



LEARNING FROM DISPUTES AND EXPERT WITNESS SERVICES GERRY BRANNIGAN

CIBSE Scotland
22 May 2019

HK>A

AGENDA



Gerry B
HKA
What is an
Expert
Witness
The Role of
the Expert

Introduction



Case Studies
Installation
Issues
Design
Scope
Delay &
Disruption

Investigation



Dispute
Avoidance and
Managing Risk

Conclusions

WHO AM I?



Oscar Faber

AECOM



WSP

Currie &
Brown/Scottish
Courts Services



Cadogans



HKA



>45 Expert Appointments

Given Evidence

3 x Arbitrations (London, Adelaide, Dubai)

2 x Adjudications (Edinburgh, London)

1 x Dispute Adjudication Board (Doha)

1 x Deposition (San Francisco)

ABOUT HKA

HKA is the world's most experienced construction **claims consultancy and dispute resolution firm.**

Our global portfolio includes some of the world's largest and most prestigious projects across a wide range of market sectors that include **buildings, industrial, infrastructure, oil and gas, power and utilities, and technology.**

We occupy the unique, multi-disciplinary space that combines **forensic technical, delay and disruption, and financial quantum analysis.**



WWW.HKA.COM



About Services Expertise News Insights Events Expert Join

**WE ANTICIPATE.
WE INVESTIGATE.
WE RESOLVE.**

SCHEDULE OF TECHNICAL EXPERTS

JANUARY/
FEBRUARY 2018

HKA has over 160 technical experts providing expert witness and advisory services across all regions of the globe. HKA continues to expand its technical breadth, depth and geographical spread through its 45 offices in 21 countries. Uniquely, HKA's technical experts join with their delay and quantum colleagues to provide the triumvirate of expert and dispute services. Our experts are specialists in their field and experienced in helping clients and their advisors resolve disputes.

BUILDINGS & PROPERTY

Acoustics	Robert Adnitt
Aquatic centres	Frank Pollacchi
Architecture	Robert Campbell Hamish Clark Bruce Blackhall
Asbestos	Colin McCartney
Chemistry, legionella & water systems	Vicki Wilson
Civil & structural	Alex Currie
Construction materials	Masonry Tim Macfarlane
	Glass Tim Macfarlane
Demolition	Jim Coulson
Electrical building services engineering, lighting design	Ian Paterson
	Bill Haggart Gary Gold
Energy efficiency	Paul Bennett
Facades	John Campbell
Facilities management	Barry Knight
Fire engineering	Simon Lay
Fire investigations	John Gow
Fire safety systems	Al Brown
Lifts & escalators	Robin Primrose
Mechanical building services, MEP, public health engineering	Gerry Brannigan Neil McDonald Ken McLean
	Robert Varney
MEP QS	Neil Smith
Piling	Ruth Jackson
Planning	Ruth Jackson
Project management	Paul Mansell
Refrigeration	Robert Arthur

MECHANICAL & PROCESS

Agricultural engineering	David Williams
CGT power, pressure vessels, engineering plant failures	David McIntyre
Construction management	Charles Stanhope
Corrosion & coatings	Mohsen Muzraeh Trevor Osborne
Corrosion & tribology	Simon Norton
Cranes	Roy Claxton
Desalination	Tony Attenborough
Electrical	John Middleton
Electrical, HVDC	Alexandre Psaltis

MECHANICAL & PROCESS

Electrical, LV systems	Bill Haggart Gary Gold
Fluidised bed combustion	Peter Davies
Fuels & process engineering	Roddy Wilkie
HVAC systems	Gerry Brannigan
Instrumentation & control, SCADA	Keith Oversby
Large electric machines, engine control	Antony Anderson
Materials handling	Alan Jackson
Mechanical failures	James Hibbert
Mechanical plant & equipment	Alan Carruthers
Microscopy & NDT	Janie Pollock
Mining	Gavin Ferguson Peter Hetherington
Offshore/onshore drilling, wells	Trevor Butler
Pipeline fluid flow	Martin Brown Gareth Smith
Petrochemical plant turnkey contracts	Stephen Linwood
Pollution control	Tal Goleworthy
Power generation (renewable & fossil fuels)	Arthur Carlisle Jonathan Osborne
Power generation (transmission & distribution)	James Davies
Process engineering	Phil Durrant
Project management	Paul Mansell
Quarrying, minerals	Hugo Pettingell
Subsea pipelines	Jon Hawes
Subsurface, drilling & completion engineering	Steven Walters
Waste water	Steve Burgay
Water treatment, chemical engineering & chemistry	Rolf Clayton Bob Wilson
Welding	Alan Denney Bob Teale

CIVIL & STRUCTURAL

Bridges	Ian Hunt
Buildings	Ian Paterson Alex Currie
	Doug Neville Alistair Christie Peer Dalland
Civil & structural engineering	Doug Neville Alistair Christie Peer Dalland
Concrete	Mike Webster
Contaminated land	Michael Smith
Drainage	Gayle McKay
Geology	Colin Braithwaite
Geotechnical	Peter Cowisill
Heavy steelwork & structures	Bill Frankland
Highways	Grant Gellatly
Hydro power	Ian Padgett
Infrastructure	Peter Caillard
Land use	Peter Danks
Lighting design	Euan Clayton

