FineLIFT: The Complete Software Solution for the Lift Designers

(by 4M Support department)

1. Introduction

FineLIFT is a vertical software solution addressed to all the elevator designers and constructors, covering both, calculations and drawings. The program provides complete calculations and detailed drawings for any type of elevator (Electromechanical or Hydraulic) through a smart and efficient approach, which practically produces the whole case study output in few minutes. From its structural point of view, FineLIFT consists of the two following Components, synergistically interacting between each other:

a) The Calculations Component, a high functionality calculation environment, including a rich methodological background, based on the latest EN-81 latest Standards. This component provides all the calculation results, producing the final case study printout, in a fully documented way.

b) The CAD Component, a powerful autonomous tool (based on IntelliCAD), which generates automatically the final drawings according to the calculation results.

2. Generation of the case study calculation output

2.1 Data Input

The user defines, in an easy way through appropriate dialog boxes, the basic data of the relevant lift project, including among others the type of the Lift (i.e. electromechanical or hydraulic) the kind of the load (i.e. Lift for Individuals, Hospitals, Vehicles, Loads etc), the number of the individuals, as well as other few general design parameters. The program suggests default values (i.e. initial dimensions for the elevator chamber), taking always into consideration the regulations. The user can modify those values according to his/her preferences, being supported at the same time by helpful technical tables (i.e. suggested speeds according to the type of the building) and also being protected through safety limits respected by the program relatively to the regulations. The user determines also a few necessary technical specifications, as for example the type of the safety gear, the number of the pistons (for a hydraulic lift), the location of the engine room, the number of the guide rails, the total length of the distance, the suspension ratio and others.

2.2 Calculations

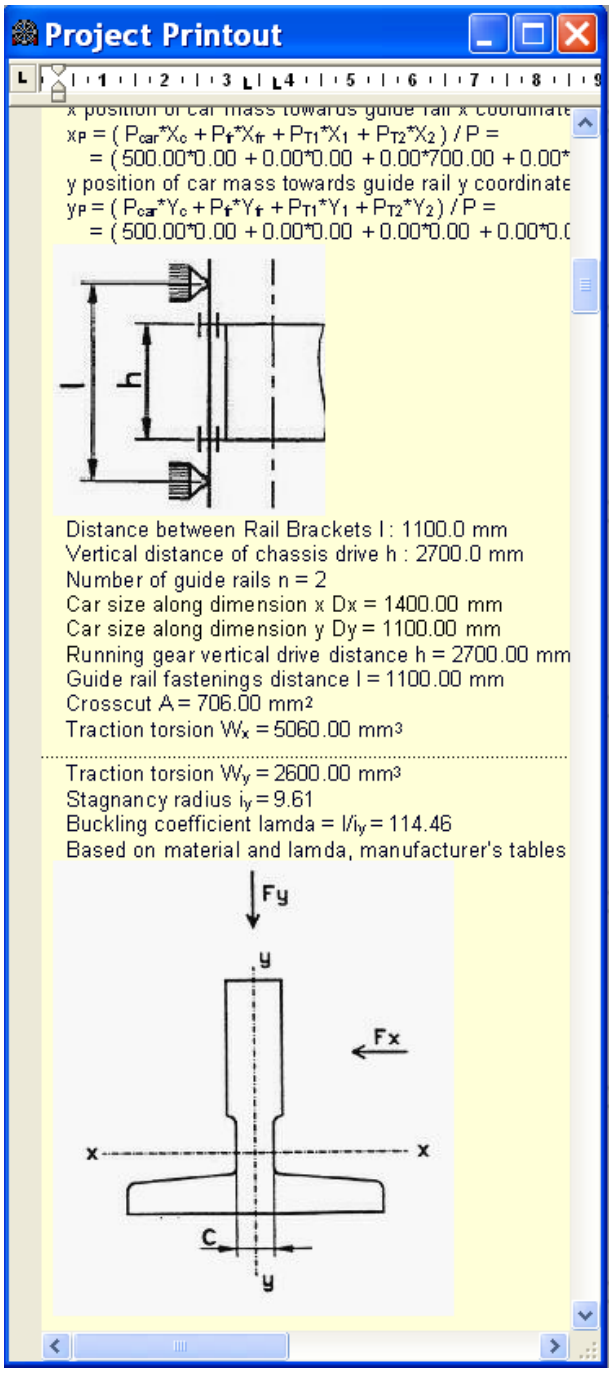
According to the data inserted above, the complete issue of the case study is being produced automatically (picture 1), with all the necessary calculation forms, presented step-step, according to EN81 standardization. The user can intervene any time into the global parameters, as well as into the parameters of the partial calculations assigned to a certain part of the lift (i.e. calculation of the wipe ropes, power of the motor engine, regulator of the speed, specifications of the pulley the piston etc). For example, the user can select a different diameter for the piston or even a completely different type of piston (i.e. of another company) and as a result the program performs again the calculations based on the new data, the case study issue being regenerated in real time. The presentation of calculations and results are organized in separate windows, in such a

