

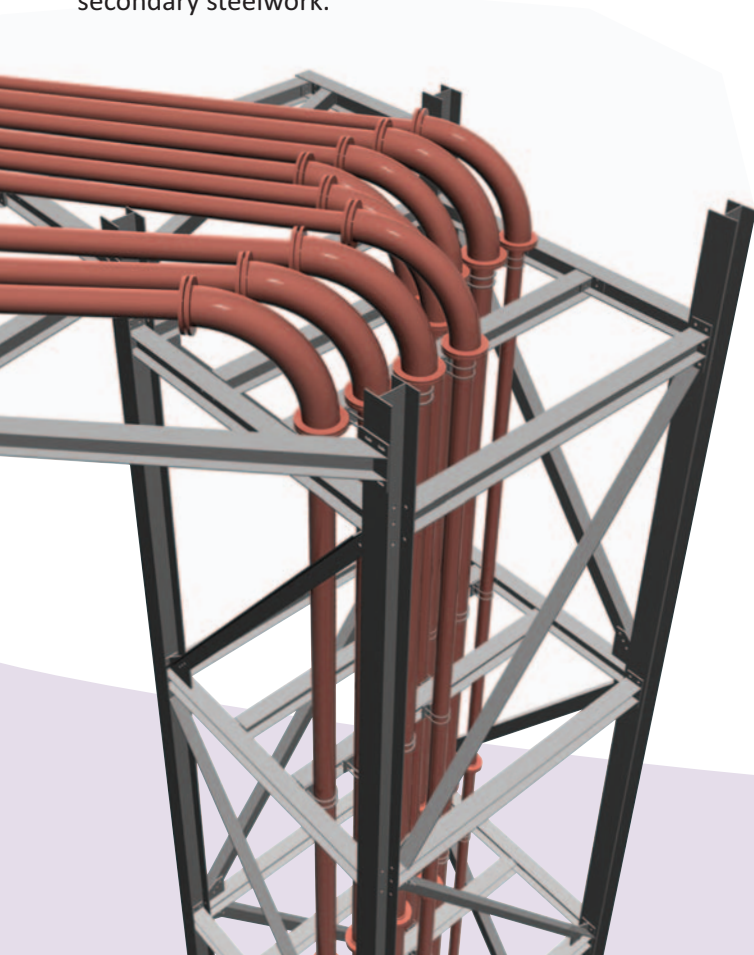
Terotech

Engineering & Technical Services

Greenbank Terotech Limited is a world class leader serving the Power, Coal, Steel, Cement, Paper, Marine, Sugar, Mineral, Automotive, Glass, Food, Chemical, Food and Water Industries in the UK and Overseas.

As The Greenbank Group UK's core design and manufacturing facility Greenbank Terotech Limited facilitates the engineering support and design to produce steel fabrications, abrasive and corrosive resistant linings and technologies designed and engineered to minimise operational downtime and optimise process and plant performance.

Greenbank Terotech Limited is particularly renowned worldwide for its expertise in providing cost effective solutions for pulverised fuel (PF), furnace bottom ash (FBA), fly ash, grit, dust and wet slurry piping systems together with all the associated equipment like chutes, valves, diverters, dampers, distributors, supports and secondary steelwork.



From the 3000m² manufacturing and production facilities Greenbank Terotech Limited provides its customers and the rest of the Group with the following products and services in various industries:

Industries

- | | | |
|----------|-----------|----------------|
| • Power | • Paper | • Automotive |
| • Coal | • Marine | • Glass |
| • Steel | • Sugar | • Food & Water |
| • Cement | • Mineral | • Chemical |

Services

- | | |
|---|---|
| • Design Proposal Study | • Finite Analysis |
| • Project Management | • Detail Design |
| • Site Survey & Reports | • Commissioning & Training |
| • General Arrangement & Installation Drawings | • Breakdown & Analysis of Customer Drawings |
| • CFD Modeling | & Arrangements |
| • 3D Visual presentation & Fly Through | |

Products

- Abrasion & Corrosion Resistant Products
- Ash and Dust Pipework & Ancillary Equipment
- Ash Handling Products & Systems
- Flow Dividing Riffles & Splitters
- Pulverised Fuel Pipework & Ancillary Equipment
- Heavy Industrial Fabrication
- Specialised Dampers and Valves

“Enhancing the performance of our customers plant & equipment”

At the proposal stage we can visit site to survey, or meet at the customers premises to evaluate the project in hand prior to producing detailed or general arrangement drawings.

We can produce build specifications for tender purposes and deliver a presentation to the end user using the latest AutoCAD software complimented with a bolt on 3D package. All our proposals and studies are designed in accordance to procedures in line with BS EN ISO 9001:2000 Quality Standards and BS EN ISO 14001: 2004 Environmental Standards.