Gavin Ferguson
Dudley English
Alan Tricklebank
Jonathan Butterworth
Bill Frankland
Hugh Henderson
Sam Shortt
Chris Hughes
Svend Ole Hansen
Melvin Woodhouse

Gordon Jabaak
Jim Borwick
Alistair Dalziel
Angus Ramsay
Keith Oversby
Peter Danks
Ken Henderson
Iain Neil
Edward Johnson
Nigel Murphy
Paul Cheeseman
Jim McGrory
Piers Connor
Gordon Herrald

Jon Knights
Chris Gooagan
Steve Devereux
Stuart Guy
Rob Wild
Patrick Keating
Alan Dundas
Bob Loudon
Jim Lygate
Jon Hawes
Fred Williams
Ian Hunt
Alan Tricklebank
Mark Finch
Peter Blair-Fish
Graham Taylor

Alan Carruthers
Iain Hall
David McIntyre
David Williams
Colin McCartney
Allan Cumming
Richard Wilson
Gary Gold
Robert Adnitt
John McCullough

INDUSTRIAL ACCIDENTS

Lifting operations	Roy Claxton
LPG & fuel safety	John Nicol
Occupational health & safety	Iain Hall
Production rigging & event safety	Tom Goode

ENERGY & POWER

Ammonia plants	Dan Cojocaru	
Batteries	Robert Gustar	
Biomass	Steve Burgay	
CCGT design, operation & maintenance	James Hibbert Stephen Linwood	
District heating systems	Gerry Brannigan	
Electrical generation	Antony Anderson	
Electrical networks & infrastructure	Robin Halliday	
Energy economics	Ariel Bergmann	
Fluidised bed combustion	Peter Davies	
Fuel cells, power electronics	Andrew Cruden	
Fuels, energy, power systems, biomass	Roddy Wilkie	
Fuel technology	David Carmichael	
Geothermal power plant O&M	Iain Hall	
HVDC	Alexandre Psaltis	
HV power distribution	Les Campbell	
Hydro, marine & wind power	Bryan Leyland	
Hydro power	Joe Pott	
Instrumentation & control, SCADA	Keith Oversby	
LPG & fuel safety	John Nicol	
Materials handling	Alan Jackson	
Nuclear decommissioning	Stuart Bowe	
Nuclear power	John Earp	
Offshore pipelines	Bill Neilson	
Oil & Gas	Offshore pipelines	Bill Neilson
	Process engineering	Alan Borrowman
	Electrical	Andrew McGeachie
	Petroleum engineering	Iain Young
Economics	Mark Croushaw	
Operation & maintenance	Jon Osborne	
Petroleum engineering	Iain Young	
Pollution control	Tal Goleworthy	
Power generation (renewable & fossil fuels)	Arthur Carlisle Bob Loudon	
Power plant	David McIntyre Bob Loudon	
Steam turbines	Iain Hall	
Transformers, electrical networks	Ian Hunter	
Wind turbines	Ewen Morrison	
Wind turbine blades	Christopher Stanley	

GLOBAL AND LOCAL EXPERTISE
HKA PROVIDES THE EXPERTS YOU NEED



CDM services	Allan Cumming
Construction health & safety	Richard Wilson
Electrical accidents	Gary Gold
Environmental noise	Robert Adnitt
Fires & explosions	John McCullough

For further information, please contact your local HKA office or:

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CLAIMS AND DISPUTE
RESOLUTION →

EXPERT →

ADVISORY →



2018 WINNER
Construction Expert
Witness Firm of the Year

BUILDINGS

At HKA Engineering Buildings we **anticipate, investigate** and **resolve** project challenges. We **decode complexity in all types of buildings.**

We understand and have experience in **delivering successful projects**, whatever their size and complexity, wherever in the world. Uniquely, we have the expertise in providing expert teams of building professionals that can deal with almost any issue found in a building project.

From **inception, design, construction, commissioning, operation and demolition** of buildings, the team have undertaken expert witness appointments around the world helping legal teams and clients to **get the best outcome possible.**

ACOUSTICS. AQUATIC CENTRES. ARCHITECTURE. ASBESTOS. WATER TREATMENT. STRUCTURAL ENGINEERING. MASONARY. TIMBER. GLASS. DEMOLITION. ELECTRICAL BUILDING SERVICES. ENERGY EFFICIENCY. FACADES. FACILITIES MANAGEMENT. FIRE ENGINEERING. FIRE SAFETY SYSTEMS. LIFTS & ESCALATORS. MECHANICAL BUILDING SERVICES. PUBLIC HEALTH ENGINEERING. MEP QS. PLANNING. PROJECT MANAGEMENT. REFRIGERATION. DELAY. QUANTUM. FORENSIC ACCOUNTANCY.



WHAT IS AN EXPERT WITNESS

What does an Expert do?

To furnish the Court with scientific, technical or other specialist information which is likely to be outside its knowledge or experience.

Who can be an Expert?

James Langley v South West Regional Health Authority (1983) BLR 56:

"An expert may be qualified by skill and experience, as well as by professional qualifications."

WHO NEEDS A TECHNICAL EXPERT WITNESS?

Technical Experts work on a wide range of disputes, claims and investigations.

