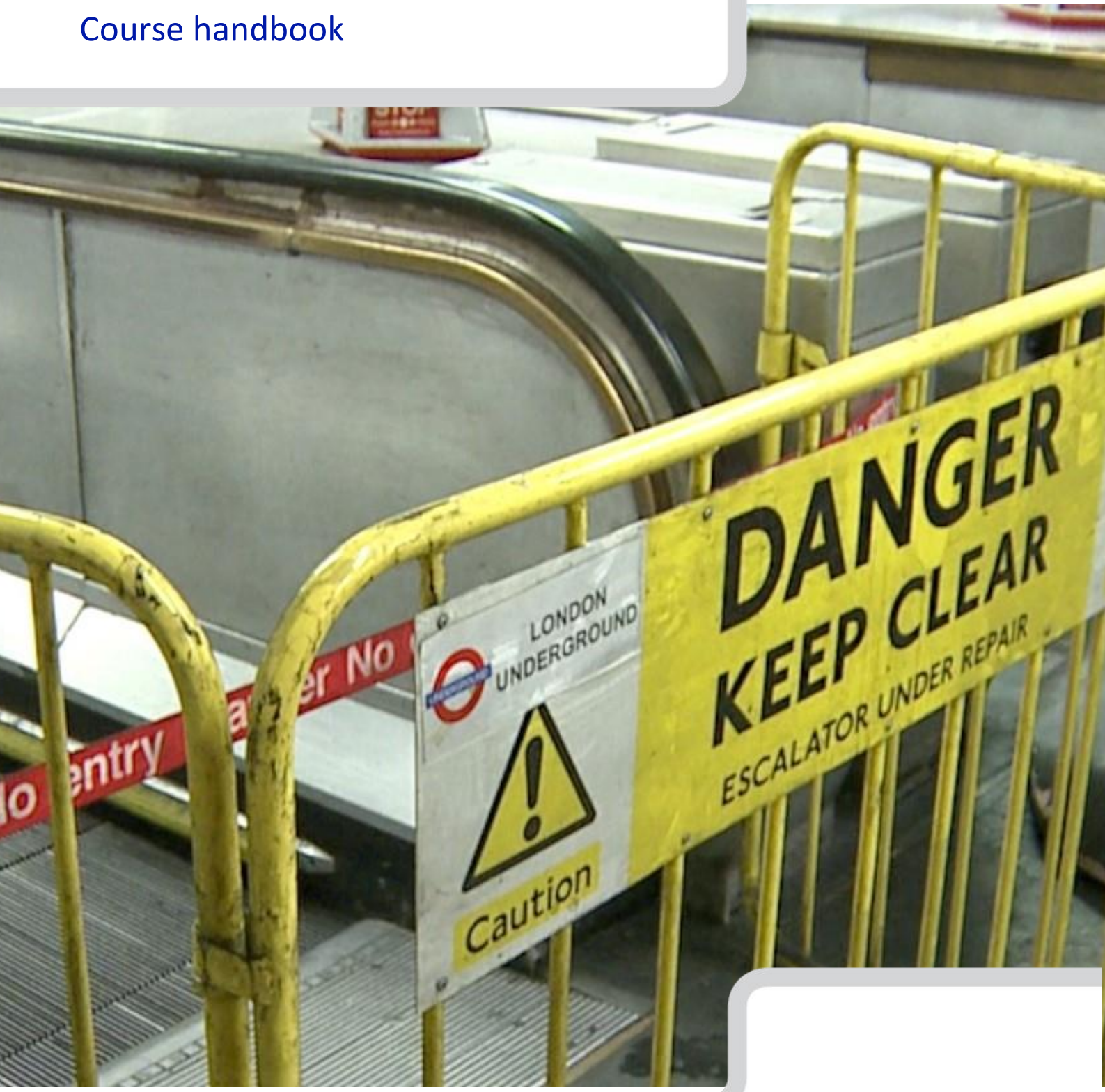
Machine Room Access (L&E)

Course handbook



UNDERGROUND

EVERY JOURNEY MATTERS

Document history

Approval of document

Owner/s of document: LUSD Track Safety Business Partner

Issue number	Date	Reason for change	Author	Revision / Review date
0.1	July 2023	Draft new version for revised course	J. Beale	August 2023
0.2	August 2023	Draft new version for course	J. Beale	August 2023
0.3	August	Revised recommendations by SME	J. Beale	August 2023
1.0	15 Sept 2023	Published version to upload to SP	J. Beale	

Contents

Introduction

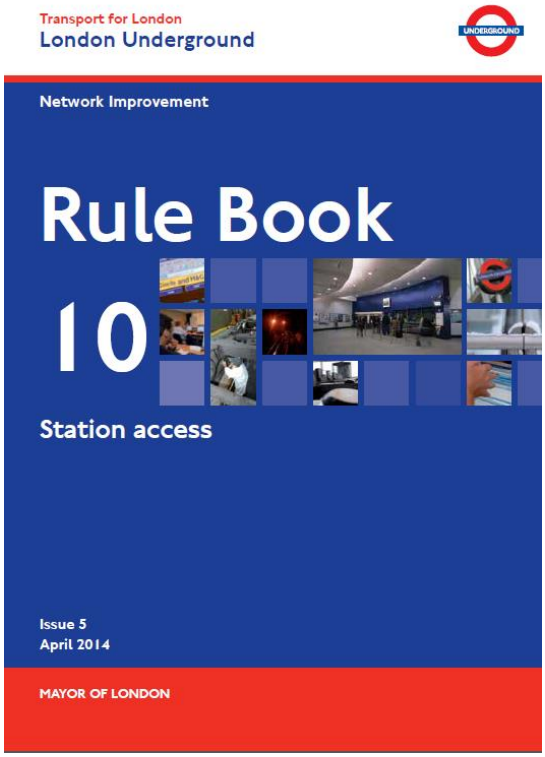
The safe access, maintenance and operation of our lifts and escalators is critical to providing the high levels of customer service.

Your role is fundamental to us achieving and maintaining our high safety record.

This book outlines the key responsibilities you have as per the LU Rule Book and outlines some safety reminders when working in or about our lifts and escalator environment.

We hope you enjoy the course.

London Underground Rule Books



The following points are from the London Underground Rule Book and have been included to help you appreciate how your role fits into station management.

Section 1.4 – General requirements

All staff or visitors working at or visiting a station other than their normal place of work must sign in on arrival and sign out on departure.
All staff or visitors working at or visiting a station must carry out the customer service CSS/Ms/managers instructions at all times with regards to station operation.
Visitors to stations must wear their visitor passes at all times whilst signed in at the station.
Any work on a station must have either:

- a valid RailSys number and be listed on the Permit Access System or
- a recognised fault report number

3.1 – Signing in at a staffed station

The CSS/CSM must fill in the appropriate sections of the evacuation register and give out visitor's passes.

For anyone signing in with a RailSys number or recognised fault number, a PiCER form must be completed.
Note: It is not necessary to enter individual names in the Evacuation Register when the PiCER form has been completed. Only the person in charge needs to sign in with the CSS/M.

The CSS/M will hand out enough visitors passes for everyone in the group and record the PiCER number, pass numbers and the number of staff in the evacuation register.

