

PLS-CADD Seminar

# Analysis and Design of Transmission Towers using PLS-Tower.

## Northern Star Power Line Consultancy

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### **Dates and Location**

Training is scheduled for the 4th to the 7th September 2023. It is to be held in Knaresborough, North Yorkshire; UK. The class will be conducted at the Technology Centre, NM Group, Whitfield Park Business Centre.

The training will take the form of a classroom style lecture and practical training exercises.

The training will be conducted in English.

Class timings 1PM to 5PM Monday, 9AM to 5PM Tuesday - Thursday.

## About PLS-Tower

PLS-Tower is a part of the industry standard PLS CADD Suite; this software specialises in the Analysis and Design of Lattice Tower Structures. This course will teach the attendee how to use PLS Tower to model structures from General Arrangement and Erection Drawings, how to apply loadings from Conductors, and how to effectively Analyse and Report findings.



## After the course the Attendee will...

Have an understanding of all aspects of PLS Tower, and be able to create their own PLS Tower Models. They will have a thorough understanding of the workflows required to determine the geometry, connectivity, components, geometry, insulators, conductors, loadings. They will be able to analyse the structure under a number of loading conditions and understand how PLS Tower models and modelling, even more so Analysis and Reporting are affected by the selection of Structural Code.

## Topics Covered

### Course Overview

Introduction and review class outline, Review documents. Working with Tower Program, About, Preferences, Toolbar buttons, 3D Controls, Help Manual / Quick Search Toolbar, Videos, Technotes, Webinars. Back up and Restore.

Overview of TOWER concepts and features.

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ASCE 10 Design Code and comparison with Cenelec Code. History, equations, requirements. (end of day one)

### **Primary Joints, Secondary Joints, Angle Groups and Angle Members.**

Selection of Bracing Ratios and Curve Numbers (eccentricity and restraint). Class worksheet, how to read design drawings (how to see the wood from the trees - what is important?). Identify members, Identify dimensions (vertical, along members, connections).

Entering Joints (Primary and Secondary), Review Coding with Joints and Members.

Start example model, enter joints for example model. (Lunch on day two).

Member Groups - Concepts. Assigning members to groups, element types, group types, add groups to example model.

Member connectivity - Add members to example model. Add joints at intersections, add joints by splitting members, Tips for Reviewing Data. (end of day two)

### **Detailed understanding of Angle Groups and Member Connectivity through example.**

Member Connectivity continued. Staggered Bracings, Drop Brackets (lunch on day three)

### **Sections, Loading and Reporting.**

Point Loads, Wind Loads and Sections. Concepts, Dead Load and Drag Area Calculations. Z of Ground, Identification of Faces, Define Section Locations in example model.

Insulators. Adding insulators to the model.

Conductors. PLS CADD Insulator Link.

Building the LCA File

From original drawings, from PLS LITE, creating LIC Files. (end of day three)

### **Interpreting Analysis Results.**

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Overview, Typical warnings and errors, Understanding summary report, Working with deformed geometry view, understanding analysis results. Tension only members, Crossing diagonals, Redundant checks, Climbing checks, Stub Angle Check.

### **Potential solutions for overstressed members and connections.**

Overview, Incorporating changes into Tower Model, Batch Manipulation of Multiple Models. (Lunch on day four)

### **Family Manager and BLE Optimisation.**

Overview. Basic Top, Extensions, Interface planes. Class example with BLE Tower. Optimum Body and Leg Extension Selection in PLS CADD.

### **Structure Optimisation, incorporating other design checks, Drafting Intro.**

Optimisation Settings, Options, Components Angle Table, Geometry Groups Table. Interactive Member Sizing on existing Structures. Auto Fix.

Optimisation on new Structures, Change leg slope, full optimisation.

Design checks not made by Tower. Member capacities and overrides.

Drafting in Tower. Wrap up and Closing on Day Four.



#### **About the trainer.**

Paul Richardson has worked in the Power Industry for 40 years and in Transmission and Distribution for 30 years. He is a long time proponent of the use of PLS CADD software for the analysis of existing, design of new or upgrading power networks. He has worked extensively across Europe, the United States, Australia, NZ, India and the Middle East. He has been an accredited provider of PLS CADD Training Services for 5 years. Paul is a Chartered Civil Engineer and has worked for many of the leading Utilities worldwide.



## **Who should attend?**

The course is open to all engineers and technicians whose companies currently use PLS TOWER or are considering purchase. The attendee should have basic understanding of Structural Design concepts as the class focuses on the use of the software and not structural design fundamentals.

## **Cost**

The class costs EUR1950 per person.

Attendees will be expected to bring their own PC suitable of running the software along with the latest version of the PLS CADD / Pole / Tower software. Alternatively this software can be provided at an additional cost of EUR300 per person, for a week's hire.

Should attendees bring along out-dated versions of the software, we will not be able to adequately cover the most recent software additions, and we cannot provide software training on legacy versions of the Software.

## **PLS CADD Seminar Registration Form.**

Name

Company

Address

Phone

E-mail

Classes are limited to the first 10 attendees and payment must be received by electronic transfer before the reservation can be confirmed. Confirmed registrants who fail to attend will forfeit their entire registration fee. Northern Star Power Line Consultancy reserves the right to cancel the training session, in which case registrants will receive a full refund of the entire registration fee in that unlikely event.

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## About the Venue.

The Technology Centre, NM Group, Whitfield Business Park.

[Google Maps](#)



Lunch will be provided on Tuesday through Thursday. Afternoon Coffee Monday through Thursday and Morning Coffee Tuesday through Thursday. We look forward to meeting you and an enjoyable yet informative course.

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## Accommodation and Travel



The nearest airport is Leeds Bradford Airport (15 Miles) , although more flights may be available to Manchester which is 65 miles away. Taxi from Leeds Bradford to Knaresborough is a good option and a bus is also available. Car hire from Manchester is a good option and a Train is also available.

Knaresborough and nearby Harrogate has a host of accommodation options, Newton House Hotel in Knaresborough is nearest to the Training Venue, although it is very popular so early booking is suggested.

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For further information or to book your place on this class e-mail

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Or click on

[www.northern-star-plc.com](http://www.northern-star-plc.com)

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