



**FACTS AT A GLANCE**

**Company:** STI Engineering

**Website:** [www.sti-engineering.it](http://www.sti-engineering.it)

**Description:** STI Engineering offers design and consulting services in civil construction and industrial plant industries. The company has 25+ years of experience, and has developed over 3000 projects in 50 countries across the world.

**Employees:** 150

**Industry:** Construction, industrial plant design

**Country:** Italy

**PRODUCTS USED:**

- Intergraph® CADWorx® Plant Professional
- CAESAR II®
- OrthoGen®

**KEY BENEFITS:**

- 30% engineering man hour savings.
- Easy, intuitive, and efficient 3D modelling.
- Efficient placement and manipulation of pipe supports.
- Automatic deliverables - piping isometrics, 2D layouts, and bills of material.
- Accurate materials management.

**STI ENGINEERING DESIGNS A WASTE-TO-ENERGY PLANT WITH INTERGRAPH® CADWORX® & ANALYSIS SOLUTIONS**

**Italian engineering company, STI Engineering, selects Intergraph CADWorx solutions to improve design execution**



**IDENTIFYING GOALS**

STI Engineering won an international tender for a multidisciplinary design, waste to energy plant on the island of Terceira, a small island in the Azores archipelago (Portugal). This plant is set to process 40,000 tons of municipal solid waste per year, generating power for 20,000 residents. The new facility would produce 24 million kWh per year of electricity, from the 10 structures, 30 equipments and 300 piping lines. The main goals for STI Engineering were to save time and cost whilst creating accurate, timely, and detailed engineering information.

With a tender valuing a total amount of 30 million euros, STI Engineering needed to stringently evaluate various solutions available in the market to be able to select the best engineering and analysis solutions provider.

**OVERCOMING CHALLENGES**

The project involved considerable engineering challenges, and so any solution selected would need to increase productivity, require only minimal training to get users productive, and be easy to implement and configure. The solution also needed to provide efficient modelling and manipulation of piping supports, whilst enabling interoperability with other solutions.

The greatest challenge for STI Engineering was finding a tool that could reduce the overall execution time of the plant design phase. Generally, the company found that many of the solutions provided by other vendors had long start up and implementation times, which could have affected the entire project schedule. Having a solution that was easy to learn, could be set up quickly, and easily customised in accordance with the project requirements, in terms of both documentation and reporting deliverables, was fundamental to the success of the project. Additionally, many of the other solutions considered required the use of a dedicated CAD administrator, which would have increased administration costs for the project.

The shortlist consisted of just three solutions. After a thorough and detailed evaluation of each solution, weighing up the respective capabilities of each against the needs of the project, Intergraph CADWorx Plant Professional was selected as the primary

3D platform due to its ease of use and efficiency. This was due to the object-based system providing greater and more flexible access to design data, and easier modelling and manipulation of piping supports, helping to reduce engineering work and lower design costs. Additionally, CADWorx Plant Professional was the only software considered providing bi-directional integration with CAESAR II, and interoperability with OrthoGen and CADWorx P&ID Professional.



View of the turbine system, created in CADWorx Plant Professional.

## REALIZING RESULTS

CADWorx Plant Professional was the fundamental base to manage cost control and planning for the project. The engineering work comprised of creation of piping specifications, P&IDs, a 3D model, isometrics, layouts, and material take offs.

Once specifications were defined and made available, the first step in the project execution involved creating a 3D model of the plant. The complete model was created and completed in just 4 months. The second step, to avoid rework in the field, was the CADWorx interference check between all disciplines included in the multidisciplinary design.

Finally, utilizing Isogen and OrthoGen, STI Engineering generated accurate isometrics and layouts automatically from the model, saving considerable man hours during this critical step in the project execution.

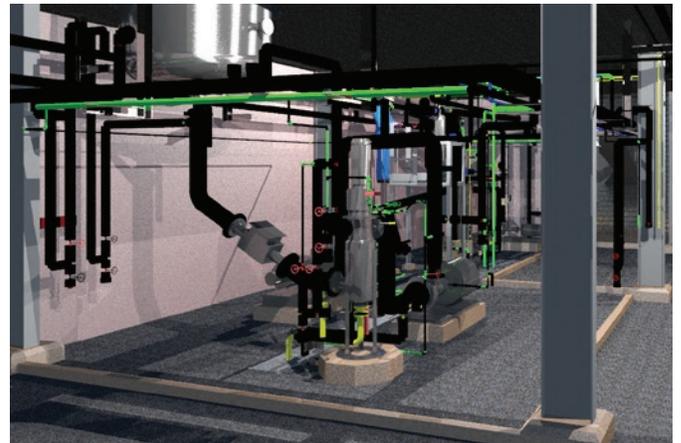
Next, a database linked to CADWorx Plant Professional, containing all components present in the model and all of the client's purchase order codes, was created so that bills of materials could be reported and submitted for procurement. Customization and integration of the database with the procurement system was possible without the assistance of Intergraph personnel.

STI Engineering, with three offices in Italy and 4 operative offices worldwide, currently employs 150 people, 15 of which have successfully mastered how to use CADWorx having received only a few days of introductory training.

Future trainings can now be done in-house, saving both time and cost, with resources immediately ready for productive work upon completion of their training.

When asked about the results of using Intergraph CADWorx Plant Professional, STI Engineering said:

*“The use of Intergraph tools reduced engineering work by approximately 30%, and engineering software cost by approximately 60% compared to similar previous projects. We are currently looking into expanding our knowledge of other Intergraph software like CADWorx fieldPipe Professional, which enables the use of laser-scan and laser-trace technology to capture the real as-built.”*



View of the filtering system, created in CADWorx Plant Professional.

## MOVING FORWARD

The integration of CADWorx Plant Professional has allowed STI Engineering to save vital man hours and engineering software costs. Subsequently, STI Engineering will also use CAESAR II in its new oil and gas division, and continue to use CADWorx Plant Professional for the industrial division of the company.

## ABOUT INTERGRAPH PROCESS, POWER & MARINE

Soon to be known as Hexagon Process, Power & Marine, Intergraph Process, Power & Marine is the leading global provider of engineering software for the design, construction and operation of plants, ships and offshore facilities.

Hexagon Process, Power & Marine is part of Hexagon (Nasdaq Stockholm: HEXA B; hexagon.com), a leading global provider of information technologies that drive quality and productivity improvements across geospatial and industrial enterprise applications.

