

## Autodesk® Utility Design

Plan, design, and analyze distribution networks more accurately in a single environment. Autodesk® Utility Design 2009 software helps utilities:

- Streamline design processes with rules-based automation
- Integrate design sketches, perform engineering calculations, and link to materials ordering systems

Using incorporated design and construction standards, you can improve data accuracy and consistency and make more informed choices about materials, equipment, and facility sizing. The result: right-sized, least-cost engineered facilities that can help to increase network efficiency and reliability.

### Learn More

Utilities that use Autodesk Utility Design 2009 can adopt Rural Utility Service (RUS) standards within their design workflows and staking sheet production processes. In addition, licensed customers can work with Autodesk Consulting to help ease standards implementation.

For more information about the Autodesk Utility Design RUS Solution, visit [www.autodesk.com/rus](http://www.autodesk.com/rus).

# Better staking sheets with Autodesk Utility Design.

## Improve data accuracy and consistency of staking sheets.



With the Autodesk® Utility Design RUS Solution, you can improve layout consistency, help meet correct standards, and more easily associate RUS material with unique stock numbers—all of which can help to improve data accuracy and consistency, leading to better choices about materials, equipment, and facility sizing.

The Autodesk Utility Design RUS core configuration includes basic requirements for commonly used drafting, design, engineering standards, and naming conventions, including:

- Overhead electric distribution staking sheet layouts
- Overhead design engineering using RUS standards for sag, wind, and ice loading; guying; and pole sizing
- Design engineering using RUS standards for voltage drop, flicker, and transformer and conductor sizing
- Automatic population of staking sheet work locations

### Enhance Productivity by Automatically Generating Complete Staking Sheets

The Autodesk Utility Design RUS Solution uses AutoCAD® tool palettes, enabling users to sketch devices and assembly units directly to scale, with the option of using customer base maps or existing cadastral data as references.

- Palettes are preconfigured, with assembly units and materials based on RUS standards.
- Drafting and labeling facilities are uniform. As you draw on the screen, the solution automatically:
  - » Sets all associated CAD properties, such as layers, line styles, and symbols
  - » Assigns all associated labels and materials
  - » Establishes connectivity between facilities
- Facility information shows relevant RUS information.
- Staking sheet content is populated automatically using the layout sketch and project information.

### Promote Consistency for Engineering Facilities Using RUS Standards

The software incorporates RUS standards for engineering of electric facilities, providing tools such as:

- Voltage drop and flicker calculation
- Transformer and conductor sizing based on standards
- Automatic sag and clearance from ground and buildings
- Pole sizing for wind, ice, and temperature
- Guying

### Enable Greater Efficiencies with Integrated Material Ordering

Once a design is complete, use the Autodesk Utility Design RUS Solution to order materials based on what is drawn. Users can manually add additional materials for ordering, either based on the entire design or by location.

- Compatible units can be automatically associated with the facilities being ordered, or manually added to the work estimates.
- RUS business rules for materials and compatible units are automatically invoked, providing a list of materials per location for all facilities drawn in the sketch.
- Users can modify individual material items or append additional materials required for the job.
- Materials required for the job are automatically added to or populated in the staking sheet.
- Complete bill of materials (BOM) reports are automatically created by location or design job.
- Users can associate the RUS materials with unique individual stock numbers from a materials management system or inventory system.

### RUS Standards Available in Autodesk Utility Design RUS Solution

Autodesk recognizes that some variations exist among utilities in both the level of adoption of the RUS standards and the specific application of those guidelines. Utilities implementing the Autodesk Utility Design RUS Solution may choose not to adopt all of the RUS standards. In such cases, utilities can use the preconfigured design information within the workflows, as shown below, and modify them to suit specific requirements.

#### Voltages

- 12 KV and 24 KV primary voltages (most common)
- Secondary voltages: single-phase (120/240 volts) and three-phase (120/208 volts)



Image courtesy of Anchorage Municipal Light & Power.

#### Wire Sizes

- Two overhead primary sizes (one single-phase and one three-phase)
- Two overhead secondary self-supporting or aerial cables
- Three overhead single-phase service cables
- Two overhead three-phase service cables

#### Transformer Sizes

- Three overhead single-phase transformers (pole bolt)
- Two overhead three-phase transformers (pole bolt or cluster mounting bracket)

#### Overhead Structures

- Poles
- Overhead transformers
- Cutouts
- Overhead switches
- Sectionalizer/recloser
- Capacitors
- Regulators

#### Design Engineering

- Uses default Autodesk Utility Design configuration as much as possible
- Voltage drop and flicker calculation (balanced loads only)

- Overhead sag calculation for wires identified above
- Guying as required for above facilities
- Sag and guying limited to simple RUS configuration

#### Construction Drawings for Staking Sheets

- Staking sheet will be prepared in paper space initially on "B" size drawings (11" x 17"), with other sizes available in the future
- Initial plotting scales will include both 1" = 50' and 1" = 40'
- Title blocks, notes, and construction notes on a paper space layout
- Common annotation standard/format for overhead utility construction
- Structure blocks added to the design through Autodesk Utility Design menus or palettes
- Two reports modified for RUS naming conventions