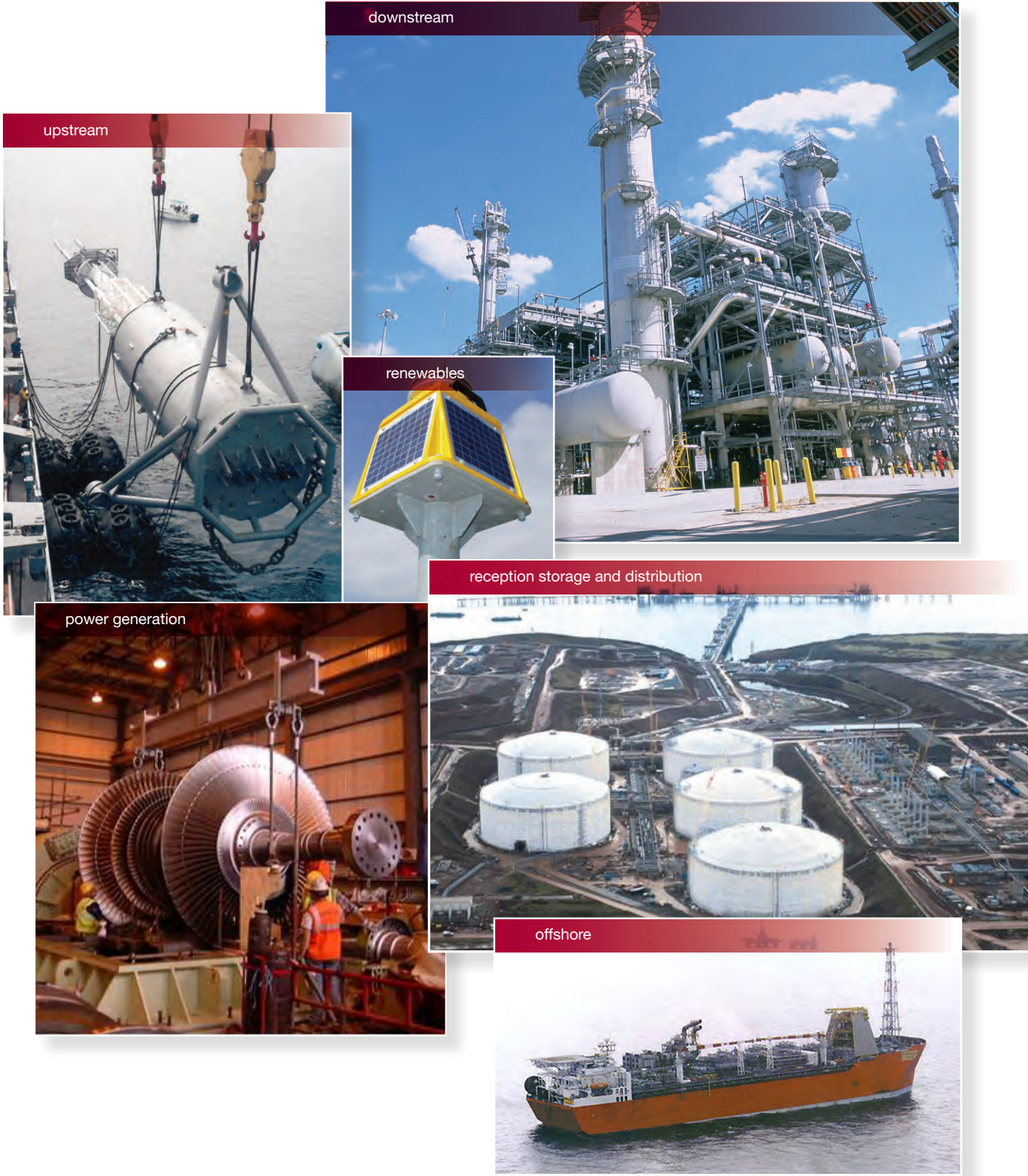


Ledwoods Global Execution



Engineering Excellence  
**LEDWOOD**

Ledwood Mechanical Engineering Limited  
Waterloo Industrial Estate, Pembroke Dock  
Pembrokeshire SA72 4RR, UK  
T +44 (0)1646 623600  
F +44 (0)1646 623699  
E wales@ledwood.co.uk  
ledwood.co.uk

