



Consultant
Investigation &
Litigation Engineers

Excellence in
Engineering

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Curriculum Vitae

Mr Eddie Allen

Mr Edward Allen

Mr Darren Morgan

Collision Deformation Classification

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Our Latest Newsletter



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Consultant Investigation & Litigation Engineers

E J Allen & Associates are a firm of Consultant Investigation & Litigation Engineers as well as Assessing Engineers and pride themselves in **Excellence in Engineering.**

We are a firm of Consulting Engineers dealing with road traffic accidents, industrial accidents, vehicle and machinery repairs, valuations and a range of specialties including slipping and tripping accidents. We produce reports to assist our principals and Courts of law where they require technical information and opinions to resolve disputes.

E J Allen & Associates offer detailed reports to the very highest of standards, tailored to all clients requirements.

We are a second generation family business operating as a Partnership. The business was established by Ted Allen in 1989. In 2011 Eddie Allen and Odette Morgan formed a Partnership trading from offices in Croydon, Surrey.

Uniquely professional service

Our operations are throughout the United Kingdom and on occasions abroad.

We strive to produce reports to:

- IAEA standards on damaged cars etc.
- CPR35 in Civil cases
- CrPR – Part 33 in Criminal court cases
- British Standards Institute where applicable

All our Engineers are:

- Qualified and registered with the UK Engineering Council
- Members of appropriate technical institutes
- Full members of the Academy of Experts
- Trained in modern engineering procedures and practices

E J Allen & Associates can offer Assessing and Litigation services to:

- Solicitors
- Insurers
- Management teams
- Fleet Operators
- Loss Adjusters
- Private Individuals
- Barristers
- Courts of Law



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Our Services

We list below a number of Engineering disciplines in which we have been historically involved:

- **Personal Injury/Fatal Accident**
- Personal Injury Cases
- Road Traffic Accidents (Personal Injury)
- Falling/Tripping/Slipping Accidents
- Hazards (Personal Injury Causes)
- Public Area Hazards
- Workplace Hazards
- Domestic Hazards
- Sports/Leisure Injuries
- **Consumer Protection/Safety/Trading Standards**
- Product Liability
- Trading/Sale Of Goods Issues
- **Sports/Leisure**
- Play Areas/Equipment
- Safety Issues (Leisure/Entertainment Facilities)
- **Construction Works**
- Health And Safety (Construction Works)
- Accident Investigation (Construction)
- Falling From Heights
- Safety Equipment
- Good Disciplines
- Housekeeping Within Workshops/Construction Sites
- Fitted Kitchens - All Aspects
- **Engineering Testing/Failure/Disputes**
- Mechanical Testing
- Forensic Engineering
- Engineering Disputes
- Engineering/Production Health And Safety
- Industrial Premises Health And Safety Compliance
- Safe Work Procedures
- Hazard Assessment (Health And Safety)
- Protective Equipment (Health And Safety) PPE
- Machine Guarding Wood Work/Metal Work Machines
- Industrial Accident/Injury Investigation
- Handling/Lifting Health And Safety
- Industrial Accident/Injury Investigation
- **Distribution/Warehousing Systems**
- Loading/Unloading Safety
- Moving Vehicle Controls
- **Freight Security/Safety (All Types Of Transport)**
- Vehicle Load Security
- **Road Transport**
- Motor/Garage Industry
- Motor Trade
- Road Freight Transport Operation
- Road Vehicle Engineering



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- **Road Transport (Continued)**
- Automotive Engineering
- Vehicle Maintenance/Repair
- Vehicle Engine Maintenance/Repair
- Passenger Vehicles
- Motor Cars
- Motorcycles
- Caravans/Mobile Homes/Static Caravans
- Public Service Vehicle Commercial Vehicles/Trailers
- Road Tankers/Vehicle Transporters
- Heavy Haulage/Abnormal Loads
- Off-Road Vehicles - All Types
- Fork Lift Trucks - All Types
- Special Purpose Vehicles
- Road Vehicle Assessment
- Valuation (Vehicles) - All Types
- Pre-Accident Valuation(Vehicles)
- Damaged Vehicle Salvage Value
- Damage Cost Assessment (RTA's)
- Repairs Assessment
- Roadworthiness/Testing
- Mechanical/Component Failure (Vehicles)
- Road Vehicle Controls/Handling/Braking
- Tyre/Wheel Problems
- Braking System Problems
- Steering System Problems
- Vehicle Safety/Stability
- Vehicle Weighing
- Motor Vehicle Paint And Bodywork
- **Vehicle Forensic Examinations**
- Stolen/Suspect Vehicle Examination
- Vehicle Components (Forensic Examination)
- Tyres And Wheels (Forensic Examination)
- Tachograph Analysis
- Fire/Explosion (Vehicles)
- **Road Traffic Accident/Offence Investigation/Reconstruction**
- Road Traffic Accident Investigation (General)
- Road Traffic Accident Reconstruction
- Accident Scene Reports/Plans/Photographs/Video (RTA's)
- Road Conditions/Road Surface (RTA's)
- Skid Marks (RTA's)
- Vehicle Impact/Collision Studies (RTA's)
- Insecure Loads and RTA's
- Restraint Systems/Seat Belts/Helmets Effect
- Footpath/Pavement Accidents
- Motorcycle Accidents