THE LEGAL PROFESSION

Aviation, Defence & Engineering
Contentious Construction
Infrastructure & Transport
Insurance & Risk
Land & Rural Business
Media & Broadcasting
Oil & Gas
Public Sector
Real Estate
Renewable Energy
Retail, Hotels & Leisure
Shipping & Marine
Technology

TECHNICAL DISPUTE

IN USE DISPUTES
Component Failure
System Failure
Requirements not Met
Property / Equip. Damage
Professional Indemnity

The nature of some disputes may require consideration by multiple Technical Experts.

TYPES OF ISSUES INVESTIGATED

LIABILITY

DESIGN
RESPONSIBILITY

CLIENT SCOPE

PERFORMANCE
ISSUES

RISK

PROFESSIONAL
RESPONSIBILITY

DESIGN DUTIES

CONTRACTOR
DUTIES

MATERIAL
FAILURE

DELAY FACTORS



257

COMMISSIONS RESEARCHED

400+

US\$ BILLION OF
CAPITAL EXPENDITURE

What are our initial **summary findings**?



3043

CAUSES IDENTIFIED

13

UNDERLYING CAUSES, ON
AVERAGE, PER DISPUTE

Unveiling causation complexity



7

PRIMARY CAUSES IDENTIFIED

6

SECONDARY CAUSES IDENTIFIED

39

MAXIMUM NO. OF CAUSES ON A SINGLE PROJECT

TOP TEN CAUSES OF DISPUTES



- 1. SLOW PROGRESS**
- 2. VARIATIONS**
- 3. EXTENSIONS OF TIME**
- 4. LATE AVAILABILITY OF INFORMATION/DESIGN**
- 5. CHANGE OF SCOPE**
- 6. MANAGING – TIME**
- 7. DIFFERENT INTERPRETATIONS OF THE CONTRACT PROVISIONS**
- 8. ADVERSARIAL CULTURE**
- 9. DESIGN ERRORS/BUILDABILITY**
- 10. LACK OF COMMUNICATION**

THE ROLE OF AN EXPERT WITNESS



Ministry
of Justice

Civil Procedure Rules 35 (CPR 35)

35.3

- (1) It is the duty of experts to **help the court** on matters **within their expertise**.
- (2) This duty overrides any obligation to the person from whom experts have received instructions or by whom they are paid.

35.10

- (1) An expert's report must comply with the requirements set out in Practice Direction 35.
- (2) At the end of an expert's report there must be a statement that the expert understands and has complied with their duty to the court.
- (3) The expert's report must state the substance of all material instructions, whether written or oral, on the basis of which the report was written.

LONDON UNDERGROUND LTD V KENCHINGTON FORD PLC

*"The expert witnesses...were both impressively qualified academically and by professional experience. Each brought a wealth of long practical and relevant experience to the case. The weight of their respective evidence I did not find equally matched...Mr Courtney signally **ignored his duty to both the court and his fellow experts...**[and] continued to assume the **role of advocate** of his client's cause.... **invalid and unscientific...**I reject Mr Courtney's evidence as to the state of professional opinion in 1992 and criticisms of the defendant's conduct and skill".*

[1999] C.I.L.L. 1452

SIMPLICITY OF PRESENTATION



complex  simple

SUMMARY OF DUTIES

Independent



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graph TD; A[Independent] --> B[Impartial]; B --> C[Objective]; C --> D[Obligation to the Court];
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Impartial

Objective

Obligation to the Court

CASE STUDIES

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**COMPLEX
CONSTRUCTION
DELAY CLAIM
COOLING
INFRASTRUCTURE
INSTALLATION,
CLIENT COMMENTS
AND TIMINGS**



(PHILADELPHIA, CAMDEN, WILMINGTON OUT--MO--MO--COPYRIGHT: DORIS NEWMAN)
(FX9--July 20) HYATT TEA DANCE--Spectators on overhead walkways watch people below during a tea dance at the Kansas City Hyatt Regency Hotel on June 19, 1981. One month later, the uppermost walkway, extreme top center, fell on the lower walkway sending people and debris from both walkways spilling onto the crowded dance floor below. The middle walkway was not affected.(AP Laserphoto)(s21024str-doris newman)1981.
(EDITORS: Black and white print from color negative.)



