

# ELR Employment Projects - Confidential

Date:

1977

Org:

Swiftstage

Sector:

Marine

Project:

Access Equipment

Detail:

Steel Fabrication

Activity:

Working with fabrication tools & machinery; design

Role:

Fabrication Engineer

Resources:

Fabrication tools & machinery

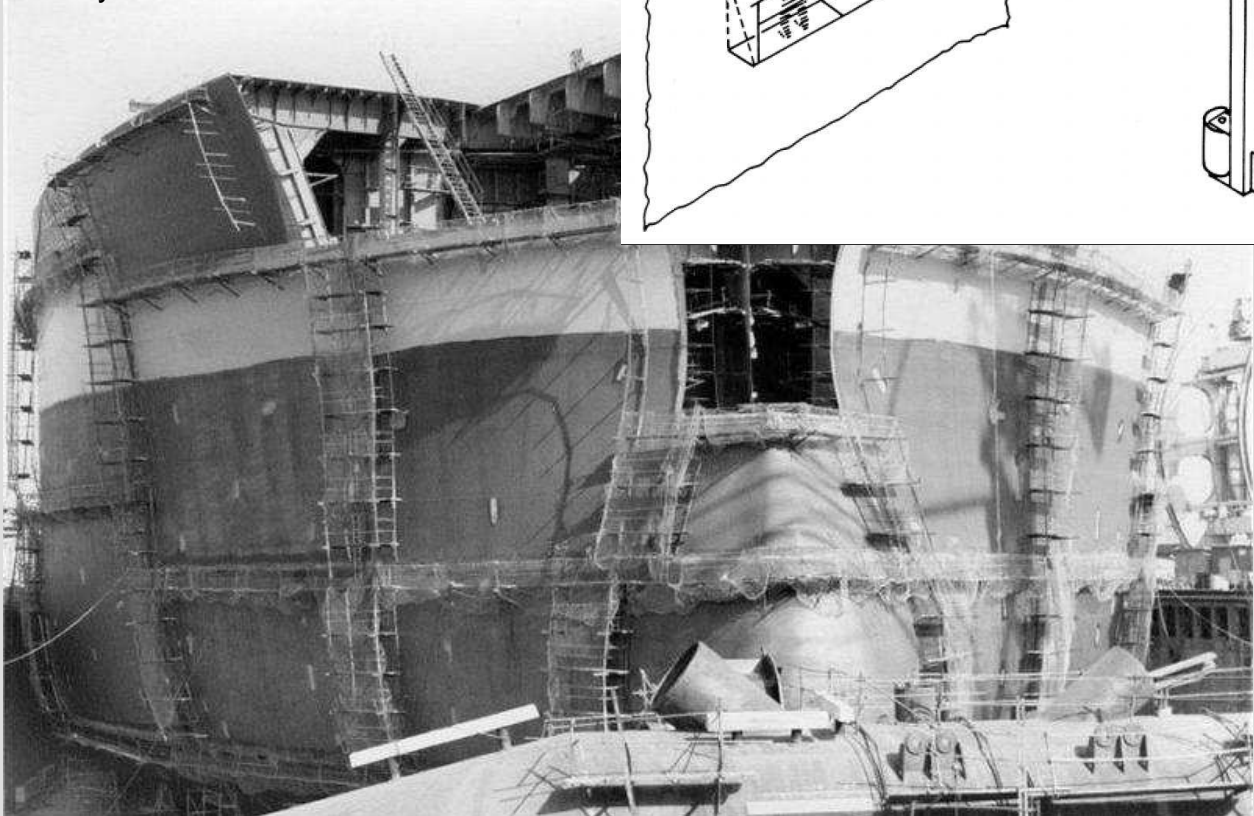
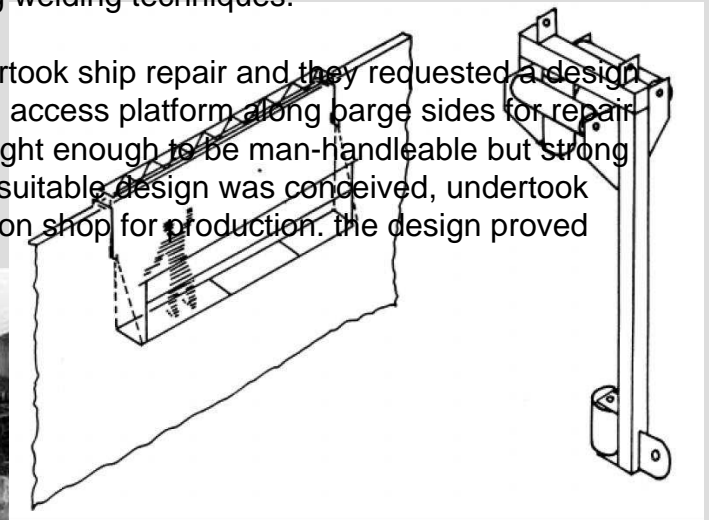
Description:

Chain suspended access system for shipbuilding.