3.4 Giving a safety briefing

The CSS/M will give a safety briefing to the person in charge or visitor.
The person in charge must repeat the briefing to all persons in their group detailing:

- the emergency evacuation procedure and assembly points
- the fire alarm procedure
- the availability of first aid equipment (if none provided under the safe system of work)
- any operational or safety restrictions on the station
- any additional hazards you are aware of

4 Additional rules for access to a lift, escalator or moving walkway machine room

The CSS/M must tell the person in charge or visitor to fill in part 'A' of a Permit to Enter form and check if another Permit to Enter has already been issued for the same worksite.
If another Permit to Enter has already been issued for the worksite, go to section 4.1

When part ‘A’ has been completed, the CSS/M must fill in part ‘B’ of the Permit to Enter form and give the bottom copy to the person in charge or visitor.
Note: The CSS/M must issue a Permit to Enter for each work area so that you know how many persons are in a lift or escalator machine room at any given time.

The CSS/M will give the person in charge, or visitor, a machine room key and any additional keys required for the work being carried out and record this in the evacuation register.

4.1 If another group wants to work in the same machine room

Each working group must have its own person in charge, responsible for the adherence to a safe system of work and the safety of their own group.

You must discuss and agree a safe system of work with all persons in charge of all groups and make sure the safe system of works does not conflict with any group.

When this has been agreed, you must make sure the details of all persons in charge are recorded on all the permit to enter forms of the other groups.

Where the transfer of keys is required between permit holders this must be recorded on the relevant permit to enter forms retained by the customer service CSS/M/manager.

If a safe system of work cannot be agreed, only one group can remain. The Network Operations Engineer (NOE) must be contacted by the CSS/M prior to access being denied (see 6.1)

A group with booked possession normally takes priority over one without. The main exceptions are:

- Line Closure

- Station Closure
- Asset Failure (can lead to station closure)

Each working group must still adhere to the ratio of trained to untrained (1+4) except for movement of materials

6.1 Raising concerns

If the CSS/M has any concerns about access they should attempt to resolve any concerns with the person in charge. If they can't be resolved they will contact the network operations engineer (NOE), who may deny access. The CSS/M would then complete and issue a denied access form detailing the reasons for the denied access.

6.6 Working in a lift or escalator machine room

You must keep your Permit to Enter form with you when you are carrying out the work as it is your authority to do so.

You must tell the customer service CSS/M/manager when you move from one room to another if your permit to enter covers more than one lift or escalator machine room.

7.1 Clearing and checking the worksite

When the work has finished
You must make sure that:

- the work has been completed to the required standard and is fit for purpose
- the worksite is clear of all persons in your work group
- the worksite is clear of tools, plant, equipment, materials or any other obstructions
- station areas affected by your works have been left in a clean, tidy and safe condition with doors locked and secured.

Before leaving a lift or escalator machine room

You must also make sure all machinery guards and castell keys are in place and respective padlocks are removed if the lift or escalator is going in to customer service

7.2 Reporting back to the customer service CSS/M/ manager

You must report back to the customer service CSS/M/ manager and

- confirm that the work has finished, and the site has been left clear, clean and in a safe condition.
- fill in part 'C' of the permit to enter form.
- check that all machinery guards and castell keys have been replaced if necessary.
- give any keys that have been recorded on the permit to enter form to the customer service CSS/M/manager and make sure this is recorded in the evacuation register
- Return or discard all visitor's passes

Where a PiCER form has been completed

In addition, you must complete the "person in charge declaration-exit" section of the PiCER form and make sure all members of the work group are signed out in the PiCER form. The CSS/M must keep the PiCER form for station records.

Permit to Enter

Signing In

When you arrive at the station always ask for the customer service CSS/M or customer service manager. Only the CSS/M can issue the Permit to Enter. You'll need to explain the purpose of your visit and complete a Permit to Enter form.

The CSS/M will check your entry permit and machine room awareness pass, to ensure that you hold the correct endorsements for the work you wish to undertake.

The person in charge will be asked to complete a PiCER form with the CSS/M. All members of the work group must sign the PiCER, after which it will be signed by the CSS/M prior to the start of the work. They will enter the details on to the evacuation register (electronic form) and record the pass numbers along with the total number of people in their group.

Permit to Enter procedure

There is a simple safety management system known as Permit to Enter. This system allows access to London Underground's lift and escalator environment. As the Person in Charge of a workgroup, you are responsible for the safe working methods of you and your group.

A Site Person in Charge must have a lift and escalator machine room access pass to the correct level, and with the appropriate endorsements for the activity to be undertaken.

A trained person with an access pass can take up to four other untrained people into a machine chamber with them.

Before filling in the Permit to Enter, ask if there are any other permits in force. If other permits are in force, additional procedures need to be followed (Rule Book 10, section 4.1).

If two or more groups require access to the machine room and there is conflict, the Engineering Services Help Desk or Network Operations Engineer will decide which work takes priority

Permit to Enter form

There are four sections on the permit:
Section A – SPC to complete when signing in
Section B – CSS/M to complete when SPC signs in
Section C – SPC complete when signing out
Section D – CSS/M to complete when SPC signs out

When sections A and B have been completed, the CSS/M should hand you the bottom copy of the permit.

The CSS/M will issue you with the machine room key in exchange for your machine room pass.

Completing a Permit to Enter form

PERMIT TO ENTER - LIFT/ESCALATOR MACHINE ROOM OR ENVIRONMENT 1

UNIQUE PERMIT No.....

Castell Key holder: YES/NO	**Permit: 1 – 2 – 3 – 4** 2

NOTE: This permit is only valid for the period shown, if work needs to be continued beyond the period shown, a new permit must be issued. A Permit to Enter can only be issued by a Station Supervisor.

A. SITE PERSON IN CHARGE (Before the start of work) 3

Station:	Work Location:	Description of work: 4
Is isolation of Lift or Escalator required: Yes / No	If yes, write Lift or Escalator number(s)	5
SABRE number:	Fault number:	MOM Licence Number: 6
Company Name and Company or Manager's Telephone number:	SPC's Mobile Phone Number:	7
Total number of "Machine Room Awareness" pass holders in group:	Total number in group:	8
Report back no later than:		9

I certify that I have: 10
- The training required to undertake and the authority to oversee the works described above.
- Responsibility for staff under my control.

Name:	Signature:	Time:	Date: 11

B. STATION SUPERVISOR (Before the start of work) 12

Visitors Pass number issued to Site Person In Charge:	Machine Room Pass number of the Site Person In Charge: 13

Safe system of work agreed:	Permit 1 Signature:	Permit 2 Signature:	Permit 3 Signature:	Permit 4 Signature:	14

- I certify that if material is required to be moved using Lifts/Escalators, the contractor has a valid MOVEMENT OF MATERIAL LICENCE.
- I certify that if isolation or any physical use of Lift(s) or Escalator(s), is required, the contractor has an Engineer's Disc to display on the Isolation Switchboard.

Note: The Disc must display the Company name and Company contact details. If isolating, the SPC must also have a LOTO padlock. 15

- I certify that I have checked the Site Person in Charges' Certification, Documentation & Authority to work.
- I have retained the Permit Holders' Machine Room Pass in exchange for the following Key(s).

