The New Zealand LIFT FAX

The New Zealand Lift Fax is produced bi-monthly for the NZ lift industry. Just send your email address to LEC to subscribe.

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05/2008

EDITORIAL: TIME FOR A CHANGE:

As the international lift industry continues to expands to satisfy the burgeoning growth in the huge Asian market, the western world, stricken by ever expanding debt to maintain our financial market driven growth at any cost, where we continue to feed on our global influence over emerging nations, but at what expense to humanity?
By accepting without question a free market capital driven society that has created massive past wealth based on the myopic endeavour for profit without moral bounds, we are reaching a point were technology is blindly dictating the type of world we will live in.
We humbly grasp onto democracy as our enlightened saviour, but our appointed leaders succumb in all decisions to the financial ideologies of extreme short-term individual fiscal responsibility, while seemingly only celebrating celebrity and privilege over others as their right of office.
The common good humans espoused over two centuries ago in philosophy and all religions, and that played such a strong ideal in the development of the Western societies seems to have lost its influence among our leaders of today, where we seem not to be able to afford to distribute our wealth at a rate and breadth that ensures all have equal opportunity to gain self worth and be able to fully participate in our society over our lifetime.
As a lift industry, we can begin by not just creating work, but by creating worth! By aiming for excellence in our people and our service so that they might grow, and we as a corporation can grow with them, not in spite of them.

WHAT'S GOING UP or DOWN THIS MONTH:

EN81-20 & 50 WHERE IS IT?

I am pleased to advise you that EN81 parts 20 & 50has been approved and was issued by CEN to the European National bodies on 6th August 2014. CEN does not publish standards but issues new standards to the various European National bodies (e.g. BSi, DIN, AFNOR etc.) who are then responsible for publishing the standards in their country/jurisdiction and in this case are required to publish the two standards by 28th February 2015 at the latest.

There will be a three year period of grace in Europe during which either EN81 parts 1 & 2 or EN81 parts 20 & 50 can be used for new lifts however EN81 parts 1 & 2 will be withdrawn on 31 August 2017 after which only EN81 parts 20 & 50 will be allowed to be used in Europe. *See later articles.*

GREG MOODY:

As I enter my industry twilight years it's good to know that Greg Moody is going to be around to provide some independent lift-experienced inspection services in the South Island over the coming years. Greg is working with Auckland based Murray Barr of Vertrans & Associates (NZ) Ltd

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HITACHI LIFT TO ACHIEVE 72 KPH

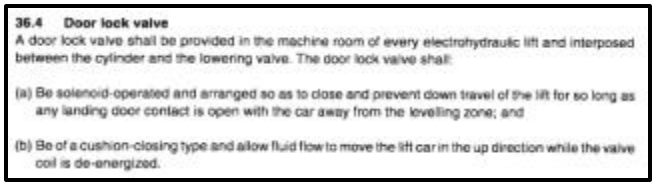
Japan's Hitachi says it will provide the world's fastest elevators, which can clock speeds of up to 72 kmph **(20m/sec)**, to a high-rise building in China, the electronics and engineering firm said in a press release on Monday.
The lifts will be delivered to the 111-storey, 530-metre-tall Guangzhou CTF Financial Centre due to be opened in the southern Chinese city of Guangzhou in 2016,
They will be able to travel the length of the 440-metre shaft - from the first to 95th floor - in a stomach-churning 43 seconds.
Hitachi will install a total of 95 elevators at the tower, including two of the superfast lifts, as well as slower machines such as double-decker lifts, the statement said.
The centre will be the tallest building in Guangzhou, complete with office, hotel and residential space.
The world's fastest elevator uses a newly developed permanent magnet motor that achieves both a thin profile and a high output, the statement said.
It is also equipped with a braking system capable of withstanding the terrific heat that might be generated if a malfunction ever develops.
China accounts for about 60 per cent of global demand for elevators and is at the centre of fierce competition among the world's elevator makers, a Hitachi official said. The world's fastest elevator currently in operation is the 60.6km/h **(16.6m/sec)** lift at Taipei 101, in Taiwan's main city, he said. **AAP.**

DOOR LOCK VALVES:

The Australian lift industry when introducing AS1735 Part 3 for Electro-hydraulic lifts around 1975, acknowledged concern over the reliance on only a single down valve controlling down travel of a hydraulic lift.
Where this valve mechanically failed or didn't close fully due to obstruction at the seat, although electrically the circuit is off, the lift could still continue to creep down until it either passes a floor level, whereby the door zone relevel feature will operate, or it lands on the pit buffer.