Project Management

Greenbank Terotech Limited offer to undertake projects utilising our core product range from material supply to full turnkey management.

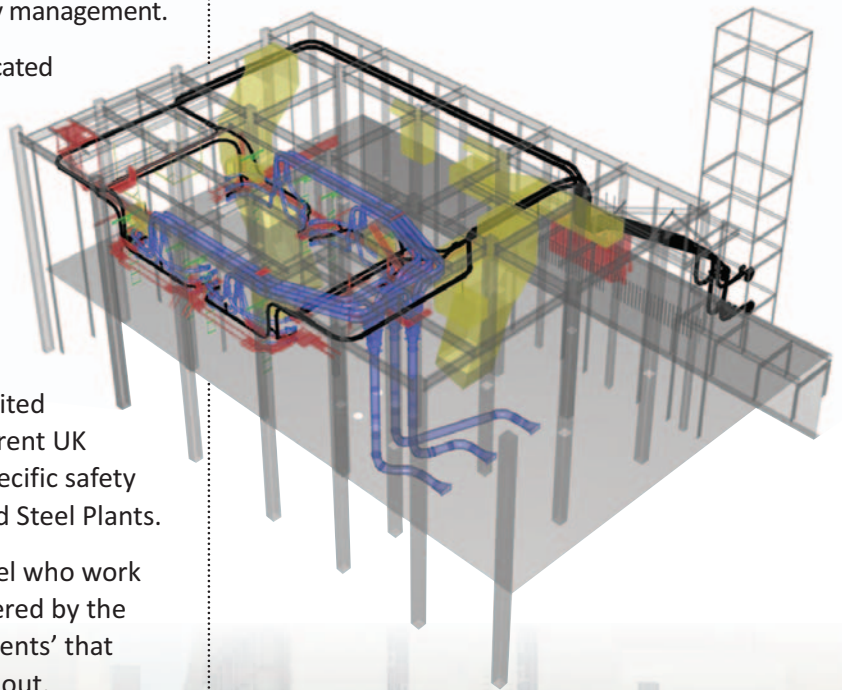
Greenbank will, where contracts require, provide dedicated Project Managers giving the client the major logistical benefit of one point of contact for any aspect that arises during execution from initial enquiry through to project handover. Reducing client/supplier interfaces can be a major aspect of profitable project operation and execution.

Site Survey and Reports

As a mandatory practice all Greenbank Terotech Limited personnel who conduct site surveys must hold a current UK National Safety Passport. In addition we hold site specific safety passes for various clients at Power, Coal, Cement and Steel Plants.

Site surveys are carried out by experienced personnel who work with safety as the primary factor and all work is covered by the production of Method Statements and Risk Assessments' that operatives sign onto prior to any work being carried out.

From the survey a detailed and comprehensive written report is produced for either internal use or for the customer's records, as required.



"It is our vision to excel and lead the world in our area of expertise"

Breakdown and Analysis of Customer Drawings and Arrangements

Greenbank Terotech Limited will breakdown customer drawings or our own drawings in parts lists to generate and specify parts and equipment required for each project. Engineering manhours can be quoted as a lump sum or per hour to suit our clients' needs.

Detail Design

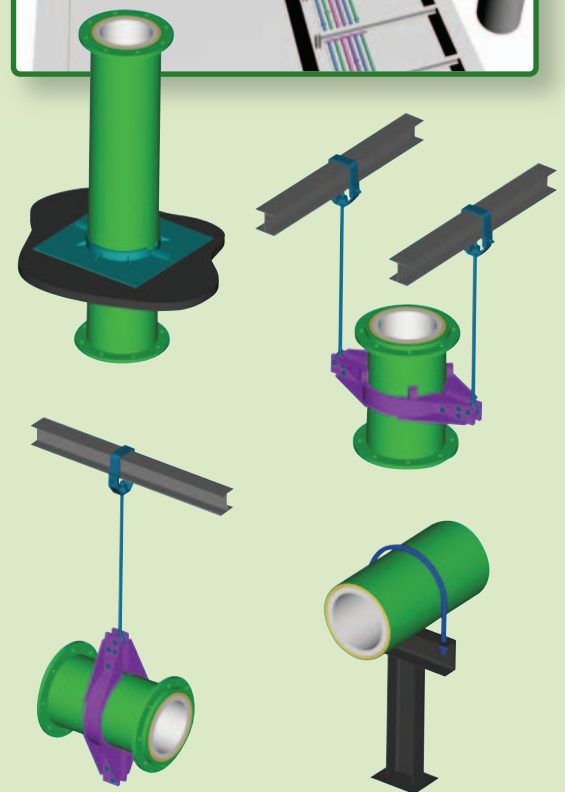
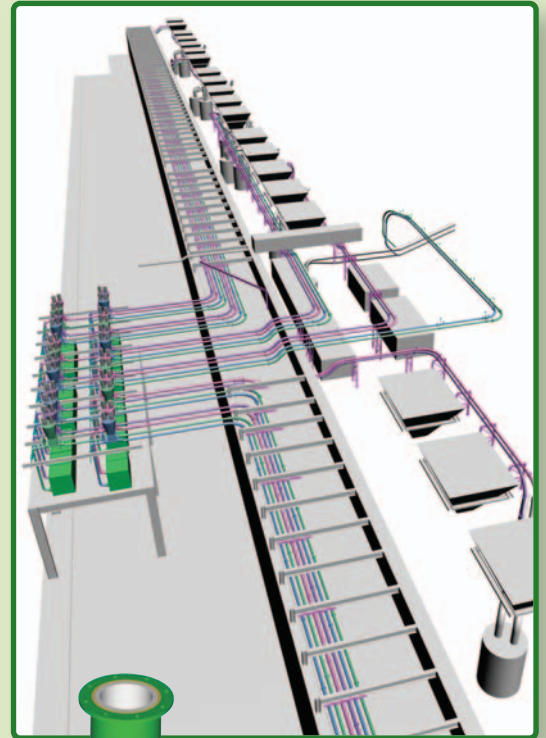
Greenbank Terotech Limited can generate detail from 3D models to produce 2D manufacturing drawings for manufacture, as well as issue standard data sheets with bespoke software for standard equipment.