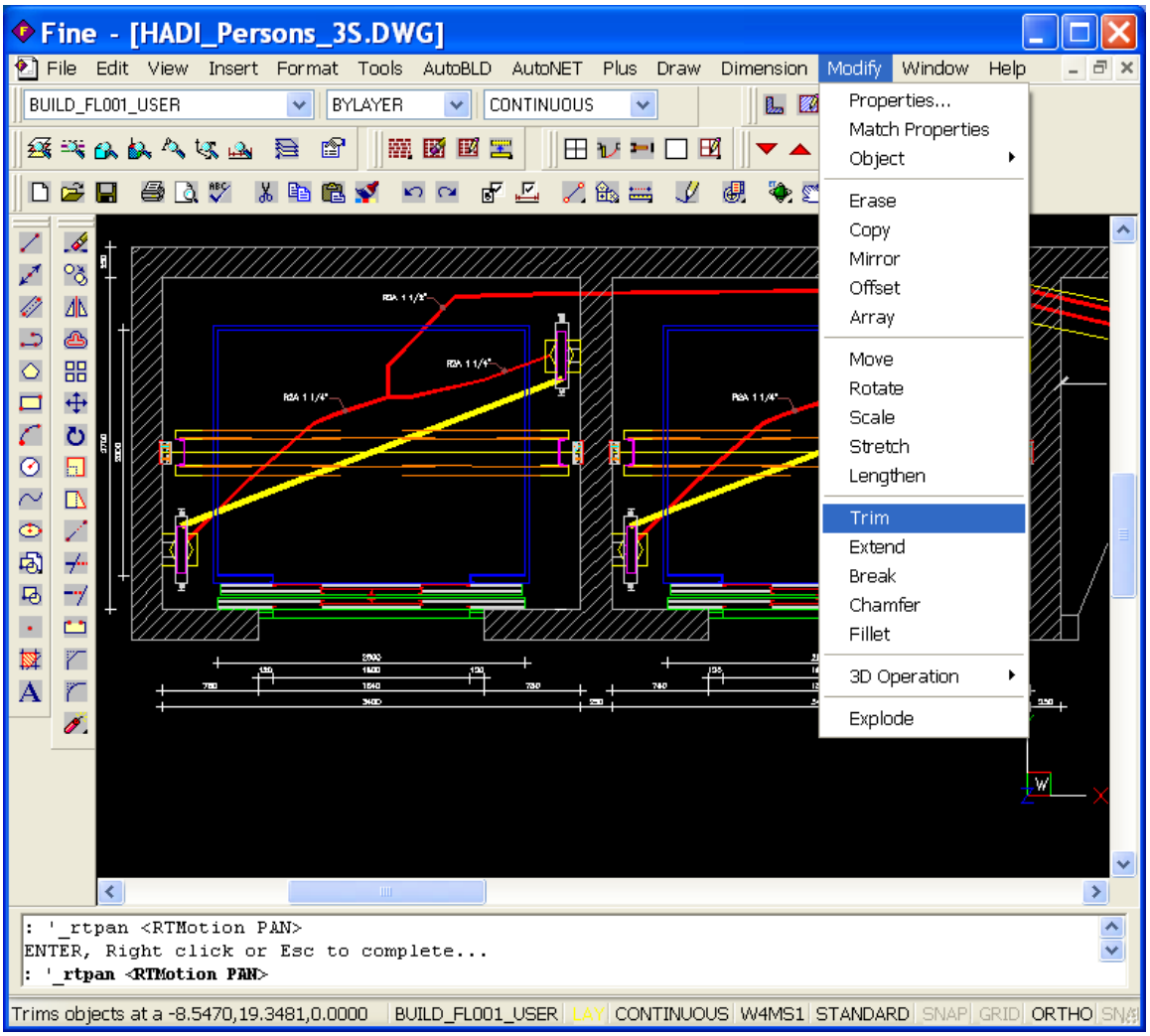
way that whenever a parameter value is being modified, then all the results are immediately updated.

As far as the technical characteristics of the materials and equipment are concerned, it should be stated that the program keeps “open” Technical Libraries of materials and equipment (i.e. guide rails, wire ropes, pulleys, motors, pistons, pumps, supply pipes etc) including all technical characteristics, parametrically defined. Therefore the user can insert any type of equipment in order to be properly considered by the program within the calculations. In conclusion, the program produces the complete case study output, fully documented, including all the analytical steps, formulas and intermediate results (loads, forces, coefficients etc) according to the existing standards.