**MAJOR
FAILURE
HYATT REGENCY
TEA DANCE -
KANSAS CITY
1981**

**MAJOR
FAILURE
HYATT REGENCY
TEA DANCE -
KANSAS CITY
1981**

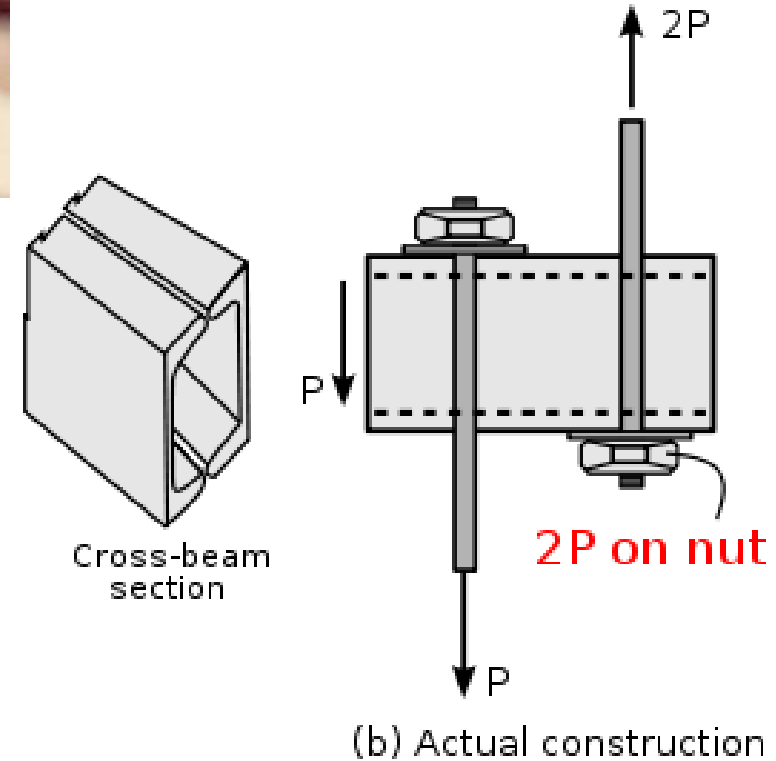
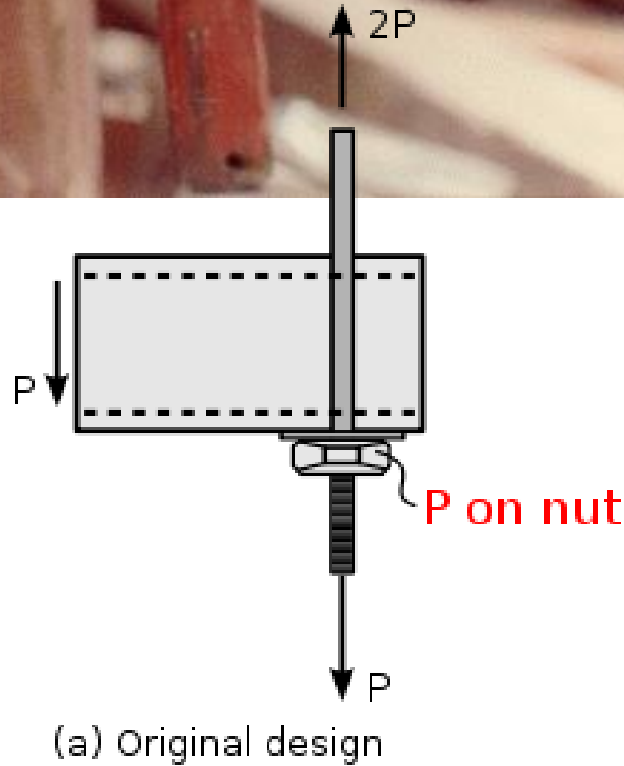
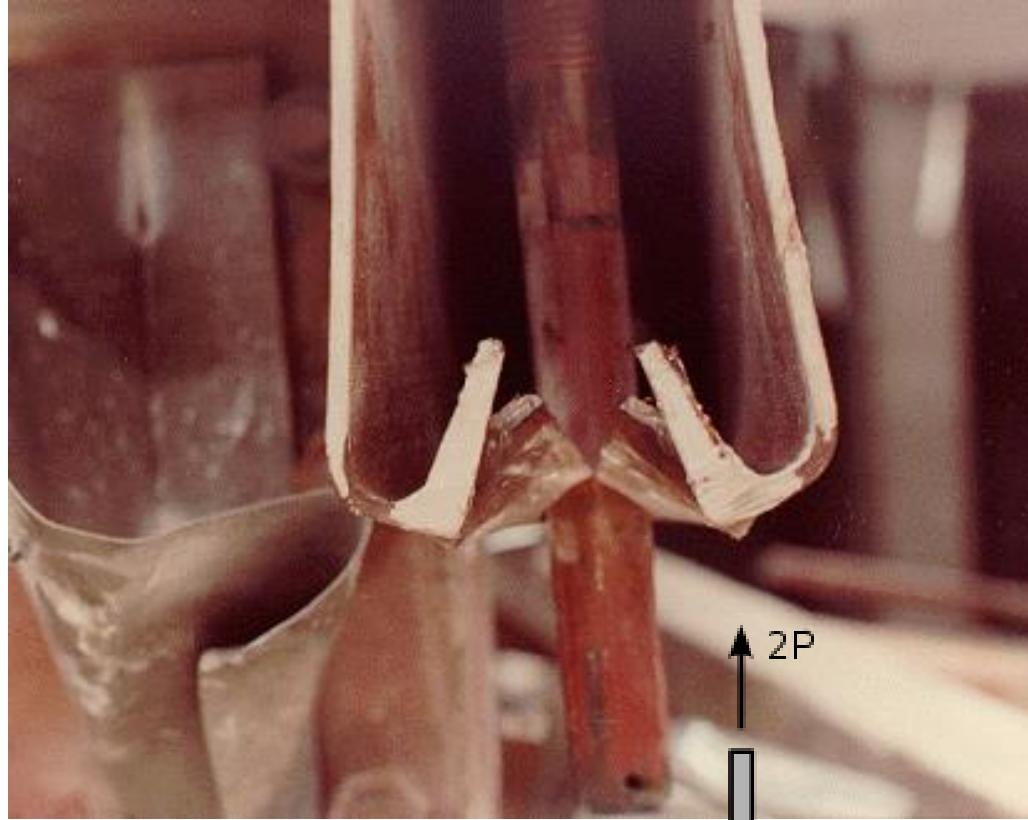


