheet or even manually. Therefore, UK was looking for user-friendly software that would allow them to meet these goals.

STREAMLINING DESIGN ANALYSIS WORKFLOWS

UK knew that they needed to simplify their design analysis process to not only CSA compliance, but also ensure that they were optimizing their workflows. After considering their options, they chose SPIDAcalc for its easy-to-use graphical user interface. UK integrated the application into their workflows starting in 2010. They started testing a few poles and compared the analysis. SPIDAcalc gave them a visual of each project, easy-to-review design files, and a record of all designs. The software simplified the design analysis process while offering a 3D view that showcases complex features for analysis.

Because SPIDAcalc easily adapted to the needs of each user, the team at UK was able to complete their own design work and analyze every pole for third-party attachments before making changes. Data entry and the design analysis process was simplified because they were able to work with 2D and 3D views to provide quick visual confirmation of accurate input at a glance, showing snapshots of complex features for analysis. These visuals also helped engineers in the field generate ideas. But most importantly, the software's ease of use ensured that every pole underwent a thorough analysis for compliance with CSA requirements. It also automatically incorporated CSA changes, reflecting the latest standards.

PROJECT SUMMARY

ORGANIZATION
Utilities Kingston (UK)

SOLUTION
Utility and Communication Networks

LOCATION
Kingston, Ontario, Canada

PROJECT PLAYBOOK
SPIDAcalc

FAST FACTS

- Utilities Kingston used SPIDAcalc for their electrical utility operations.
- SPIDAcalc simplified the design analysis process in the electrical services sector while offering an accurate 3D view and showcasing complex features for analysis.
- By integrating SPIDAcalc into their workflows, UK now has a cost-effective solution that is highly reliable in monitoring the city's electrical utility infrastructure and ensuring compliance with regulatory requirements.

ROI

- With SPIDAcalc, UK processed 30 iterations of a pole within 10 to 20 minutes, potentially saving months of time.

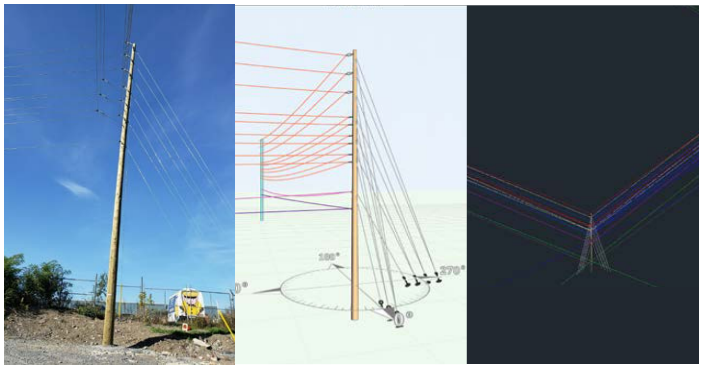
"We knew the regulatory requirement for nonlinear analysis was coming, and our two-dimensional spreadsheet application was not going to cut it. SPIDAcalc makes it easy to enter the required data. With the 2D and 3D views, we can easily see if the data is entered correctly."

– Dan Micallef, Engineering Technologist, Utilities Kingston

PROCESSING MORE DESIGNS IN FAR LESS TIME

By using SPIDAcalc, UK now has a cost-effective solution that is highly effective in monitoring the City of Kingston's power grid infrastructure. "SPIDAcalc makes it easy to enter the required data. With the 2D and 3D views, we can see at a glance if the data is entered correctly," said Micallef. "SPIDAcalc is easily adaptable to each utility's individual needs. Their team is very approachable and are ready to implement ideas and suggestions as needs arise."

UK has streamlined their design analysis workflows with SPIDAcalc and can now process dozens of iterations of a pole in just minutes—at a level of efficiency that would have been impossible to do manually, saving months of time. Now, UK knows that they are consistently meeting CSA regulatory requirements for non-linear analysis.



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