



Universal Technology Centre

Accident Reconstruction, Fire Investigation & Failure Analysis

UTC team

Is forensic investigator & failure analyst appointed by MOM, SCDF, SPRING/ESG & PUB; Consists of experts with >35 years of relevant industrial and research experience & qualifications of PhDs, Chartered Engineers /PE. The key staff have successfully accomplished thousands of forensic investigations, failure analysis, accident/fire investigation for aerospace, marine, construction, petrochemical, oil & gas, transportation, electrical industries and governmental agencies, and is accepted by Court.



Investigating fatal crane collapse

Typical Projects

- Forensic investigation on fatal gate toppling
- Analysis on aircraft engine failure
- Investigation on major MRT disruptions
- Reconstruction @ fatal prime mover-trailer crash
- Investigation on fatal building cladding fire
- FA on electric water heater explosion in condo
- Investigation on roller coaster incidents
- FA on gas & steam turbine damages
- Failure analysis on gearbox damages
- Investigation on vehicle fire and explosion
- Failure analysis on lift wire rope breakage
- Investigation - busbar explosion shopping mall
- Investigation on series refrigerator fires
- Investigation on mobile crane toppling
- Reconstruction on traffic accidents
- Investigation on electric station fire/explosion
- Analysis on submarine power cable damages
- Investigation on fatal tower crane collapse
- Assessment on campfire injury incident

UTC Clients including



SCDF
The Life Saving Force

Enterprise Singapore

Republic of Singapore
THE AIR FORCE
ABOVE ALL



MINISTRY OF
MANPOWER

SBS Transit

HYUNDAI
ENGINEERING & CONSTRUCTION

TAKENAKA

中国太平
CHINA TAIPING

Land Transport Authority
We Keep Your World Moving

ENERGY MARKET AUTHORITY

UNIVERSAL
Oil Terminating Trust

OPUB SINGAPORE'S NATIONAL WATER AGENCY

RAJAH TANN
Lawyers who know Asia



Building Cladding ACP Fire

Testimonials

"UTC has proven to be capable of fulfilling our requirements. We are very satisfied with UTC's performance" – **Procurement Manager of Defence Science and Technology Agency**

"I thank you for the most excellent report" – **Project Director of Teekay Shipping (Australia) and Sembawang Shipyard**

"The analysis report was not challenged. It was clearly at the odds" – **Judgement statement of High Court Judge on Suit No: HC409/2010X**

Your Benefits

Reliable results, Cost-saving, Short turnaround time (no overhead, experts directly handling case)

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Universal Technology Centre

Accreditation and qualifications

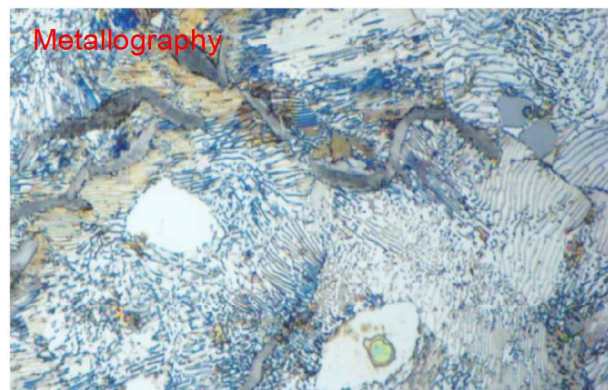
- Singapore Government Expenditure and Procurement Unit- EPU/SER/34 (consultancy) & EPU/SER/35 (training) –S\$1,000,000
- Approved course organizer by Professional Engineer Board, SCDF and WHS Council
- Chartered Engineer (Engineering Council, UK)
- Member – National Association of Professional Accident Reconstruction Specialists (USA)
- Member - National Association of Fire Investigators (USA)
- Certified pressure vessel inspector (API, USA)
- Technical assessor / expert, Singapore Accreditation Council



Reconstruction on car-pedestrian collision

Analytical Techniques

- Site survey and assessment
- Laboratory analysis (SEM/EDX, FTIR, XRD, DSC, TGA, mechanical tests, electrical tests, metallography, chemical analysis etc.)
- Non-destructive evaluation (X-ray, UT, MT, VT, LP etc.)
- Structural analysis
- Numerical calculation/FEM simulation
- Logical inference

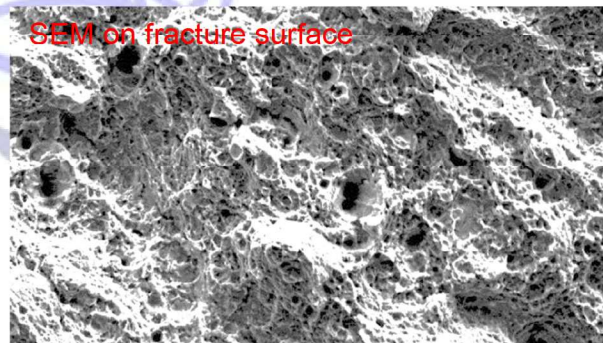


Metallography

Expert Witness

Discover solid evidences & present un-biased opinions based on scientific principles for justification of litigations and insurance, e.g.

- Fatal gate toppling @ construction site (**Criminal Court**) (MOM)
- Mobile crane toppling (**State Court**)
- Fatal building cladding fire (**High Court**)
- Fatal tower crane accident in Singapore National Art Gallery (**Arbitration court**)
- Crane boom collapse (**High Court**)
- Investigation on MRT disruptions (**COI/AGC**)



SEM on fracture surface

Mag = 1.00 K X 10µm EHT = 20.00 kV Signal A = SE2 Date :10 Jun 2015
ELI/15 WTD = 20 mm Photo No. = 840 Time :16:57:43

Technical Training

UTC is approved course organizer of PE Board, SCDF & WSHC, which award professional development units (PE, FSM, SASO). Supported by E2i training grant.

Public courses

- Industrial failure analysis
- Applied Metallurgy for non-metallurgists
- Corrosion –investigation and prevention
- Fire investigation
- Structural analysis
- Human factors in failures and accidents



Technical training

Customized courses

- “Failure Investigation and Analysis” for Republic of Singapore Air Force (RSAF)
- “Vehicle fire investigation” for Land Transport Authority (LTA/SCD)