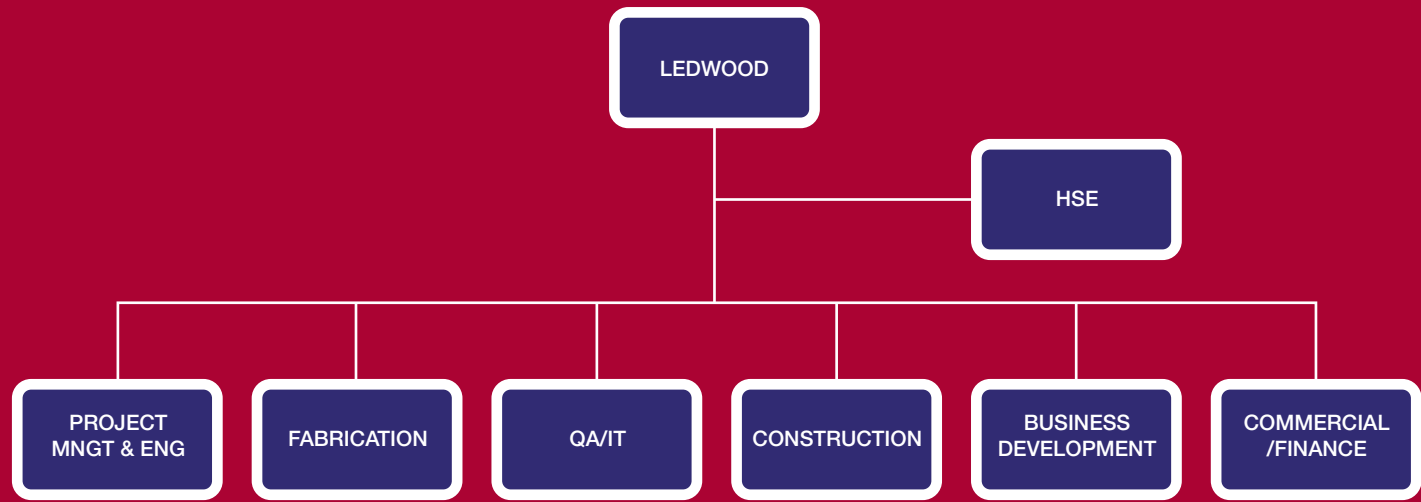


Engineering Excellence  
**LEDWOOD**



Vision – *to be a leading supplier of high-value Project Management, engineering, procurement, fabrication and construction services to the world's natural resources, clean energy, water and environmental sectors.*

Company structure



Services

The UK's leading independent engineering, fabrication & construction company serving a diverse industry base, including:

- **Petroleum, Gas and Petrochemical**
- **Pharmaceutical**
- **LNG**
- **Chemical Processing**
- **Defence**
- **Marine**
- **Power Generation**

A flexible approach with an emphasis on integrity ensures effective working partnerships with clients who are used to demanding the highest levels of service.