Either way, the fail safe principles inherent in all lift control design stating a design should not become unsafe through a single component failure, is here undermined.

In Australasia, the 'door lock valve', or secondary down valve, was introduced to overcome this design failing, which is reflected in **AS1735:1982 Part 3 clause 45.4** as well as **NZS4332:1997 clause 36.4.**



36.4 Door lock valve
A door lock valve shall be provided in the machine room of every electrohydraulic lift and interposed between the cylinder and the lowering valve. The door lock valve shall:

(a) Be solenoid-operated and arranged so as to close and prevent down travel of the lift for so long as any landing door contact is open with the car away from the levelling zone; and

(b) Be of a cushion-closing type and allow fluid flow to move the lift car in the up direction while the valve coil is de-energized.

Interestingly this is only in these Australasian passenger lift standards and not reflected in either EN81 or the American standard A17 for electro-hydraulic lifts. Maybe this is because of the slower speeds of hydraulic lifts or that it has never been experienced as a problem.

With the door zone re-level feature in place and without this secondary valve, the worse case during normal operation would be a lift ending up on the over-travel in the pit. An inconvenient but not necessarily an unsafe condition!
Where the danger could arise, is with mechanics undertaking in-shaft maintenance and expecting the lift to always stop when fail-safe roof-top controls are released.

What brought this to my attention was having to eat humble pie when questioning a Chinese supplier as to why a door-lock valve wasn't included in their Low-rise Low-speed local hydraulic installation, and then when checking this new standard; **NZS4334:2012**, finding that there is no requirement for it.

Upon further consideration, with these low-rise low-speed lifts that have small over-travels and require re-level features, risk to passengers would be negligible, although that said, with reliance on mechanics to initiate safe space dogs or pit props, a a down valve mechanically failing in this area could be embarrassing to say the least.

THE STATE OF TESTING NEW LIFTS IN NZ:

Being long in the tooth in this lift industry I have patiently observed the NZ lift industry since introduction of its Building Act in 1992, whereby a central government regulatory structure of lift equipment certification was dismantled and local councils were given the responsibility to administer compliance of mechanical access equipment (lifts) through an introduced Consent process.
The process of commissioning of new lift equipment instantly relied on the past acceptable prescriptive codes termed D2/AS1 for passenger lifts – D2/AS2 for small lifts up to 0.3m/sec, and D2/AS3 for escalators and travellators.

What has been overlooked for the past 22 years in NZ is a clear process of testing and inspection of new lifts (D2 equipment) termed a verification method that has resulted in many inconsistencies and poor commissioning of lift equipment when compared to the past.

I am not suggesting we turn back the clock, as the Building Act is a progressive piece of legislation. What is needed when an application is made for Consent anywhere in New Zealand, is a clear verification method produced, so that the local body council officers appointed to administer the Consent process, have a clear and consistent process checklist to follow. This should ensure a more consistent, safe standard of testing and inspection of D2 equipment is maintained under the Consent process in NZ, and it won't be sufficient to just encourage Consent Officers to become lift experts.

Secondly, along with the demise of the central process in 1993 was the privatizing of inspectors without any consideration seemingly being given as to the need for experience, training or competence to carry out lift testing and inspection.

It seems with the Government 'Walk away' approach to lift compliance in NZ, it was to be replaced by moving the responsibility of ensuring compliance onto building owners to seek expertise, and to fall back on Council officers to administer the total building consent process and verify the solution, all without a clear verification method.

Compounding this problem, there was no Government recognized D2 lift inspection certification of independent inspectors structured in NZ to fill a rapidly expanding void in experience.

