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PEOPLE

Our qualified and skilled in-house team has more than 100 years' experience and has worked on more than 2,000 projects. Each of the team is dedicated to ensuring all of the economisers and waste heat boiler equipment that have been installed around the world have been designed to be the best.

Experience of working closely with our customers, often collaborating for long periods, means we fully understand their requirements and can use our knowledge to propose the best solutions. Our knowhow has been passed down through our team over many years and our base of designs is second to none worldwide. Supported by our engineering team from Sales to Aftermarket, these are some of the people supporting our customers.



James Froggett
Engineering Manager

Master of Engineering,
Mechanical Engineering



Bhupinder Singh
Engineering Manager

Bachelor of Engineering,
Mechanical Engineering



Keith Dawson
Draughtsperson

HNC Engineering
49 years experience



Esat Dag
Junior Design Engineer

Master of Engineering,
Mechanical Engineering

02

FOCUS

Focus is key to everything our design team does. Attention to detail, identifying the best bespoke solutions to meet our clients' waste heat recovery needs and providing comprehensive and clear proposals are what we are known for.

On optimising our design, ability to guarantee

Our business is dedicated to ensuring all of the economisers and waste heat boiler equipment have been designed to give optimal thermal and mechanical performance so we can guarantee it as part of our proposals to customers.

On working to international standards

Designing to the latest internationally recognised design codes such as ASME, EN and many others means Green's designed boilers are safe, reliable and built to the highest standards. Customers can be confident that these standards are regularly checked by external auditors, our customers and end users.



03

TOOLS

Using a combination of in-house developed, bespoke software and third-party solutions our design engineers model a wide range of criteria to determine the best materials, designs and flows.

Figure 1: A 3D model of a waste heat recovery boiler wholly designed and supplied by Green's.

Figure 2: STAAD structural analysis showing the stress levels in the economiser casing during operation. Many load cases were investigated to ensure the casing strength is also sufficient for lifting and transportation.

Figure 3: An economiser had to withstand very high external loads and so AutoPIPE's pipe stress analysis capability was utilised to lower the stress levels in the header and coils by supporting the header in specific directions and locations.

Our software allows us to experiment with fluids, inlet and outlet temperatures, mass flows, draught loss, inter-tube velocity, total mass flows, steam mass flows, operating pressures and pressure drops, tube side velocity and more.

All of our solutions are designed and manufactured to optimise waste heat recovery regardless of the application.

Design Tools

Green's takes advantage of the latest and best design tools to help engineer and manufacture the best products. For example: **STAAD's** structural calculations help our team to analyse stress distribution so that they can identify low

stress areas where materials can be reduced, cutting cost and time of production with no compromise in safety.

AutoPIPE's powerful piping analysis enables our design team to calculate the best configuration and use of tubes and attachments. It also helps us to propose how to position supports in the optimum locations to reduce stress and deflection.

Green's utilises states of the art modelling software **SOLIDWORKS** to model the whole boiler in 3D. This helps to reduce the risk of non-conformity of different components. A boiler consists of many components such as tubes, fins, headers, plates, columns, etc. Producing a 3D model makes sure that all of these components are positioned and sized correctly with respect to each other. It also ensures that our products are made precisely with the existing steel structure during the site installation.

All of these design tools enable us to design and manufacture the highest quality, most efficient and cost-effective product. Making the most efficient product, in the energy focused world both helps the environment



Figure1:

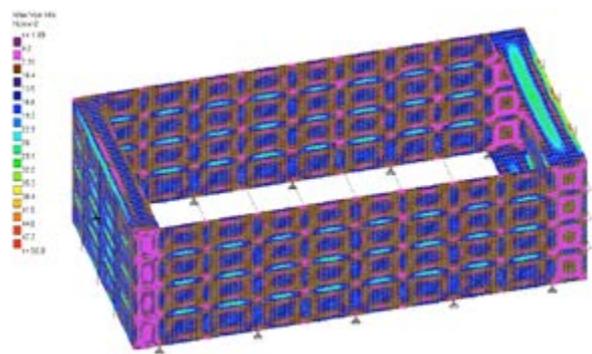


Figure2:

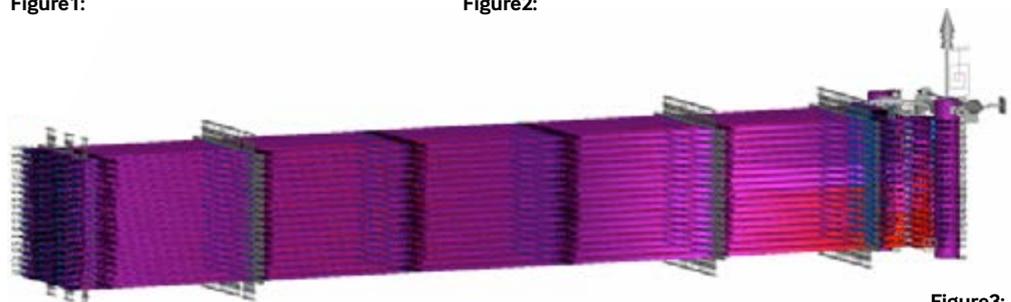


Figure3:

