WHITE PAPER-ELECTRICAL SAFETY IN DWELLINGS

Electrical Fire Safety – The UK Experience

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Presentation Outline

1. **Analysis of Statistics**
   - UK National Recording System
   - Domestic and ‘Other’
2. **UK Regulatory Framework**
   - History from 2005
   - Amendments and Impact Assessments
3. **Other Reports**
   - Social Dimension of Fire
   - Fraudulent Cable
   - Product Recalls
4. **Conclusion from Trends**
   - What works well
   - What does not work well
   - What would a successful Regulatory Framework look like?

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Definitions

- **Dwellings**
  - Buildings Occupied by Households
- **Other Buildings**
  - All buildings other than Dwellings
- **Cause of Fire**
  - The defect, act or omission leading to ignition of the fire
- **Source of Ignition**
  - The source of flame, spark or heat that started the fire
- **Fatality**
  - Fatal casualty direct or indirect result of fire for up to 12 months
- **Non-Fatal Casualty**
  - Given 1st aid at scene or
  - taken to hospital or
  - advised to attend hospital

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Statistical Context

- **New national Incident Recording System (IRS)** with electronic data capture and transfer introduced in 2009
- Data not captured in 2009 due to move to new system and to industrial action
- 2008/09 saw change to the way electrical statistics were collected:
  - **Mobile Homes/Caravans** included adding less than 0.5%
  - 'Fixed Electrical Installation' became '**Electrical Distribution**' which includes more items such as cables, wires and plugs
- Building Regulations Part P controls only work on **Fixed Installations**

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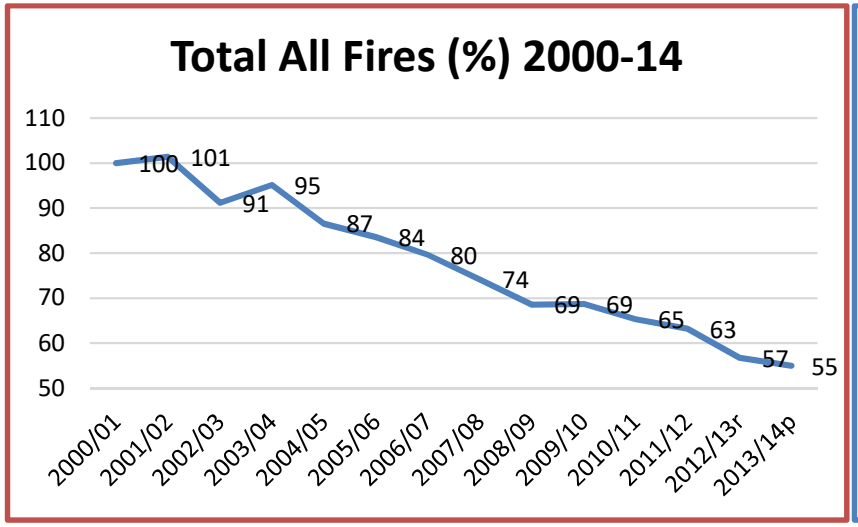
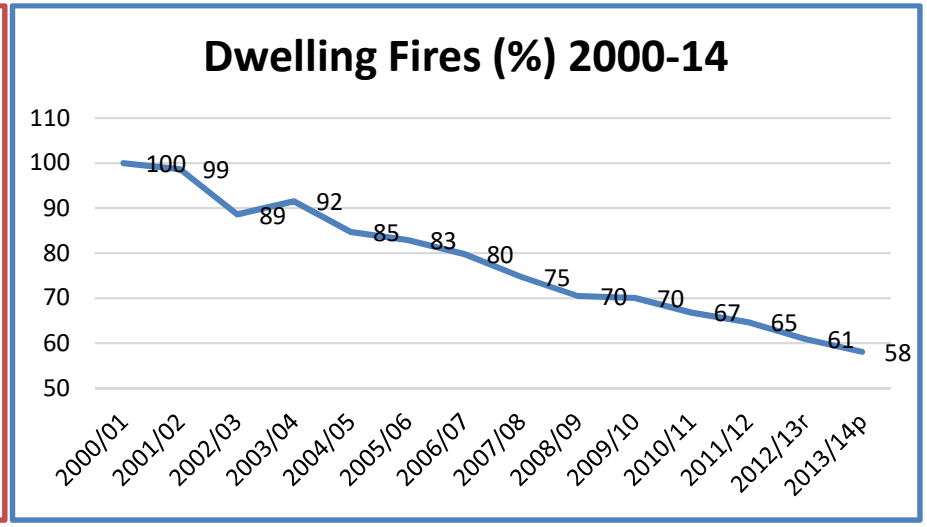
UK Fire Trends, 'All' and 'Dwellings'

A success story?





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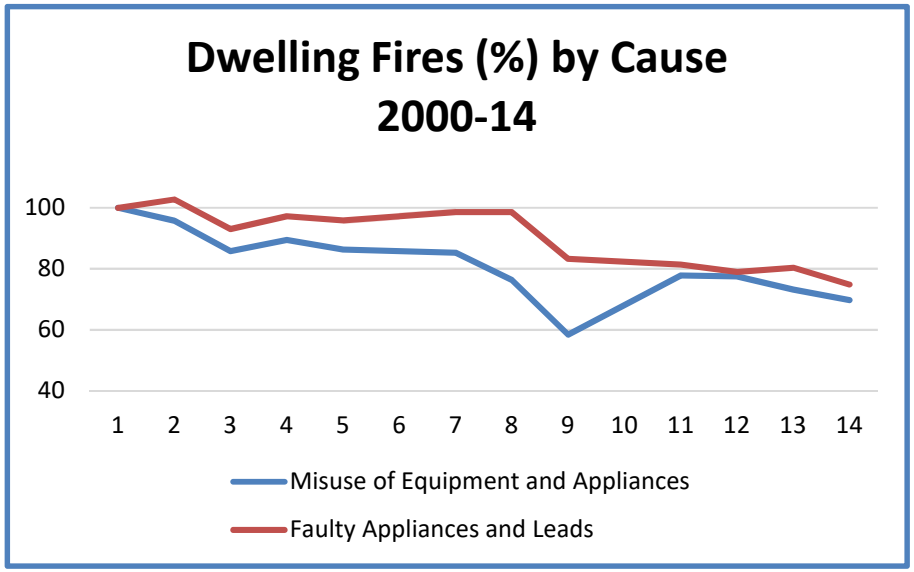
Cause of Fires - Electrical



- Faulty Appliances and Leads - **Fall<30%**
- Misuse of Electrical Equipment and Appliances - **Fall<25%**

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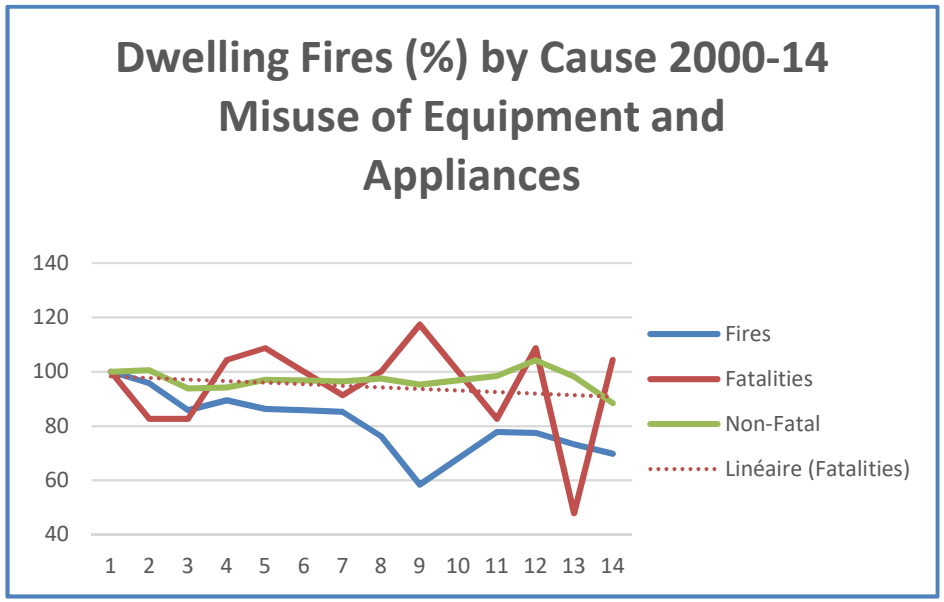
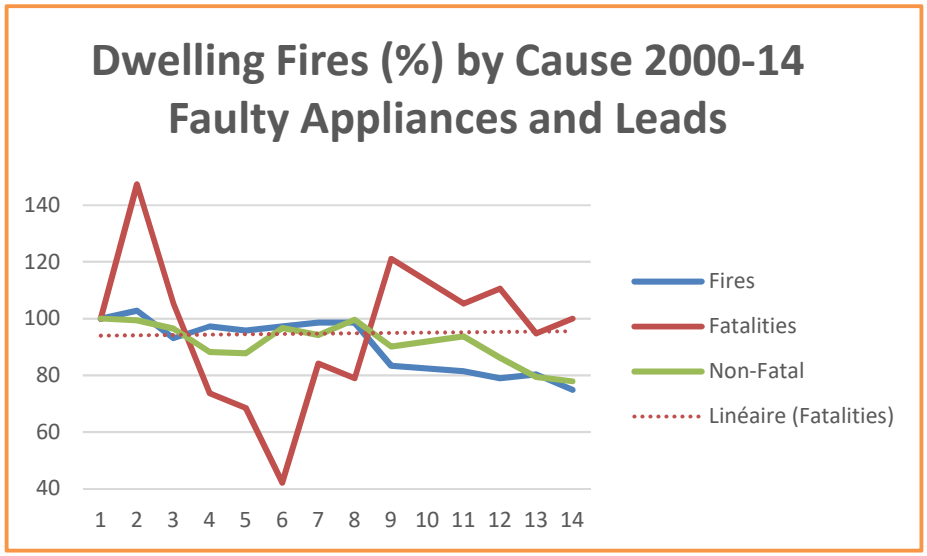
Cause of Fires – Electrical (Fatalities/Casualties)

Average:

- **18 Fatalities/year**
- **960 Casualties/year**





Average:

- **22 Fatalities/year**
- **2433 Casualties/year**

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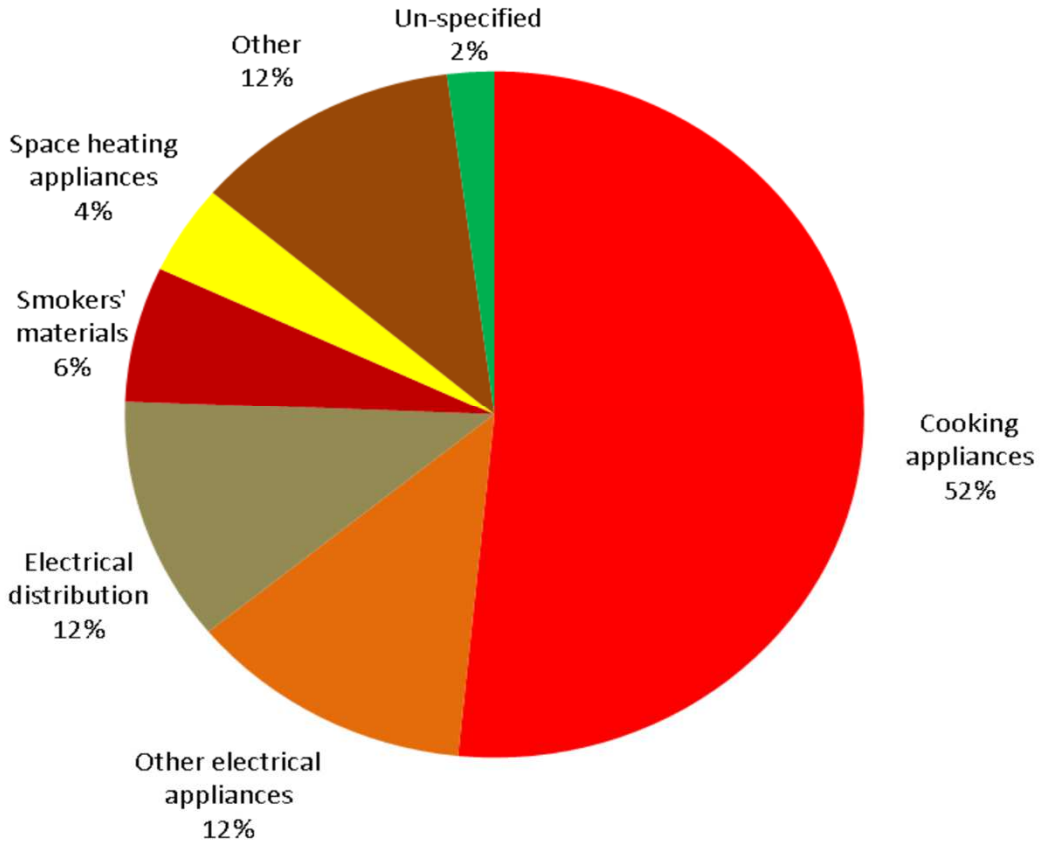
Sources of Ignition in accidental fires in dwellings, Great Britain, 2013/14p



Note: Other includes candles, central and water heating appliances, lighters, matches
p = provisional

(Source: DCLG Fire Statistics Great Britain April 2012 - March 2013)

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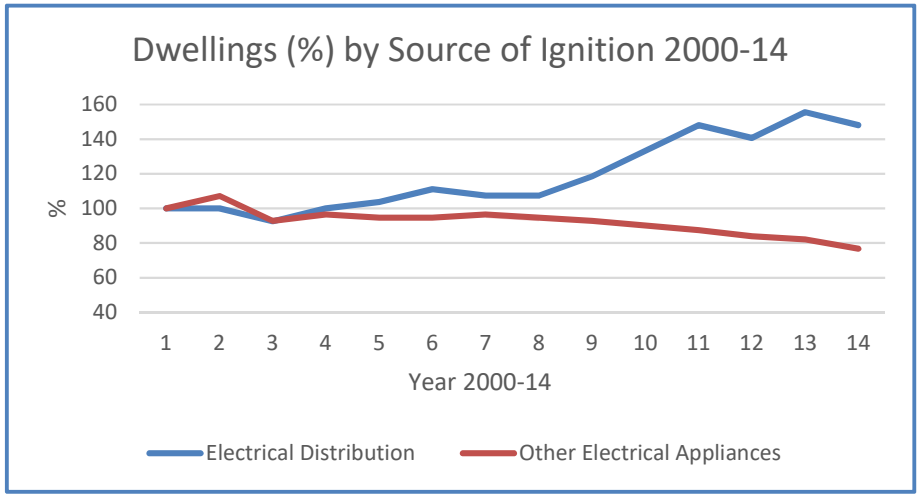
Source of Ignition – Electrical



- Electrical Distribution **Rise<20%**
- Other Electrical Appliances **Fall<50%**

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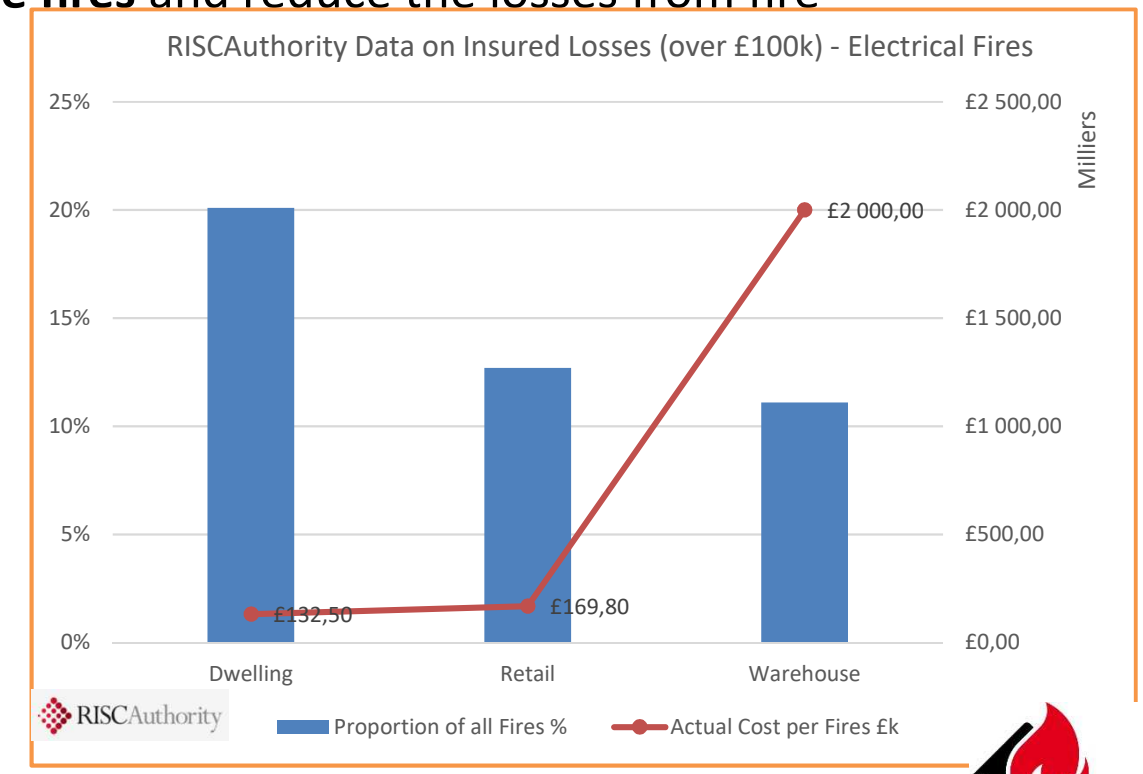
Insured Losses, Electrical Fires - RISCAuthority

