Electrical Parts

Read before demonstrating any experiment that uses mains electricity

Last initially checked on 2024-07-09 by Peter Methley (pm631@cam.ac.uk) and double-checked on 2024-07-10 by Timothy Wong (chw55@cam.ac.uk)

Tags

Active (Experiment has working equipment at the time of last update, and is available for events.)

Other

Requires Electricity

Equipment Needed

Mains (240 V) power supply.

Experiment Explanation

Some experiments require electricity from a mains power (240 V) supply. Read this RA along with the experiment RA before demonstrating.

Risk Assessment

Hazard: Faulty/loose wiring and equipment

Description: Risk of fire or electrocution. This risk applies only to mains voltage equipment that plugs into the 240V mains supply; any part of an experiment that comes into direct contact with the public will use a power supply with a safe low voltage output.

Affected People: All

Before Mitigation: Likelihood: 3, Severity: 5, Overall: 15

Mitigation: DEMONSTRATOR must visually inspect all electrical equipment before using it. Please look for loose cables, bare wires or anything else suspicious. If you spot faults then please do not use that equipment, and report it to a committee member.

DEMONSTRATOR to ensure that there is a PA test sticker dated within the last two years on any mains voltage equipment, or that the equipment was purchased within the last two years (should be marked with the date of purchase if there is not a PA test sticker). If the equipment was PA tested or purchased more than a year ago, DEMONSTRATOR to check that there is a sticker to show that the equipment has been formally visually inspected within the last year.

DEMONSTRATOR to ensure that electrical equipment is not placed next to or under flammable materials (eg. under a jumper).

COMMITTEE to ensure that all mains voltage equipment is PA tested every two years, or if possible, annually. Newly purchased

(unaltered) equipment need not be tested immediately, but should be tested, at the latest, within two years of purchase, and then every two years thereafter. If newly purchased equipment is not marked with a PA test sticker, it should be marked with the date of purchase. Electrical equipment that has been modified in any way should be PA tested before first use

COMMITTEE to ensure that, if equipment has not been PA tested within the past year, it is formally visually inspected by a committee member approved by the committee to carry out such checks, and marked with the date of inspection

After Mitigation: Likelihood: 1, Severity: 4, Overall: 4

Hazard: Water getting in contact with the equipment

Description: Risk of electrocution

Affected People: All

Before Mitigation: Likelihood: 2, Severity: 5, Overall: 10

Mitigation: DEMONSTRATOR must think about the danger of water coming into contact with the equipment. Ensure electrical equipment is not near water, or on the ground in a place where water might pour in event of a nearby experiment breaking. If outdoors, DEMONSTRATOR to keep cables off ground and away from damp, especially if using the venue the next day as well (dew settles).

DEMONSTRATOR please make sure that you know the location of the electric wall socket where the equipment is plugged in.

VENUE SAFETY OFFICER should locate and make known the location of the cut-off switch for the room, if there is one.

After Mitigation: Likelihood: 1, Severity: 5, Overall: 5

Hazard: Trip hazard on cables

Description: Risk of injury or pulling things over

Affected People: All

Before Mitigation: Likelihood: 5, Severity: 2, Overall: 10

Mitigation: Ensure all cables are safely taped down, take extra care in areas where people might be walking. If possible, keep cables behind experiments.

After Mitigation: Likelihood: 3, Severity: 2, Overall: 6

Risk Assessment Check History

Check 1: 2023-02-19 - Emma Crickmore (elc75@cam.ac.uk), **Check 2**: 2023-02-19 - Asmita Niyogi (an637@cam.ac.uk)

Check 1: 2024-07-09 - Peter Methley (pm631@cam.ac.uk), **Check 2**: 2024-07-10 - Timothy Wong (chw55@cam.ac.uk)

Outdoors

Read before doing any experiment outside -

Last initially checked on 2024-07-09 by Peter Methley (pm631@cam.ac.uk) and double-checked on 2024-07-09 by Timothy Wong (chw55@cam.ac.uk)

Tags

Active (Experiment has working equipment at the time of last update, and is available for events.)

Other

Outside

Equipment Needed

An outside area

Experiment Explanation

Some experiments can be demonstrated outside. Read this RA along with the experiment RA before demonstrating outside.

Risk Assessment

Hazard: Hard and potentially uneven floor

Description: Risk of potentially enhanced injury if person falls over whilst engaging with experiment.

Affected People: All, particularly children

Before Mitigation: Likelihood: 3, Severity: 3, Overall: 9

Mitigation: Ensure the experiment is set up on flat floor, away from potential trip hazards (e.g. steps) or drops (e.g. gutters). If experiment involves lots of motion (e.g. spinny chair), take extra care while supervising visitors, and do not leave the experiment unattended. If the experiment is to be held and carried around (e.g. floating experiments such as prism goggles) then demonstrator should ensure that the experiment is being done safely, avoiding e.g. accidentally walking into a gutter.

After Mitigation: Likelihood: 1, Severity: 3, Overall: 3

Hazard: Weather (Part I)

Description: Rain and/or ice could make the outside floor slippery. Wind could blow objects into people or push visitors off of relevant apparatus.

Affected People: All

Before Mitigation: Likelihood: 3, Severity: 3, Overall: 9

Mitigation: >In the event of adverse weather, encourage children to behave sensibly and not run about. If the demonstrator or committee deem the weather to make the experiment too dangerous to operate, close the experiment (e.g. too windy or wet).

After Mitigation: Likelihood: 1, Severity: 3, Overall: 3

Hazard: Weather (Part II)

Description: Cold / hot weather causing adverse effects to visitors or demonstrators

Affected People: All

Before Mitigation: Likelihood: 4, Severity: 3, Overall: 12

Mitigation: Demonstrators should be dressed appropriately for the weather. If hot, demonstrators should seek water from committee members. If cold, demonstrators should have sufficient layers. If very uncomfortable, demonstrators should be moved inside. Visitors should also be monitored, and offered e.g. water if severely affected by the weather.

After Mitigation: Likelihood: 2, Severity: 3, Overall: 6

Hazard: Crowds

Description: There may be a queue of people nearby, and people walking in and out of the area, posing a risk of being bumped into / invading experiment spaces.

Affected People: All (mainly visitors)

Before Mitigation: Likelihood: 4, Severity: 2, Overall: 8

Mitigation: Experiments should be set up far enough away from each other such that there is minimal risk of visitors engaged in separate experiments from taking up required space from another experiment. Experiments should be set up away from the queues, and the way in/out of the building(s). If the experiment is to be held and carried around (e.g. floating experiments such as prism goggles) then demonstrator should be aware of their surroundings at all times, and ensure visitors do not accidentally hit other people potentially walking by.

After Mitigation: Likelihood: 2, Severity: 2, Overall: 4

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