Gas cutting, welding, painting & assembly, structural design calculations.

Responsible for overseeing production start up of equipment in a fabrication shop in Florida. Recommendations were requested from and returned by him, regarding specifications of bought in parts. instruction was received in mig welding techniques.

The company to which he was seconded undertook ship repair and they requested a design for a trolley which would allow movement of an access platform along barge sides for repair work. Design constraints were that it must be light enough to be man-handleable but strong enough to support two men and equipment. A suitable design was conceived, undertook structural analysis and liaised with the fabrication shop for production. the design proved satisfactory.



# ELR Employment Projects - Confidential

*Date:*

1988-1990

*Org:*

BAe-Systems

*Sector:*

Marine

*Project:*

Development

*Detail:*

Analytic Resources

*Activity:*

First Principles Analysis

*Role:*

Structural Engineer

*Resources:*

Technical literature; company standards; Basic, Fortran & system languages

*Description:*

Eye plates and local support structures. Rationalisation of procedure for the analysis for eye plates and local support structures. This resulted in elimination of the routine calculation aspects of the work and gave time and cost benefits.

Eye plates. Beam tripping stresses under eye plate transverse loading. analytic method developed to obtain realistic quantification, resulted in the specification of more economical support structures.

Overhead runway beams with trolley moving load. program written for statically indeterminate overhead runway beams with trolley moving load, providing beam deflections and stresses.

Section properties program written to determine elastic and fully plastic properties of any sectional arrangement, idealised with straight line boundaries.

Structural Analysis Programs. Translation of structural analysis programs from the language Basic to Fortran and from IBM mainframe to Apollo workstation. Quality assurance documentation and user notes were written.

# ELR Employment Projects - Confidential

Date:

1988-1990

Org:

BAe-Systems

Sector:

Marine

Project:

Submarine - SSBN

Detail:

Structures - Various

Activity:

Design Analysis

Role:

Structural Engineer

Resources:

Nastran, Patran; 1st Pr. Analysis; pub. lit; MoD Shock Manual; deck/bulkhead, plate/stiffener, grillage, plate-stiffener beam & eyeplate programs; Bosar

Description:

Pressure Hull. Hull section under failure case pressurization. Finite Element Analysis of major compartment to verify nuclear containment pressurisation test results.

Deck Buckling Investigation. Assessment of geometrically imperfect transverse deck beams under hull pressurisation or temperature difference between upper and lower parts of the hull. Pre & post programs and non-linear FE analysis.

Shock Loading Analysis

Solid ballast fitted to floor of dry provision store

Towing slip subject to test pull, requiring appraisal of supporting structure

Bridge in top with discontinuity made by inclusion of portable panel

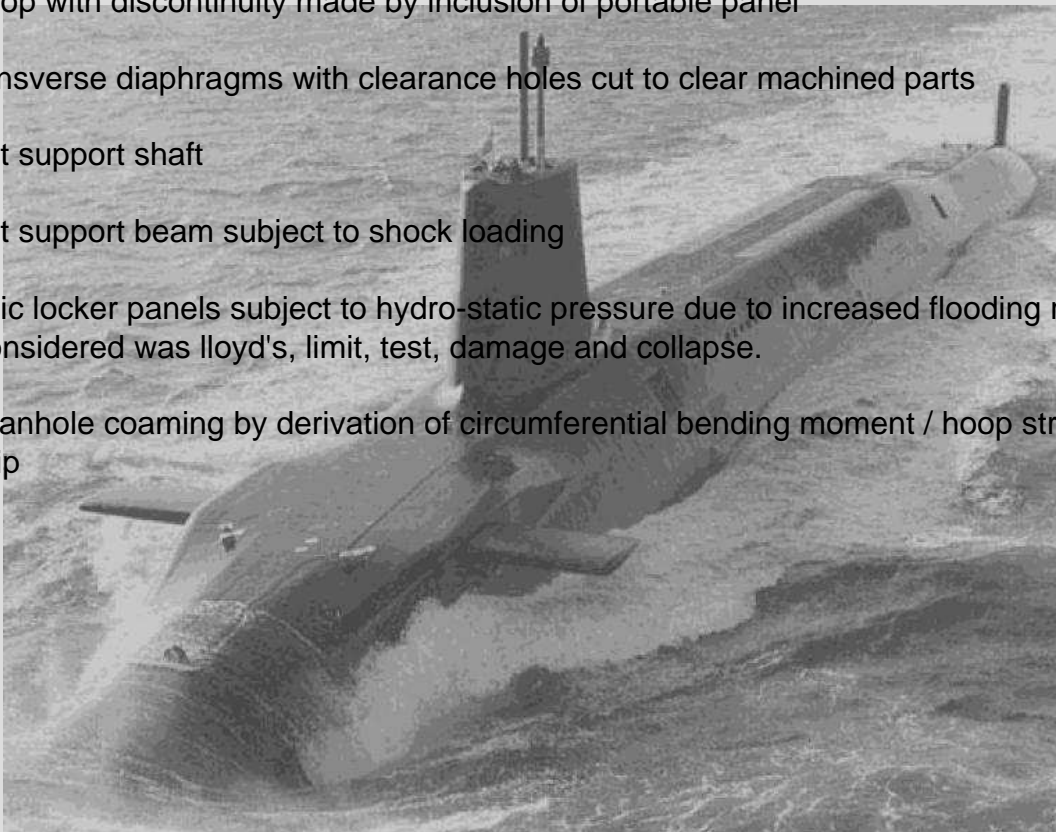
Bridge transverse diaphragms with clearance holes cut to clear machined parts