And so now, with only a handful or aging people if that who might be sufficiently competent to inspect lifts in NZ, let alone train people, one wonders how long before a major incident resulting in death to users of lifts before this issue becomes our next leaky building or mine explosion disaster.

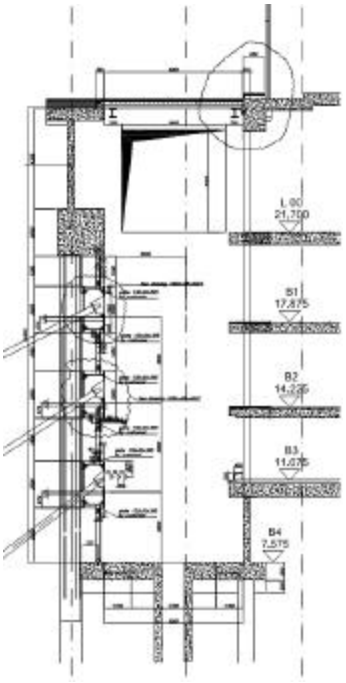
ARUP LORRY LIFT FOR BRITISH MUSEUM:

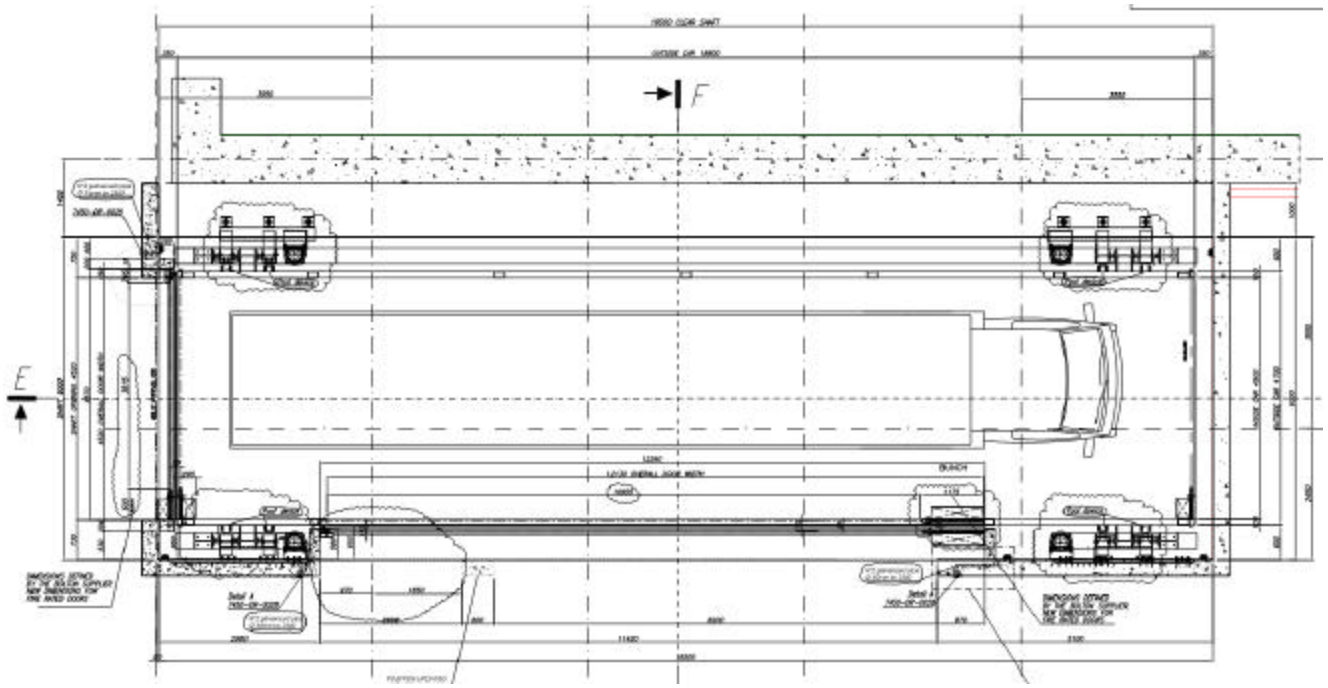
A bespoke lorry lift has been designed by UK Arup's Vertical Transport Specialist, **Roger Howkins.**