- The data shows that the largest number of claims following an ‘electrical fire’ are from the **domestic environment**
- But the insured losses are highest in the warehouse sector
- Reasonable to conclude that placing **more emphasis on electrical safety** would **reduce fires** and reduce the losses from fire



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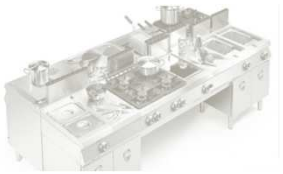
Narrative - Dwellings

- Total number of fires and related deaths and injuries **hugely reduced in last 10 years**
- Main cause of dwelling fires remains **misuse of equipment or appliances**
- Faulty appliances and leads also leading cause
- **Cooking appliances main source of ignition** (52%) followed by other electrical (12%) and electrical distribution (12%)
- Change of recording explains ‘spike’ in 2009 followed by levelling out



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UK Regulatory Framework

- **Building Regulations** Part P, Electrical Safety in dwellings

- **Pre 2005 -** All electrical work from **approved 'NICEL' installer** whether Nuclear Power Station or Domestic Dwelling
- **Post 2005 - Competent Person scheme** for domestic work
- Philosophically, UK claim regulation control 'Conduct' through regulation whereas others may control 'Access'. Building Regulations tend to set 'functional requirements' rather than prescribe
- Sets **minimum standards** for electrical installation in dwellings

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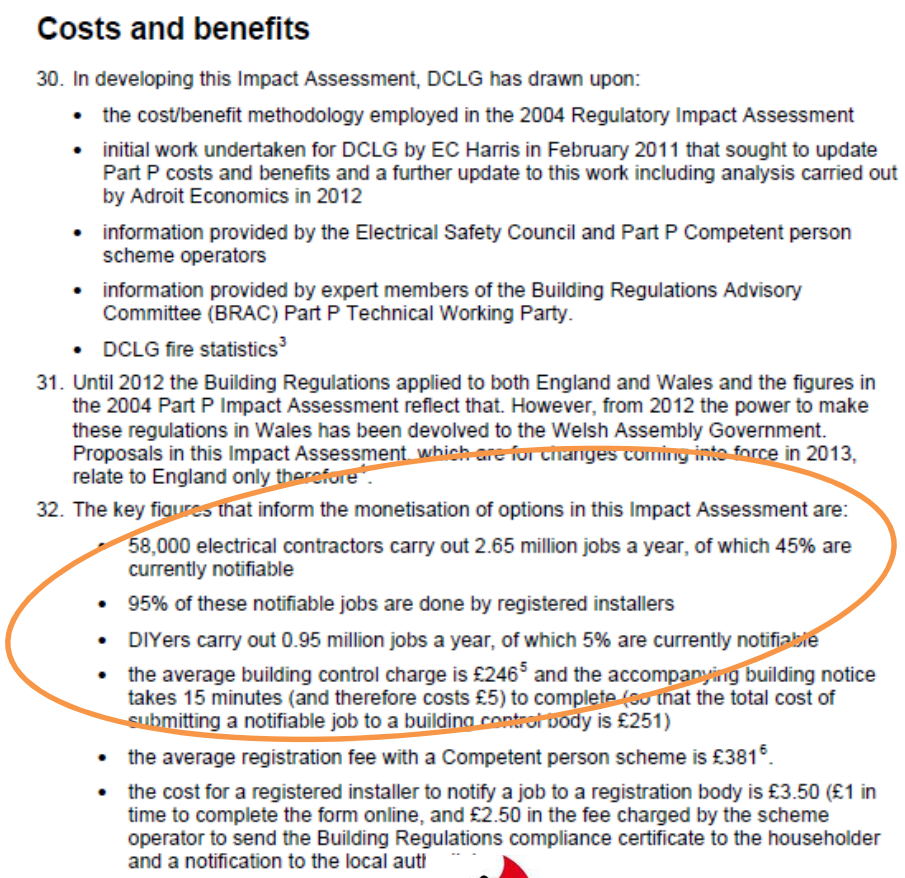
UK Regulatory Framework – Impact Assessment 2012