Equipment support shaft

Equipment support beam subject to shock loading

Pyrotechnic locker panels subject to hydro-static pressure due to increased flooding rate. Criteria considered was Lloyd's, limit, test, damage and collapse.

Internal manhole coaming by derivation of circumferential bending moment / hoop stress relationship



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1988-1990

Org:

BAe-Systems

Sector:

Marine

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Submarine - SSBN

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Description:

Pressure Hull Bulkhead. Concession on cut-away part of frame table. Critical loading determined to be pressure difference between bulkhead surfaces and deck loading

Bulkhead with additional penetrations according to stress concentration criteria

Tank aft bulkhead subject to test pressurisation. Critical criteria identified as plate and stiffener bending and fastener tension

Portable plate and aperture subject to airlock pressurisation. Critical criteria identified as plate and stiffener bending

Bridge fin door, Fixings and aperture subject to wave slap and clip closure loading. Critical criteria was components bending and bolt & pin tension

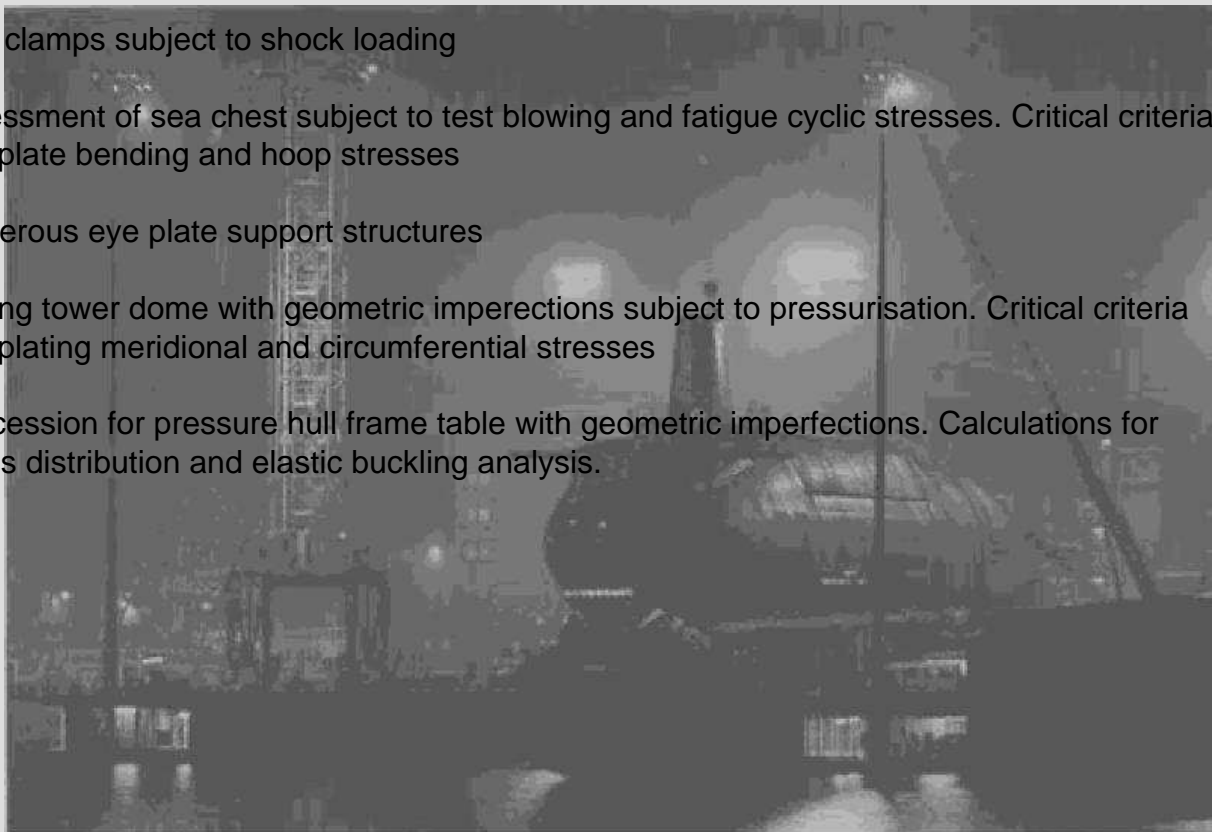
Pipe clamps subject to shock loading

Assessment of sea chest subject to test blowing and fatigue cyclic stresses. Critical criteria was plate bending and hoop stresses

Numerous eye plate support structures

Coning tower dome with geometric imperfections subject to pressurisation. Critical criteria was plating meridional and circumferential stresses