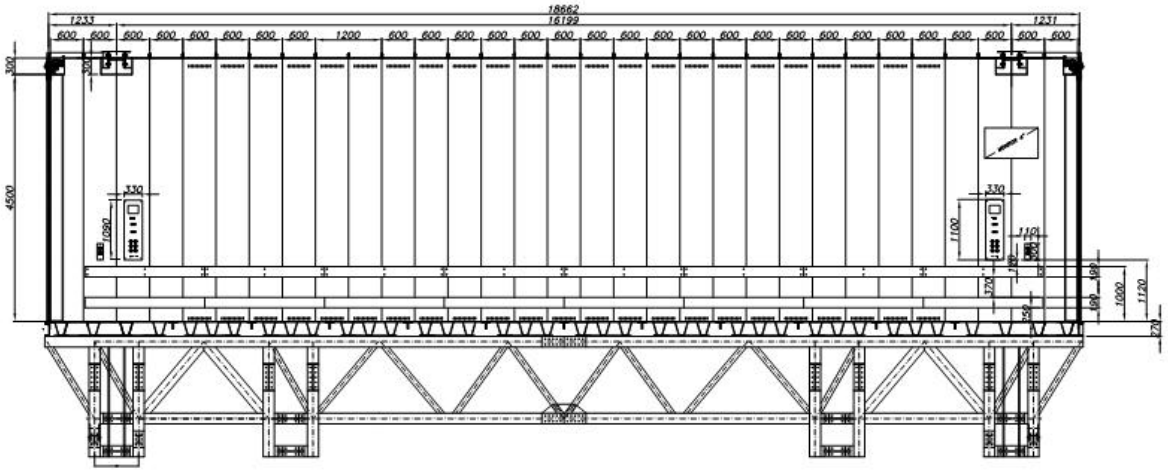
Roger's challenge was to design a system that has to move a 42 ton inter-continental juggernaut lorry. The lift has an internal size of 4.5m wide x 19m long x 4.7m high with doors on three sides.

The lift moves from the pavement level down to Basement 3 through a 17.5m travel distance. A special control system allows the facility to move the lift up and down from the landings by "inching" to ensure that the bed of the lorry is level with the floor of the basement storage suites where the museum's collection of objects will be stored.

When the lift is below ground the only visible aspect is the discreet outline of the lid at pavement level. The lift has a full lifting capacity to move 123 tons.







EN81-20 & 50 UPDATE

Note: This document meant only as a quick overview and reference for the changes that have been implemented into the new parts 20 and 50 of EN81 which will replace EN81 Parts 1 &2. To get a full understanding of the changes you are urged to carefully study the new standards in detail when they are released in August 2014.

EN 81-1 and EN 81-2, have been revised
The two parts-electric and hydraulic lift requirement s were combined and two new standards created
The result; two new standards:-
EN 81-20: Requirements for complete passenger or goods passenger lift installations independent of the driving system
EN 81-50: Description of the examinations, calculations and tests of lift components used in any type of lift (passenger, goods passenger, goods only lift, etc.)
Many aspects of the standards have been changed and safety provisions improved
CEN Striving To Make Standard International
Formed New Ad Hoc Group – Sub Committee
Included Input From China, Korea, Japan, USA, PALEA
Ensures Standard Recognises International Needs
Will Be Used By ISO As Basis For ISO Standard

Result of public inquiry
Total comments received
From Europe; USA and 13 Asia Pacific countries
EN 81-20 = 2564
EN 81-50 = 456
Comments from PALEA comprising input From 10 A-P countries
Total comments received from PALEA: 284
Comments accepted: 219 (77%)
Implement EN81-12 To Deal With National Differences
Issue date for EN81-20 & 50 mid August 2014
Standard implemented in EU with period of grace until August 2017

New Requirements For Part 20 and 50

List of changes
General
Wherever glass is used it must be laminated
A number have been included and changed

The Well.
The ventilation of the well is now considered as an architectural issue rather than a concern of the lift designer.
The strength the well has been altered to give limits to permanent and elastic deformation under defined forces. (1000N –300x300mm < 1mm Permanent 15mm elastic)
Glass wells must be laminated throughout their full height
Where lift cars have no balustrades there must be no ledges in the well greater than 150 mm to prevent persons stepping off the car.
The option to use a solid pier under a counterweight to protect accessible spaces below the well is now deleted.
Top and bottom clearances revised Stopping an re-levelling accuracy (+/.10mm &+/.20mm)
Pits deeper than 2.5 m must have an access door
Access ladders to pits less than 2.5 m now fully defined in EN81-20.
Counterweight screens are redefined in strength, prevent access from behind, have a label indicating buffer/car clearances. (300N x 5cm^2 –Ht 0.3 to 2.0m above pit floor)
Pits are to be fitted with inspection control stations (0.3m from refuge)
Refuge spaces above and below the car are redefined
There must be one refuge space for each person working in that area.
Refuge spaces are defined as standing (2.0Hx0.4x.0.5m), crouching (1.0Hx0.5x0.7m) and laying (0.5Hx1x0.7)
There is an addition of an emergency light on the car roof.
Sprinklers are now allowed in the well, but before they discharge the lift must be sent to a landing and parked with main switch and lights off.

Machinery Spaces.
Clear heights of entrances to these areas and the working space within have been altered to 2.0 m and 2.1 m respectively.
Where working areas are from the car roof and blocking devices are used to prevent car movement there must be a permanent means of escape to prevent entrapment.
Access to working areas is now allowed via private premises on agreement with the building owner.

Entrances (Car and Landing).
Car and landing doors have increased strength and retainers. Subject to pendulum impact testing. (+1000N x 100cm^2).
Glass doors are provided with increased protection for the "drawing in" of children's hands. (Frosted to 1.1m or sensor)
Fire rated to EN81-58.
Power doors must be fitted with monitored non-contact protection devices, if not able to detect persons, must reduce the door impact force or remove lift from service. (4J)
Limits have been placed on the height of the emergency unlocking mechanism (2m vert - 2.7m horizontal– max key 0.2m long)
Lowest door lock reachable from pit ladder or permanent release provided.
Car doors must be fitted with a "restrictor" which prevents opening of the car door by more than 50 mm when outside the unlocking zone.

Lift Car.
The measurement of the floor area has been re-defined in terms of overall car floor area consistent with ISO 4190 car dimensions.
Materials used inside the car are subject to fire rating classifications.
Decorative mirrors are to be made from safety glass.
Cars have increased normal and defined emergency lighting levels. (100 lux - 5 lux for 1hour)
The requirements for goods lifts concerning loading devices have been clarified (Transported loading device included in rated load sill loading 85% rated load)
New requirements for the strength of the car apron and car roof balustrade. (300N x 5cm^2)
Minimum balustrade height 1100mm if gap greater than 500mm
Car roofs must be provided with a toe board to protect against objects falling from the car roof and support persons according to refuge spaces but min. 2000N (0.3mx0.3m)
Panels must withstand 1000N x 100cm^2
Glass panels subject to hard and soft pendulum tests

Safeties , Governors, Buffers
Safety must be able to be released at all load conditions
Deleted note that safety should preferably be bottom of car
The speed governor must activate the safety gear within 250mm of downwards movement of the car or counterweight.
Deleted requirement for 10% difference between car & CWT tripping and min requirement of 6mm for governor rope.
Energy accumulation buffers with buffered effect deleted
Buffers fixed to car or CWT shall strike pedestal of minimum height 300mm

A limit of 6g has been placed upon the peak deceleration of buffers at time intervals less than 0.04 s. (PU buffers)
Reduced stroke buffer above 2.5m/s min stroke 420mm
Type testing of UCM means at component level, rather than complete systems, is allowed and the provision for lifts without means of re-levelling clarified.