KEY NUMBERS ISSUED TO SITE PERSON IN CHARGE:

Name:	Signature:	Time:	Date: 16

C. SITE PERSON IN CHARGE (After work has been completed)	YES	NO	N/A	**If NO, please explain** 17
Has the Lift/Escalator work area been left clean and tidy?				18
Is all the Guarding in place?				19
Has the Castell key been returned?				20
Has the L.O.T.O. Padlock been removed?				21
Has the Disc been removed?				22
Is the Lift/Escalator Environment clear of all persons covered by this permit?				23
Have all outstanding permits been signed off?				24
Have all other permit holders been informed?				25
Are the Lift(s)/Escalator(s) ready for service?				26
Has the L & E log book been completed?				27

Name:	Signature:	Time:	Date: 28

D. STATION SUPERVISOR (After work has been completed) 29

I have received the following key(s) and returned the permit holders Machine Room Pass 30

Name:	Signature:	Time:	Date: 31

FORM NUMBER 769549

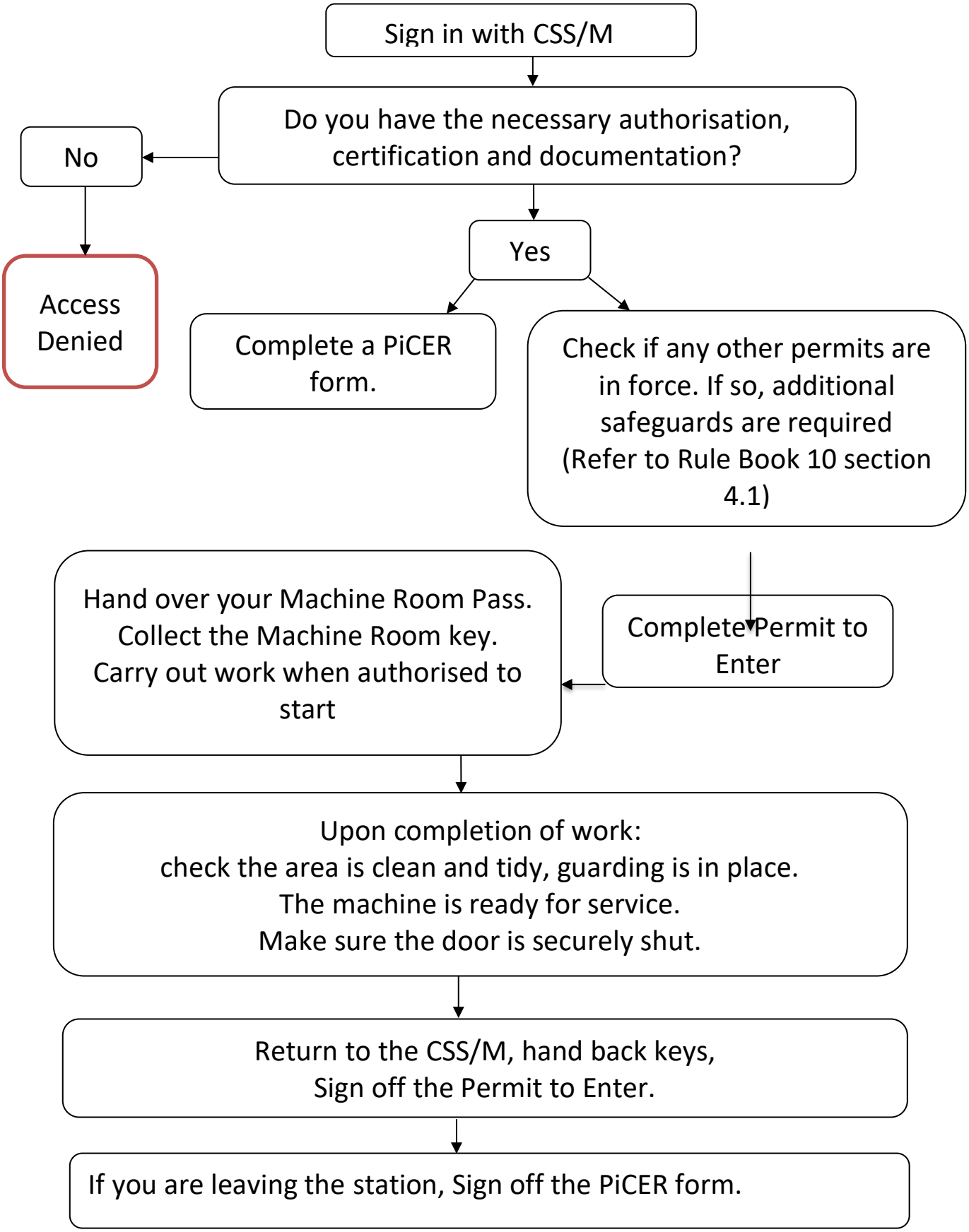
On completion of the work

You must return to the CSS/M's office, align the two copies and complete section C to sign off the permit. The CSS/M will complete section D and return your machine room pass in exchange for the machine room key. If you are leaving the station, sign out on the Visitors' Register and the PiCER form.

Note: During traffic hours it may be necessary to remove a machine from passenger service. However, the removal of a machine from passenger service (when not in an emergency situation) is a safety critical licenced activity, which the holder of a machine room pass is not qualified to do.

Only qualified members of station staff can do this. If you need to do this activity, refer to the CSS/M.

Access procedure flow chart



Machine Room safety

Safety checks and familiarisation on entry

- Clean and tidy, no slipping or tripping hazards
- Guarding in place
- Clear walkways, between machines and exit routes
- No discs on the isolators
- No unauthorised persons in the machine room
- Location and identification of assets (machines, isolators and controllers)
- Identify equipment that is not part of the asset installation
- Locate firefighting equipment
- Locate the telephone

Fire

Check the fire extinguishers are available
Know the fire drill
Practice good housekeeping (tidy up as you go)
Do not tamper with fire equipment

Guarding

Stop work and report any damaged or missing guarding
Do not replace missing guarding unless qualified and authorised to do so, ensuring machine is isolated.
All access gates must be kept shut when not in use

Only Engineering level pass holders with the appropriate endorsements may gain access to unguarded areas.

Additional equipment (not part of the asset)

Your work may have a negative impact on the equipment listed below and safeguards e.g. fire isolation, may be needed in order to protect this equipment.

- Fire detection and suppression equipment
- Tunnel fans
- Other ventilation equipment
- Pumps
- Drainage equipment
- Electrical switchboards (not part of the asset installation)

Storage in machine rooms

Most machine rooms will have a permanent storage (concrete bunker). A list of permitted contents is on the inside of the lid and must be strictly adhered too.
All rubbish must be removed from site at the end of every shift
If materials that need to be stored are over and above the authorised contents of the concrete bunker:

- A storage licence will need to be applied for and obtained.
- The authorised materials must be kept in a locked metal fire proof bin of approved design.
- A copy of the licence must be displayed on the bin.
- Spare padlock keys must be left with the Station CSS/M.

Lubricants and flammable materials

Limited quantities of approved spare parts and lubricants can be stored in the concrete bunker, subject to the authorised contents list found on the inside of the lid.
Where no bunker is fitted a suitable flammable store must be used
Note: Petrol is not allowed in the machine chamber.

Hot Works

Works that create heat, sparks or use naked flames, such as welding, burning, and grinding.

- Fire isolation licence may be required.
- A Hot Works Permit will be required.

Appropriate clothing and PPE

Always ensure you have no loose or flapping clothes i.e. belts, unfastened Hi-Vis, etc. and hair is tied back when in close proximity to moving machinery.
When necessary, use appropriate PPE in accordance with your method statements and risk assessments e.g. eye, ear, head, hand and foot protection.

Hoardings

These areas are hazardous, and your machine room pass does not automatically guarantee you access. Separate access permission may be required. Hoardings are used to protect a work area that surrounds a lift or escalator that is being refurbished or where there is major work going on. The Construction Design and Management (CDM) regulations apply inside the hoarded area.

Access into unguarded areas (escalator inclines)

Incline sections of the machinery are unguarded. Access is via gates in the machine chamber guarding.

Engineering level pass holders with the appropriate endorsements may gain access to unguarded incline areas.

If you have a general level machine room pass, you may only access the escalator incline with the escalators isolated, except where the entire incline has a permanent physical barrier.

Note: Isolation is needed when accessing the wall side and the ramp. If accessing the ramp you may have to isolate more than one machine. When the machines are isolated, access is available to all machine room pass holders, including members of the group under supervision.

Personal Hygiene

The two main health risks in machine rooms are:
Rats' urine - Leptospirosis
Hypodermic needles (Sharps) - Hepatitis or HIV
Safeguards:

- Do not bring food or drink into the machine room
- Wash your hands before taking refreshment breaks
- If you see a hypodermic needle in a station, report it to the CSS/CSM who will arrange to have it removed by a qualified person with the correct handing equipment and PPE

Note: Smoking is prohibited by law anywhere on London Underground

Good Housekeeping

- Keep the work site clean and tidy
- Remove any rubbish when you leave
- If you see a build-up of passenger rubbish, report it to the CSS/CSM

Note: The Health and Safety at Work Act 1974 states: You are responsible for your own health and safety and that of anyone that may be affected by your work; this includes your colleagues, other contractors, station staff and the general public.
British Standard safety signs must be strictly adhered to.
Walkways between the machines and fire escape routes must be kept clear.

Isolation

Isolation is the disconnection of a machine from its electrical supply in order to ensure that there is no risk of electrocution or injury or entrapment by moving machinery.

When is isolation required?

- To make sure a machine is stationary when working on it
- To access an unguarded area
- When working on electrical components
- When you have a “static load” on the escalators, e.g. scaffolding

Isolation may be required in an emergency in which event it will need to be carried out quickly. Isolation is an important part of machine room safety. It is important that you know how to isolate a machine. Even if you do not routinely isolate lifts or escalators as part of your normal job, you may one day be required to carry out this task in an emergency.

Two main types of isolation switchboards exist on London Underground:

- Electrically operated
- Mechanically operated

These isolation switchboards have three elements:
Power controls – which turn the power supply on and off
Isolator – a secondary switch in series with the power control to ensure that the current cannot be restored when isolation is required.
Castell key – a mechanical lock with a unique key which must be in place for the isolation switchboard to be switched on. If the Castell key is removed, the isolation switchboard cannot be turned on. Every Castell key is unique - spares or duplicates are not available.
Note: The Lock Off / Tag Off (LOTO) procedure must be followed to ensure everyone’s safety whilst working in this environment. (LU Work Instruction WI-31977_A1)

Engineer's or Contractor's Discs

To isolate a machine, you will need an engineer's disc. This can be rectangular or round with the name and telephone number of the company whose staff have possession of the machine.

The disc must be:

- a minimum of 260mm in diameter
- made from a non-combustible material
- have black writing on a red background
- display a phone number to contact in the event of an emergency

Operational Discs

Machine rooms also contain square yellow isolation signs. These are operational discs and are intended for use by station staff only but can be used during isolation for inspection purposes only with permission from the station CSS/M. They must not be used during isolation for engineering works.

Isolation Procedure

Following this sequence to isolate a machine:

- Check that you are isolating the correct machine (check the machine number matches the isolation switchboard number)
- Hang your engineer's disc on the isolation switchboard, ensuring that it is clearly displayed
- Make sure the machine is stopped, by checking the drive chain or other moving parts

- Push the red button which the turns the power supply off
- Operate the isolator switch by gripping and rotating it outward and downward through 180º (Note: The switch may be quite stiff)
- Turn the Castell key anticlockwise through 90º and withdraw it away from its socket
- Put the key in your pocket or in a safe place where you alone have access to it

Note: Even after isolating a lift or escalator the incoming supply to the isolation switchboard is still 'live'. The incoming supply is fed from a switch room and is the responsibility of LU's P&E (Power and Electrical) Dept. They should be contacted about any incoming power supply issues.

Lock Off / Tag Off (LOTO) Procedure

Every time isolation is carried out, the Lock Off / Tag Off procedure must be used.

- Feed hasp through isolator handle
- Feed the padlock and label through a hole on the hasp.
- Lock the padlock

Note: The padlock key must be kept securely whilst you are working. (The same as the Castell key)

Reinstating an Isolation Switchboard after LOTO

Reinstatement is the reverse of isolation:

- Unlock the padlock.
- Remove the padlock and label from the hasp.
- Remove the hasp from the isolator handle.
- Insert the Castell key into its socket (It will only fit one way). When the key is in place, turn it clockwise through 90º to engage it.
- Rotate the isolator handle 180º in the up direction.

- Press the green button to restore the power supply. The light will come on to indicate that the supply is live.
- Remove the engineer’s disc completely from the isolation switchboard

Note: Sometimes, after reinstatement, fault lights on the isolation switchboard may illuminate. If this happens, press the reset button. The fault lights should go out and stay out. If it stays on or comes on again, the fault will need to be investigated by the maintenance contractor.

