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Report Introduction

This report aims to investigate the health and safety systems implemented within Harris Automation and Controls panels, switchgear and building management systems department.

Company Introduction

Harris Automation and Control (HAC) provides its customers with industrial solutions for low voltage (LV) panels and switchgear; building management systems (BMS), heating; ventilation and air conditioning control systems (HVAC); programmable logic controller (PLC) programming and implementation; computer aided design (CAD) and pneumatic and hydraulic systems. This creates a high risk environment for employees, which will require rigorous health and safety systems.

HAC is based in Wales, which follows the United Kingdom's health and safety (H&S) regulations; however, HAC has clients abroad which require different health and safety standards to be applied to their products. The Vinci Group recently acquired HAC. Vinci operates throughout the engineering sector, including but not limited to: energy, civil, building, electrical and information technologies. Having Vinci as an overhead company should provide HAC with many opportunities to develop and grow their business.

Relevant Legislation

Harris Automation and Control should be complying with the regulations and legislations that govern operations conducted within the industrial engineering sector. These regulations are as follows:

- Health and Safety at Work act (HSWA) - Outlines how employers and employees approach health and safety. Employers are required to provide suitable health and safety information, procedures, equipment and preventative measures to employees and individuals with access to the site. Employees are required to follow and use the provided H&S resources responsibly. This act enables the application of other, more specific regulations (Legislation.gov.uk. 1974).
- Control of Substances Hazardous to Health (COSHH) - Requires employers to conduct and implement risk assessments, handling and storage procedures on substances that cause ill health (HSE. 2019).
- Lone Working - Requires employers to train employees adequately before assigning them to lone working. Methods of communication between lone workers and supervisors/ other trained operatives must be in place (Health and Safety Executive. 2023).
- Manual Handling - Outlines safe practices for lifting and moving heavy loads (Health and Safety Executive. 2019).
- Working at Height - Provides safe practices for employees while working at height and requires employers to provide safe means to do so (GOV.UK. 2011).
- Low Voltage Electrical Equipment Regulations 1989 - Ensures employers and employees follow safe work practices when working with electrical equipment between 50 to 1000V AC and 75 to 1500V DC (Legislation.gov.uk. 2025).
- Environmental Protection Act 1990 - Regulates the disposal of waste materials and any emissions/ pollutants produced by the company (Uk Government. 1990).
- Provision and Use of Work Equipment Regulations 1998 - Ensures employers provide employees with equipment that complies with relevant standards and requires employees to use the equipment correctly and safely (Hudgell Solicitors. 2022).
- Personal Protective Equipment (PPE) Regulations 1992 - Ensures employees are provided with the correct protective equipment and the training to use the equipment correctly (Hudgell Solicitors. 2022).
- Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) - Specifies a framework that employees and employers must follow when reporting occurrences (Health and Safety Executive. 2019).
- Display Screen Equipment (DSE) Regulations 1992 - Ensures employees are not exposed to excessive eye strain when working with display screens (Hudgell Solicitors. 2022).

- Lifting Operations and Lifting Equipment Regulations (LOLER) - Specifies the maintenance, equipment and procedures required for lifting operations (Coster, P. 2018).
- The Regulatory Reform (Fire Safety) Order 2005 - Ensures non domestic premises comply with fire safety standards (Coster, P. 2018).
- The Workplace (Health, Safety and Welfare) Regulations 1992 - Ensures employees are provided with sufficient and clean facilities (TUC. 2022).
- The Management of Health and Safety at Work Regulations 1999 - Compliments the Health and Safety at Work Act by providing further standards for risk assessments, competency and training (TUC. 2022).
- Electricity at Work Regulations 1989 - Provides guidance on training employees to work safely with electricity and outlines procedures for safe working practices to reduce the risk of harm from electricity.
- Control of Asbestos Regulation - Outlines procedures to remove and dispose of asbestos.

Health and Safety Systems Adopted

HAC have used services provided by South Wales Safety Consultancy and Avonside Safety Management to produce health and safety handbooks for employees. HAC also uses St John's Ambulance fire marshal reference guide (Appendix A: Figure A1) and Highfield Qualifications first aid handbook (Highfieldqualifications.com. 2023). These handbooks are provided to employees for reference on health and safety practices in the workplace; this complies with the Health and Safety at Work act requiring employers to provide information on health and safety systems.

There are requirements from the HSE on how many people to train as first aiders (Figure 1). This is a minimum requirement; however, considering the high risk operations of HAC, it is recommended that a higher number of first aiders be trained (2+ per 50 employees).

From your risk assessment, what degree of hazard is associated with your work activities?	How many employees do you have?	What first-aid personnel do you need?
Low-hazard , eg offices, shops, libraries	Fewer than 25	At least one appointed person
	25–50	At least one first-aider trained in EFAW
	More than 50	At least one first-aider trained in FAW for every 100 employed (or part thereof)
Higher-hazard , eg light engineering and assembly work, food processing, warehousing, extensive work with dangerous machinery or sharp instruments, construction, chemical manufacture	Fewer than 5	At least one appointed person
	5–50	At least one first-aider trained in EFAW or FAW depending on the type of injuries that might occur
	More than 50	At least one first-aider trained in FAW for every 50 employed (or part thereof)

Figure 1 - HSE first aider requirements (Health and Safety Executive. 2014)

There are also recommendations for the number of fire marshals that should be appointed. HAC does not have many flammable materials stored or used near heat sources. There is hot work being conducted on site and potentially fuel and oil storage for running generators and lubricating machinery; however, those operations are conducted in separate areas to reduce the risk of fire. This means HAC only has the normal risk of fire. From Figure 2, there should be 2 or 3 trained fire marshals.

Marshals per number of employees/occupants			Additional marshals that may be required		
Fewer than 20	20-75	For every additional 75	Large sites	Shift cover	Leave of absence
At least 1 fire marshal	At least 2 fire marshals	1 additional fire marshal	1 fire marshal per area/floor	Every shift must be adequately covered	Add 25-50% to the number of marshals required to cover absence

Figure 2 - Recommended Number of Fire Marshals per Employee (Surrey Fire and Safety. 2020)

HSE recommends different courses for training staff on first aid and fire safety. HAC has trained their staff using courses from St John Ambulance, who is an HSE recommended training provider (Health and Safety Executive. 2012). Therefore, HACs appointed first aiders and fire wardens have sufficient training to carry out their duties.

HAC Employee Health and Safety Handbook

The health and safety handbook can be found in Appendix B; it has been created to be a general overview of health and safety for employees, further, specific, details are provided in different handouts. The handbook covers what equipment, training and guidelines HAC provides to ensure the employees safety and wellbeing as well as practices to avoid damage to the public, environment and equipment. LOLER and DSE are not mentioned in the handbook, this may be due to different departments handling those tasks. Lifting products onto delivery vehicles may be done by the delivery company using truck mounted cranes or moffett forklifts. Administrative duties may not be carried out by engineering staff; therefore, a separate booklet regarding safety in an office may have been produced separately.

Low Voltage Safety Handbook

Employees who assemble, test, inspect and install HACs electronic equipment are given this handbook as reference for safe procedures. The handbook covers: the training needed to conduct work on low voltage systems; the categories of work that can be conducted and the procedures to follow; the levels of authorisation that can be granted to an employee and the responsibilities of each category of authorisation; safe work practices required to ensure the risk of injury is minimised. Most of the handbook is detailed in its explanations; however, the final two pages (Appendix C: Figure C15) neglects to mention the full procedure for providing first aid to electric shock victims (St Johns Ambulance. 2025).

Summary of Procedures Implemented

● Protection of the public ● Employee welfare ● Lone working ● Workplace housekeeping ● Asbestos control and disposal ● Working with compressed air ● Working in confined spaces ● Injuries and disposal of sharps ● Restriction of activities carried out by young persons ● Manual handling ● Hot work ● Working with electricity ● Electrical testing ● Prevention of hand/ arm vibration injuries ● Fire precautions ● Working around overhead cables ● Working with electrical tools and equipment ● Working at height ● Safe use of mobile elevating working platforms	● Reporting injuries and incidents ● Alcohol and drugs ● Working in roof/ ceiling spaces ● Safe use of power tools ● Noise regulation ● Environmental protection ● Safe use of generators ● Removing old cabling ● Disease prevention ● First Aid ● Control of substances hazardous to health ● Disciplinary ● Emergency ● Use of PPE ● Use of portable tools ● Identifying, avoiding and reporting damage of buried and underground services ● Risk assessments and method statements ● Cultural behaviour change ● Working in the sun ● Safe use of ladders
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Conclusion of HACs Implemented Health and Safety Procedures

The information gathered from HACs handbooks show that they have implemented reasonable and sufficient procedures that cover most of the regulations that apply to their business. There are a few sets of regulations that are missing (DSE and LOLER) from the provided handbooks; however, they apply to office work and work that may be carried out by subcontractors or different departments.

Factors Influencing HACs Operations

Table 1 grants an overview of factors that impact how HAC operates on a daily basis. The potential impact/ severity of the event and HACs preventative and reactive measures are included.

Factor	Probability (low / medium/ high)	Impact Range	Worst Case Example	Mitigation
Trips/ falls	M	Negligible - Major	Fall from ladder or trip onto sharp corner	☐ Policies to reduce clutter in the workspace ☐ Provision of tool storage and waste disposal facilities ☐ Provision of suitable ladders/ scaffolding ☐ Training for working at heights
Manual handling injuries	H	Minor - Major	Slipped disk or hernia	☐ Training on using mechanical lifting aids ☐ Provision of mechanical lifting aids ☐ Storing heavy materials/ objects close to where they will be used
Electrocution	L	Minor - Fatality	High voltage electrocution	☐ Training on electrical work ☐ Regular testing of electrical equipment ☐ Suitable electrical breakers
Crush injuries	M	Minor - Fatal	Crushed by machinery or vehicles	☐ Install dampers onto hinges ☐ Regular inspection of lifting equipment ☐ Bolt heavy machinery down ☐ Lifting operations training ☐ Ensure tall structures/ objects have a stable base
Cuts	M	Negligible - Major	Infection leading to loss of limb	☐ Training on the use of machinery ☐ Provision of cut resistant gloves ☐ Dull/ deburr sharp corners and edges

Fires	L	Major - Fatal	Trapped persons in building	☐ Fire marshal training ☐ Fire drills ☐ Flammables stored away from hot areas ☐ Established evacuation routes and assembly points ☐ Installation of fire extinguishers
Machinery malfunction	L	Major - Fatal	Machine activates and causes a fatality	☐ Regular inspections ☐ Inspect before and after use ☐ Use high quality machinery that abides by the regulations
Machinery misuse	L	Major - Fatal	Machine safety overridden causing fatality	☐ Require regular training to use machinery (competency) ☐ Inspect machineries safety interlocks regularly ☐ Conduct disciplinary on those disabling safety mechanisms ☐ Provide clear signage on why the safety mechanisms are in place
Tool malfunction	L	Minor - Fatal	High speed component detaches and causes a fatality	☐ Inspect tools before and after use ☐ Replace or repair worn tooling ☐ Use robust tools that meet regulation standards
Tool misuse	M	Minor - Fatal	Violent kickback causing cutter to catch the user	☐ Conduct disciplinary on those disabling safety mechanisms ☐ Provide clear signage on why the safety mechanisms are in place ☐ Provide training for tools ☐ Only allow competent persons to use tools

Respiratory injuries	L	Minor - Fatal	Employee may inhale asbestos	☐ Use extractor systems when conducting work that creates airborne particles ☐ Use respirators where extractor systems are not in place ☐ Do not handle asbestos if not certified ☐ Quarantine areas where asbestos or dusty work is being conducted
PPE misuse	M	Negligible - Major	Sparks/ arc eye	☐ Provide training on PPE use ☐ Provide proper signage to signal the use of PPE ☐ Ensure employees know and understand the risk of not using PPE
Skin conditions	L	Negligible - Major	Skin cancer	☐ Provide cover/ shelter from the sun and breaks ☐ Provide long sleeves for welders/ hot workers to ensure the heat and light do not damage the skin ☐ Provide emergency showers/ sinks to wash off harmful chemicals

The impact of these factors can be extremely high, both for the individual and the company. With the correct preventative measures in place, the probability of an occurrence is low. In the worst case scenario, HAC may have legal action taken against them if the systems in place are not adequate enough to reduce the risk. This will cause a loss of money due to the legal fees required. Employees may also be injured and have to take time off work to recover which will lead to a loss in productivity. Overall, it is beneficial for HAC to ensure the correct procedures and systems are in place to prevent the risks to employees.

As an employee, the potential impact of these factors can be life changing. The loss of a limb, sight or internal damage will cause a decreased quality of life, and at worst, a fatality will impact the whole community. Therefore, it is beneficial to the employees to follow protocols put in place by HAC and report any dangerous practices or procedures that occur in the workplace.

Employee Knowledge and Motivation

HACs parent company, Vinci Group, implements many incentives to encourage employees and employers to uphold safety in the workplace. An annual “safety week” encourages employers to request training, drills and implement methods to improve safety performance. Vinci drives employers to host competitions and events, year round, to increase awareness of safe practices (VINCI. 2025).

Statistics from Vinci Group (Table 2) should reflect how employees respond and implement the health and safety policies in place. HAC does not publish their statistics; therefore, it is assumed that HAC operates the same as other businesses under Vinci.

Year	Employee Accident Frequency Rate/ 1M hrs worked	Temporary Staff Accident Frequency Rate/ 1M hrs worked	Workplace Accident Severity Rate	Health and Safety Training Hours
2024	5.80	13.14	0.41	2.3 million
2023	5.69	13.01	0.38	2.6 million
2022	5.71	13.03	0.40	2.5 million
2021	5.74	13.54	0.42	N/A
2020	5.32	14.09	0.43	N/A
2019	5.91	16.24	0.39	N/A
2018	6.10	15.03	0.42	N/A
2017	6.60	14.40	0.47	N/A
2016	6.84	10.54	0.47	N/A
2015	7.08	24.66	0.51	N/A
2014	7.51	23.02	0.49	N/A

Table 2 - Data Table Reproduced From VINCI Sustainability Reports (VINCI. 2025)

Figures 3 and 4 show the general trend of the data over the past 10 years.

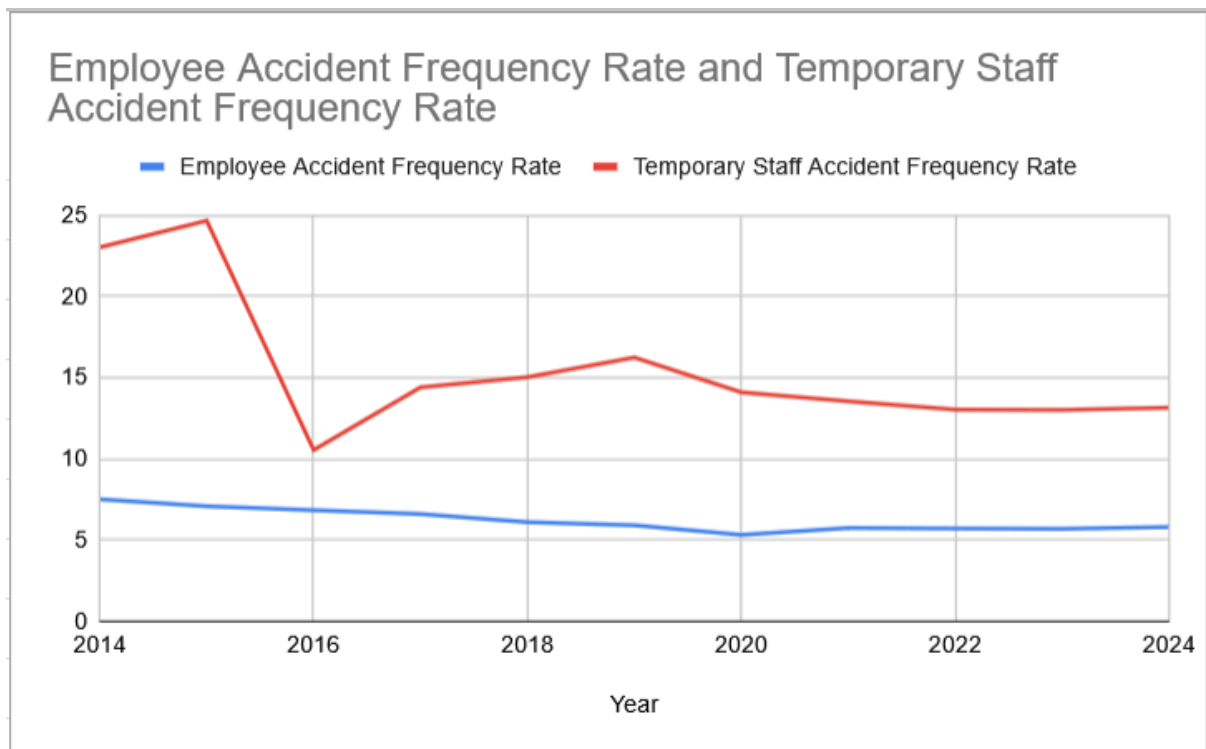


Figure 3 - Graph of Employee and Temporary Staff Accident Frequency Rate

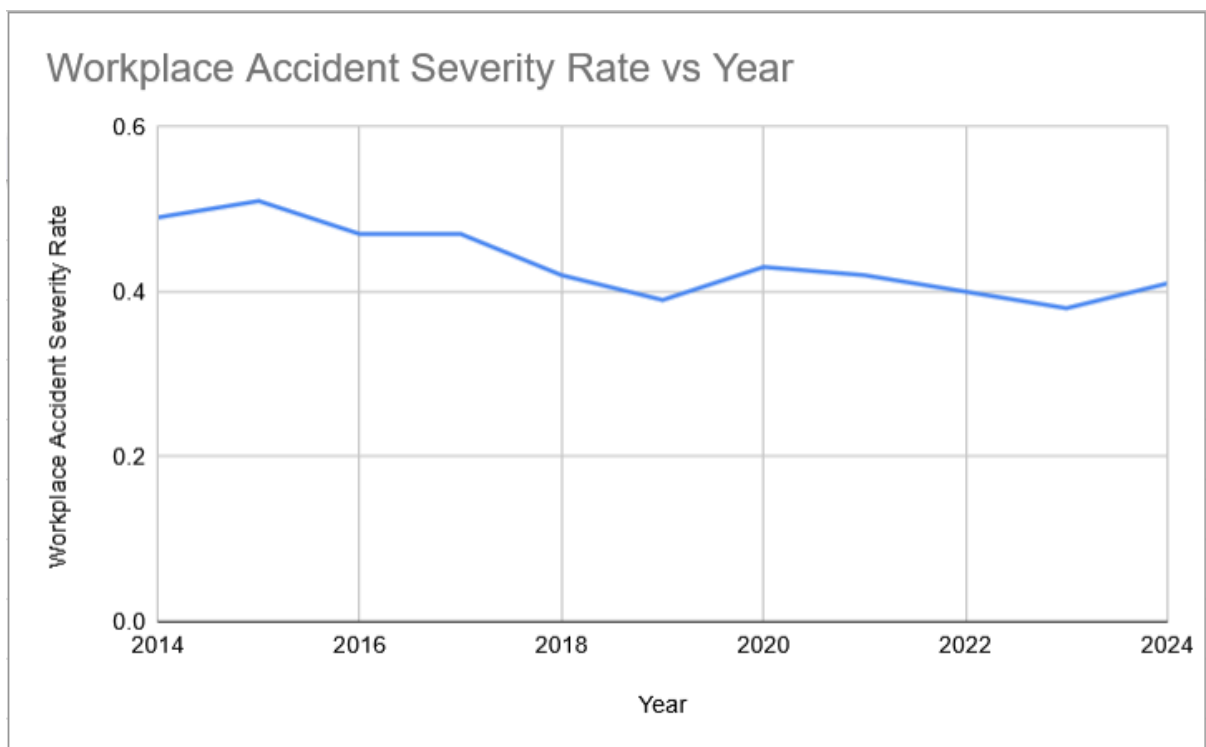


Figure 4 - Graph of Workplace Accident Severity

It can be seen from the graphs that the frequency rate of accidents has decreased over the past 10 years as well as the overall severity of those accidents. Since data on the amount of health and safety training hours each year is not easily available; it must be assumed that more or better training/ safety procedures have been implemented over time. Overall there has been a: ~23% decrease in employee accident rate; ~43% decrease in temporary staff accident rate; ~16% decrease in accident severity.

This data shows that companies under Vinci have been implementing and improving health and safety policies. Employees must be better informed, trained and motivated in health and safety.

As a comparison, the UK's HS2 project had 493 injuries resulting in loss of time over 65 million hours worked from 2023 - 2024 (HS2 Ltd. 2024). Following Vinci's method of calculating employee accident frequency ($493 \times 1,000,000 / 65,000,000$), a frequency of 7.58 is found. Vinci's employee accident frequency is below that of the HS2 project; therefore, it can be reasoned that it is a suitable frequency. However, the temporary staff accident frequency is almost twice that of the HS2 project; further supervision and training of longer-term contractors and temporary staff will be needed to reduce the accident frequency further.

Overall, employees of Vinci are well informed on health and safety practices and follow them in the workplace. Employee motivation to follow these practices are high due to the workplace culture.