Concession for pressure hull frame table with geometric imperfections. Calculations for stress distribution and elastic buckling analysis.



# ELR Employment Projects - Confidential

*Date:*

1990-1996  
1996  
2000

*Org:*

Lloyd's Register  
YARD (BAe-Systems)  
Swan Hunter Shipbuilders

*Sector:*

Marine

*Project:*

Floating Docks, Pontoons & Linkspans

*Detail:*

Structures & Mooring Arrangements

*Activity:*

Design Analysis

*Role:*

Structural Engineer

*Resources:*

Long-hand calculations & FEA

*Description:*

No National Standards or Classification Society Codes specifically covered the design appraisal of pontoons or linkspans at the time. The structural configuration is unlike that of general lifting appliances and design criteria of ship design rules are most appropriate for appraisal purposes.

AFD60 10000t Floating Dock. Structural assessment for nuclear safety case when docking submarines (Nisa & FemGV).

Assessment of floating dock for grounding using Bureau Veritas Design Code



## ***ELR Employment Projects - Confidential***

*Date:*

1996-1999

*Org:*

Babcock International

*Sector:*

Marine

*Project:*

Ambassador Casino Ship Conversion

*Detail:*

Decks & Bulkheads

*Activity:*

Design Analysis

*Role:*

Structural Engineer

*Resources:*

FEA

*Description:*

Investigation to determine cause of decks & bulkhead buckling during conversion

# ELR Employment Projects - Confidential

Date:

1996-1999

Org:

Babcock International

Sector:

Marine

Project:

FPSO Curlew

Detail:

Activity:

Design Analysis

Role:

Structural Engineer

Resources:

FEA, Mathcad & hand calculations for strength and fatigue life

Description:

Helideck & lattice frame support structure

Hull girder shear flow

Crane pedestal integration

Process deck support stools and upper deck

Transverse frames and bulkheads

Module support frames

Breakwater

Davit foundation



# ELR Employment Projects - Confidential

*Date:*

1996-1999

*Org:*

Babcock International

*Sector:*

Marine

*Project:*

FPSO Glas Dowl

*Detail:*

Mooring during Installation Work at Yard

*Activity:*

Design Analysis

*Role:*

Structural Engineer

*Resources:*

Optimoor Program & hand calculations for rigging selection

*Description:*





# ELR Employment Projects - Confidential

*Date:*

1996-1999

*Org:*

Babcock International

*Sector:*

Marine

*Project:*

FPSO North Sea Producer

*Detail:*

*Role:*

Structural Engineer

*Activity:*

Design Analysis

*Resources:*

FEA, Mathcad & long-hand calculations for stress analysis & Code checking

*Description:*

Process Deck Support Frames

Deck shelter strength assessment



# ELR Employment Projects - Confidential

*Date:*

1996-1999

*Org:*

Babcock International

*Sector:*

Marine

*Project:*

FPSO Triton

*Detail:*

*Role:*

Structural Engineer

*Activity:*

Design Analysis

*Resources:*

FEA, Mathcad & long-hand calculations for stress analysis & Code checking

*Description:*

Forecastle Deck under green water loading strength assessment

CL Bulkhead under process deck stool loading

Hull Girder fatigue

Hull Girder shear flow



# ELR Employment Projects - Confidential

*Date:*

1996-1999

*Org:*

Babcock International

*Sector:*

Marine

*Project:*

RN Frigates, LPH & CVSG

*Detail:*

Flight Decks

*Activity:*

Design Analysis

*Role:*

Structural Engineer

*Resources:*

FEA, Mathcad & long-hand calculations for stress analysis & Code checking

*Description:*

Review of flight deck strength under landing loads

Deck girders & beams checked for wheel impact loading

Deck plate areas bounded by framing members checked for patch loading



# ELR Employment Projects - Confidential

*Date:*

1996-1999

*Org:*

Babcock International

*Sector:*

Marine

*Project:*

Smit Pioneer

*Detail:*

*Activity:*

Design Analysis

*Role:*

Structural Engineer

*Resources:*

FEA, Mathcad & long-hand calculations

*Description:*

Foundation for 250t pedestal crane integration

Foundations for 750t towing pins & karmoy forks

Bow Thruster & Dome



# ELR Employment Projects - Confidential

Date:

2000

Org:

Swan Hunter Shipbuilders

Sector:

Marine

Project:

FPSO Global Producer III

Detail:

Installation Design  
Temporary Works

Activity:

Design Analysis

Role:

Structural Engineer

Resources:

Hand calculations

Description:

Vessel mooring for installation work at yard

Accommodation house (over two decks & fwd of existing deckhouse)

UPS room & battery racks

Fwd machinery room equipment

Process skid tie-downs on deck

Gangway support frames on ship

Pipe rack stools for yard handling

Fwd machinery room equipment foundations

Overhead runway beams for two 10t travelling cranes hung from heli-deck

Laydown areas bumper rails - impact strength calculations



# ***ELR Employment Projects - Confidential***

*Date:*

2000

*Org:*

Swan Hunter Shipbuilders

*Sector:*

Marine

*Project:*

Misc

*Detail:*

Temporary Works

*Activity:*

Design Analysis

*Role:*

Structural Engineer

*Resources:*

*Description:*

Gable End Doorway. Modification of fabrication shop door for passage of abnormal structures

# ELR Employment Projects - Confidential

*Date:*

2001

*Org:*

SBM Offshore (IHC)

*Sector:*

Marine

*Project:*

Exxon Generic

*Detail:*

Installation Design

*Activity:*

Design Analysis

*Role:*

Structural Engineer

*Resources:*

Staad, hand calculations and reporting

*Description:*

Foundations of hoisting equipment

Chain table access platform

Access platform

Gantry walkways and pipe supports



# ELR Employment Projects - Confidential

*Date:*

2002  
2005

*Org:*

Amec  
Babcock International

*Sector:*

Marine & Offshore

*Project:*

FPSO Bonga

*Detail:*

Temporary Works & Installation Design

*Activity:*

Design Analysis

*Role:*

structural engineer

*Resources:*

Mathcad, long-hand calculations and in-house programs

*Description:*

Mooring arrangement at equipment installation yard

Topside supports for construction: weighing

Loadout of process modules and piperacks

Method statements for lift procedures

Construction procedures

Stores crane: dropped object study for operations by stores crane - design analysis & code checking to lr & dnv rules and reporting





# ELR Employment Projects - Confidential

Date:

2005

Org:

Babcock International

Sector:

Marine

Project:

MPSV Edda Fjord: Flotel

Detail:

Gangway

Activity:

Design Analysis

Role:

Structural Engineer

Resources:

Mathcad, long-and calculations and in-house programs

Description:

Gangway structure & mechanical aspects. Design analysis & code checking to LR & DNV Rules and reporting



## ***ELR Employment Projects - Confidential***

*Date:*

2005

*Org:*

Engineering Business  
(IHC)

*Sector:*

Marine

*Project:*

Drill Ship

*Detail:*

Hang-Off Frame

*Activity:*

Design Analysis

*Role:*

Structural Engineer

*Resources:*

Staad, fatigue analysis program & hand calculations

*Description:*

Hang-off frame for pipe handling equipment

# ELR Employment Projects - Confidential

Date:

2009

Org:

Helix Well Ops

Sector:

Marine

Project:

Well Intervention Vessel

Detail:

Mast & Deck

Activity:

Writing specification, technical queries & procedures

Role:

STRUCTURAL ENGINEER

Resources:

Description:

Mast & Foundation on Critical Deck Structures. Writing specification, technical queries & procedures for vendor supplied condition monitoring system.