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ARAS 360° - 3D Animation and Simulation



E J Allen & Associates are proud to announce that we have trained, qualified and licenced users of ARAS 360° software.

We have acquired state of the art – internationally operated - 3D Accident Reconstruction software. This together with high power computer processing enables us to provide you with real time animation of accident scenes in 3D and taking account of real scene data, provide a 3D reconstruction of the events. In this way you can actually see a movie reproduction of what happened rather than trying to imagine.

Let us build the picture for you – A picture or, in this case, a movie paints a thousand words.

Simulation and animation tools can be used to answer questions such as:

What if?
What speed?
Could it be seen?

ARAS 360°

Software has been designed to facilitate all the functionality needed to create incident scene drawings, create 3D scene environments, perform crash reconstruction calculations and generate 3D animations.

ARAS Genius

Sets a new standard in crash reconstruction calculation technology and is the complete calculating solution from simple equations to complete linear momentum analysis.

ARAS Collide

Enables us to facilitate the prediction of all types of vehicle and human motion. This means that vehicle impact positions and orientations can be input to get real time feedback of simulation in 3D.



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Accident Investigation

RTA Investigation

E J Allen & Associates provide quality road traffic accident reconstruction including full scale Vehicle Examination, Scene collision data retrieval, and Expert Witness services.

Our experts are certified accident reconstruction specialists with education, training and a wealth of experience in the investigation, reconstruction and analysis of all types of road traffic collisions and in particular those involving personal injury and those which prove to be fatal.

Our RTA Investigation services include:

- High and low speed collision analysis
- Head on accident investigation
- Rear end crash analysis
- Rollover collision reconstruction
- Field object crash investigation (single vehicle accidents)
- Pedestrian accident reconstruction
- Motorcycle or cycle accident reconstruction
- Analysis of vehicle defect contributing to the accident cause
- Vehicle damage assessment including forensic inspection of seatbelts, headlamps, tyres
- Crash data retrieval for vehicle ECU
- Scene inspection including photographs, computer generated scale plans
- Visibility issues including restrictions on sight lines
- Review of Police and / or other experts' reports
- Provision of Court trial material with CPR or CrPR compliant reports
- Provision of 3D animated accident reconstruction

Site Inspections Data

We have our own Total Station Survey equipment and can produce scale plans with precise measurements to illustrate accident locus.

We also have and maintain:

Nikon DTM-310 Total Station

Geosite Office Communicator software

BEHA Digital Lux tester 93-1065L

Turnkey Skidman

Canon DSLR cameras with macro facilities

Stanley Portable Slip Resistance tester



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Automobile Assessing

Automobile Assessing is an important service offered by E J Allen & Associates and this is why all our engineers are involved in accident damage inspections, and why we continue to invest in equipment, software and hardware related to Automobile Assessing so that we have the best tools to provide quality reports at competitive fees.

THE INSPECTION AND REPORT

Our reports can be individually tailored to your needs and may include:

- Visual attendance or desktop from photographs or imagery.
- Reports produced using Glassmatix IV software with integrated estimating systems
- Damage description using CDC (Collision Deformation Classification)
- Damage direction using PDOF(Principal Direction Of Force)
- Repair costs calculated using Glassmatix IV software
- Repair methods agreed using Manufacturers or Thatcham data Escribe
- Competitive repair costs and terms negotiated for our clients
- Valuation by Glass's Guide / Evaluator and other commercial guides.
- Repair period agreed and monitored
- Salvage disposal through our Approved Salvage Agents
- Digital Photographs