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Appendix A

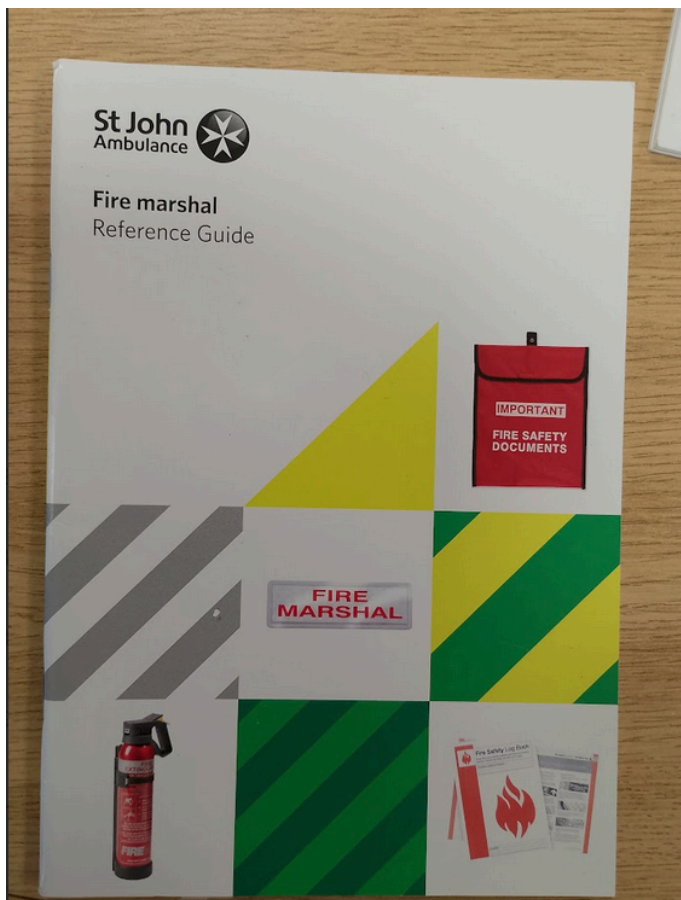


Figure A1 - St John's Ambulance Fire Marshal Reference Guide



Figure A2 - Highfield Qualification's First Aid Handbook

Appendix B



Figure B1 - Employee Health and Safety Handbook Front Cover

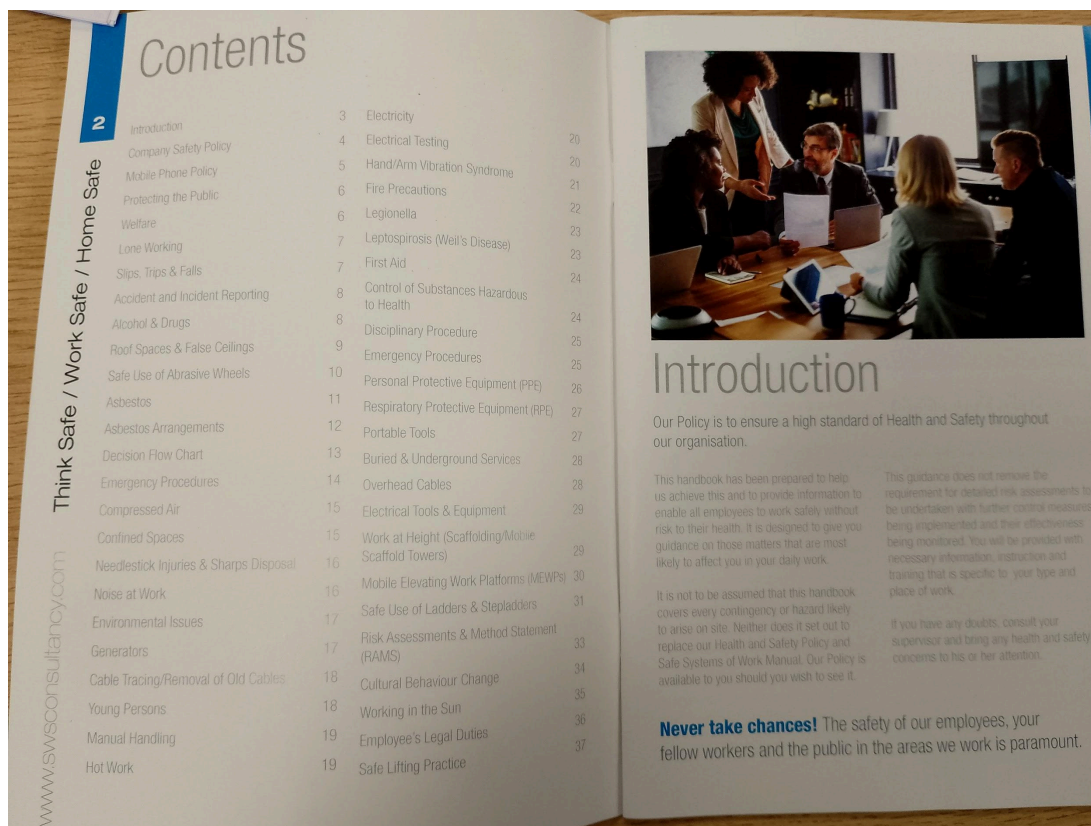


Figure B2 - Pgs 1-2

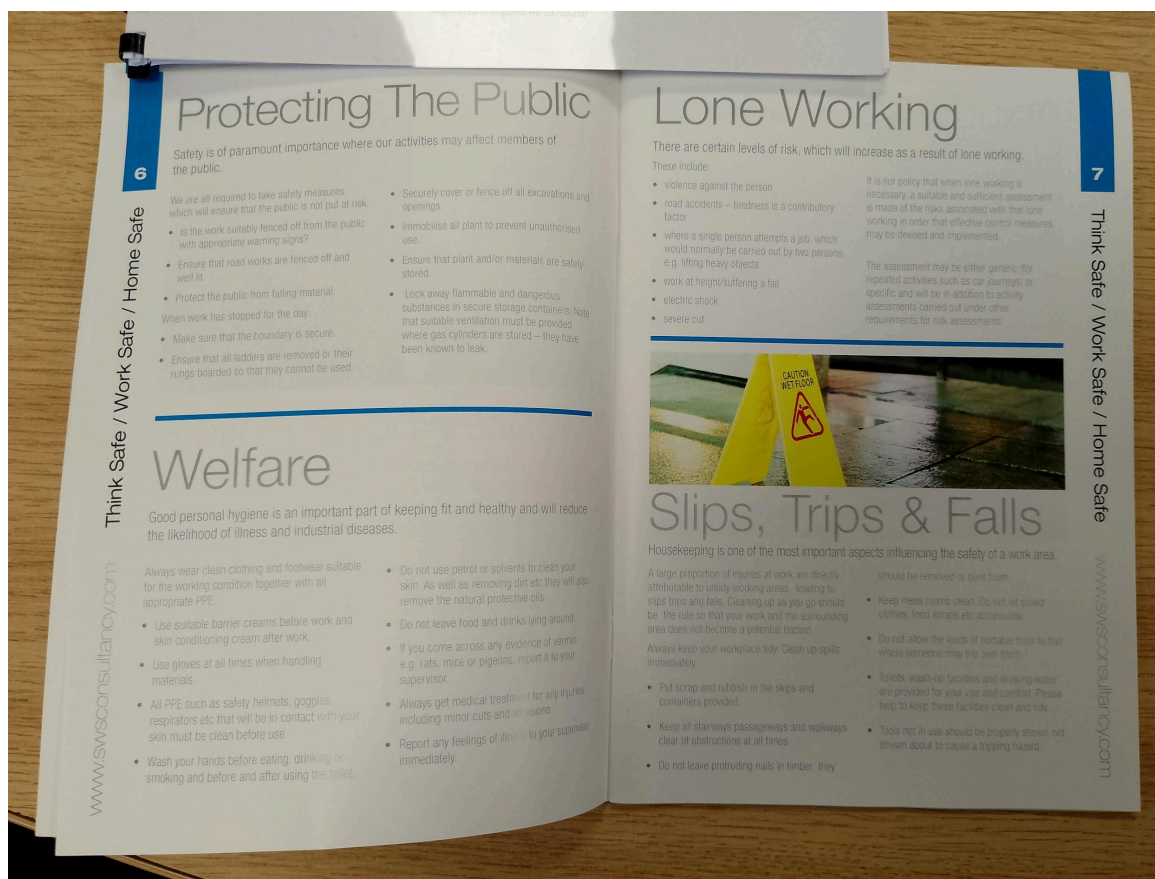


Figure B3 - Pgs 6-7



Figure B4 - Pgs 8-9

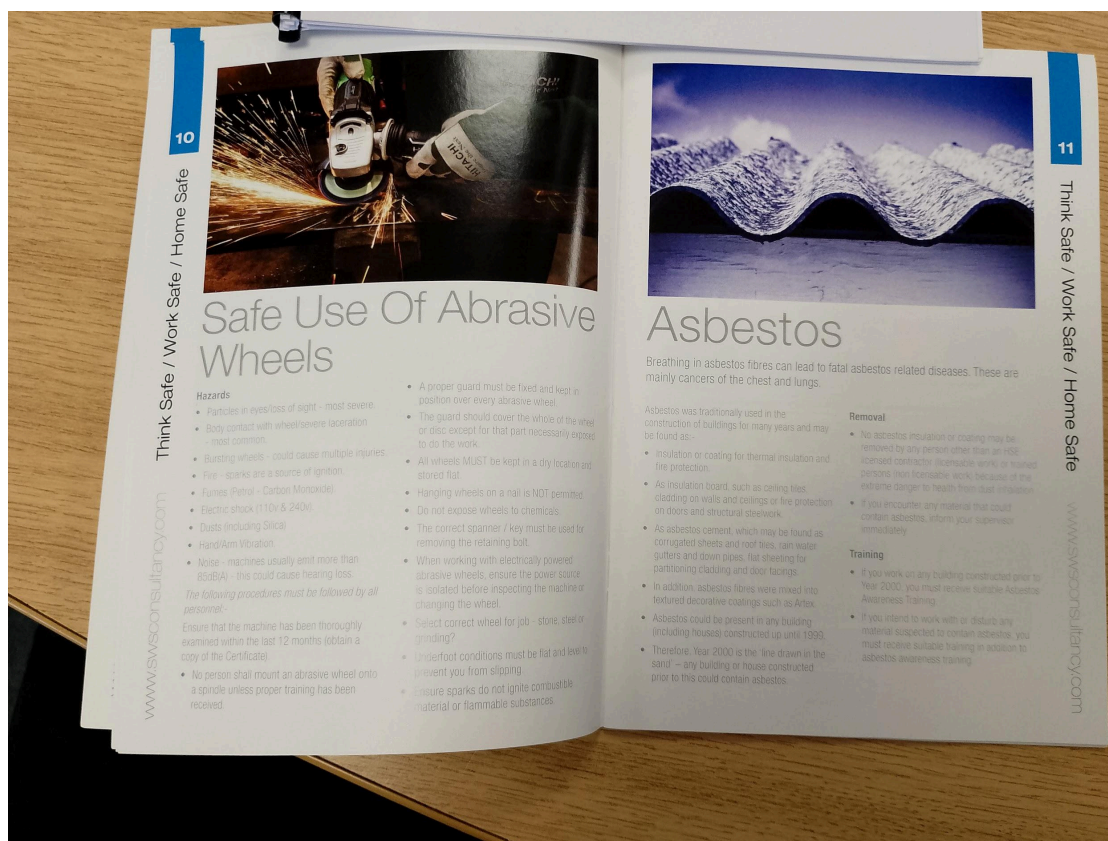


Figure B5 - Pgs 10-11

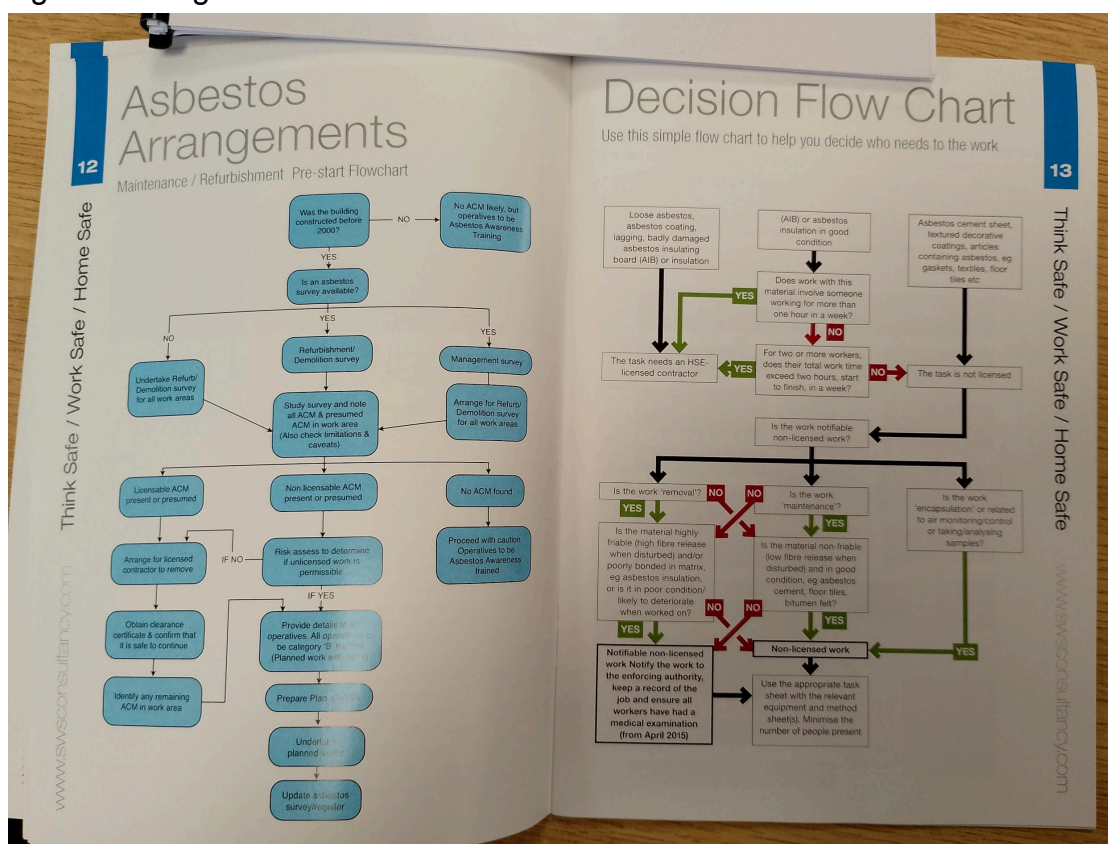


Figure B6 - Pgs 12-13

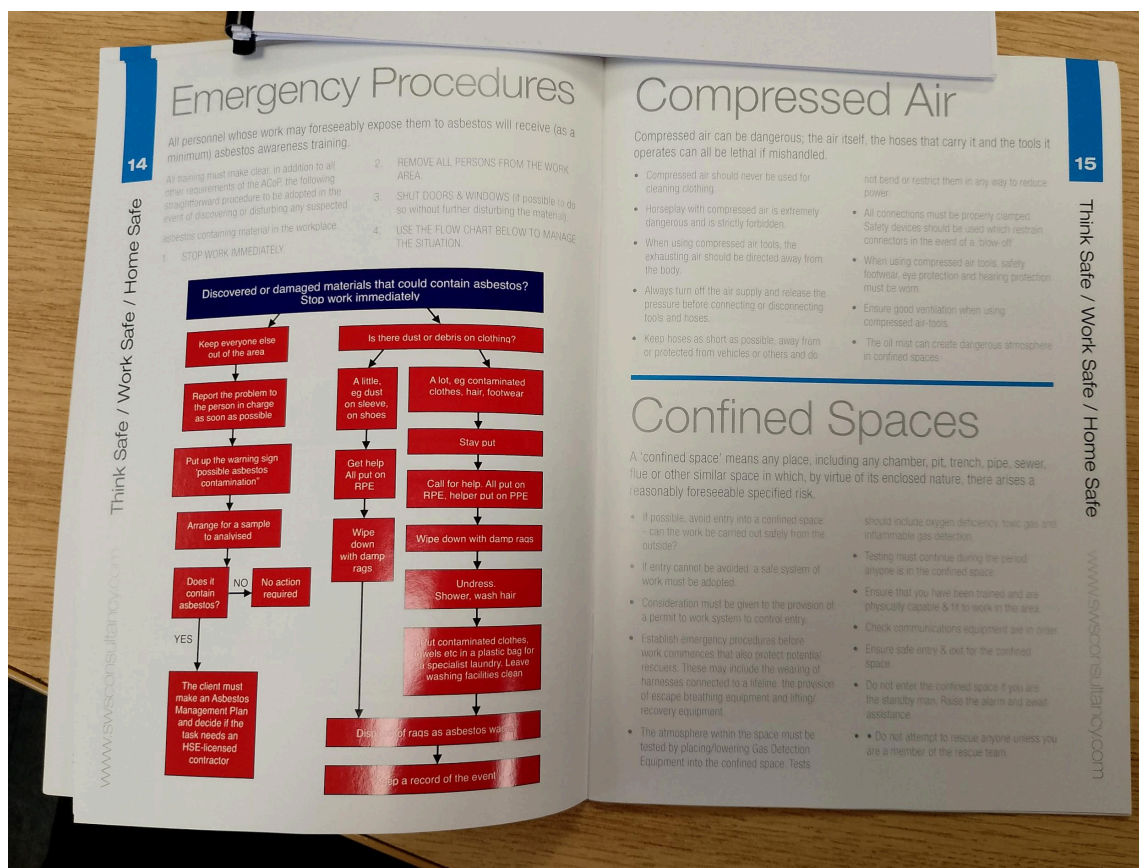


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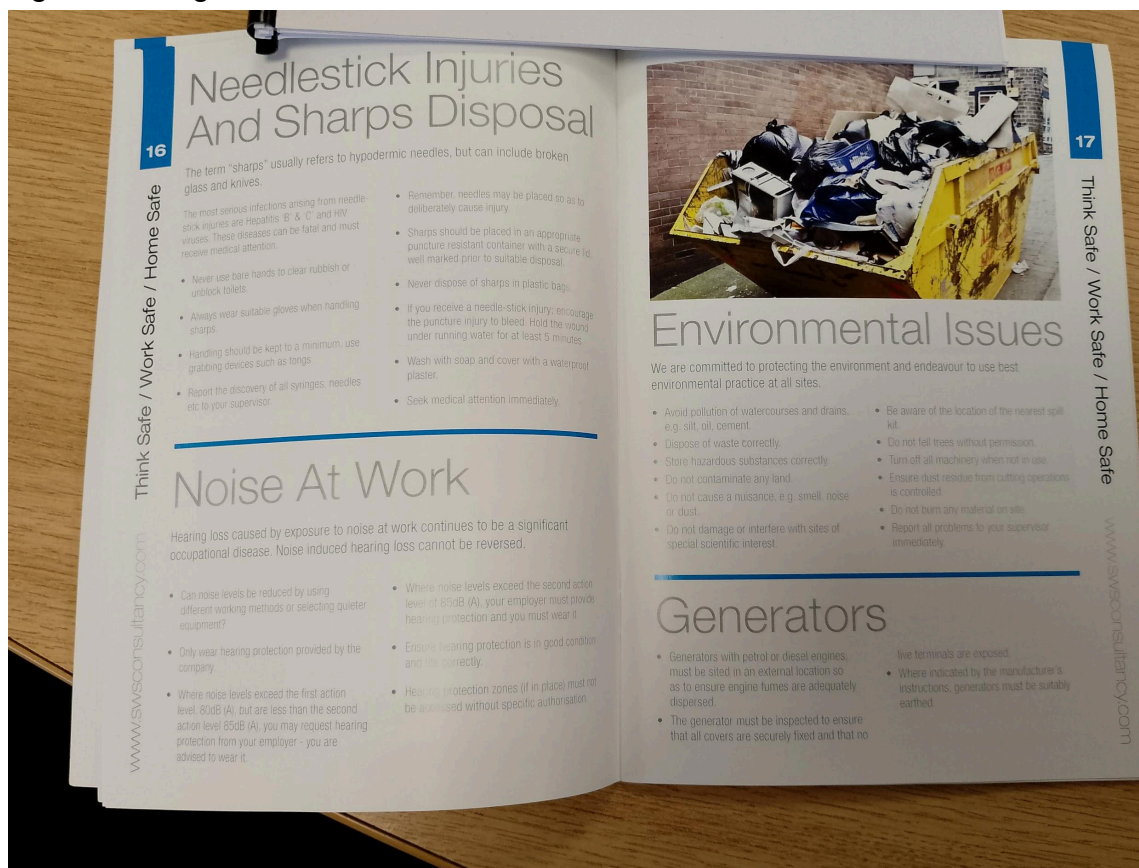