Lift Machine
Must be possible to check function of each brake set, from outside the well.
The lift must be able to be slowed and stopped with one set inoperative; down rated speed and rated load – up empty car
The brake must be able to be released manually from outside the well even under failure of the main power supply.
When machine brake used for UCM or ACOP must be monitored either by checking open or close function or brake torque
With brake open and car loaded to +/-10% of balance the car must move under gravity or by manual means or electromechanical means with backup supply, available at site.
Shall not Be possible to raise empty car or CWT if either is stalled- ropes shall slip or machine stopped by electric safety device

Electric installations and appliances.
This has changed which now requires the installation to be in conformity with EN 60204-1 and national requirements.
Other areas have been added, such as requirements for RCD protection, (30mA)sockets &>50V AC protection from heat emitting components (hand held ,touched and not touched and
the requirements of other EN standards for basic electrical protection and the design and use of contactors, etc.

Controls.
New requirements for control buttons for the inspection stations (run button, button marking and colour, etc.)
New requirements for protection of maintenance operations (prevent landing calls, remote commands etc)
New requirements to reduce speed under inspection control when less than 2m clearance.
New requirements for landing and car door by-pass
Docking operations deleted.

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ELENET®
ELEVATOR WORLD'S E-MAIL NEWSLETTER

ANOTHER PLAYER EYES CLOUD-BASED ELEVATOR SERVICE SYSTEM: A cloud-based system to help technicians diagnose and service elevator malfunctions is among the uses Ottawa, Canada-based QNX Software Systems, a subsidiary of BlackBerry, envisions for its technology, similar to an equipment-monitoring system ThyssenKrupp Elevator is rolling out (ELENET 603), Times Colonist reports. Sensors in devices used in people's daily lives -- cars, refrigerators and elevators, for example -- can be linked to a network that gathers information, part of a trend known as the Internet of Things that is gaining traction.

DESIGN REVEALED FOR WORLD'S TALLEST TOWERS IN CHINA:
The U.K.'s Chetwood Architects has revealed plans for Phoenix Towers, a pair of 1-km-tall, Eiffel Tower-shaped buildings in the city of Wuhan, China, inhabitat reports. Should they be built, they would be the tallest pair of towers in the world, equal in height to the under-construction Kingdom Tower in Jeddah, Saudi Arabia. The plan is to build them on a 17-ha site on an island in a lake in Wuhan. Inspired by the Chinese phoenix, which balances male and female characteristics, the towers would have energy-efficient features, such as wind turbines, solar panels, thermal chimneys and rainwater-harvesting systems.

CTBUH: WORLD'S 100TH SUPERTALL COMPLETED IN CHINA:
The world's 100th supertall building was completed in mid June with the topping out of the 303-m-tall Jiangxi Nanchang Greenland Central Plaza in Nanchang, China, the Council on Tall Building and Urban Habitat (CTBUH) reports. CTBUH defines supertalls as 300 m or taller. Jiangxi Nanchang Greenland Central Plaza, which consists of a pair of towers, is now the tallest development in Nanchang, which is also home to the 239-m-tall International Finance Center and the under-construction, 268-m-tall Jiangxi Nanchang Greenland Zifeng.

THYSSENKRUPP ELEVATOR: ACCESSIBILITY CRUCIAL FOR SENIORS:
Germany's aging population will need accessibility solutions, such as stairway chairlifts, platform lifts and home elevators, since more than half of citizens 40 and older said they want to stay in their own homes during their golden years, a survey conducted for ThyssenKrupp Elevator found. Approximately a quarter of those surveyed expect they will have to retrofit their homes with such equipment. The survey found 46% of women view stairway chairlifts as "important" to "very important," versus 40% of men. Men, however, are willing to spend more on a chairlift: more than US$6,732 (EUR5,000).

POLAND'S EURO-LIFT EXPO PLANNED IN OCTOBER:
Organizers of the EURO-LIFT expo are looking forward to a well-attended event on October 22-24 in Kielce, Poland. The only expo of its kind in its region, the event features elevator equipment, components, drives, cabins, ropes, doors, controllers, surveillance and safety systems, operation and maintenance systems, indicators, hydraulic solutions, accessories, fitments and trade publications. Discussions about European Union (EU) subsidies for revitalization of apartment buildings and EU handicapped accessibility requirements are also scheduled. For additional information, visit the website.