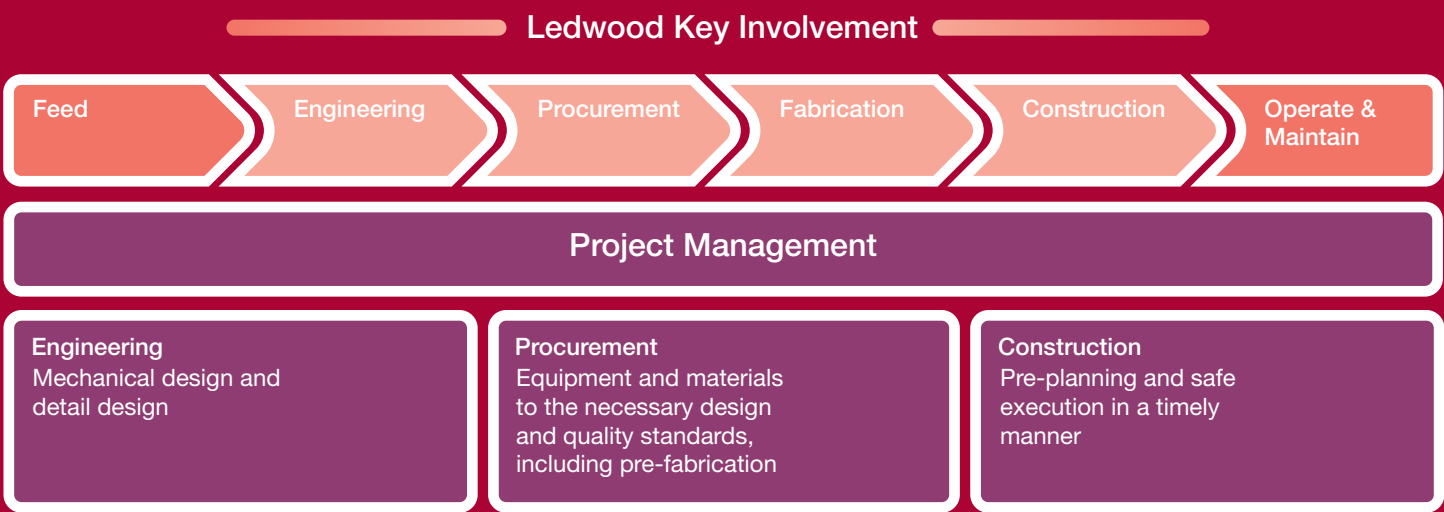
Tailored specifically to individual projects, Ledwood's wide range of services encompasses:

- **Project Management**
- **Detailed design**
- **Procurement**
- **Fabrication**
- **Construction**
- **Commissioning**
- **Maintenance**

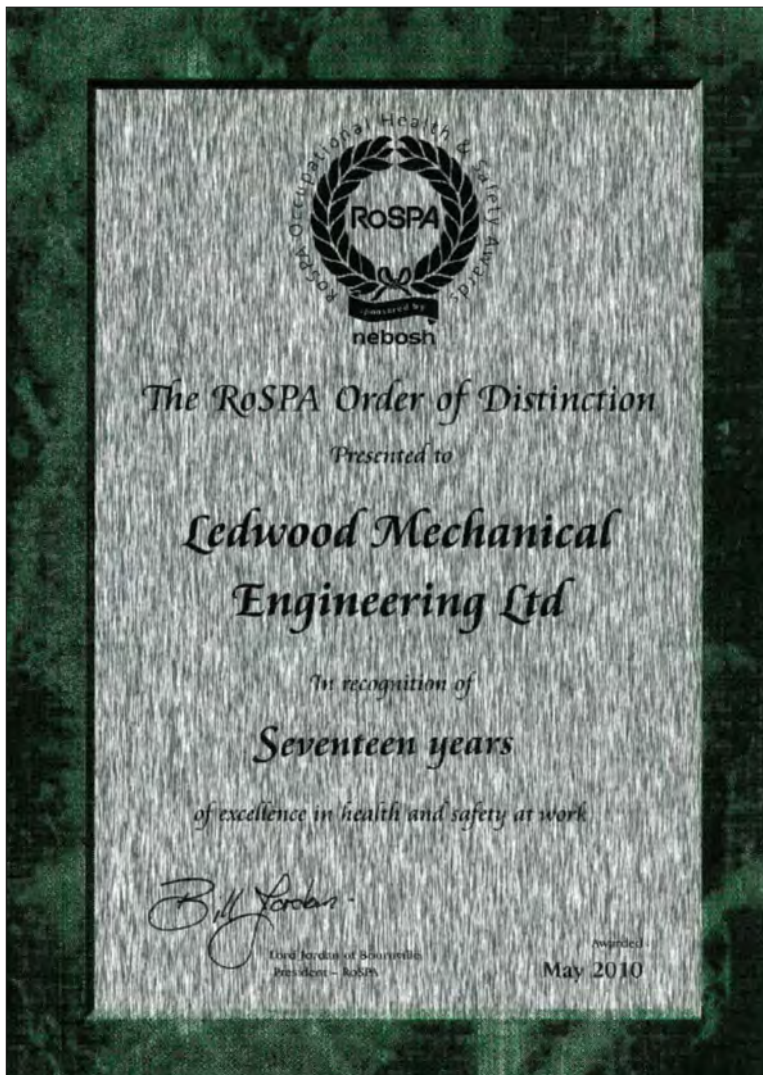
Driven by a strong commitment to our clients, Ledwood is sized to deliver cost effective, and often innovative solutions, with safety as a key note to all our work.