OUR ENGINEERS

- Staff Engineer inspections - 35 mile radius of London
- Desk top inspections - Nationwide
- Approved Engineer network for inspections - Nationwide
- All staff and Approved Engineer Network staff are qualified
- Our Engineers attend Thatcham courses to update their Continuous Professional Development (CPD)
- Our Engineers support their local region of the Institute of Automotive Engineer Assessors.
- Our staff Engineers are all registered with the UK Engineering Council and various Technical Institutes and all are Full Members of and accredited by the Academy of Experts



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VEHICLE TYPES

- Cars
- Light commercial vehicles
- Heavy commercial vehicles
- Motorcycles
- Caravans
- Agricultural equipment
- Earthmoving equipment
- Specialised vehicles

E J Allen & Associates are currently investigating the possibilities of roadside reporting, saving you time and expense

Collision Deformation Classification (CDC)

E J Allen & Associates also provide the SAE J224 MAR80 Collision Deformation Classification (CDC), a seven digit three-dimensional description of the accident damage including the Principal Direction of Force (PDOF) and a measure related figure for the extent of penetration/ deformation which is rather better than the subjective comment such as light, moderate, severe or heavy.

**SEE THE FULL REPORT AS PUBLISHED IN: THE ASSESSOR,
IAEA JOURNAL MARCH / APRIL 2010**

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Caravans / Motor Homes

E J Allen & Associates provide a range of services for caravan/motor homes.

- Pre purchase inspections
- Dampness and condensation testing
- Manufacturing defect assessment
- Accident damage
- Fire damage
- Trailer weight disputes & detachments

We provide the above services on

- Touring Caravans
- Static Caravans
- Motor Homes



This photograph is of a static caravan. They come in various shapes and sizes but are fixed on site. We have been called in on occasion to investigate dampness and stability problems.

We examine a number of motor homes each year, some of which may be conversions from commercial vehicles. However, even when the conversion is done by commercial specialists, problems can arise. One slightly spectacular case arose when Ted Allen entered the accommodation section of a motor home and experienced the collapse of a ceiling mounted television which fell on his head.

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Car Wash Vehicle Damage



As experts we have examined many cars and studied the mechanics of automated car wash systems.

We have produced reports both for and against car wash manufacturers. In some cases there has been mechanical fault, in others, operator or vehicle owner error.

Not only can we say we establish cause, but our estimating system (Glassmatix) allows us to produce accurate estimates for vehicle repair.

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Cases Abroad

E J Allen & Associates have carried out forensic investigations across Europe

- Malta Road surface testing
- Spain Lift examination onboard commercial ferry
- Belgium Road testing
- France Transporter platform
- Channel Islands Tripping case (girder erupted from ground) and vehicle body shell alignment testing
- Isle of Man Vehicle testing on behalf of BMW



The above photographs are from a vehicle transporter case where a bridge guard was missing and the service manager bent over the chassis to make a hydraulic adjustment.

He unwittingly hit one of the levers and the upper deck of the transporter came down and crushed him.



Malta

In this case the road coefficient of friction was very low and the vehicle ran off the road and killed the nearside front passenger. We travelled out to Malta with test equipment, we carried out braking tests and found the coefficient of friction of the road dry was at least as bad as a British road when wet.

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Classic Car Inspections

E J Allen & Associates provide a range of vehicle examinations. We provide detailed reports dealing with the following areas of dispute or complaint.

- Pre purchase assessment
- Mechanical and bodywork problems
- Valuation for insurance - Agreed value policy
- Valuation disputes



A real Classic Car - a beauty we call Bess the Bentley. Ted believes this was a really nice driving experience. This is a 1963 registered vehicle fitted with a 4566cc petrol engine.



This car was built by Rolls Royce apprentices and designed by the late Amhurst Villiers who engaged Ted Allen as his expert in a subsequent court case which was reported on the front page of The Times newspaper. Mr Viller's called it his Deauville design. It was to commemorate his association with Rolls Royce and Bentley. Mr Villiers designed the super charger on the old Bentley Blowers.



This shows the plumbing ready for the turbos on this Sceptre engine. Regrettably the project was not completed. The road going engine equates to the Spitfire – Rolls Royce Merlin engine.

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Continuity & Consistency

Problems arising due to accidents involving more than one vehicle where the parties make allegations that cannot be sustained by the damage caused.

Did these vehicles hit one another?

How were they damaged?

The parties may allege that they hit each other but sometimes we can show they did not.



