Integrated Engineering Calculation App Enabled Standardization of Elevator Designing Process

SITUATION

50+ Excel and MathCAD files used for various engineering calculations to design elevators, resulted in irregularity in computation results. Lack of coordination between various stakeholders and unavailability of centralized data storage and sharing facility, further complicated the process

IMPACT

Lack of an integrated tool not only raised inconsistency in engineering calculations but upshot chances of errors. Reworks and coordination issues between the stakeholders, spread across various countries, further delayed designing process and heightened production cost

RESOLUTION

ITC Infotech developed and implemented a centralized and multi-lingual calculation tool to standardize elevator engineering calculations across the globe. The solution enabled improved and faster design process as well as, enhanced overall production efficiency and cost effectiveness

The Customer

The client is one of the global leaders in elevator and escalator industry and offers industry-leading elevators, escalators and automatic building doors as well as innovative solutions for modernization and maintenance.

The company is committed to ensure world-class experience in people movement and deliver solutions enabling smooth, safe and comfortable rides. Having a global presence, it caters to various market segments including residential buildings, hotels, commercial buildings, infrastructure and medical buildings as well as special buildings like leisure and education centers, industrial properties and ships.

The Need

The client was looking for a tool that can be used by the elevator designers while designing bespoke elevators for customers and match their given specifications and unique needs. The specified requirements can relate to various aspects of an elevator, including interior or exterior designing, materials to be used, speed, shape and size of the elevators, etc.

Needless to say that elevator designing demands a lot of engineering calculations in order to achieve the right framework and machinery for the vehicles, as well as to adhere to various safety compliances and parameters. And in case of special requirements, the task becomes all the more tricky. All these mathematical calculations are very critical as the entire safety and mechanism of an elevator depends on these data.

So far the client used to have a mix of excel and MathCAD files for each of these calculations. It was a humongous task considering the number of existing files was over 50, including the original versions and their localized versions (based on different measurement units used in various geographies).

Lack of an integrated engineering calculation tool resulted in inconsistency in computation results. Further, existence of multiple calculation tools, spread randomly across various locations and lack of coordination among the stakeholders, prevented the company to maintain transparency and cohesiveness related to storing and sharing of engineering data internally, and track changes made to any of these calculations during the designing process. The process was thus vulnerable to calculation errors that lead to reworks in various stages and ultimately delaying the entire development cycle. The chances of data leakage to competitors were also high.

Therefore, the identified business need was:

- Standardization of elevator engineering calculations across the globe

- A robust system to manage all elevator design calculations

- Quick turn-around time during tender process

- Consistent and accurate engineering calculation results during design process, enabling appropriate dimensioning of elevator components, thus lowering production costs