Project lifecycle



# Ledwood Health & Safety



Ledwood is totally committed to protecting the health safety and well-being of its employees and others affected by our undertakings, and also to protecting the environment from avoidable harm. Successfully achieving the RoSPA Presidents Award and the Order of Distinction year upon year reinforces the message that good health and safety is good for business. This clearly demonstrates the quality of our management system and our organisation's focus and dedication to constantly improving performance in this crucial area. Ledwood operates a ZERO incident mindset. It is important that our HSE focus reaches every corner of our organisation and the training of our people in HSE awareness and best practices is fundamental to this.



ORDER OF  
DISTINCTION



ORDER OF  
DISTINCTION



ORDER OF  
DISTINCTION

**RoSPA "Order of Distinction"**  
**(17 years of Excellence in**  
**Health and Safety)**

**RoSPA "Presidents Award"**  
**2003 – 2007**

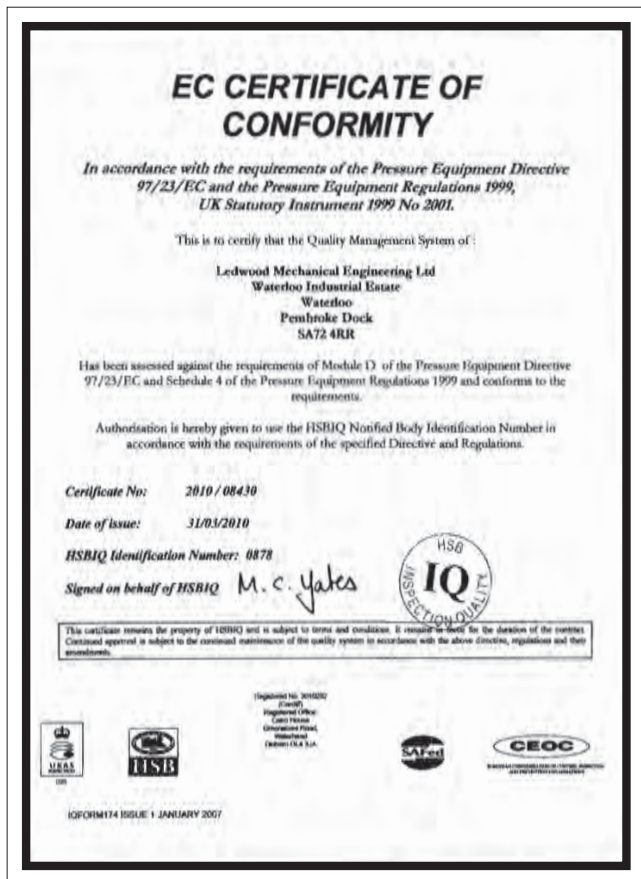
**RoSPA Gold Medals from**  
**1993 – 2002**

**Achieved Esso Safety**  
**awards at Bronze, Silver**  
**and Gold level**





# Quality Assurance



It is the policy of Ledwood, supported by top management, that we strive to consistently achieve an effective quality management system leading to quality products & services that differentiates us from the competition and meets the requirements of our customers and any applicable regulatory body. In this way customer requirements and expectations will be fully met, achieving enhanced customer satisfaction via assured conformity to customer specifications, waste will be minimised and market share increased.