Figure B8 - Pgs Pgs 16-17

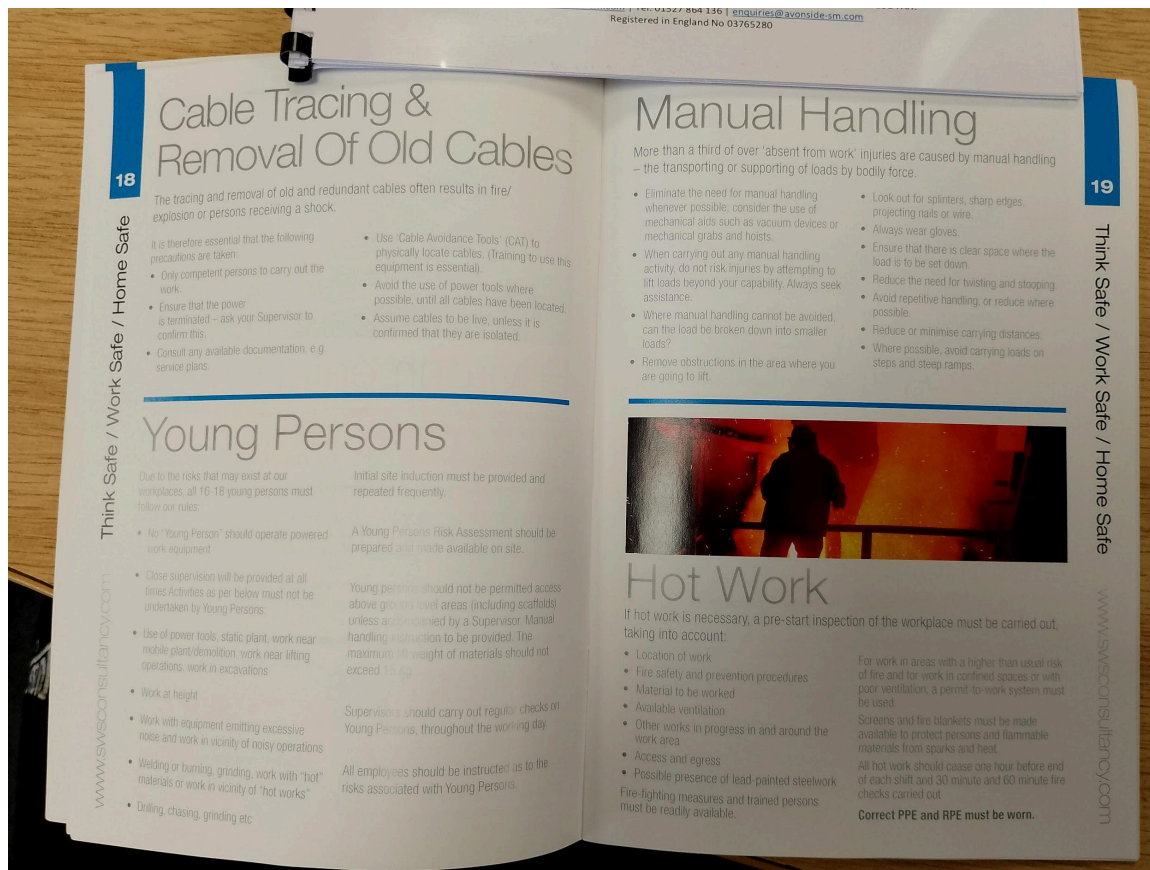


Figure B9 - Pgs 18-19



Figure B10 - Pgs 20-21

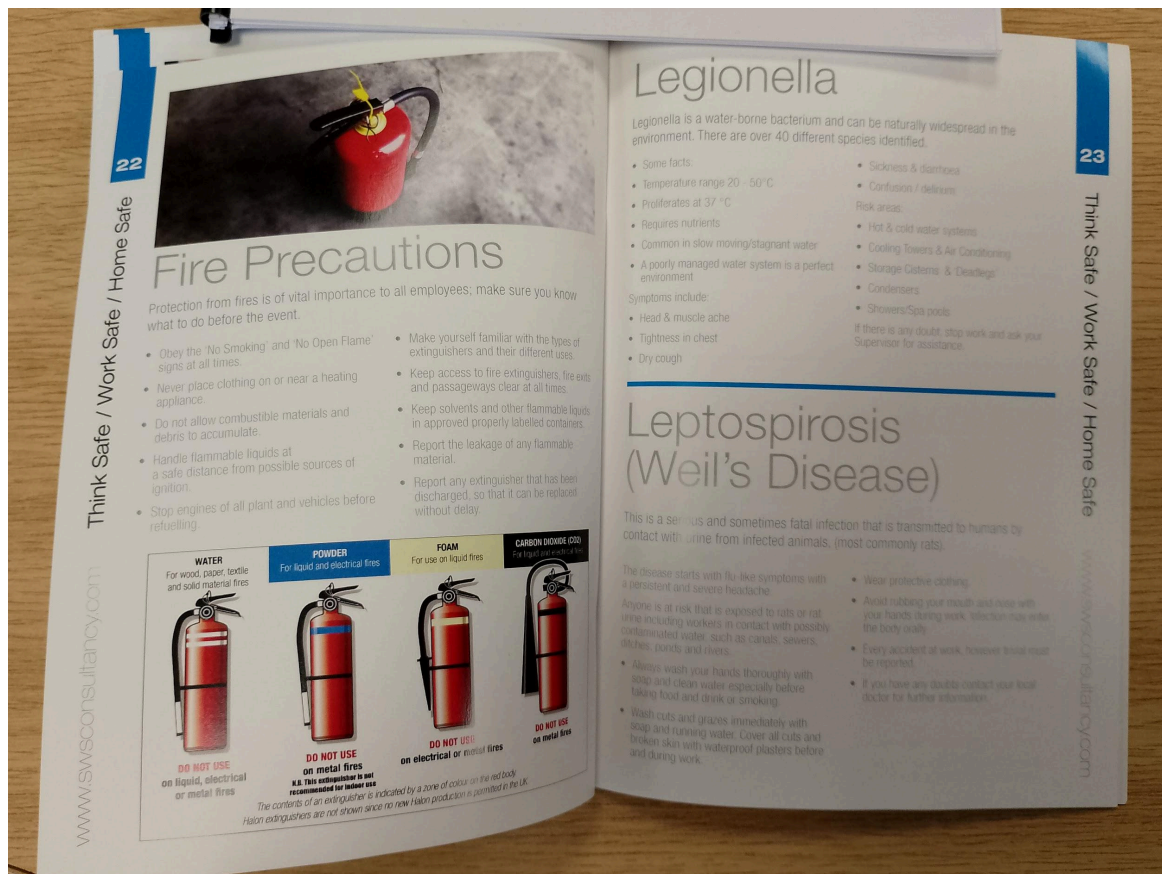


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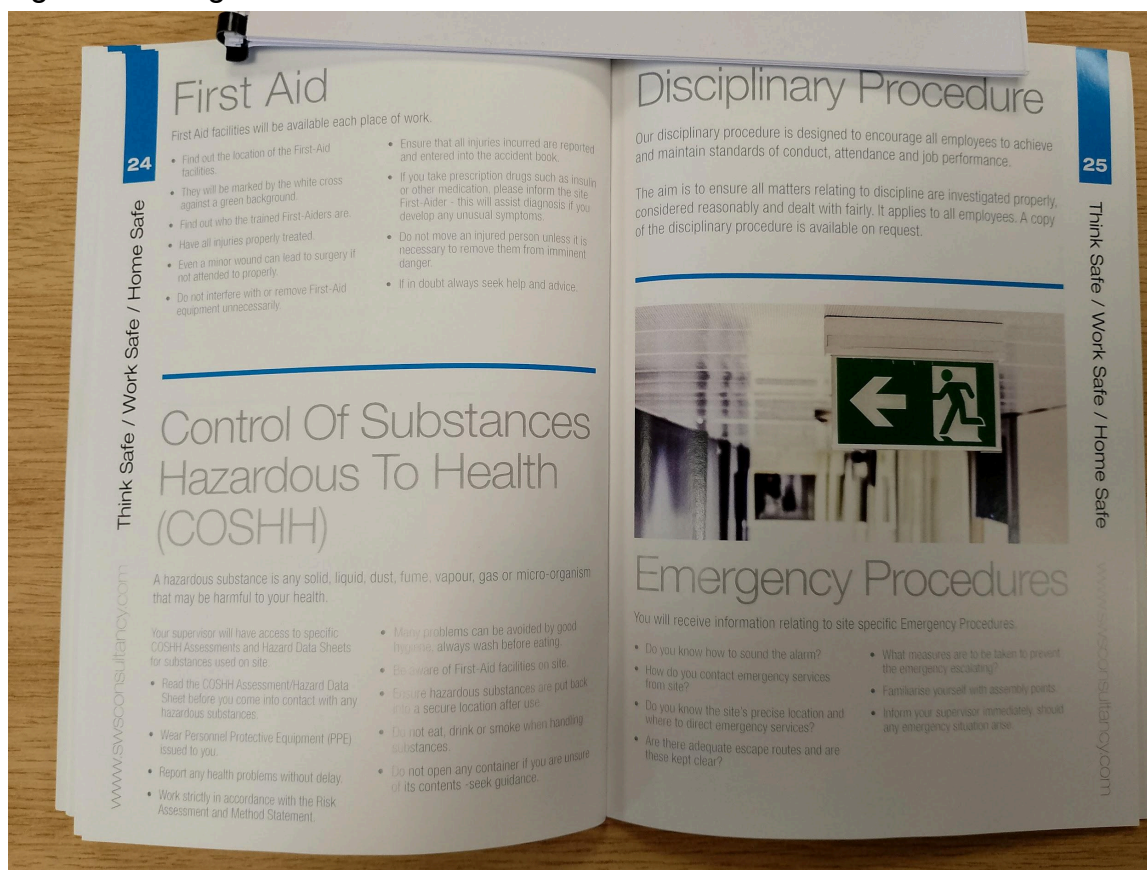


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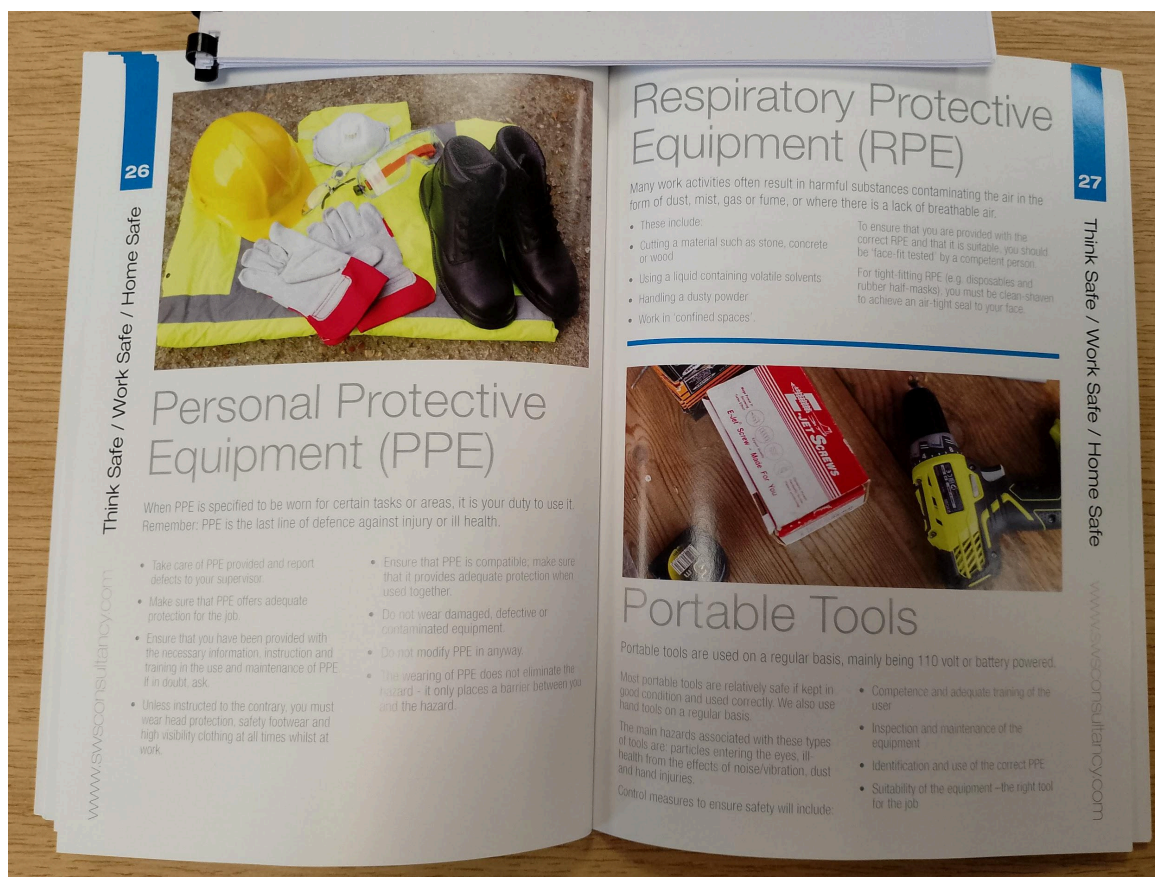