**MAJOR
FAILURE
HYATT REGENCY
TEA DANCE -
KANSAS CITY
1981**

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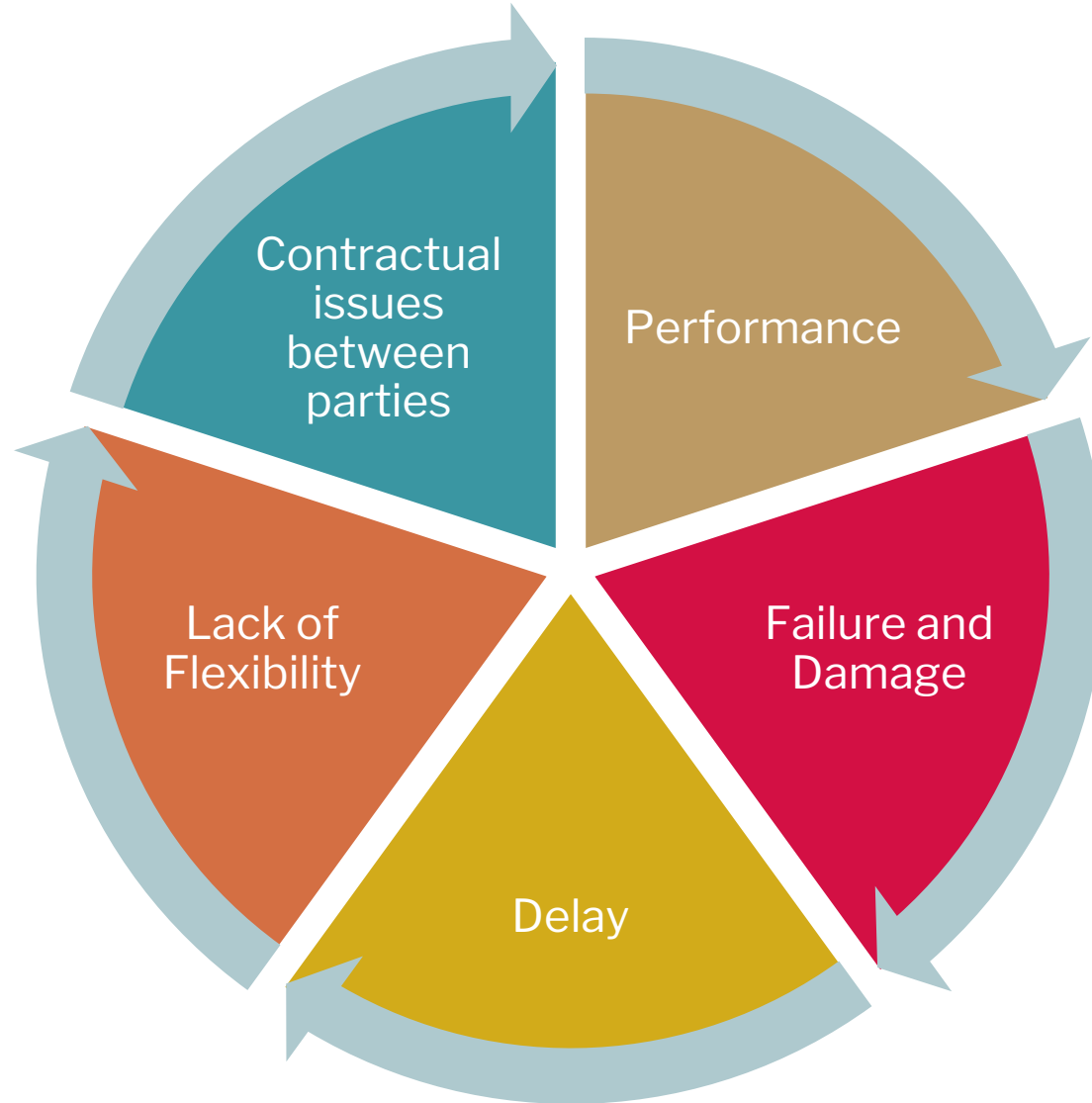


**MAJOR
FAILURE
HYATT REGENCY
TEA DANCE -
KANSAS CITY
1981**



INSTALLATION ISSUES

INSTALLATION ISSUES



PIPEWORK INSTALLATIONS



PIPEWORK INSTALLATIONS



INCORRECT INSTALLATIONS

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INSTALLATION ISSUES

Manufacturers Guidance

- What does the manufacturer say?
- Does the design align with the Manufacturer's guidance?
- Does the installation align with the design or Manufacturer's recommendations?
- Did the contractor follow its own procedures? Did it have a procedure?