**First Issued 1st August 1989  
(BS 5750)**

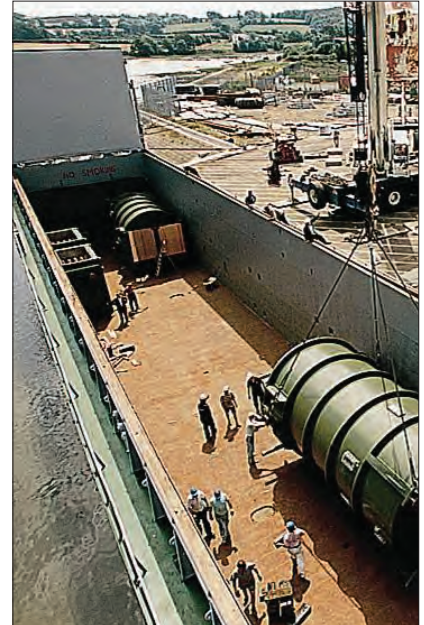
**Reissued 22nd January 2001  
(BS EN ISO 9002:1994)**

**Recertified to BS EN ISO  
9001: 2000 April 2003**

**Reissued Certificate to  
BSEN ISO 9001: 2008 – Sept  
2009**

**Scope of Approval:  
Manufacture of metal arc  
welded carbon, carbon  
manganese, stainless and  
alloy steel fabrication,  
requiring lot traceability.**

# Facilities



Ledwood has the facilities and expertise to fabricate a wide range of equipment. The company operates large workshops in Pembroke Dock and has access to further extensive facilities locally. The workshops have access to several quays for direct sea shipping.

Direct access to the Cleddau estuary, one of the deepest natural harbours in the world.

**60,000 sq ft (5,500 sq m) of fabrication facilities. Additional 250,000 sq ft available**

**Quayside facilities with a minimum 11 metre water depth 150 meters long**

**25,000 sq ft (2,300 sq m) of pipe-work fabrication facilities**

**10,000 sq ft (900 sq m) of paint facilities.**





# Module Fabrication



Ledwood has the facilities and expertise to fabricate a wide range of modules for the onshore and offshore oil and gas industry. Services include detail design and electrical fit out. Delivery is normally from our own load out quay and shipping can be arranged. The modules shown above are typical of those fabricated and delivered to our clients.

## Detail Design

## Structural & piping fabrication

## Electrical & instrumentation installation & testing

## Painting & Fireproofing

## Testing & pre-commissioning

## Shipping & delivery to site

## Onsite erection



# Process Plant Construction



Ledwood has dedicated teams competent in Process Plant Construction to include Pre-Planning, Detail Design, Project Management, Procurement, Fabrication, Construction and Commissioning, together with Maintenance Turnarounds. Ledwood has experienced personnel that are firmly committed to controlling all facets from the ground up including insulation, painting & scaffolding, often working on live plants. Major projects have been completed in ULSG's Isomerisation Units, LNG Plants

**Oil and Gas, Chemicals,  
Pharmaceuticals**

**Project Management**

**Detailed Design**

**Procurement**

**Fabrication Construction**

**Commissioning**

**Maintenance & Turnaround**





# FCCU Turnaround



Ledwood offers a comprehensive planning, preparation and execution service in respect of the fullscope of T & I activities. In the detailed planning phase Ledwood calls upon its extensive experience of T & I events to make an informed provision for un-scheduled emergent work. At the commencement of each event Ledwood will put its own engineering/fabrication workshops on 24 hour stand-by. This precaution can potentially be the saviour of the schedule as Ledwood has a proven ability to procure, fabricate and deliver otherwise unobtainable and urgently needed replacement components within a very short time-frame.