Figure B13 - Pgs 26 - 27



Figure B14 - Pgs 28-29



Figure B15 - Pgs 30-31

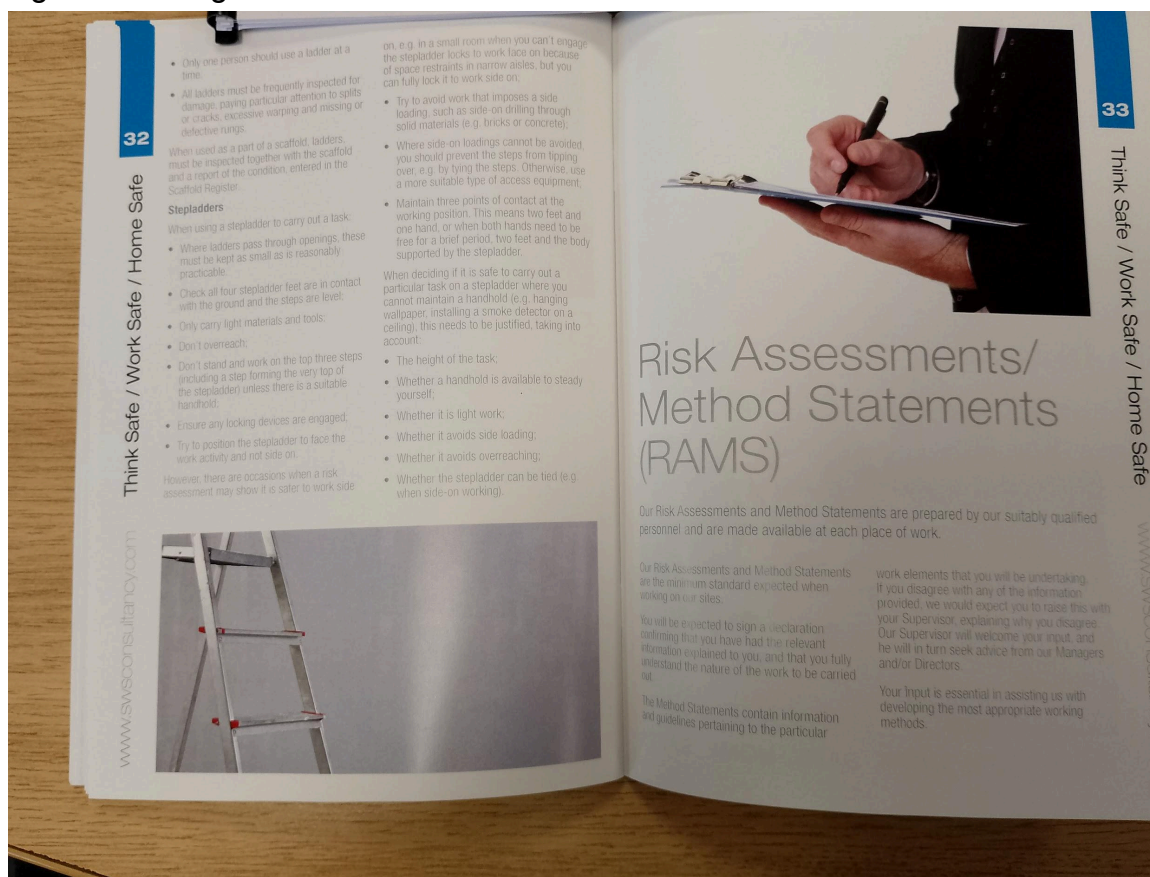


Figure B16 - Pgs 32-33



Figure B17 - Pgs 34-35

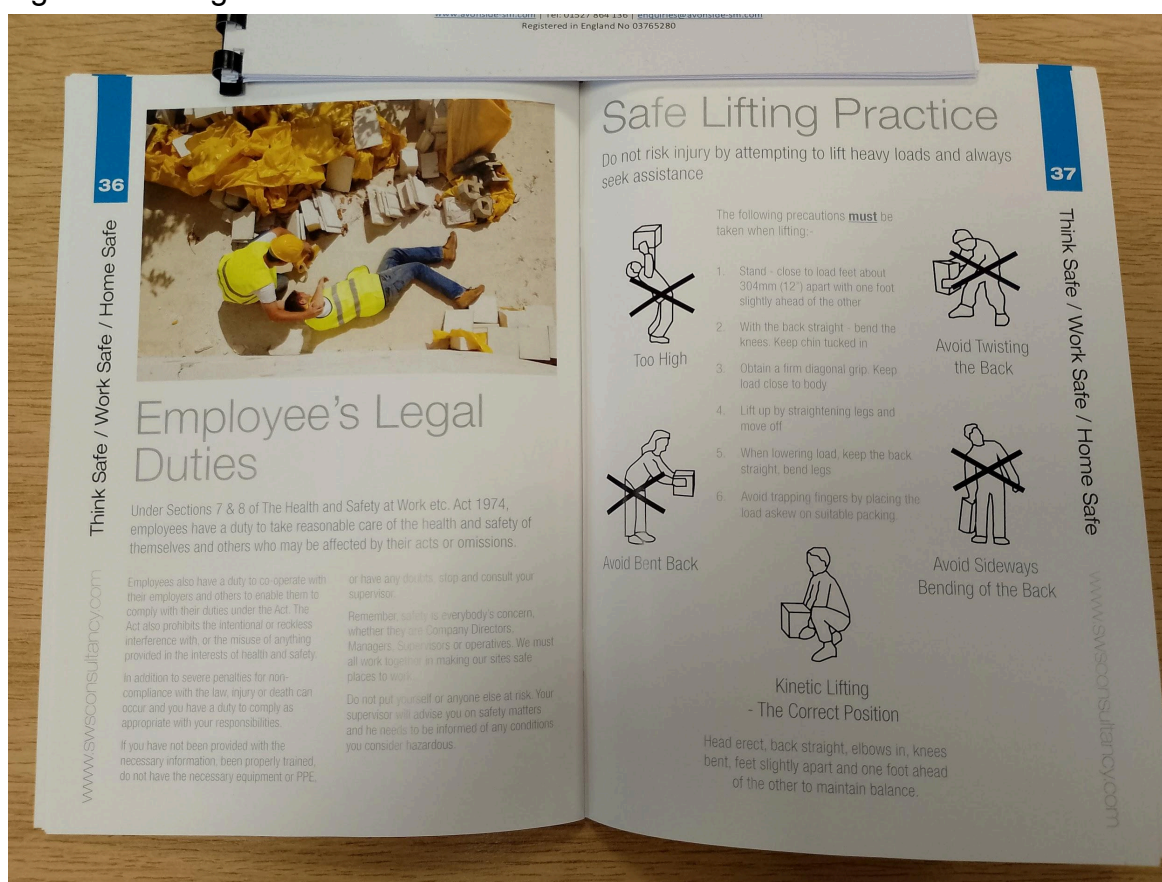


Figure B18 - Pgs 36-37

Appendix C

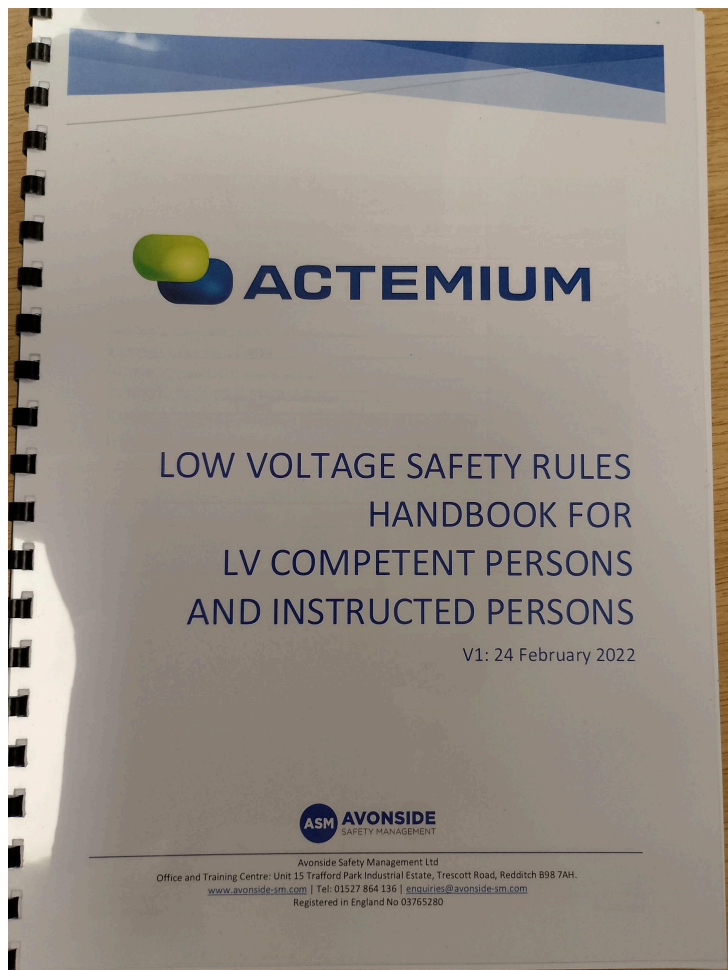


Figure C1 - LV Safety Manual Cover

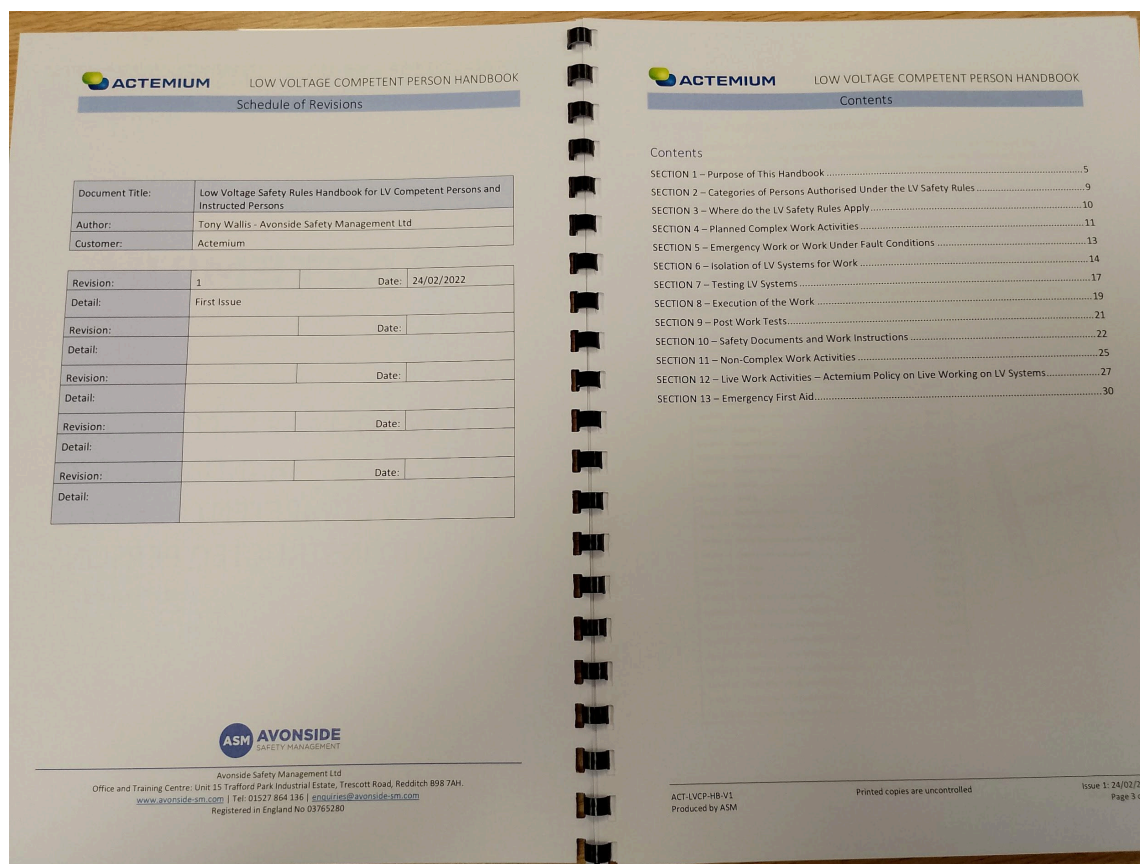


Figure C2 - Pg 2-3

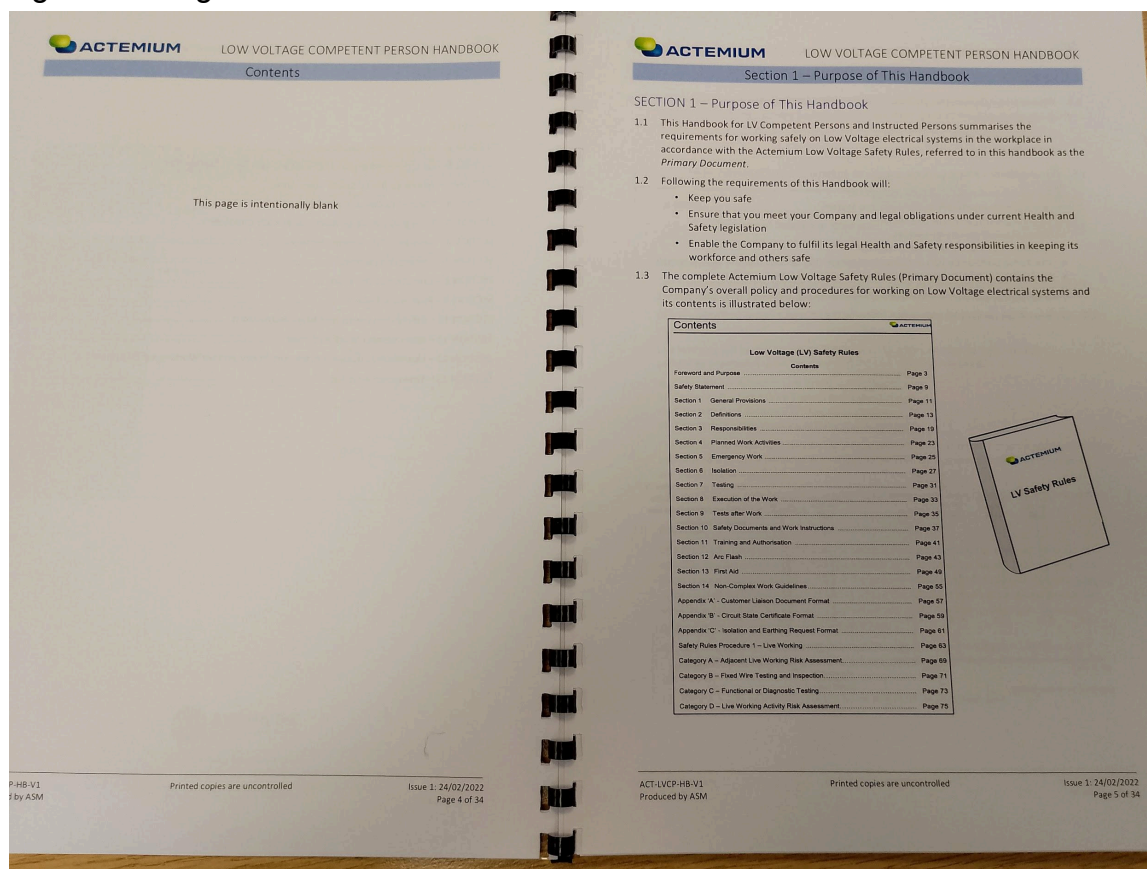


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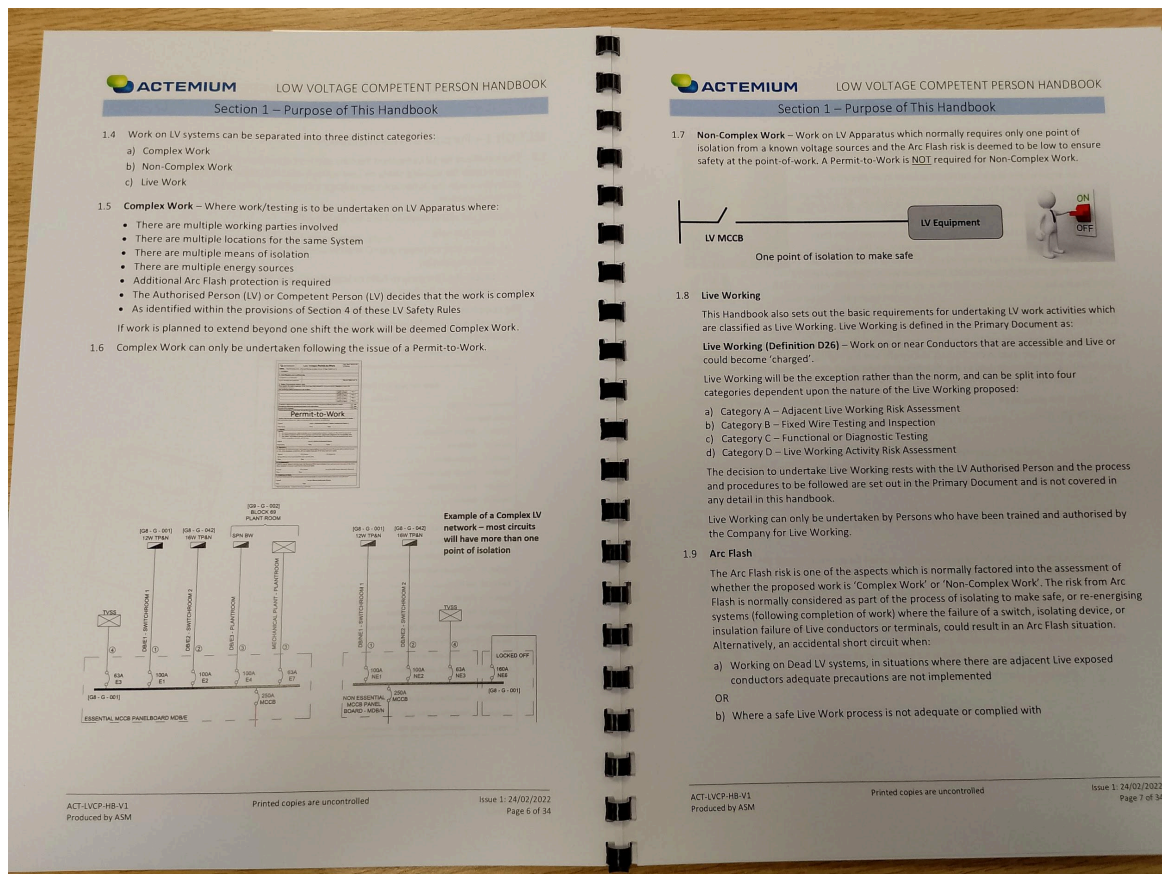


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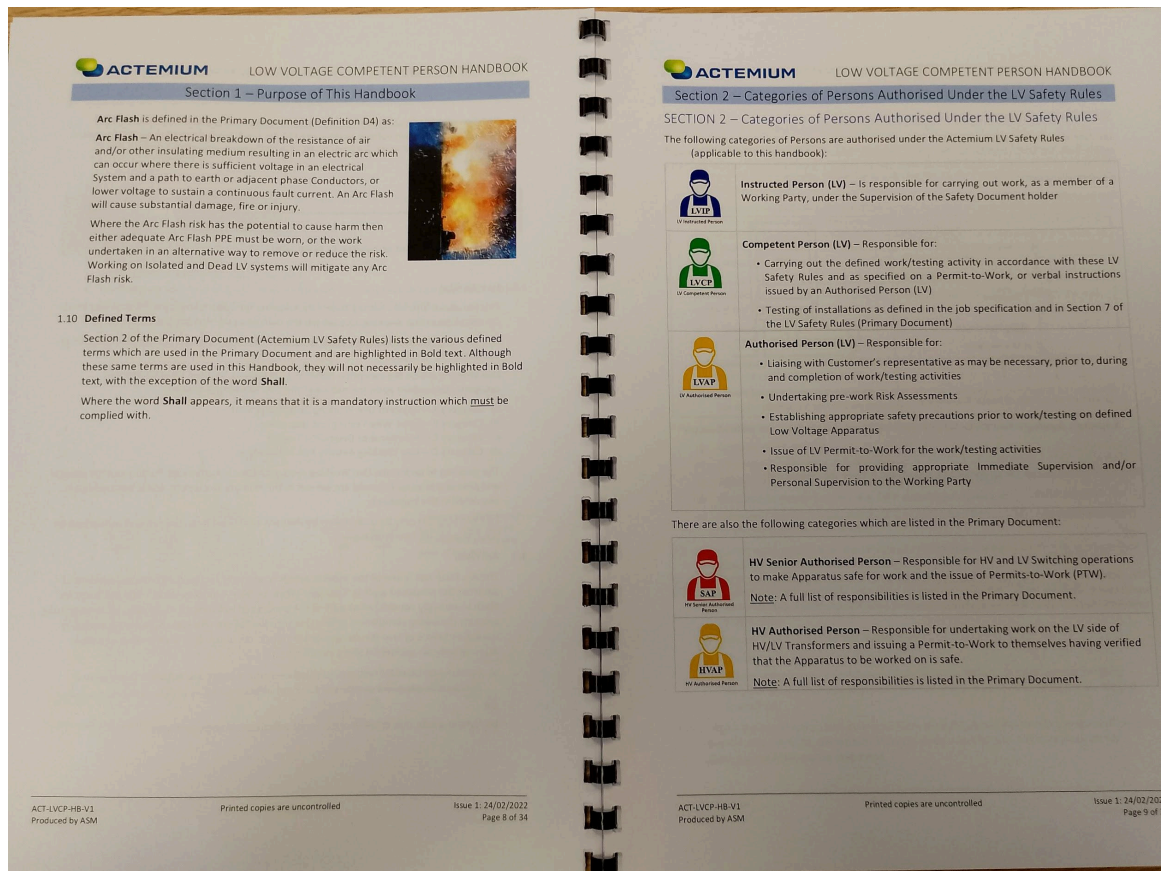