12FYEW3



12FCMN1

In this example it is easy to determine if the two vehicles photographed hit one another. Note the Collision Deformation Classifications do not match in horizontal or vertical locations and the magnitude is quite different.

Collision Deformation Classification (CDC)

E J Allen & Associates also provide the SAE J224 MAR80 Collision Deformation Classification (CDC), a seven digit three-dimensional description of the accident damage including the Principal Direction of Force (PDOF) and a measure related figure for the extent of penetration/ deformation which is rather better than the subjective comment such as light, moderate, severe or heavy.

There is a range of vehicle to vehicle damage where we can prove if the damaged vehicles claimed for did NOT hit one another, but such allegations need to be dealt with, with great care. After all any allegation which even suggests FRAUD is very serious and evidence must be sound and proveable.

Our experts are highly proficient in the identification and recording of evidence and compiling detailed CPR compliant reports for use in Court.

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Field Tests Cycle / Car Impact

E J Allen & Associates can carry out field tests to prove cause and effect in cases such as Automobile/Cyclist/Pedestrian collisions. The results can help in resolving disputes and liability in such cases and establish if the pedestrian was thrown or carried in a collision.

The following are examples of recent tests we have carried out:

Before the staged impact -

Dummies in position



During collision



After collision



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Expert opinion should be based upon theory and practical testing.

There are not many independent Consulting Engineers who can boast that they have carried out Field tests. The above photographs are of one such case. Other cases have involved brake testing on HGV's and transporters etc, motorcycle testing, tyre performance (knobbly tyres in the UK) etc.



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Field Tests - Braking Systems

E J Allen & Associates have the ability and facilities to conduct brake testing on wet and dry surfaces on all types of vehicles. We can measure brake efficiency with "Brake Meter" and chalk gun and kinetic analyser equipment.

The following are examples of cases we have dealt with:



Fire Engine Appliance brake testing on wet surface. This work was carried out about the time of introduction of anti lock braking.



Vehicle transporter - Brake testing on a vehicle transporter on a fully wetted surface



Fitting of the pneumatic gun to determine exactly when brakes applied. Chalk pellet fired onto road surface and thus enabling measurement of stopping distance



Flooding the test track in preparation for brake testing using a water bowser we hired.

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Fire Investigation



Our engineers have attended forensic fire analysis training courses and are able to conduct detailed forensic inspection of vehicles and to compare these with driver claim reports, so as to conclude on the likely cause of the fire and or if a crime has been committed.

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Fork Lifts, Tractors & Excavators

E J Allen & Associates provide a range of inspection services on fork lifts, tractors, excavators, earth moving and ground work equipment and JCB's etc. Insurance inspections cost of repair

- Forensic inspections
- Fire damage and causation
- Component defect
- Personal injury arising from misuse
- Training methods appropriate or not

The following are examples of cases we have dealt with:

Man working on cutters without training – serious personal injury.

He thought he was being helpful. Better training would have prevented the accident occurring.



Fork lift fell over whilst turning with load raised too high. The driver had not been properly trained!



Excavator turned over working on an incline, the dipper arm ram was over extended.

The driver must be trained!



Fork lift in loading bay fell over raised edge of work area which was not clearly marked and had no barrier.

It was alleged that there was a defect with the fork lift.



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Forensic Tyre Inspections

E J Allen & Associates provide a range of tyre inspection services. Our reports deal with the following:

- Forensic Tyre Inspections
- Blow outs
- Tread separation
- Schraeder valves.
- Punctures.
- Impact damage.
- Causation of deflation.

We have dealt with numerous cases of alleged tyre and wheel failure and arguments regarding the tyre tread measurements and methodology of measurement are also matters about which we are often consulted.



Wheel and tyre damage – no doubt the air loss was caused by rim damage. However it is necessary to examine the interior of the tyre to see if there is any evidence of pre existing punctures or run flat damage.



The tread is worn and may be illegal. It takes great care to measure the tread depth and width with a gauge to establish if it complies with the law or not.

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HGVS Farm and Off Road Vehicles

E J Allen & Associates have dealt with a number of accidents involving farm vehicles and equipment and HGVS of all types. The photographs below illustrate the variance of vehicles we deal with.



Agricultural equipment damage. Investigation of cause and cost of repair. Was the accident an insured loss?



Agricultural equipment damage in a collision or possible incorrect usage. Corrosion suggests that the oxidisation was caused in a subsequent fire.