- **Key figures**
  - 58,000 electrical contractors carrying out **2.65 million jobs, 45% 'notifiable'**
  - **95% of notifiable jobs by registered installers**
  - DIY accounts for 0.95 million jobs, 5% notifiable
  - Average Regulation charge £251
  - Average Registration for Competence fee £381
  - **Sales of instruments for Part P** testing increased by 35% in 2004 and 55% in 2005 then 15% annually – implies increase in testing



Costs and benefits

30. In developing this Impact Assessment, DCLG has drawn upon:
    - the cost/benefit methodology employed in the 2004 Regulatory Impact Assessment
    - initial work undertaken for DCLG by EC Harris in February 2011 that sought to update Part P costs and benefits and a further update to this work including analysis carried out by Adroit Economics in 2012
    - information provided by the Electrical Safety Council and Part P Competent person scheme operators
    - information provided by expert members of the Building Regulations Advisory Committee (BRAC) Part P Technical Working Party.
    - DCLG fire statistics[3]
31. Until 2012 the Building Regulations applied to both England and Wales and the figures in the 2004 Part P Impact Assessment reflect that. However, from 2012 the power to make these regulations in Wales has been devolved to the Welsh Assembly Government. Proposals in this Impact Assessment, which are for changes coming into force in 2013, relate to England only therefore[4].
32. The key figures that inform the monetisation of options in this Impact Assessment are:
    - 58,000 electrical contractors carry out 2.65 million jobs a year, of which 45% are currently notifiable
    - 95% of these notifiable jobs are done by registered installers
    - DIYers carry out 0.95 million jobs a year, of which 5% are currently notifiable
    - the average building control charge is £246[5] and the accompanying building notice takes 15 minutes (and therefore costs £5) to complete (so that the total cost of submitting a notifiable job to a building control body is £251)
    - the average registration fee with a Competent person scheme is £381[6].
    - the cost for a registered installer to notify a job to a registration body is £3.50 (£1 in time to complete the form online, and £2.50 in the fee charged by the scheme operator to send the Building Regulations compliance certificate to the householder and a notification to the local aut

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Related Reports: Government English Housing Survey

- **4% of homes** (1 million) assessed as **High Fire Risk**
- Private rented, older (half built before 1919), urban, terraced houses and flats were over-represented
- **42% of high risk houses have modern electrics** compared to 57% in general stock
- **119,000 (12%)** assessed as needing **electrical remedial work**

> *While the electrical safety of the English housing stock continued to improve there remains room for improvement*

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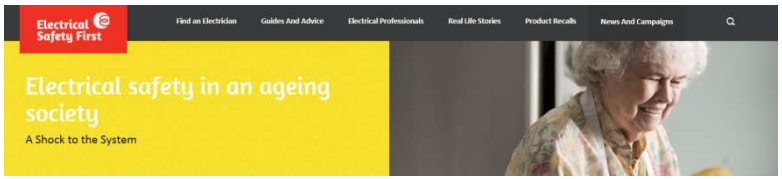
Related Reports: Electrical Safety First – Ageing Society

- **Findings**



  - Older people less likely to contain features that reduce electrical hazards
  - **Over 65s** increasing in **private rented sector** that has a **poorer safety record**
  - **Health issues** amongst older people **increase risk associated with electricity**
  - Older people prefer to ‘age-in-place’

