

Strategic planning in building automation and electrical installation with WSCAD

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As electrical engineering becomes increasingly integrated into general construction planning, more and more projects are requiring the use of bespoke solutions to handle tasks ranging from drafting building automation schematics to designing control cabinets and sockets. A reliable, high-quality Electrical CAD (E-CAD) environment is essential for designers to deliver these solutions effectively as well as enable cohesive planning and project execution.

WSCAD's software is built to provide comprehensive support to construction projects, offering tools for tasks ranging from initial building automation tasks and electrical engineering to control cabinet construction. Used correctly, the package can help to streamline the planning process from end-to-end.

The six stages of strategic planning building automation with WSCAD

- **One: Plan hardware and software**

The first step along the strategic planning pathway for building automation planners is to select the hardware and software that will be used throughout the rest of the process. This includes automation stations and systems, as well as field devices like fire protection, smoke extraction systems, valves, actuators and sensors.

- **Two: Draft system and control schemes**

Next, planners use WSCAD's software to create detailed diagrams for the building automation systems. Between the included database and the free resources available at wscaduniverse.com, all system and control plans can be standardised, made easy to understand, and prepared according to industry best practices.

Pre-built macros within the software suite can speed up the creation of any automation schemas. Planners can also build their own custom macros, allowing them to easily include a wide range of components and specifications.

- **Three: Define and record objects and data points**

In the next major stage of planning, all objects and data points for the schemes along with their properties, must be defined and recorded within the software. This ensures they're available via the electrical schematics right up to the time the PLCs are programmed, eliminating the need for them to be entered repeatedly as the project continues.

- **Four: Design the communication structure**

The next step is designing the communication structure for the project. This means determining the locations of automation and control equipment rooms, network configurations, protocols, interfaces, and the placement of control and distribution cabinets. Identifying systems like AMEV's Building Automation Control Twin (BACtwin) or identifiers following the ISO IEC EN 81346 standard can help designers to create distinct structures and label components clearly.

WSCAD's software suite automatically generates a variety of lists required for project documentation, such as sensors and actuators, which streamline the ordering process and support compliance as well as assembly instructions.

- **Five: Create electrical installation plan and circuit diagram**

WSCAD's software allows designers to place any field devices in the system and integrate BACS automation schemes into the floor plan without the need to create new entries. This can either be added into floor plans, either as PDFs or DWG files, or with new ones scanned in using WSCAD's Building AR app. As all disciplines use the same data model and database, these components can be accessed by any of the teams working on the project and be quickly and easily switched out if they need to be changed.

After the electrical installation plan is drawn up, it's usually followed by a circuit diagram. Again, this process can be speed up with macros, and all the symbols used are automatically linked to the relevant information in the database.

- **Six: Design the control cabinet**

Without leaving the engineering software and still using the components and data up to now all components from the electrical schematics will be transferred or will be used into the cabinet structure and arranging them to scale. WSCAD software allows you to automatically route connections, calculate wire lengths, and ensure the cabinet's layout is optimised for space and accessibility. It can also generate photorealistic 3D views that help in detecting space issues and optimise component positioning.

The data this generates can immediately be used for cable labelling and for producing wire sets. It can also be used to manufacture wire harnesses as well as cabinet enclosures, mounting plates and doors on NC machines.

Documentation at the push of a button

Once the planning phase is finally complete, all the documentation – laid out in accordance with all relevant standards – can be converted into cross-referenced PDFs at the push of a button. This can even be produced in different languages as needed.

Data can also be delivered to the Cabinet AR app, giving engineers access to digital wiring lists, electrical plans, 3D views, item data and manufacturer data sheets via tablet or smartphone. If builders ever need to make changes to the plans, WSCAD's innovative redlining function can share changes and comments with everyone involved in the project, including the design departments. This simplifies communication, creates transparency and ensures traceability.

The E-CAD solution from WSCAD is available as either a one-time purchase or a subscription. If you want to know more, visit www.wscad.com.

Image captions:



Image 1: WSCAD's software is built to provide comprehensive support to construction projects

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About WSCAD

WSCAD is part of the Buhl Group, which has 700 employees and has been specializing in the development of Electrical-CAD solutions for over three decades. Customers include medium-sized companies, international corporations, and planning and engineering offices. More than 40,000 users from the machine and plant construction sectors, as well as from building automation and installation technology, work with the integrative WSCAD software. On a platform with a central database, it combines the six disciplines of electrical engineering, switch cabinet construction, process and fluid engineering, building automation, and electrical installation. A component exchange is immediately completed in the plans of all disciplines. Mechanisms for standardizing, reusing, and automating processes in electrical design and building automation shorten the planning and construction times from several weeks to just a few hours or minutes, with higher quality work results. Maintenance personnel and service technicians use the WSCAD Cabinet AR App to scan field devices and components in the control cabinet using a smartphone or tablet, and have immediate access to current electrical plans, including BMK, item data, and the original data sheets from the manufacturers.

Users can find over 2.1 million data sets from more than 400 manufacturers in the WSCAD-, EDZ-, DWG- and 3D-STEP format in the world's most powerful Electrical-CAD data library wscaduniverse.com. Use is free of charge, as is the posting of product data by the manufacturers. Eleven seamlessly interlocking services from WSCAD Global Business Services round off the range of services: these include engineering and migration check-ups, workflow and processes, consulting and training, or digitizing paper documents and converting different Electrical-CAD formats.

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