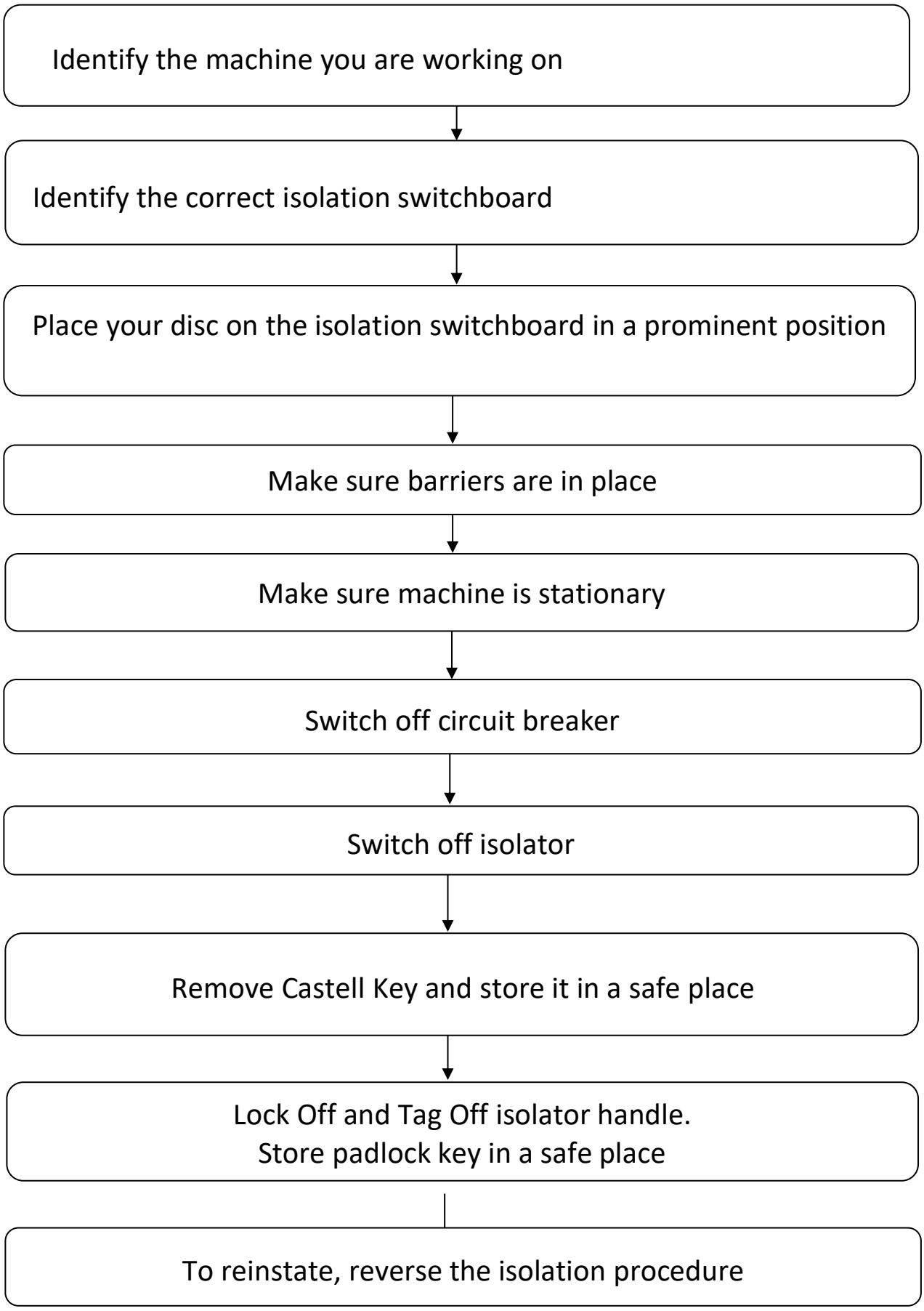
Castell key

- Don't leave the Castell key on top of the isolation switchboard or anywhere else in the vicinity where it may be found. Someone could take the key, reconnect the machine and cause electrocution or a mechanical accident.
- The key must remain in your possession. It's your guarantee that no one can reconnect the machine while you are working on it.
- Don't take the Castell key off site at the end of your shift. You must leave the machine in a fit state for service with the Castell key in place. You declare that you've done this when you sign off your Permit to Enter.
- Each Castell key is unique and will only fit one switchboard. There are no spares or duplicates. Taking it off site would mean the machine can't be restarted and would result in a phone call to your company demanding the immediate return of the key - both you and your employer will be held responsible for the resulting delay to passenger service.

LOTO (Lock Off/Tag Off)

- The padlock must be of a one key type e.g. not 1AK or S1.
- The hasp arrangement has six holes to accommodate up to six padlocks.
- The padlock, key and label are supplied by the SPC's company or department. (London Underground does not supply these to external companies).
- The label attached to the padlock must have the following information: The company or department's name, contact details (telephone number), the permit number and date.

Isolation process flowchart



Operating escalators

Note: Escalators must always be started from the passenger side i.e. from the newel post

Before starting or stopping an escalator

- When taking out the permit, ask the CSS/M to find out the normal direction of travel of the escalator. Not all escalators run in both directions.
- An engineer's discs must be placed on the isolation switchboard of the escalator[s] you are going to use.
- Ensure that no one is on the escalator or in the escalator environment.
- Put TENSA tape barriers on at both landings before stopping or starting an escalator. (These are the red tape barriers with "Danger No Entry" written on them).
- You'll need a RKL 271 Key to start the escalator.

Starting an Escalator

- Shout a warning so that people know the machine will be started. This warning should include the machine number, direction of travel and the fact it will move e.g. "Escalator No.1, on the Down, Moving!" Do not move the escalator until you are sure all persons are clear.
- Operate the key switch for the direction you want to move, [Up or Down] by turning the key clockwise, hold it there for a few seconds.
- To remove the key, turn it anti clockwise ensuring that the barrel is vertical. If not, the machine may stop.

If the Escalator fails to start

- Check that no passenger emergency stops (diamonds) have been operated.
- Check the Human Machine Interface (HMI) – the screen on the controller. If no fault is displayed and the controller requires resetting, press the reset button on the array below the screen.

- If a fault is displayed on the HMI, do not reset. Report this defect to the Station CSS/M.

Note: Escalator engineers will need to follow appropriate protocol to deal with the fault.

Stopping an Escalator using the Passenger Emergency Stops (Diamonds)

To stop an escalator you will need to operate a Passenger Emergency Stop Switch [Diamond].

- Press the red paddle on the diamond and the escalator should stop, the paddle should latch in, and a red LED indicator should illuminate.

Note:
A] The paddles you can reach without reaching over the diamond are the paddles which stop the escalator you are on.
B] If however there are no escalators on either side of you, or there is a fixed staircase adjacent, all four switches or paddles will operate that escalator.
C] Half diamonds only have two paddles, and they only operate that escalator.
D] You will need a RKL 271 key to reset the Diamond.
E] If the reset key switch on the diamond is not left in the correct position, the paddle will not latch the next time it is operated. This can happen if the key or key switch barrel is worn.
F] Some paddles don't latch when operated. This is because the reset mechanism is electrical. The reset is carried out via a key switch on the newel post

Test run the Escalator

If you've stopped or isolated the escalator, make sure that you:

- Check the HMI for any faults. If no fault is displayed, press the reset button
- Test run the escalator from the newel post
- Remove your engineer’s disc from the switchboard[s] in the machine room[s] prior to signing out

- Report any faults to the CSS/M

Points to remember

Where work that involves moving the escalator is being carried out, engineering barriers must be fitted at both landings prior to the start of work.

If an escalator is being refurbished or installed a hoarding is erected.

When starting an escalator from the newel post, give an audible warning that the escalator is moving before starting.

Don't allow passengers to use an escalator under your control.

If moving materials, ensure there is a valid Movement of Materials licence in place.

Ensure the escalator is kept clean. Good housekeeping is essential.

Visually check escalators for any obvious damage or defects and report any to the CSS/M.

Operating Lifts

There are two main types of lifts on London Underground:
PMVT (Primary Means of Vertical Transport)
These include heavy duty traction lifts. PMVTs are often referred to as Big Lifts.
SMVT (Secondary Means of Vertical Transport)
These include hydraulic or traction machine room-less (MRL) lifts, mobility impaired persons' (MIP) lifts and fire fighter and evacuation lifts.

Lift Control Panels

There are several panels that can be used to control the lift
In order of priority they are:

- Car Top
- Machine room
- Lift Car
- Landing panels

Note: The 'Stop' and 'Speed' buttons cannot be overridden.

PMVT Lifts

Taking control of a lift

Engineer's discs must be placed on the isolation switchboard in the machine room of the lift you are going to use.

- Go to the upper landing and call the lift from the landing push button.
- Open the landing control panel adjacent to the lift using a BXF 296 key.
- Set the control switch to Manual [sometimes labelled as "Landing", "Normal" or "Staff Control"] and ensure the door switches are set to open. Switches used in the landing or lift car control panels are either rotary or of the push/pull type, although the operation is different the function is the same.

Note: Taking control in the upper landing panel activates the lower landing panel as well

Landing Control

To operate a PMVT lift from the landing, you will require two people – one person at each landing – as the doors and directional switches will have to be operated separately at each landing.

When everyone is clear:

- Close the doors.
- Send the lift up or down using the appropriate directional button.
- The directional buttons are not ‘constant pressure’ and therefore can be released after a few seconds.
- When the lift arrives at the landing, the doors can be opened by operating the door switches in that landing’s control panel.
- To close the doors set the door switches in that panel to Close.
- Make sure the lift doors are stationary before opening and closing them, unless it is an emergency

Car Control

Only requires one person to operate the lift from the inside the lift car.