Figure C5 - Pg 8-9

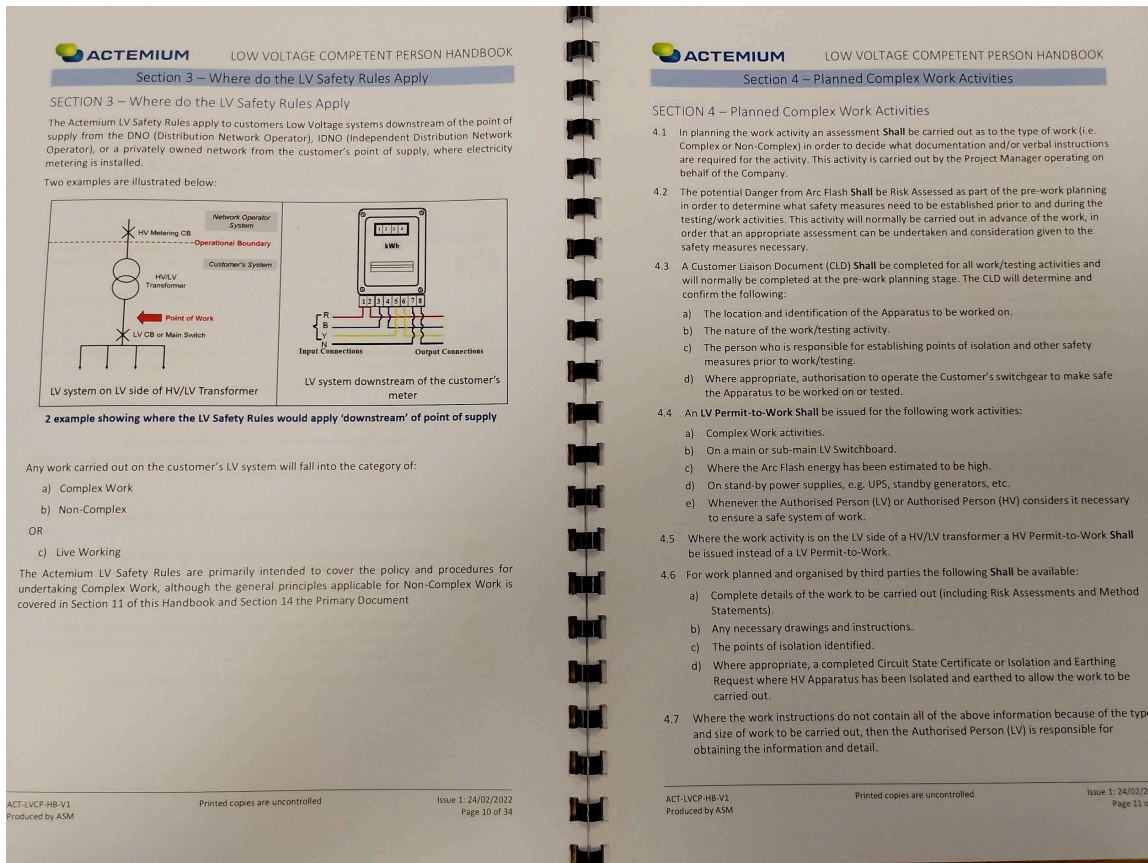


Figure C6 - Pg 10-11

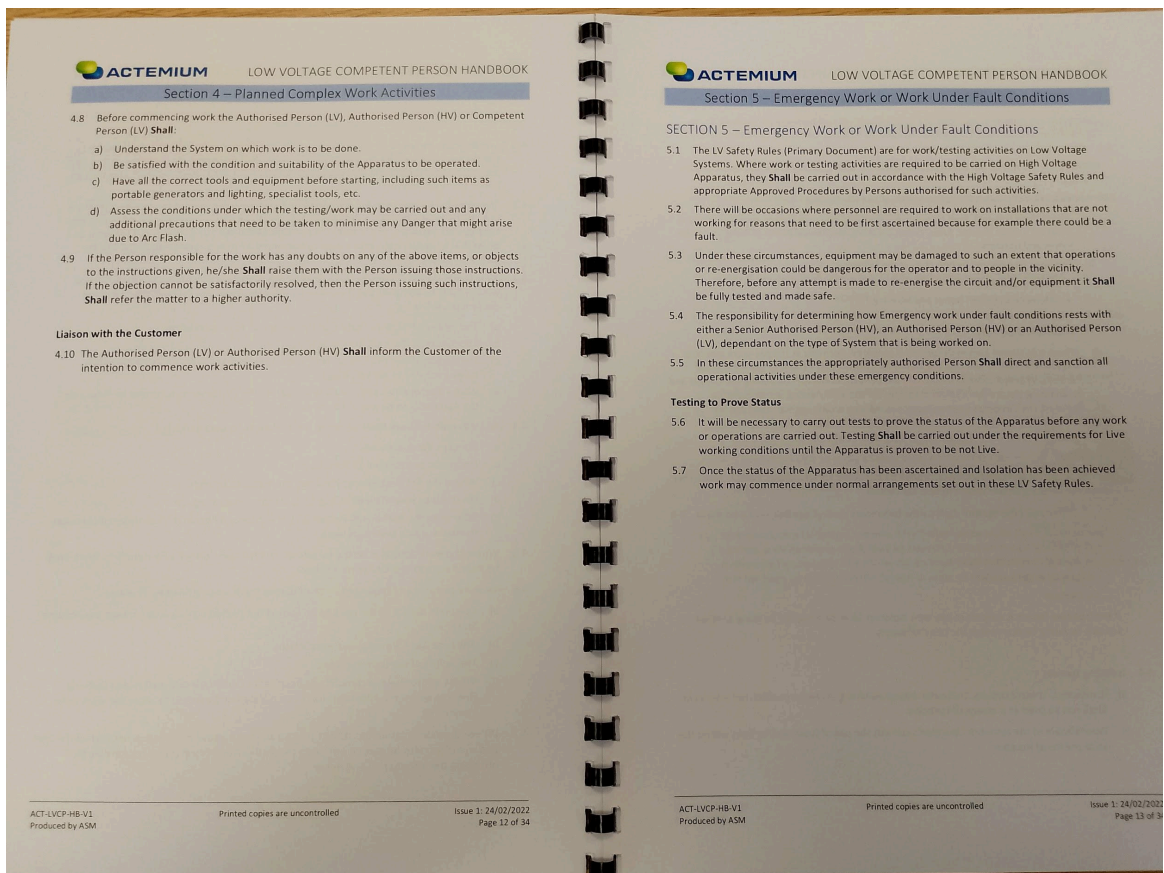


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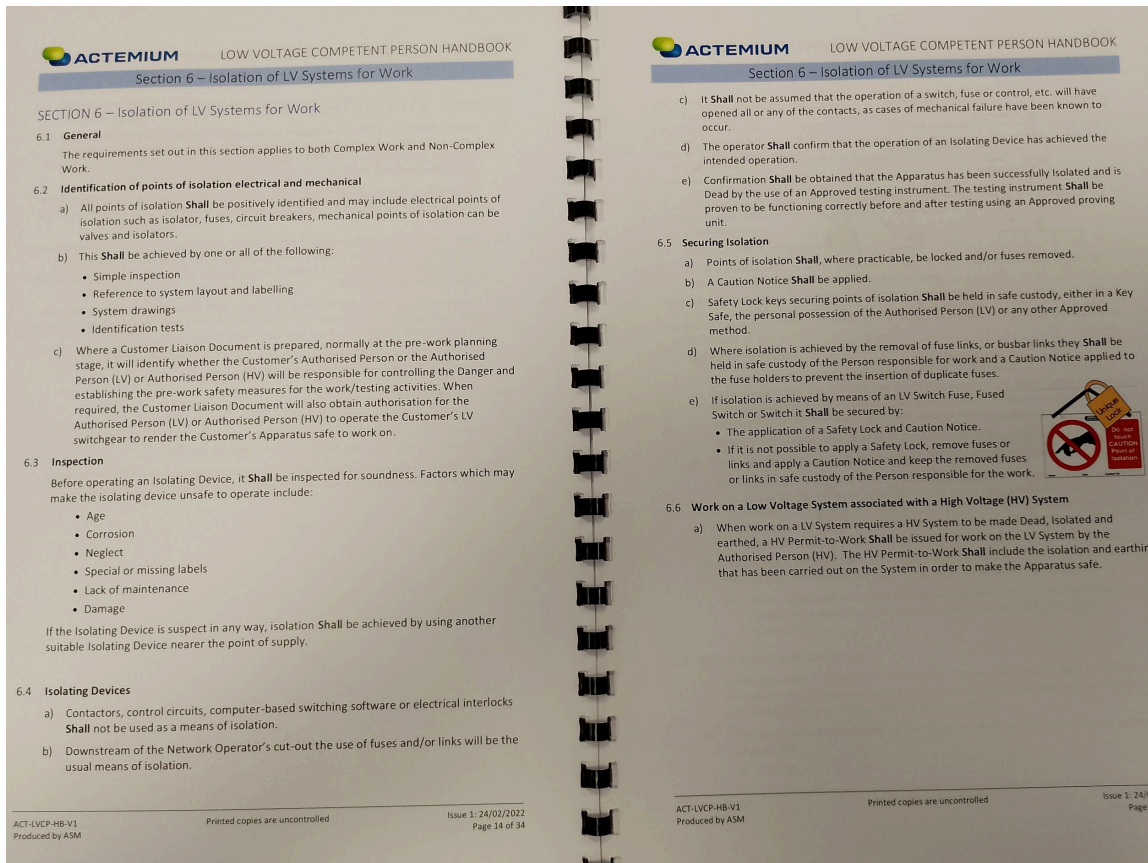