Duties

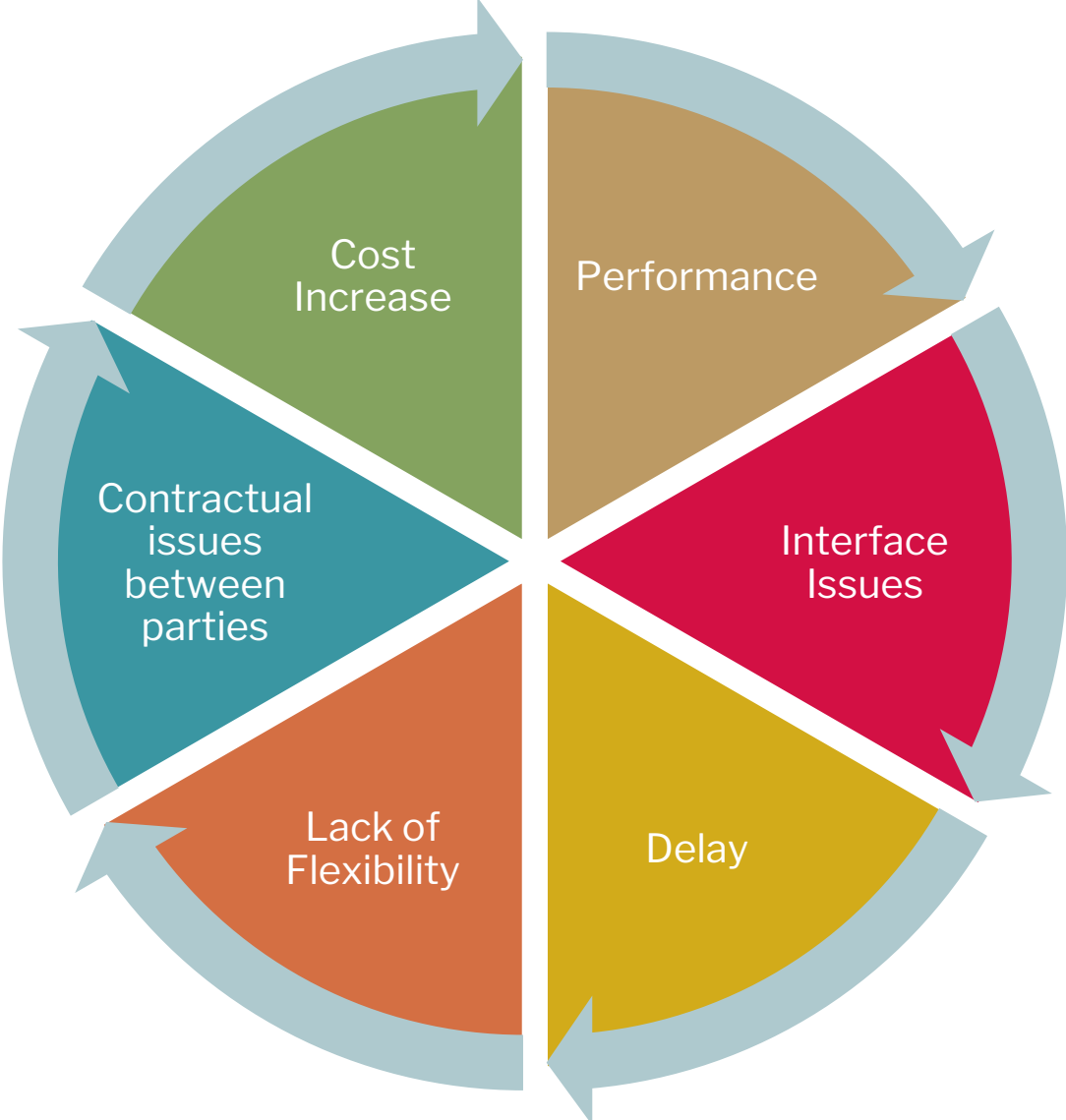
- Who is responsible for monitoring the installation?
- What are YOUR duties? Do you understand them?
- Have you made sure commissioning certificates have been signed off by the appropriate/designated people?
- O&M Manuals

DESIGN FOR INSTALLATION AND USE

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DESIGN ISSUES



SPATIAL DESIGN



BIM

BIM

=

COORDINATION?

BIM

BIM

≠

COORDINATION?

COORDINATION RESPONSIBILITY

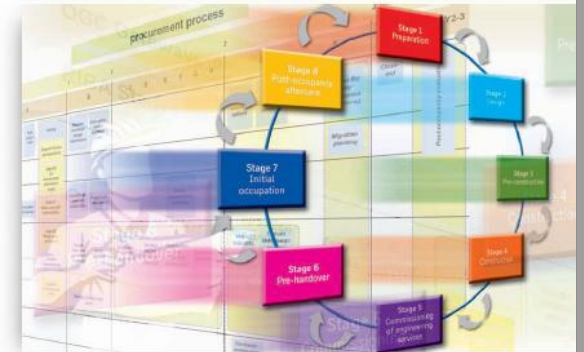
Design

- Who is responsible for spatial coordination?
- Who is responsible for detailed coordination?
- Who is responsible for specifying and coordinating interfaces between disciplines?

Mobilisation and Construction

- Who is responsible for the detailed coordination and setting out of various packages?
- Who is controlling and managing the interfaces between sub-contractors?
- Who is monitoring the works on site to make sure they align with the coordination plans?