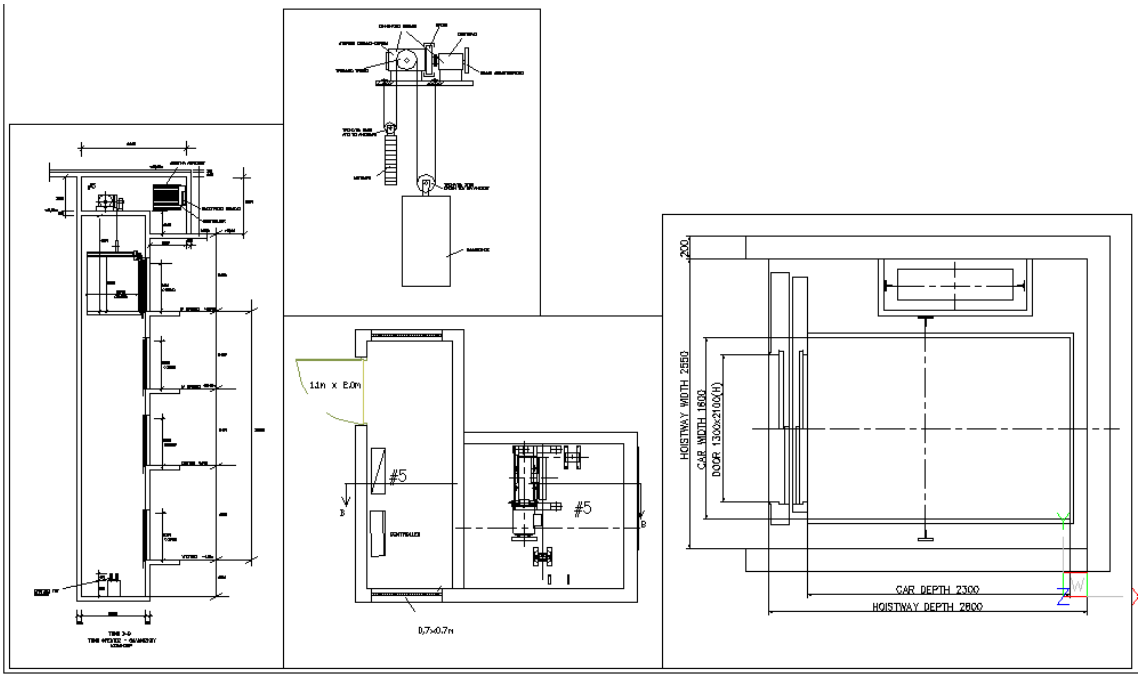
3. Generation of the Drawings

The calculation results constitute at the same time the input data for determining the lift drawings and particularly their type and shape (kind of lift, way of suspension etc), as well as their dimensions (dimensions of the well, dimensions of the chamber etc). Most fields of values are being filled directly through the calculation results. This is done through the smart Wizard of the program, which creates the project drawings according to the calculation results, not only in a construction detail level (dimensions, morphology, construction details) but also with the appropriate CAD organization (layers, colours, scales etc).





Nevertheless, the CAD component of FineLIFT provides the user with the possibility to intervene into every parameter related with the drawings, in order to generate them according to his/her preferences (picture 2). These parameters consist of the “Drawing Parameters", where the user can define the drawing scales for each drawing, the “Layers Parameters”, where he can fix the colours of the various layers, as well as heights of texts (in mms of designing), the drawing or even layers that will be visible or no, as well as other CAD parameters. The program has a special interface for the control of interdependences of the inserted elements or constructional requirements, as well as a window that warns about possible designing failures. Everything is parametrical and open to the user. Even the drawing blocks constituting the final drawings (i.e. chamber, door, mechanism of support etc) are all in DWG file format, open for further processing by the user. Afterwards, according to the final selections of the user, the drawing is being created automatically in a DWG format. Even though the drawings are presented in their final form with all the details, the user is still able to make drawing modifications through the CAD environment (IntelliCAD), which is included within FineLIFT. It should be mentioned by the way, that FineLIFT offers the absolute CAD autonomy to its users, since IntelliCAD is widely accepted as the world alternative CAD solution. FineLIFT users do not have ever to buy or install any other CAD program or platform on their PC.



4. Conclusions

FINE-LIFT is a high productivity flexible software tool, providing its user the ability to design any elevator installation in four simple steps:

- Definition of the basic design parameters of the elevator project
- Selection of the appropriate equipment from the rich material libraries
- Immediate generation of the final case study calculation output
- Automatic production of all the project drawings in their final form.

The FineLIFT output is ready to be submitted to the control authorities, including the complete study issue with the calculation steps as needed according to EN-81 standards, along with all the detailed drawings on the appropriate scales. The program also provides technical descriptions-specifications, as well as the bill of materials of the project, which is particularly important for any elevator constructor. Besides, the full automation of the designing process, not only offers enormous saving of time, but also gives the opportunity to obtain easily and quickly the optimal solutions. The fact that FineLIFT contributes to the simultaneous increase of speed and quality, is the most attracting feature of FineLIFT making it the absolute design tool for a lift designer.