Personal Accident at work for an HGV motor engineer

Mechanic was changing the second axle road spring when it came off the pneumatic / hydraulic jack.

The question is, was he trained for such work, and the use of the equipment?

HGV maintenance work is very different from the work of a car mechanic.

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HGV / Pedestrian Accidents

Accidents often occur between HGV's and pedestrians, cyclists and motorcyclists. Here are a few examples showing how difficult it is to view the area immediately in front of the nearside corner of the cab of a lorry:



A pedestrian hidden by television on dashboard was run over.

We deal with many cases where pedestrians/cyclists/wheelchairs and motorcycles are struck by HGV's when they are passing close in front or close alongside the heavy goods vehicle.

Here are 2 examples

In the first case above this gentleman is about to disappear behind the television.

The television had been left in position following a rest period and not removed.



In the second case (picture above) there are four nearside mirrors. Even so the driver did not see the Scooter at his nearside front.



This resulted in a collision between the HGV and the Scooter. This photograph is a mock up to help the jury in Court to visualise the circumstances and to evaluate what could be seen in the highway.

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Leisure Activities and Machine Operation

E J Allen & Associates investigate accidents and produce detailed reports following accidents arising out of the sport/leisure/factory environment:

- Play areas
- Play equipment and surfaces
- Health and safety issues at work
- Factory equipment and defects
- Machine guarding
- Inadequate training issues
- Premises compliance
- Safe work processes
- Accident prevention and reporting
- Loading and unloading safety and security
- Manual handling and lifting

The following are examples of recent cases we have dealt with:



Proper Guarding

Guard adjustment is really important, it is not sufficient to supply and provide the guard if it is not used. It must be used and adjusted by trained staff.



Woodwork

No push stick - it should be attached near the machine. A notice saying one should be used is of little value if no push stick is provided and secured to the machine.

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Metalwork

Young man cut off arm. The machinist was wearing an oversized floppy jumper which was caught in the saw blade. There was no proper training and poor health and safety enforcement.



Leisure Activity

Warning notice after the event but it is on paper which can not last long in the open air.



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Motorcycle Inspections

E J Allen & Associates provide a range of motorcycle inspection services.

- Motorcycle insurance inspections/assessments.
- Forensic inspections fire damage and causation investigation.
- Forensic inspections of mechanical and engine failure or defects.
- Post-purchase defect disputes acting as Single Joint Experts (SJE) or Party Appointed Experts.
- Customer complaints.
- Pre-purchase inspections within the South East of England.
- Rider helmet examination.

E J Allen & Associates have long been closely associated with the motorcycle industry providing specialist investigation reports.

Our forensic examinations are conducted by suitably qualified engineers using appropriate diagnostic equipment including Olympus Keymed Boroscope for internal examinations of engines etc.

Some years ago we undertook specialist test track work on behalf of Suzuki GB regarding the performance of knobby tyres, Endura tyres and Motor X tyres on metallised surfaces.

E J Allen were also able to help manufacturers regarding the different interpretations of expressions such as "Not for highway use" in the UK, Europe and the USA.



Pre purchase inspections/reports

We are one of the very few and possibly the only firm of engineers offering such a service.

Pre-purchase inspections include a 100+ pt component check, short road test, HPI check and valuation - all at a very competitive price



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Car – v – Motorcycle Collision



Car/ motorcycle collisions can have horrific consequences! In this case the car struck the motorcycle causing substantial damage, the plastic fuel tank on the motorcycle failed causing an extensive fuel leak. Unfortunately the engine was still running and caused the fuel to ignite, thus car, motorcycle and motorcyclist were subject to the effects of fire.



Cross Country Speed Trial Test

Our team attended a forest site where an incident occurred. We carried out a cross country test with pillion passenger to establish possible route and time.



Mechanical defect

The throttle spindle was extracted from the motorcycle to establish the reason for loss of throttle control which resulted in the accident.

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Seat Belt Usage



Our experts are all conversant with the operation of modern seat belts and SRS systems.

Forensic examination of the components can often tell us if the seat belt was being worn at the time of the collision.

This may help in the understanding of the mechanism of injury to the occupant.