Building Services Job Book



A project framework for engineering services
by Glenn Hawkins

WATER TREATMENT

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WATER TREATMENT

Problems

Design -

Inappropriate installation
preventing maintenance and
water treatment management

During Construction -

Follow procedures to minimise
risks



PREVENTION OF WATER TREATMENT ISSUES

Follow the BSRIA Application Guide

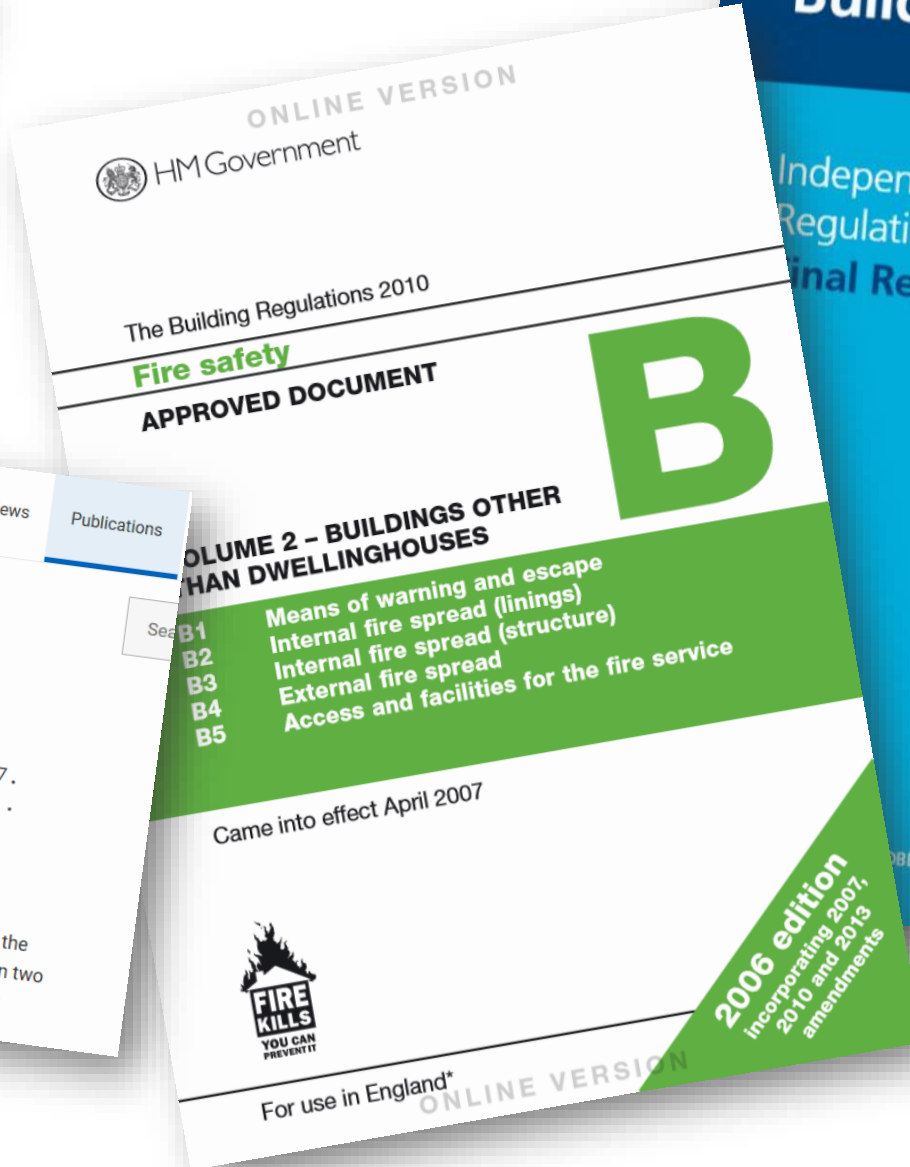
- Full Bore flushing of by-passes across all main plant items and terminal units.
- Flushing drains to all main plant items and terminal units
- Strainers
 - upstream of pumps
 - Boilers and chillers
 - Main distribution branches
 - AHU coils
- Isolatable dirt pickets at the base of risers
- Constant flow by-passes at the top of risers with built in vents

AVOID

- Dead leg pipework
- High resistance valves and terminal units

FIRE PROTECTION

LPCB®



LEARN FROM DESIGN FAILURES

Design

- Get it right! (easier said than done!)
- Follow appropriate design guidance – BSRIA/CIBSE/ASHRAE/HTMs etc
- Record Basis of Design in the Specifications and job deliverables
- Record your Design assumptions. Ensure they are signed off by the client/building user

Specification

- Performance specifying Contractor Design Portion (CDP) items
- Interface Management – understand the contract