- Adherence to high safety standards like EN81 and ASME

The Solution

ITC Infotech enabled the client to get a comprehensive solution to meet all its requirements and developed a tool that takes various elevator component parameters to validate core elevator design logics and compliances to set safety standards. The tool consolidates engineering calculations from 50+ existing tools. As part of this consolidation, all updates related to safety standards and logic optimizations have also been accommodated.
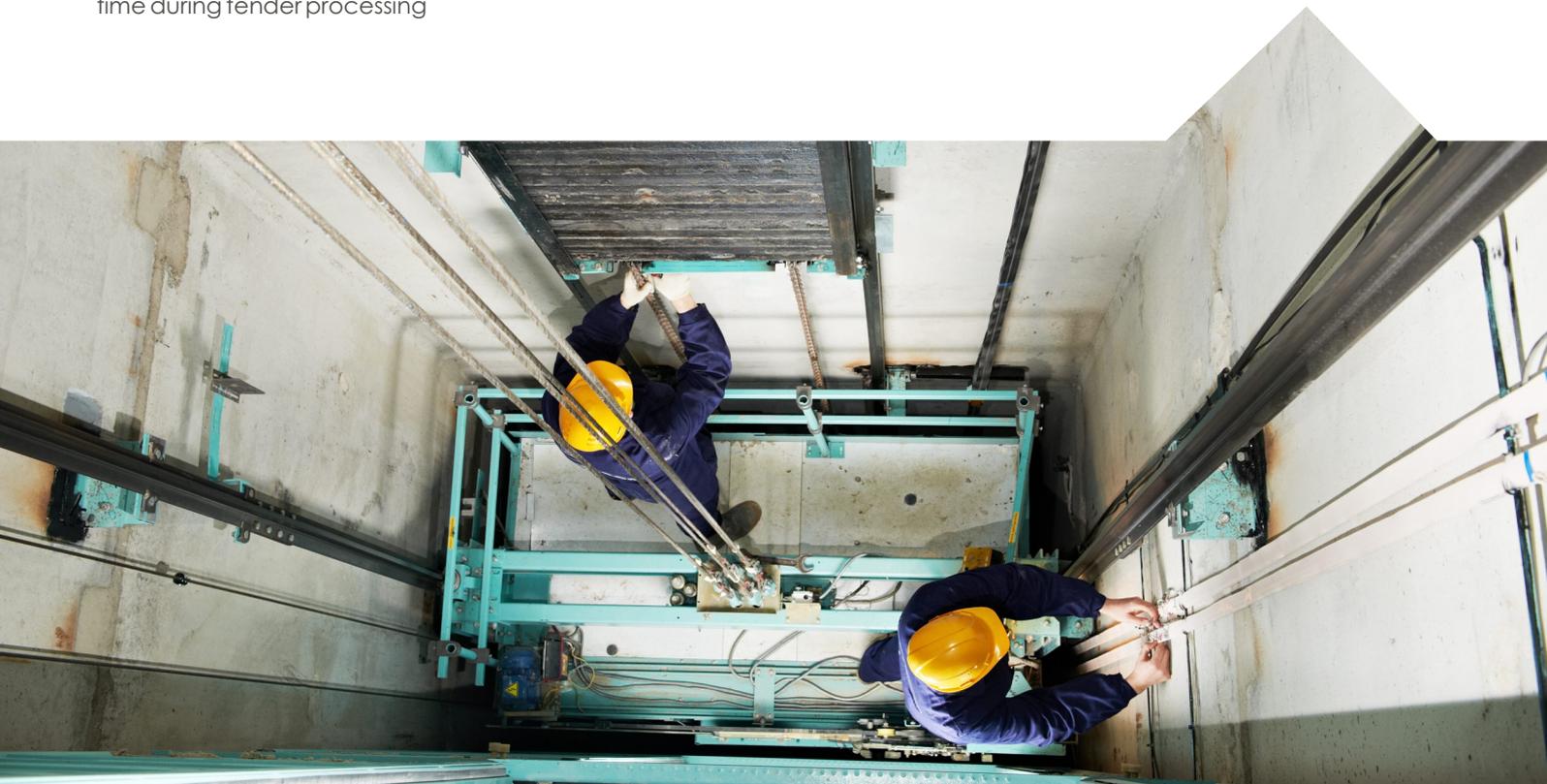
Key Solution Highlights:

- Created an application that merged all calculations into one

- Put all the proprietary product information in the application backlog, thus making it free from unidentified changes and mistakes.

- Supports both SI and Imperial measurement systems.

- One uniform screen with multi-lingual capability for uniform design parameters across the company's design centres located across geographies

- Robust and tool based testing to help identifying certain improvements in calculation logics

- Data encryption logics to secure highly sensitive elevator design data

Business Benefits

- Centralized and multi-lingual calculation tool to standardize elevator engineering calculations across the globe that can easily integrate with other systems

- Improved design process resulting in high turn-around time during tender processing

- One screen for all design calculation needs, giving freedom from multiple spread sheets with humongous amounts of design data

- XML based design data storage for easy interfacing with other systems

- Capability to generate reports and options to export the reports into multiple formats for communication and printing

- Assurance from IP theft and infringement issues

- Quick and accurate estimation of bill of materials with related material costs

- Scope for enhancement and connectivity with other applications in the enterprise

- Smooth R&D on different design stages and options for product customization

- Elevator design details that provide enough inputs to do appropriate production planning, thus saving production time and costs

- User friendly tool that guides the designer through the process, making calculations faster, easier and within compliances. Online help with input descriptions and component layout diagrams to further assist elevator designers

- Localized safety standard reports to legal authorities

ITC Infotech's IT Solutions Practice For Manufacturing Industry

At ITC Infotech, we specialize in providing comprehensive solutions for varied manufacturing industries ranging from consumer goods to aerospace. Our extensive experience and focus on high-end domain consulting approach helps us deliver world-class IT-based solutions from the "shop floor to the board room" solutions.

Our IT services & Solutions includes Business Process Consulting, Product Lifecycle Management, Bespoke Applications Development and Maintenance, Manufacturing Execution System (MES), Customer Relationship Management (CRM), and Enterprise Resource Planning (ERP), Business Intelligence to a wide spectrum of continuous and discrete manufacturing industries globally.

Our thrust is on developing solutions and services that help improve our customers' operations and drive improved efficiencies across the value stream of the enterprise.

For more information, please write to:
contact.us@itcinfotech.com

www.itcinfotech.com