- Follow steps 1- 4 above
- Enter the lift car and open the car control panel
- Turn car control on and test the doors to make sure you have control of the lift from inside the lift car
- Make sure everyone is clear and close both sets of doors before moving the lift
- Send the lift up or down using the directional button. (The directional buttons are not ‘constant pressure’ and therefore can be released after a few seconds)

- When the lift arrives and has stopped at the landing, open the entrance doors and if required, exit doors
- When you're ready to move the lift, ensure everyone is clear and set the doors to close
- Relinquish car control, as the landing control panel is still switched to manual, you now have control of the lift from the landing. (Note: If you leave the lift on car control the landing panel will not be active)
- Set the upper landing control panel switch to Passenger/ Automatic leaving the landing door settings to open

Completion of Work – Landing and Car Controls

- Test the lift on automatic for one whole cycle (i.e. down and up). If the lift doesn't run, check doors aren't obstructed and that all stop devices are released. Some LU lift controllers have a Human Machine Interface (HMI), so check for fault messages or instructions. Note: If you are unsure why the lift will not run or any fault message is displayed, inform the CSS/M
- Find out from the CSS/M what position to leave the lift in
- Remove your engineer's disc from the switchboard in the machine room prior to signing out

SMVT Lifts

Note: Most SMVTs are not suitable for moving materials.

Taking control of a SMVT lift

- An engineer's disc must be placed on the isolation switchboard of the lift/s you are using.
- SMVT lifts are operated under automatic control and respond to calls from the car and landing.
- Some of our SMVT lifts have a car preference key switch inside of the lift car operating panel and this should be used to hold the doors if necessary.

- Test the lift for one whole cycle [i.e. “Down” and “Up].
- When you have finished using the lift, remove your engineer’s disc from the switchboard or isolator in the machine room, prior to signing out.

Note: If you get stuck in any lift you can communicate with the CSS/M through the communications system. If the lift communication system is not working, operate the lift alarm push button to alert the CSS/M.

Points to remember

- Where intrusive work is being done on the lift, ensure engineer barriers or gates are fitted prior to the start of work
- If a lift is being refurbished or installed, a hoarding will usually be fitted
- Visually check lifts for any obvious damage or defects and report any to the CSS/M
- Do not allow passengers to use lifts whilst works are being carried out
- If moving materials, ensure there is a valid Movement of Materials licence in place
- Ensure the lift is kept clean. Practice good housekeeping

Movement of Materials

During Engineering Hours, lifts and escalators can be used for transporting materials and equipment. This is controlled by using Movement of Materials (M.O.M.) licences.
The following rules are designed to manage risks associated with transporting materials on our assets.

General rules

Rules that should be adhered to:

- Loose/granular materials must be double or triple bagged, including when using wheelie bins.
- Where possible, equipment must be drained of fluid before transporting to reduce the risk of damage to the assets
- Liquids must be carried in sealed and robust containers and may need to be bagged.

Note: All movement of materials should be conducted in accordance with your company's method statement and M.O.M regulations

Dangerous loads

A dangerous load is one that exceeds a weight or length limit.
Two or more persons will be needed when:

- Items longer than 1.8m in length.
- Items heavier than 25kg in weight.
- Awkward loads
- Any object which would prevent one hand being free to hold onto escalator handrail

Using escalators for movement of materials

The escalator area includes:

- Floor plates from the passenger side ceiling to the machine room floor below, at both landings
- The access to the machine room door(s) or hatch

Prior to the start of movement

- Check the escalator for any damage to combs, steps, balustrade, decking, skirting and handrails. The escalator must complete at least one revolution.
- Check the lift for damage to flooring, car and landing doors and interior panels.
- If damage is found, inform the Station Supervisor.
- The SPC should brief their staff on the contents of MOM licence and the rules governing the safe movement of materials.
- Position a trained member staff within reach of the Diamond (passenger emergency stop switch) at the Top & Bottom of each escalator bank.
- The permit holder must be one of the members of staff overseeing the movement.

Note: You are not allowed to move any materials that are not mentioned in the MOM licence without written consent from the issuing authority i.e. update the licence

If transporting materials using a wheelie bin

- The lid must be shut.
- The maximum weight should not exceed 75KG. DO NOT OVERLOAD
- You must always be above the load.
- The bin must stand flat on the step.
- No persons are allowed below the bin.
- Only 1 bin at a time is allowed on the escalator.

Note: Do not use a wheelie bin if it is damaged in any way

The person overseeing movement must:

- Restrict the flow of persons on the escalator to ensure that no-one is below a dangerous load
- Ensure that people are spaced a good distance apart (about 2m, 5 steps).

- Ensure everyone has one hand free to hold on to the handrail.
- All items must be carried.
- Do not rest items on the handrails, steps or on your feet.
- Do not slide items down handrails or down the decking panels.
- Ensure care is taken when getting on or off the escalator.
- Ensure care is taken not to damage the escalator.

Note: If you damage the escalator, inform the Station Supervisor.

Erecting scaffolding above escalators

- A M.O.M. licence is required if a scaffold is to be erected on or over an escalator.
- Prior to erecting a scaffold on an escalator, it must be isolated.
- The escalator should be protected against any potential ingress of dust, debris, liquid and loose articles.
- Boards must be used to spread the load of the scaffold feet and to protect the escalator step treads from damage.

Note: When scaffolding or height reaching equipment is placed on escalator steps LU need to know the load that will be placed on them. The steps are designed to carry 2 persons each. Each person for the purpose of escalator or lift design is deemed to weigh 75Kg. As a result, LU escalator steps each have a maximum design load of 150Kg.

Using lifts to transport materials

All movements of materials should be conducted in accordance with your company's method statement and M.O.M regulations
The lift must be under staff control whilst movement is being carried out.

- Maximum permitted load in a lift is 25% of lift capacity (see the load plate) – includes the weight of protective equipment and any persons in the lift.
- The load must be evenly distributed across the lift car floor.
- Only manually operated pallet trucks are allowed for loading pallets in and out of a lift car.

- Pallet trucks can only be used in the lift, where the total weight in the lift car, including the pallet truck, does not exceed 25% of the rated load.
- Forklifts must not be used for loading and cannot be transported in the lift.
- Suitable protective covering must be used to protect the lift floor and walls.
- The car floor and interior panels must be protected with 12mm treated ply – as a minimum – for any load.
- Take care that the floor protection does not obstruct the doors (allow for free movement of the doors).
- Spreader boards must be used to protect the car and landing sills, as they can be easily damaged.

Movement of Materials license

A movement of materials license can be obtained via a written application form from:
movementofmaterial@tfl.gov.uk

Please note that the Movement of Materials application form must include the proposed methods of working, the description / list of materials and a list of machine room awareness pass holders.

The form normally takes 5 working days to process.

On completion of work

- Check an escalator for any damage to combs, steps, balustrade, decking, skirting and handrails
- Check a lift for damage to flooring, doors and interior panels
- If damage is found, report it to the CSS/M
- Test run the lift or escalator

Appendix

Note: The forms on the following pages are examples for training and information purposes only.

Permit to Enter form details (see example on page 13)

Note: any reference to the *SPC on this form refers to the SPC (site person in charge) who takes out the permit; the person in charge of the workgroup/environment. They are not necessarily the SPC for the whole site. Roles and responsibilities should be detailed in method statement, risk assessment and shared at the briefing.

