

COLDNet Profile for CATAN Users

This document highlights importance differences between COLDNet Profile and CATAN for CATAN users.

Wind Pressures

COLDNet Profile uses 1 wind pressure and uses drag coefficients on conductors, poles, pole plant, cross arms, and insulators. Using drag coefficients allows each object to have a different wind pressure. For example, if you have a mix of round and rectangular poles the wind pressure will be different on the different poles. Also, a rectangular pole may have a different a drag coefficient on each face and poles of different heights may also have different drag coefficients.

CATAN uses different wind pressures for

Wind on Conductor

Wind on Poles

Wind on Pole Plant

When a CATAN file is imported, the drag coefficients for conductors is set to 1. The drag coefficients for poles and pole plant are calculated from the difference between the wind pressures. For example, if the wind on the conductor is 1200Pa and the wind on the pole is 1500Pa, then the drag coefficient for the pole is set to $1500/1200 = 1.25$

Stays

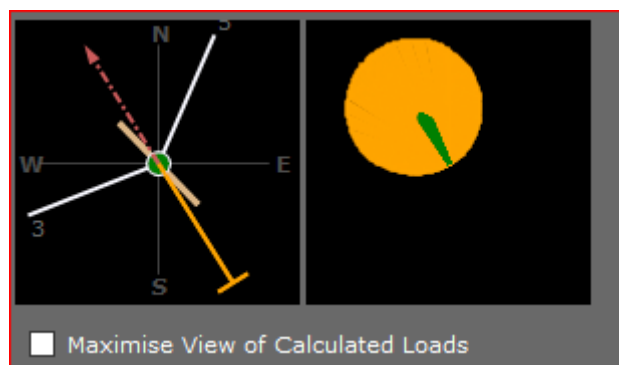
With CATAN the data in the stay library required the user to enter a horizontal stay capacity value for the stay and the descriptor for the stay included the angle with the ground. This meant that you couldn't add stays and angles that weren't in the library.

COLDNet Profile uses the stay capacity and calculates the horizontal load from this and the stay angle to the ground. This eliminates the need to add different angles to the library.

COLDNet Profile also separates ground stays and aerial stays, which allows the user to calculate pole strengths for the aerial stay pole as well as add a back stay to the aerial stay pole. At this point, you cannot have an aerial stay of an aerial stay pole.

Stay Calculations

The stay calculation in COLDNet Profile includes a check to see if a stay is in compression and to ignore it when it is. The stay results now show a image of the stay capacity overlaid with the loads on the pole as shown below.



The orange circle shows the capacity of the stay for every direction while the green overlay shows the resultant loads calculated for every 1 degree of wind.

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The program also checks to see if the pole was passing before the stay was added. If the pole passes before the stay is added, then the stay system is passed. Therefore, poles with stays that are placed to stop cascade failure will not be failed if the pole was already passing.

For Pole Bending at the stay for rectangular poles, CATAN did not look for the worst case in every direction, only in the direction of the stay. COLDNet Profile looks for both faces.

Pole/Crossarm Groups

CATAN used a system of Pole & Crossarm Groups which were used by the Pole, Crossarm and Stay libraries. This meant that the same crossarm had to be entered for each group to be available at all time.

COLDNet Profile uses different groups for each of these libraires. The pole library may have groups for Wood, Concrete and Steel for example but there may only be one group for crossarms. There is now no connection between groups for poles and groups for the other components.

When converting CATAN Libraires over, you may wish to eliminate some of the groups for crossarms and stays if they contain duplicate information

Field Codes

%YH

To support the new clearance to structure option, we have introduced a new field code which is used in conjunction with %RP - Reference Point. A reference point is a point that has been surveyed but that is not part of the ground model such as the base of a building. The new code is %YH with the value after the code being the height above the ground. An example of usage is %RP%YH5.8. This gives a point 5.8m above the ground.

%3YC

This is for use with reflectorless total stations which can record a point in 3D space. This code indicates that there is a conductor at this point.