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Related Reports: Electrical Safety First – Ageing Society

- **Selected recommendations**
  - Govt provide **free electrical safety checks**
  - Make **mandatory 5 year inspections** of electrical installations in **private rented sector**
  - Implement a **'Lifetime Homes Standard'**
  - Mandatory 5 year electrical safety checks in Care Home Sector
  - Electrical safety to be part of an individual care plan
  - More use of **assistive technology to reduce risk from fire and electrical hazards**

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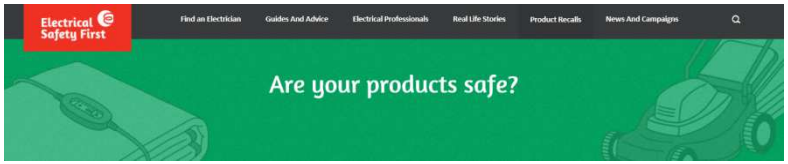
Electrical Safety First – Product Recalls



- **Success** of electrical product recall **very low** at **20%**
- Most offer **risk of electrical shock or fire**
- The **electrical goods** most often reported as **faulty or dangerous** are
  - Electrical chargers
  - Adaptors, including those used for travel
  - Extension and spare product leads
  - Hairdryers, tongs and straighteners
  - Small kitchen appliances like kettles, toasters and irons

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Electrical Safety First – Product Recalls Example

- Concerns extend to Cables led to **'Approved Cables Initiative (ACI)'**

  - **11 million metres of cable recalled from market**
    - The suspension by BASEC remains in place and cables affected are:
      - Flat twin, single and 3-core with CPC (BS 6004 Table 8 and IS 201-4 Table 1, 1.0 sqmm – 16 sqmm)
      - Single core unsheathed (BS 6004 Table 4a, 1.5 sqmm – 35 sqmm)
      - Single core sheathed (BS 6004 Table 7, 1.5 sqmm – 35 sqmm)
    - Cables affected by the HAR scheme certification licence suspension have also been found to have insufficient copper leading to high conductor resistance
      - Cables affected are H05VV-F type, PVC insulated and sheathed in sizes ranging from 0.75 sqmm to 4.00 sqmm and with 2, 3, 4 and 5 cores

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Electrical Safety First – Product Recalls Example

- Reports of faulty cabling from concerned contractors earlier this year led the ACI to test samples of product from the Turkish cable manufacturer
- The samples were found to have **insufficient copper leading to high conductor resistance** and **did not comply with appropriate British Standards**
- Independent testing by BASEC later confirmed the ACI's findings and led to the suspension of Atlas Kablo's BASEC licence for a serious decline in quality across its range of products

- ***ACI estimate one fifth of all cable in the UK supply chain estimated to be either unsafe, non-approved or counterfeit***

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Conclusions – Positives

- Fire statistics support the claim **fires relating to electrical supply and equipment are reducing in the UK**
- Building Regs Part P has contributed to improve safety but not to the extent predicted
- **Improvement in standards of electrical installers**
- **Greater use of modern electrics and circuit breakers**
- Better knowledge of electrical fire hazards create potential for reducing risk
- Recent changes to Part P should **reduce burden to bu**

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Conclusions – Negatives

- Fire statistics show **electrical related fires not reducing as quickly as other fires**
- Some of the success attributed by Govt to Building Regs Part P is probably overstated
- **Mandatory routine electrical system testing not in place** and not even targeted at high risk groups
- Too early to judge the impact of 3rd party inspections
- Reports of **significant amount of below standard electrical cable** in UK supply chain
- **Very poor performance** in terms of **successful product recall** for electrical equipment

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Key Outcomes

- Building Codes should:
  - Be underpinned by appropriate standards
  - Aim to **improve standards of electrical installations**
  - Build **professionalism** amongst installers
  - Promote **routine testing** of installations - risk based approach
- National Fire Recording Systems needed to **measure performance**
- **Developments in consumer electrics** significant in improving safety
- **Fires related to electrical faults** remain a significant issue in all types of fires particularly commercial
- **Electrical Safety** should have a high priority in Fire Risk Assessments
- **Non-standard cable** in the supply chain should be a concern to national trading standards bodies and the electrical industry
- Retailers should be more effective in improving **confidence in product recall**

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