Line	Form content	Explanation
1.	Unique permit number	The unique sequential number allocated by the CSS/M
2.	Castell key holder Permit 1-2-3-4	Is this permit holder responsible for the castell key Is this permit holder No 1, 2, 3 or 4 in a particular Lift or Escalator environment
3.	A. SITE PERSON IN CHARGE (Before the start of work)	Beginning of section A for the *SPC when booking on (see note*above)
4.	Station Work location Description of work	The station the permit is issued at The lift and escalator environment the permit is being issued for Brief description of the work being carried out e.g. MOM or Survey
5.	Is isolation of Lift or Escalator required If yes, write Lift or Escalator number(s)	Mark Yes or No accordingly If isolation is required, write the numbers of all lifts and escalators that are being isolated or that may need to be isolated
6.	RailSys/Access number Fault number MOM Licence number	RailSys/Access number for the work that is being carried out Fault number if attending to investigate/repair a fault Log number from movement licence
7.	Company Name and Company/Managers Telephone number	Contact phone number for *SPC's manager or employing company, (landline, mobile or auto number) must

	SPC's Mobile Phone Number	not be on site with SPC Mobile number of SPC
8.	Total number of "Machine Room Awareness" pass holders in group	How many people in the group are machine room pass holders The total number of people in the group, pass holder + non pass holders
Line	Form content	Explanation
9.	Report back no later than	Latest intended return time to Customer Service Supervisors office Rule Book 10 – Section 6.3: "Engineering work at night in public areas of the station must finish 20 minutes before the stations planned opening times unless the appropriate approvals are in place and recorded in the Permit Access System."
10.	I certify that (2 points to declare)	*SPC declaration prior to start of work
11.	Name Signature Time Date	*SPC name *SPC signature The actual time the permit is taken out (do not round up or down) Date the permit is issued, (consult visitors register)
	B. STATION SUPERVISOR (Before the start of work)	Beginning of section B for the Customer Service Supervisor when issuing the permit to the SPC booking on
13.	Visitors Pass number issued to Site Person In Charge Machine Room Pass number of the Site Person In Charge	The visitors pass number issued by the Customer Service Supervisor to the SPC The *SPC's machine room pass number as stated on his/her machine room pass
14.	Safe system of work agreed	If more than one permit is issued a safe system of work must be agreed by all

	Permit 1 Signature Permit 2 Signature Permit 3 Signature Permit 4 Signature	permit holders Each permit holders must sign on the permits of all other permit holders in the space showing the permit number of their own permit
15.	CSS declaration	CSS to record the key numbers that are issued to the SPC
Line	Form content	Explanation
16.	CSS authorisation	CSS name and signature The actual time the permit is taken out Date the permit is issued
17.	C. SITE PERSON IN CHARGE (After work has been completed)	Beginning of section C for the SPC when booking off
18.	Has the Lift/Escalator work area been left clean and tidy?	Yes, No or Not Applicable. If no, please explain why not.
19.	Is all the Guarding in place?	As above
20.	Has the Castell key been returned?	As above
21.	Has the L.O.T.O. Padlock been removed?	As above
22.	Has the Disc been removed?	As above
23.	Is the Lift/Escalator Environment clear of all persons covered by this permit?	As above
24.	Have all outstanding permits been signed off?	As above
25.	Have all other permit holders been	As above

	informed?	
26.	Are the Lift(s)/Escalator(s) ready for service?	As above

Line	Form content	Explanation
27.	Has the L & E log book been completed?	For L&E staff only – Indicate by ticking the appropriate column, Yes, No or Not Applicable. If no, please explain why not.
28.	Name Signature Time Date	SPC name SPC signature The actual time the permit is signed off (do not round up or down) Date the permit is signed, (consult visitors register, same as date in section A)
29.	D. STATION SUPERVISOR (After work has been completed)	Beginning of section D for the Customer Service Supervisor when the SPC is booking off
30.	I have received the following key(s)	CSS/M to record key numbers returned by the SPC and confirm return of SPC's machine room pass
31.	CSS authorisation	CSS name and signature The actual time the permit is taken out Date the permit is issued

Example Person in Charge Evacuation Register (PiCER)

PiCER Number:

London Underground Limited

Person in Charge Evacuation Register

Station:	Contractor:	Date:
Person-in-charge Name: Contact Number:	Sub-Contractor:	Access Number:

Location and type of works: (to include exit station where different from booking on station)

By signing on, you are declaring that you have not consumed any alcohol or taken any controlled substances, which place you in contravention of London Underground's Drugs and Alcohol Policies.

	Name	Entry Permit Number	Signature	Station Arrival Time	Time Booked Out
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Person-in-Charge Declaration – Entry

I have witnessed the above persons signing this register and confirm that no one has any obvious signs of them being in contravention of London Underground's Drugs and Alcohol Policies. I will ensure a safe system of work is maintained at all times. I also confirm that the above person have:

- All necessary London Underground and other licences and certificates of training.
- Been briefed as to the limits and scope of their work and have received/will receive the necessary safety briefings.
- Been/will be briefed on local evacuation and safety procedures and are aware of emergency contact numbers.
- Been made aware of, and will comply with, the strict no smoking policy whilst on London Underground premises.

Where Protection staff are required for the works the person-in-charge and Protection Master are to brief each other, agree a safe system of work and ensure staff under their control are aware of the arrangements prior to work commencing.

Name: **Signature** **Time:**

Access Controls Undertaken By ISWC (Where Present)

ISWC Name: **Signature** **Time:**

Operational checks undertaken by Station Supervisor on the Person-in-charge, representing the above work party, according to the London Underground Reference Working Manual.

Station Supervisor Name: Signature: Time Booked On:

Infraco Call Verification Number (Where appropriate):

Person-in-Charge Declaration – Exit

I can confirm that all areas under my control have been left in a clean, safe and secure state. I also confirm that all personnel in my work party are accounted for and left site. The exception being the Fire Watchperson who will remain on site for the required minimum of 1 hour after cessation of the hot works.

Name: Signature: Time:

Example Storage licence application

Storage Licence

To:		Landlord's Ref:
From:		User's Ref:
Department :	Section:	
Date:	Tel No:	Fax No:
Reason for Storage		
Type of items to be stored (tick as appropriate):	Maintenance ☐ Strategic spares ☐	Project ☐ Scrap ☐
Location at which to be stored	Exact site	Size of area required
Storage period required	**TO BE SUBMITTED AT LEAST 21 DAYS PRIOR TO COMMENCEMENT OF STORAGE PERIOD** From Date: To Date Inclusive	
Full description and quantity of materials/equipment to be stored. Indicate (a) = non-flammable (b) = not readily flammable (c) = flammable (d) = highly flammable (e) = risk of toxic fumes in fire situation (f) = extremely flammable		
Proposed method of storage: ☐ Bagged ☐ Caged ☐ In Compound ☐ In Bins ☐ Loose ☐ Secured ☐ Stacked **(mark as appropriate)**		
User department responsible officials		
Day Emergency Contact: Name	Office	Telephone No.
Night Emergency Contact: Name	Office	Telephone No.
Night Emergency Contact: Name	Office	Telephone No.
Bakerloo, Victoria, Metropolitan, Hammersmith & City, Central and District line applications (for Lineside and Station Pit only, not Stations or Depots) to be submitted to the line TISM. SIGNED		Ellipse WO Number Date
For and on behalf of the user department		
Name	Position	Signature

Conditions of licence to store
1. The user accepts accountability to use the storage area only as detailed above
2. The user accepts accountability for keeping the storage are in a safe and proper condition
3. The user must *vacate the storage area on or before the date shown or must apply for and receive an extension at least 7* days prior to expiry
4. The user accepts accountability for the cleanliness of the storage area when the site is vacated
5. Special conditions

The licence, which can be withdrawn without notice, is granted for the period shown subject to the above conditions

Copies distributed by Applicant (tick as appropriate)

Fleet Manager	CSS / CSM	☐
Area Manager	Line Safety Adviser	☐
Service Control Manager	Fire Safety Engineer	☐
Train Crew Manager	User Department	☐
Trains Operations Manager	Other (specify)	☐

STORAGE CONTAINER AND/OR MATERIALS MUST BE SUITABLY FIXED AND SECURED AS PER LU STANDARD S1158, SECTION 3.9 (Track Inspection and Maintenance) and LF14 (Applying for a Storage Licence)