Specialists

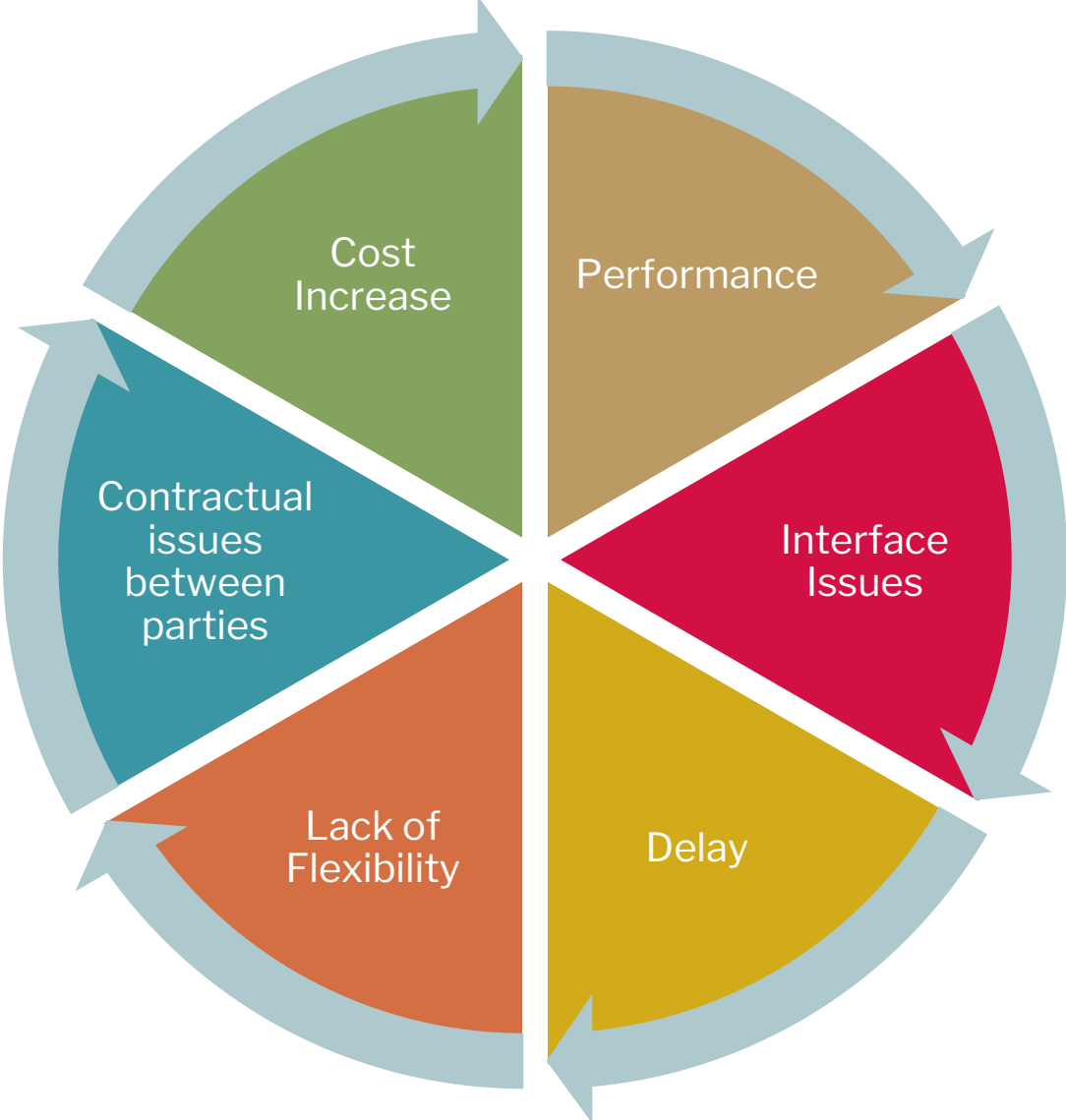
- Work with Specialists to improve the design and specification

SCOPE & IMPLEMENTATION

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SCOPE ISSUES



SCOPE AND IMPLEMENTATION

Scope

- What is your agreed scope?
- What does your contract say?

Interfaces

- What other parties are involved?
- How do you interface with them?

Duties

- What duties are you required to do at each stage of the design and construction?

DELAY & DISRUPTION

DELAY & DISRUPTION

Construction Delay

- Time lag in completion of activities from its specified time as per contract; or
- Late completion or late start of activities to the baseline schedule, directly affecting specified cost

PANAMA CANAL



New locks

Original locks

DELAY & DISRUPTION

Design
Deliverables
Delay

Slow Progress

Incomplete/
Incorrect
Design

Contractual
Variations

Client Materials
Late

Site Availability

Multi-Stage
Package Impact

Designer
comments
delivered late

Designer
comments not
in line with
contract

Installation
Phasing delays

Utilities delays

And Many
More...

DISPUTE AVOIDANCE AND MANAGING RISK

KNOW YOUR JOB?

Performance or Detailed Design?

What are the CDPs?

If Exclusions then who does them?

Commissioning and Handover Procedures?

Responsibility?

Where is the Design Liability?

What are the Contract Procedures? Dates for Response etc

Site Supervision Duties

What does your contract say??

WHAT QUESTIONS IS AN EXPERT ASKED?

Liability

“In your opinion, did XYZ Consulting Engineers Limited perform its **obligations under the contract** to the standard expected of a **reasonably competent** building services engineer acting with **due skill, care and diligence.**”

Expert Investigation

Define what a “reasonably competent BSE would have done”

- Guidance Documents?
- Legislation?
- Procedures followed?
- Correspondence?
- Calculations & Drawings.

Opinion

Was the failure/issue the result of an action or inaction of the party?

Were there any other influencers or factors to take into account?

Are there legal issues which could change the opinion?

Alternative opinions.

DISPUTE AVOIDANCE FOR BUILDING SERVICES

Know Your Duties

- Define your Scope
- Monitor and record change
- Manage your client's expectations
- Site Supervision Duties
- Agree, read, and make sure your team read, your contract!

DISPUTE AVOIDANCE FOR BUILDING SERVICES

Diligence

- Follow your procedures and keep records
- Disputes are generally follow breaches of contract – **know** and follow the requirements of **your contract**.

DISPUTE AVOIDANCE FOR BUILDING SERVICES

Keep Records

- RECORDS, RECORDS, RECORDS!!
- If the expert can't find records to KNOW what happened then we need to ASSUME and interpret facts based on our experience.



CONTACT

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