FCCU Upgrades – Ledwood is exceptionally well equipped to plan, engineer and execute the complete scope of your planned FCCU upgrade, taking conceptual design from your unit's licensor and converting it efficiently and safely into reality in a highly integrated project environment.

**Detailed planning and Preparation**

**Engineering**

**Procurement of proprietary equipment**

**Pre-fabrication (in-house) of new vessel components, pipe work, structural steelwork etc.**

**Logistics and shipping**

**Placement of specialist sub contracts**

**On-site installation**

**LEDWOOD**



# Mechanical Construction



Ledwood have constructed a number of major mechanical constructions. This involved fabricating and delivering prefabricated modules to site with follow on erection and pre-commissioning. The work included detail design of steelwork, heavy lift management and shipping of modules by sea from workshops to site.

Pre-commissioning to start-up support through to operation and maintenance.

**Construction of major refinery process units**

**Pre assembled modules and on site completion**

**Structural, piping and equipment installation**

**Pre commissioning assistance**



# Fired Heater Fabrication and Erection



Ledwood is one of the UK's largest fabricators and installers of Process Fired Heaters and Furnaces. Units of up to 200 tonne can be fully constructed and tested in the company's workshops prior to shipment to customers' plants around the world. In excess of 300 heaters have been supplied from this facility over the past quarter century.

Ledwood is able to offer clients a full range of supply options for its heater, from 'piece small' components all the way up to complete modular assembly, including detail design, structural steelwork, refractory lining, process coil (in any metallurgy), E&I and ancillary piping.

**Fired Heaters supplied and installed**

**Detailing design supplied if required**

**Site erection service available**

**Ledwood also maintain and refurbish fired heaters and process furnaces**

**LEDWOOD**



# Offshore Fabrication



Ledwood supplies high integrity pipe-work to the offshore oil and gas industry. Its experience includes the supply of substantial amounts of heavy wall duplex and super duplex for numerous projects. The company has also supplied and installed GRE pipe-work on several projects.

Ledwood has been the supplier of a wide variety of high integrity equipment to the oil and gas industry. Shown above is a 100 tonne flare buoy, constructed at the Ledwood facility in West Wales and shipped direct to the Zafiro field, located off the West African shore, where it is used to support the flare system of a large Floating Production and Storage Vessel (FPSO).

The location of the Ledwood fabrication yard, with its direct access to the Milford Haven Waterway makes it ideally suited to the construction and load-out of this type of equipment.

**All grades of Carbon, Chrome Molybdenum and Stainless Steels including 309 and 310 steels**

**Heavy Wall, Duplex and Super Duplex for numerous offshore projects**

**Austenitic Heat Resisting alloys for optimum corrosion resistance and creep performance**

**600 & 800 series Nickel base alloys & 400 series Monel**

**GRE pipe-work fabricated and installed**

**LEDWOOD** 



# Power Plant Construction



Ledwood has executed the Mechanical and Piping Installation work on several 'new generation' gas fired power station construction projects.

The largest and most demanding of those was the Saltend Co-generation Project. At 1200MW output this was, at the time the largest gas fired plant in the UK. Ledwood carried out the detailed engineering, procurement, prefabrication and installation (including modular) of all piping together with the installation /erection of all mechanical equipment and the complete testing and pre-commissioning of the plant.

**Project Management of  
complete Mechanical work  
scope**

**Construction of HRSG plant**

**Balance of Plant  
Construction**





# Liquefied Natural Gas: LNG



Ledwood was crucial to the success of constructing the UK's first three enormous LNG import terminals: South Hook LNG, Dragon LNG, Isle of Grain LNG. Specialising in pipework fabrication predominately 304 Stainless Steel, Storage Tank Components and Mechanical Works this means that Ledwoods are the company to use in such high-pressure, innovative environments.

