

# Lift installations – **ESV** identifies 19 areas of concern.

By **ESV Compliance Officer, Michael Bull**

FOLLOWING AUDITS AND DISCUSSIONS WITH THE LIFT INSTALLATION INDUSTRY IN VICTORIA – COMPANIES AND WORKERS – ESV HAS IDENTIFIED 19 AREAS OF CONCERN FROM A COMPLIANCE AND ELECTRICITY SAFETY PERSPECTIVE. IT MEANS SEGMENTS OF THE INDUSTRY WILL BE COMING IN FOR ADDITIONAL ESV ATTENTION.

Lift installation techniques have changed in recent years with the introduction of the 'Motor Room Less' (MRL) type of elevator which differs from those traditionally installed in high rise buildings.

MRL allows the lift car and associated control equipment to be installed by an assembly of components including drive mechanisms within a single shaft and as such does not require a dedicated motor room. Obvious benefits are quicker installation time and increased available floor space.

MRL's are sourced in component form from overseas manufacturers and assembled on site by lift company employees. Electrical components and wiring is provided with the

unit and connected by various means mostly plug in connectors. In Victoria most of the wiring between components is deemed to be electrical installation wiring – as defined in electrical installation regulations.

Lift industry consultants, licensed electrical workers and union bodies representing those workers have raised concerns about aspects of the lift installation, in particular – conformity to wiring standards.

As a result ESV has undertaken an audit program of selected lifts to identify the level of conformity with relevant Australian Standards. Results of a limited audit indicate a lack of conformity in some aspects of lift installation, something consistent throughout several lift assembly companies.

Lift companies have a limited understanding of responsibilities required to operate as an REC. Historically, lift companies have operated in isolation from regulators since the departure of an inspection regime conducted by former government departments. Self regulation began in this industry in Victoria during 1994 and since then limited interaction between industry and regulators has occurred.

Where interaction has occurred with regulators it is usually limited when there has been an incident.

Areas of concern identified:

1. Unused long runs of conductors which remain in association with connected conductors and are not terminated and protected at both ends in a satisfactory manner.
2. Supply conductors (lift mains) not compatible with the electrical installation to be connected, or confirmation of mains suitability not available for audit.
3. Wiring systems supplying lifts including consumers' mains to lifts shall comply with AS/NZS3013 or be of a type capable of maintaining supply.
4. Electrical equipment has not been installed so that all material immediately adjacent to or in contact with a conductor or cable is shaped so that it will not cause such abrasion of the conductor or insulation as could lead to mechanical or electrical failure.
5. Radius of bends in wiring systems have not ensured that conductors and cables do not suffer damage.
6. Wiring systems installed where they are likely to be subject to mechanical damage and have not been adequately protected in accordance with clause 3.3.7 & 3.9.4.2. to 3.9.4.6
7. Cables have not been installed to be protected against mechanical damage or otherwise arranged to ensure that any damage that might occur is readily visible.

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## Recessed downlights: your detailed review is mandatory.

MANY CONTRACTORS ARE UNSURE ABOUT THEIR DIRECTION ON RECESSED LUMINAIRE INSTALLATIONS SINCE THE NOVEMBER 2007 RELEASE OF THE NEW WIRING RULES. THIS IS UNDERSTANDABLE, WHEN A DETAIL CAN MAKE ALL THE DIFFERENCE TO THE OUTCOME. HOWEVER, ARROWFORM ARE SPECIALISTS IN THIS FIELD AND PROVIDE SOUND, OBLIGATION-FREE ADVICE ON THE NUMEROUS ISSUES INVOLVED.

**Contractors can simply ask themselves: Does the product and installation combination cover the following vital points?**

1. Compliant with 4.5.2.3 (all paragraphs)
2. Peace of mind – no holes in your fire protection
3. A genuine enclosure
4. Comprehensive product installation instructions supplied
5. Certified approval
6. Easy, reliable anchorage – won't easily dislodge
7. Provides for subsequent installation of insulation including loose-fill
8. Adequate safeguards against future interference
9. Won't trap leaves etc and create a fire hazard
10. Enduring materials used
11. Future globe replacement won't create a safety/compliance issue
12. Uncluttered ceilings outcome
13. Combustible dust can't create a fire hazard
14. Provides maximum downlight positioning flexibility
15. An affordable complete solution
16. Minimises chance of annoying callouts
17. Preserves client's insulation effectiveness
18. Won't pollute client's indoors
19. Won't disrupt acoustics (sound privacy)
20. Pays for itself in energy savings

For those already using Arrowform's sealed fire-resistant Isolite™ enclosures with their downlights, little has changed because it's an integral part of the new rules option (b).

Arrowform's expanding product range can meet all of the issues above, particularly since the addition of the proven Flexi™ range for limited access areas, e.g. between floors, cathedral ceilings etc.

Unfortunately, many contractors have found out too late, that it's pointless paying anything for incomplete protection. Others wisely use only quality protection to ensure that they retain their trade license, their insurance cover and meet their duty of care obligations. And when client expectations are satisfied, then comes the best form of promotion... recommendation!

8. Cables have not been supported and if necessary fixed in position so as to provide adequate protection against damage.
9. Cables enclosed with low and extra low voltage within trunking has not been installed as per AS3000 requirements. Insulated cables installed without sheath shall be installed in a suitable wiring enclosure in accordance with clause 3.10
10. Earthing conductors and earthing mediums have been installed in a manner that fails to provide protection against likely mechanical damage, inadvertent interference and chemical deterioration. Earthing conductors have not been protected against becoming displaced.
11. Earthing conductors were observed to have been removed or displaced from their intended fixings – reasons unknown.
12. Earthing terminations were observed to be affected by galvanic reaction – particularly around lift door assembly where steel, copper and aluminium formed the components to complete earthing connection.
13. Connections between conductors and between conductors and other electrical equipment were made in such a way that safe and reliable contact was not ensured.
14. Electrical equipment was not installed to avoid harmful influence between circuits operating at different voltages.
15. Isolation devices were not clearly marked to identify the circuits they isolate.



16. Devices for switching off for mechanical maintenance were not placed and marked and convenient for their intended use.
17. Verification was not available to ensure circuit arrangements meets requirements of voltage drop and operation of protective devices.
18. Cables were installed that were not identified by the colours given in AS/NZS 3000:2000, Table 3.5.
19. Electrical workers are operating in different states and are not attaining the relevant state licence and at times some of the workers are not licensed at all.

Other items that are non electrical, but do affect the worker were:

- > Many lift installations were not provided with hand rails on the working area of car tops.
- > Guarding to the front opening of lifts shafts was often defective, or not present, and where present were being used as a storage area for equipment. This provides a risk to persons working in the shaft where equipment may fall into the shaft, or in the event of emergency egress, causing obstruction to workers exiting the shaft.

ESV will be addressing the issues which have been identified, with the intention of removing both the inconsistencies and non-compliant practices carried out by some sections of the lift installation industry.



EXAMPLES OF INCORRECT LIFT INSTALLATIONS DETECTED IN VICTORIA – EXPOSED CONNECTIONS AND INCORRECT CABLE IDENTIFICATION.

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