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Slipping / Tripping and Falling Incidents

E J Allen & Associates provide detailed forensic reports for the following:

- Slipping accidents
- Tripping accidents
- Falling from heights
- Slip resistance testing using Pendulum
- Surface roughness testing using Surtronic 10

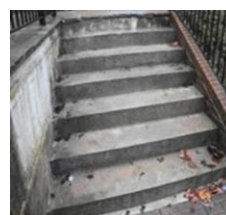
Slipping (Pedestrians)

Many pedestrian accidents result from slipping or tripping. Indeed, many books and reports have been written on the subject, E J Allen & Associates have experts who are members of the **United Kingdom Slip Resistance Group**. We maintain our own equipment for carrying out slip resistance tests to establish the coefficient of friction of floor surfaces and roughness. The equipment is regularly calibrated by the British Standards Institute. The UKSRG monitors developments in testing methods and results. Members include the HSE and leading floor manufacturers and test houses.



The Pendulum Portable slip resistance tester

This floor had good surface slip resistance when dry but very poor slip resistance when wet. Such floors should not be used where any fluid contaminant is likely to affect the surface. We found one case where there was a tap and sink located on an upper mezzanine floor and could result in water splashing onto the staircase below. In our view this was foreseeable.



Site Inspection

Exterior steps with water running off the upper level onto steps over a period of time leading to moss and algae growth and water pools near the wall on the steps. Added to this there was no hand rail. So, anyone using the stairs near to the left hand wall would find the steps slippery and would not be able to save themselves by use of a hand rail because there was not one fitted.



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Slipping and tripping accidents can occur at home. Slipping downstairs and being electrocuted at the same time was the misfortune of a lady who was descending from her flat down a communal staircase. The cleaning system was wrong because the stairs should not have been in use whilst being vacuumed. There was a lift but it did not reach her flat's floor level.



Pedestrians need a good, secure and slip resistant surface on which to walk, ideally not less than 0.36μ . The areas we are asked to examine are many and varied and include the unusual such as this pedestrian bridge in Docklands where the owner wanted to check if the provision was satisfactory. One concern was over the proximity of City airport. Kerosene deposits from aircrafts can affect timber walkways. We checked the bridge 2 years running.

The Greek letter mu = μ = coefficient of friction = $\frac{\text{Force}}{\text{Weight}} = \frac{F}{W}$



Here one of our engineers is seen on a kneeling pad carrying out pendulum skid resistance testing of the dry and wet road surface. In such cases it is necessary for us to use a Road Management firm to close the road. We cannot presume what his results are likely to be because there are some roads that fall below standard and even new road surfaces may be unsatisfactory until the surface oxidizes.

In some cases road seal joints can result in localised poor slip resistance for motorcycles and pedal cycles. One case we dealt with in MALTA showed the road was very slippery when dry and μ was lower than a poor wet road in England.



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Specialist Cases

E J Allen & Associates provide a range of specialist investigations relating to general Engineering matters.

If you have an unusual case which requires engineering opinion, we can help.



Headlights on or off at impact?

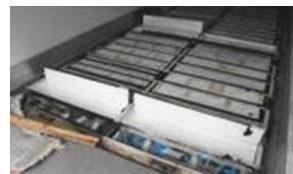
Bulb extracted from the salvage of the vehicle can often contain useful information as to whether it was illuminated or not. We can examine vehicle bulbs and produce reports to the highest standards for use in the Court room or in declining or defending a claim.



Concealed Loads – The Lorry - Smuggling or hiding goods?

Would the driver have known or could it have been loaded with drugs without his knowledge? What do the tachograph charts tell us about his rest periods?.

We had to calculate how long it would take to load and reload the drugs so that the the lawyers could assess when and how long the journey took.



Floor compartments – What was hidden in here and how long to load?



Unauthorised modification of vehicles

This body was found to be distorted and badly fitted, unfit for purpose. The matter was really important when you consider that three sides of the box body could be open.

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Will it turn over or not?

This Land Rover had to be tested for tilting / stability with roof mounted equipment. We arranged the testing and recorded the results.



Who was driving?

Can we find out whose hair it was?

This windscreen contained human hair deposits which we extracted and passed to a specialist. This disproved the police suspicion as to who was driving the vehicle.



Electric powered vehicles

Testing was carried out in this electrically powered vehicle regarding fit for purpose. It was reported that the full charge state of the batteries returned far shorter distance than claimed by the manufacturers, frequently leaving the driver stranded at the roadside. This is not very green.



Occupant poisoning

Here we show a vehicle being tested for Carbon Monoxide CO, Carbon Dioxide CO₂ and Oxygen O₂. These tests were carried out on a vehicle fitted with a catalytic converter.

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