**Specific Welding Procedure  
qualified to  $-196^{\circ}\text{C}$**

**Specialised Purging  
techniques up to 250 meters  
away from any open end.**

**Clean build procedures  
leaving no undue residue.**

**Specialised teams form  
installing - High Pressure  
Send out Pumps, Submerge  
Combustion Vaporisers,  
Boil off Gas Compressors,  
Loading Arms, Jetty Related  
Works**



# Dredgers



Ledwood has the facilities and expertise to fabricate a wide range of mechanical equipment. The bucket unloader shown above is typical of the large material handling equipment fabricated for various clients. The loader was fitted to the ship by Ledwood at the quayside in Pembroke Dock.

**Bucket wheel & carriage system fabricated by Ledwood in Pembroke Dock**

**Mechanical conveyor systems installed**

**Control housing fitted**

**Commissioning assisted by Ledwood**

**LEDWOOD** 

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# Dockside Cranes



Ledwood has the facilities and expertise to fabricate a wide range of mechanical equipment. The dockside cranes shown above are typical of the large material handling equipment fabricated for various clients. The cranes were outfitted complete with the slewing ring, control cabin and carriages at the quayside in Pembroke Dock before shipment direct to their final location.

**Crane superstructure  
fabricated at Pembroke  
Dock**

**Carriages and slewing  
gear fitted**

**Control housing fitted**

**On site erection capability**

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# GRE Pipe Fabrication and Erection



Ledwood is a leading fabricator and erector of Glass Reinforced Epoxy (GRE) / Glass Reinforced Plastic pipe work. Work has been completed both in the UK on Bonga FPSO project & Schiehallion Projects and overseas on FRP, TOPSIDES in Azerbaijan both onshore and offshore.

Ledwood is approved as a fabricator by the major GRE pipe manufacturers to Fabricate, Bond and Install. Ledwood also leads the way with dedicated Approved Procedures for Installation, Inspection and Testing on GRE/GRP installations.

**Large UK facility for GRE pipe fabrication**

**Approved by all major GRE pipe manufacturers**

**Comprehensive experience list**

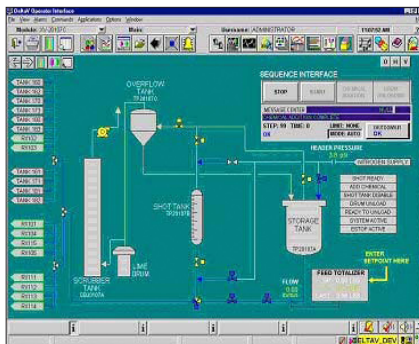
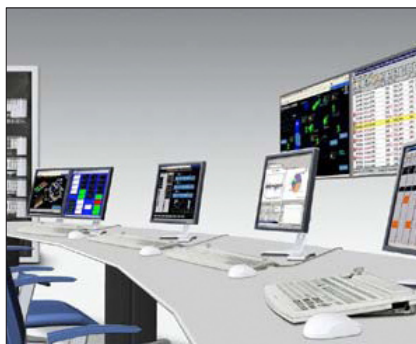
**Erection services both onshore and offshore**

**Work undertaken across the world**

**LEDWOOD**



# Instrumentation, Control & Electrical



Ledwood have the capability to execute complete instrument, control and electrical (IC&E) solutions for the process industry, from a single transmitter to a complete process unit, including the detailed design, specification, procurement, installation, commissioning through to documentation completion and final handover.

Having engineering experience in providing solutions to the upstream oil & gas, refining, petrochemical and power industries, including involvement with front-end design, P&ID development, risk identification/ hazard analysis, HAZOP and SIL studies

Whether your looking for conceptual design, assistance with appropriate selection of technologies or the execution of detailed design packages Ledwood have the IC&E expertise to completely fulfil your requirements.



**Engineered solutions  
based on nationally  
and internationally  
recognised standards for  
instrumentation in process  
control systems**

**Hazardous area design &  
installation**

**Specification of field  
instrumentation & control  
valves**

**Functional checkout &  
commissioning**

**Consultancy**

# Selection of Ledwood Clients



Contractor to the world's  
engineering requirements

**LEDWOOD**