Corporate F-10819 A4

Example Movement of Materials application

F0654 A7

Movement of materials application for escalators, lifts and moving walks

1. **Movement of material application** **Valid TFL Assets Only**		**Log No.:**	
This form must be completed in block capitals or typed. All sections must be filled and submitted to: **TFL Assets**: movementofmaterial@tfl.gov.uk			
2. **To: Notified Person :**			
From: (contractor/LU business unit)		**Email:**	
Telephone:		**Date:**	
3. We hereby apply for authority, in accordance with LU standards, S1092 ,1094 attachment 9, S1093 attachment 8 or S1095 attachment 5 to move long bulky material using lifts or escalators as detailed below or to erect a scaffold within an escalator shaft as detailed below. All staff carrying out the works has been made aware of the requirements of the above LU standards.			
Station:		**Lift No.:** **(Number must be entered):**	**Escalator No.:** **(Number must be entered):**
4: Description of works:			
5. Description of material:			
Length:	Height:	Width:	Weight:
Height of Centre of Gravity:		Quantity:	
6. Description of scaffold or tower to be erected in escalator shaft together with sketch and calculations:			
Dimensions (please attach a sketch):	Overall size:	No of Steps being used:	Load on Steps:
7. Programme			
Start date:	**Finish date:**	**Time:**	
8. Responsible person: TfL			
Name:	**Grade:**	**Telephone No.:**	

To be used in conjunction with: GI233

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TfL RESTRICTED

Page 2 of the MoM application

F0654 A7

Movement of materials application for escalators, lifts and moving walks

9. Lift and escalator machine chamber access pass details:			
Name of Site Person in Charge:	**Endorsements:**	**Pass No:**	**Expiry date:**

10. Proposed general method of working detailing protection to the lift and/or escalator: ***(should be entered on all applications)***

Number in gang:	**Has a formal manual handling assessment been carried out?**	Yes		No	

Allow at least five working days for the approval of this application, unless otherwise agreed

As you will be liable for any damage it is recommended photos to be taken before & after use mainly escalator combs

Signed:	**Date:**

11. Approval

To: Contractor / LU business unit

From: Notified Person

Signed:	**Date:**

Note: Please adhere to all attached paperwork with this MOM licence. Contractors must be MOM compliant to LU standards at all times whilst they are carrying out MOM activities. This approved MOM licence must be in the possession of the MOM operative controlling the transporting of tools and materials at all times. Failure to be compliant and not adhering to the approved MOM approved licence could result in the approved MOM licence being revoked.

The licence must be forwarded to the Line Works Planner for the booking of possession of the lifts or escalators referred to above

***This authority must be shown to the Station Supervisor when seeking a permit to enter.**

***Please ensure that all paperwork is read with this licence and all contractors must work to LU standards at all times whilst they are carrying out movement of materials activities.**
This licence must be in the possession of the operative controlling the movements at all times*

To be used in conjunction with: GI233

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Transport for London

Example Fire Isolations form

F1180 A1

Application for Change to Fire Precautions and Changes in Layout and use Including Exemptions

There are four parts to this Application Form:

- **Part A** = Check-list Prior to Fire Assurance Application - To be completed prior to making a fire assurance application. If any of the boxes are ticked as applicable then the applicant will need to make an application for fire assurance using Part B and Part C.
- **Part B** = Application form for Any Change Affecting Fire Precautions
- **Part C** = Authority to Use (ATU) - If required, this section should be filled in.
- **Work Impact Fire Assessment (WIFRA)** – Required with all applications

For Notification of Anomalies on Fire Plans – For drawing errors not changes in use of rooms refer to form F1179

PART A: CHECK-LIST PRIOR TO FIRE ASSURANCE APPLICATION

All parts of this Application Form are mandatory and must be filled in correctly or else it will be returned to the Applicant.

Use this form if your work will affect the fire precautions in any LU station, intervention or evacuation shaft. This will include full or part closure of public areas, alterations to the means of escape in case of fire and work on the fire precautions during Operational Hours. *	Use the checklist below to assist you. * If you are unsure please consult a AFE or FCT

Fire Precaution	Tick if affected
Means of escape – including for persons with restricted mobility and other disabled persons	
Fire-fighter access – the RVP, LFB Plans Box, proximity to water supplies, functionality of the SCP/SCR, fire fighter's microphones etc.	
Fire-fighting equipment – fixed and portable	
Fire detection and fire warning systems	
Fire suppression systems	
Fire ventilation and pressurisation systems	
Fire separation, compartmentation and structural fire protection [Passive Fire Protection]	
Control of the reaction-to-fire properties of materials	
Fire safety signs	
Emergency lighting	
Note 1: - Your applicant signature means that you have taken advice and the works you propose are acceptably fire safe. You must be competent to make this declaration or have your application endorsed by an appropriately competent person.	
Note 2:- AM signature (Part B) means acceptance of operational impact and responsibility for WRA/CRA/CCEP amendments, that they accept the technical assurance of the application for change on behalf of LU and are approving the works proposal.	

The works have no effect on the fire precautions:

Signed: Date:

If the works affect the fire precautions please complete the rest of the form as appropriate.

To be used in conjunction with: S1088

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Transport for London

Example Hot Works form

F0093 A4

Permit for hot works

No hot works other than those detailed on this permit can be carried out on the site. This permit is valid for a maximum of one calendar month. Complete in block letters (black ink).

PROJECT MANAGER		TEL/FAX NUMBER	
PROJECT TITLE		EMAIL ADDRESS	
WORK TO BE CARRIED OUT			
LOCATION OF WORKS (Be specific)			
RISK ASSESSMENT/METHOD STATEMENT NUMBER Most up to date Approved Method Statement must accompany this application			
Is isolation of fire protection needed? (if "YES" a copy must be attached to the MS)	Yes ☐ No ☐	Is a temporary exemption required? (if "Yes" a copy must be attached to the MS)	Yes ☐ No ☐
SPECIFIC FIRE EXTINGUISHER REQUIREMENTS WILL BE IDENTIFIED IN THE RISK ASSESSMENT. MINIMUM FIRE EQUIPMENT REQUIRED 2 X AFFF'S. 1 X CO2 EXTINGUISHER AND 1 X FIRE BLANKET.			
DATES/TIMES OF OPERATION:	START EXPIRE	TRAFFIC ☐	ENG. ☐ Tick
CONTRACTOR		CONTACT NAME	
ADDRESS		TELEPHONE NO.	DAY
			EMAIL
SUBCONTRACTOR		CONTACT NAME	
ADDRESS		TELEPHONE NO	DAY
			EMAIL

DECLARATION
I HEREBY DECLARE THAT ALL WORKS COVERED BY THIS PERMIT WILL FULLY COMPLY WITH RULE BOOK 1 TO 22, AND THAT A FULL FIRE RISK ASSESSMENT AND APPROVED METHOD STATEMENT HAS BEEN PREPARED FOR THE PROJECT. A COPY WILL BE KEPT ON SITE AT ALL TIMES. I WILL ENSURE THAT A COMPETENT FIRE WATCHPERSON WILL BE ON SITE WITH A VALID LICENCE AND WILL REMAIN ON SITE FOR 1 HOUR AFTER COMPLETION OF THE WORKS. APPROPRIATE LINE AND STATION MANAGERS HAVE BEEN NOTIFIED (N.B. This declaration to be signed by the responsible person i.e. Project Manager)

PRINT NAME		SIGNATURE	
JOB TITLE		DATE	

AUTHORISED BY (Licensed Person Only):

SIGNATURE _____

DATE _____

To be used in conjunction with: PR0767

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Notes

Contact
LU Skills Development
email: LUSDdesign@tfl.gov.uk