Installation and Site Service

Greenbank Terotech Limited's site service department retains experienced and qualified personnel for installing or repair and maintaining of both our own specialist equipment and plant supplied by others. The department undertakes project management, erection of pipework, supports, steel work, chutes, hoppers, launders and proprietary plant and equipment. Greenbank Terotech Limited generates detail drawings from 3D models to produce 2D installation drawings sufficient for the erector to install.

Commissioning and Training

At Greenbank Terotech Limited our experienced and qualified personnel are trained to the latest standards for design, quality, engineering methods and health and safety. We are able to offer our capabilities as a consultant and specialist in our field of design, manufacture, installation plus the added value of commissioning of product and technologies associated with material flow and wear of plant and equipment across today's demanding heavy industries.



Computational Fluid Dynamics (CFD)

Greenbank Terotech Limited has access to Computational Fluid Dynamics (CFD) programmes. CFD is used in a wide range of industries and its based equations have lots of good correlation to experimental and empirical data. It is similar to finite element programmes but for fluid systems. The programmes allow simulation of fluid field variables such as pressures, velocities and temperatures.

With CFD we are able to undertake modelling of:

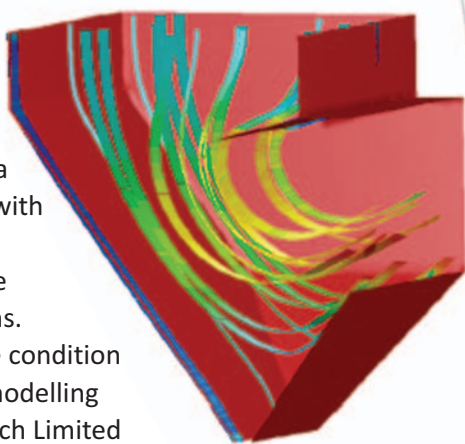
fluid flow problems; particle tracking; chemical reactions and combustion processes. CFD is used to identify the optimum positions for devices in pipe networks as well as identifying areas of high pressure drop or poor air movement.

Greenbank Terotech Limited often uses CFD to:

- Confirm layouts
- Calculate possible wear areas
- Investigate pressure drops of complicated shapes
- Look at material flow through fabrications

A CFD study usually involves getting the geometry of the problem through a site survey along with the operational conditions and the ambient conditions.

Dependent on the condition required for the modelling Greenbank Terotech Limited also do measurement of certain parameters that might not be easily to hand if the job requires it. The device is then modelled computationally in 3 dimensional space and divided into regions that are solved by the computer. The CFD programmes solve the



equations that would take years to solve by hand to give a solution. The process requires a lot of care and training to achieve accurate results. These results can be displayed back in plots and charts that can easily be interpreted by non-specialists. Greenbank can produce reports based on these plots and issue advice on improving fluid processes based on this information.

Greenbank Terotech Limited's use of CFD study is not limited to pipework; CFD has been applied on mills, ducts, classifiers, gasifiers, non-return valves, heat exchangers, burners and various combustion processes.

The studies have been used for a multitude of reasons; confirmation of an observed phenomenon; investigate possible improvements to a system; prediction of a new imposed constraint and to assist in bids and quotations.

3D Visual presentations and fly through

From our 3D models we can generate fly through and close up presentations of the projects in hand for a visualisation of as built and tendered proposals. These can also be used as either a sales pitch presentation or client approval tool during and at the end of projects.



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Part of The Greenbank Group UK Ltd

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