Figure C8 - Pg 14-15

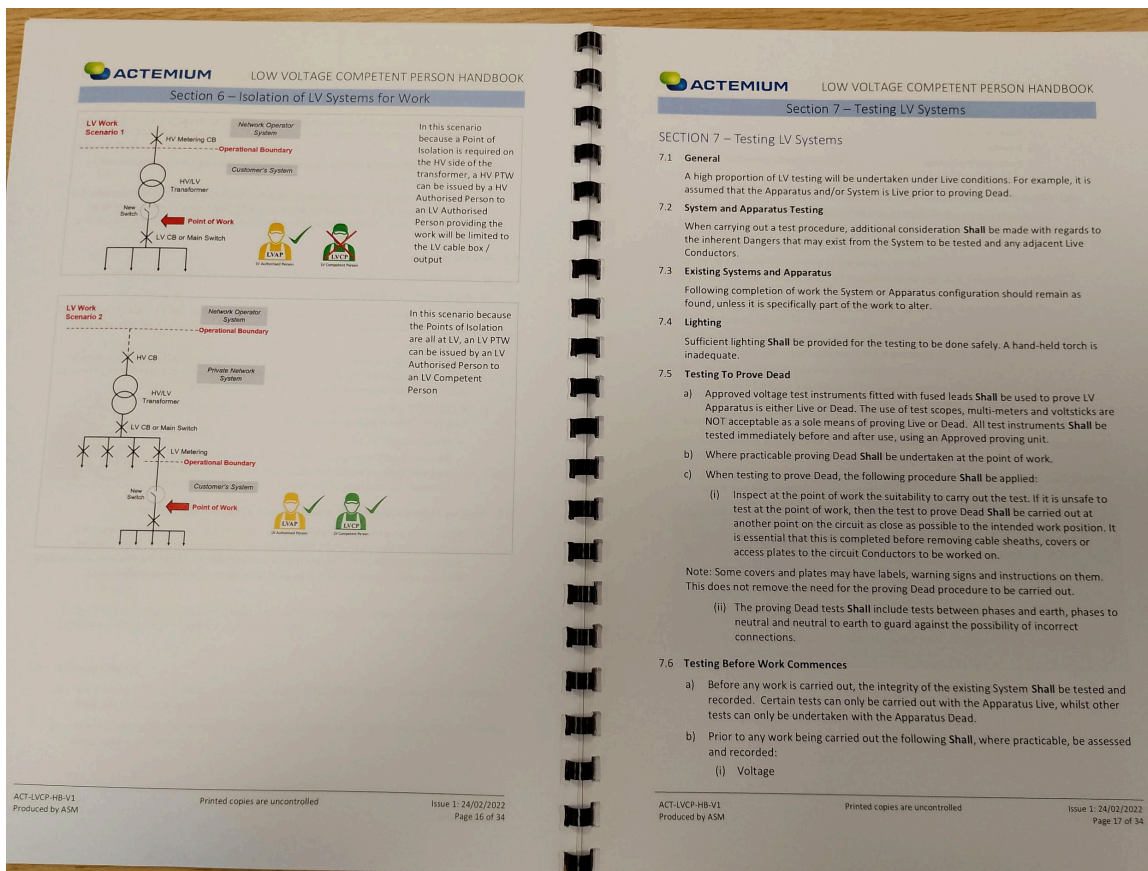


Figure C9 - Pg 16-17

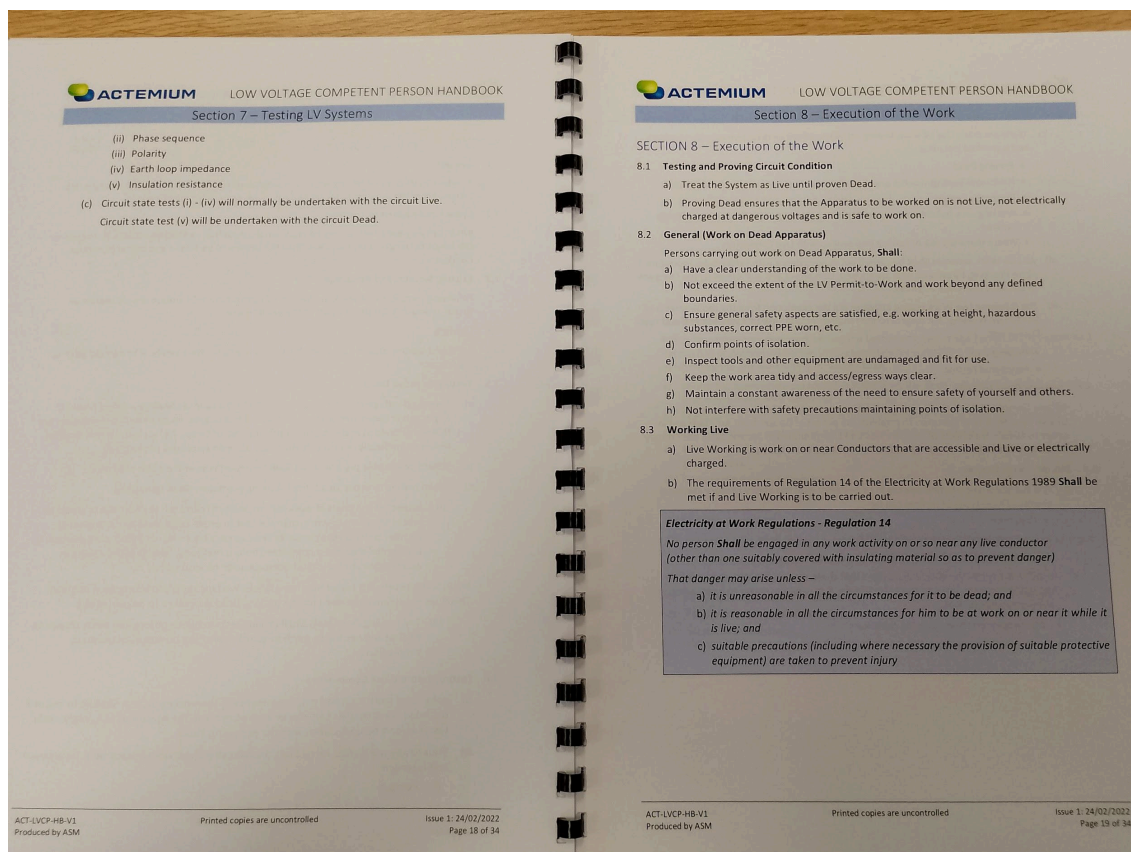


Figure C10 - Pg 18-19

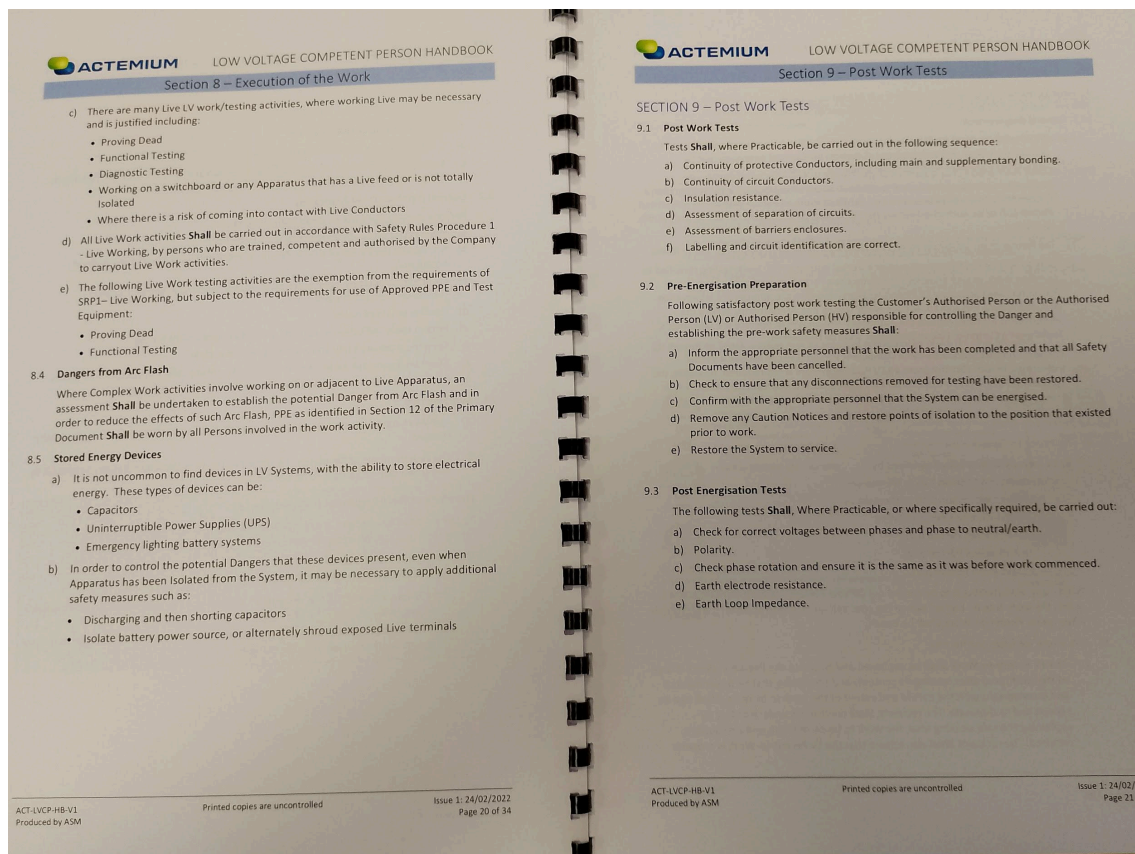


Figure C11 - Pg 20-21

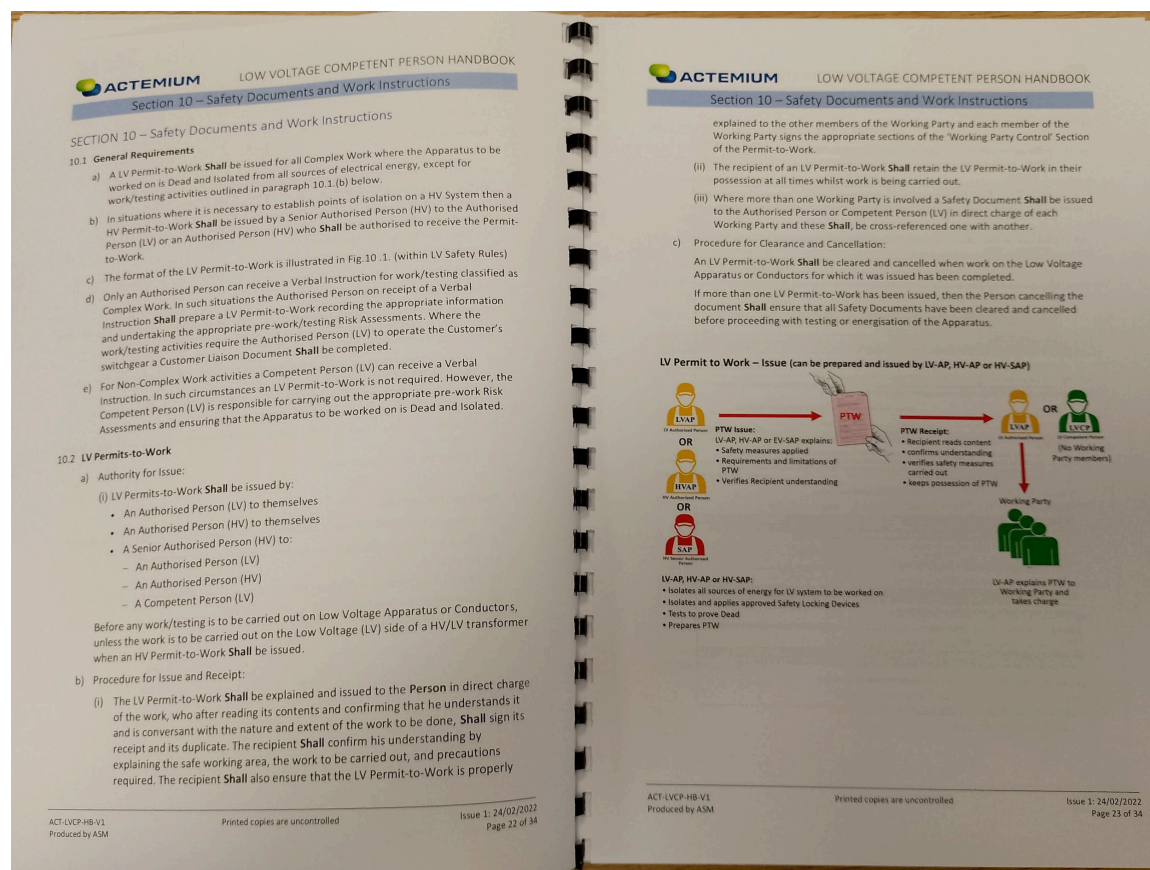


Figure C12 - Pg 22-23

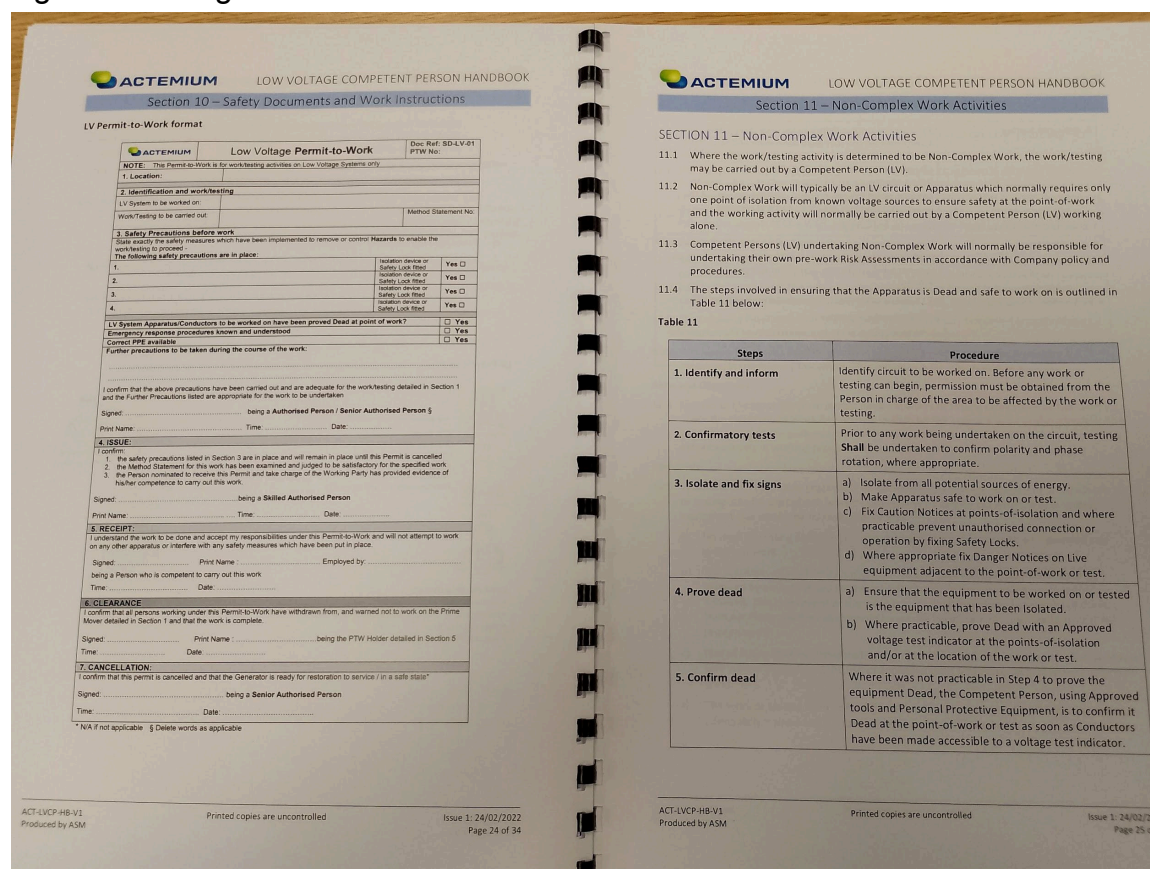


Figure C13 - Pg 24-25

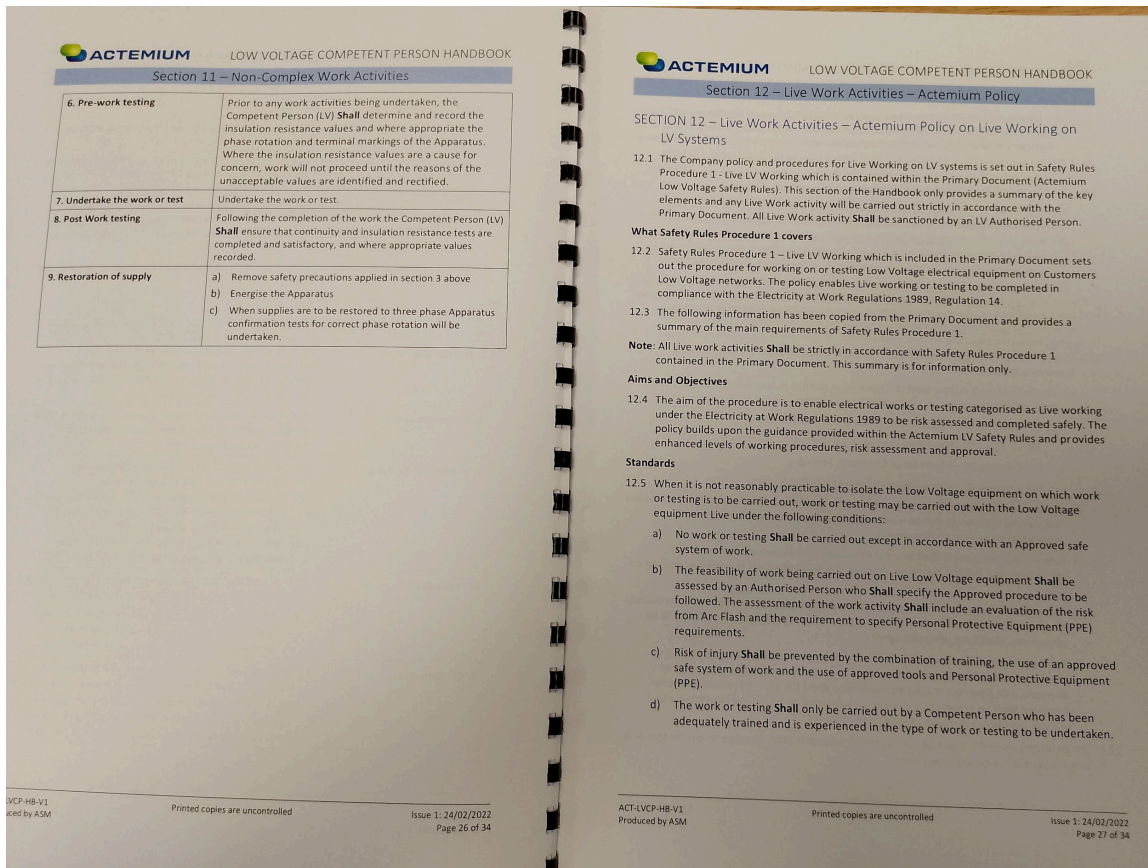


Figure C14 - Pg 26-27

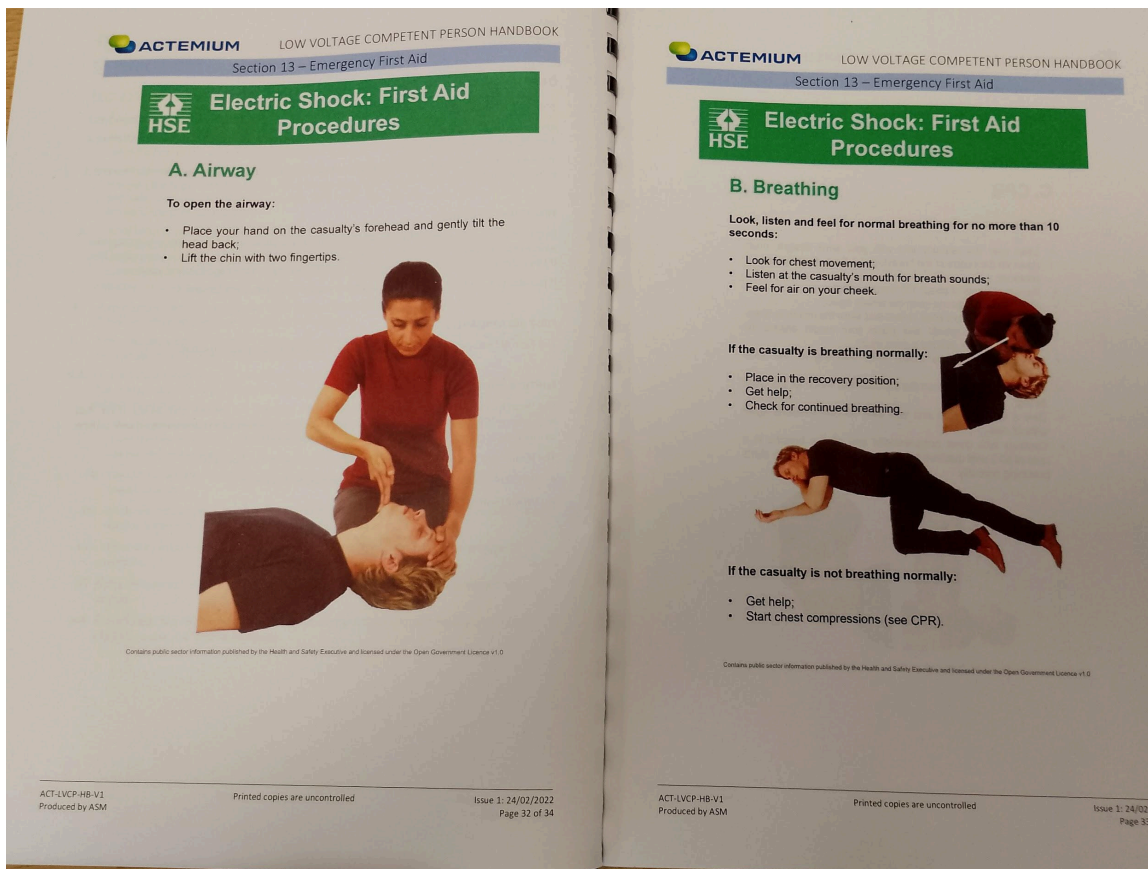


Figure C15 - Pg 28-29

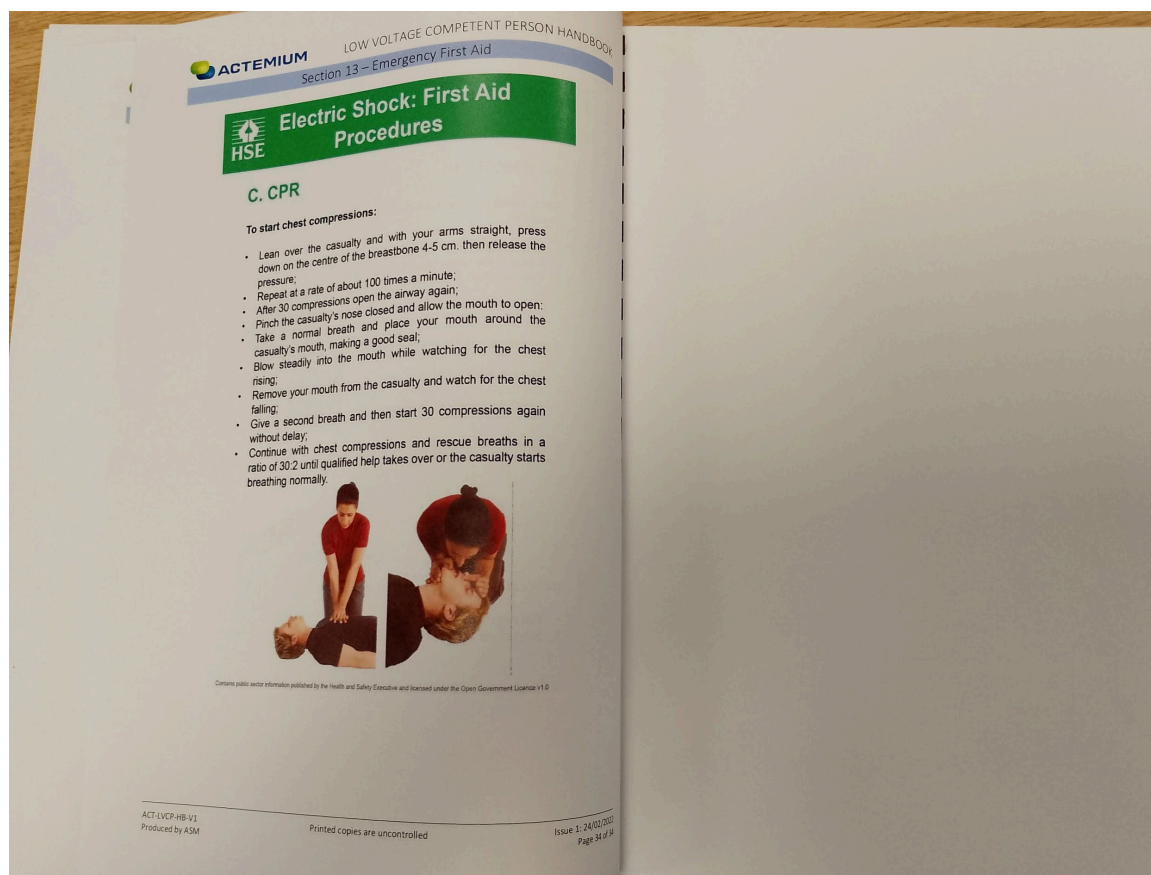


Figure C16 - Pg 30-31