DELTA ELEVATOR

Our Values

Integrity: Ensuring our actions match our words.

Service: Excelling in our workmanship.

Quality: Exceeding our customers' expectations.

We demonstrate these values in all of our relationships with customers, suppliers and co-workers.

Our Vision

The people at Delta Elevator are building a great elevator company through teamwork and through dedication to our customers.

Our Mission

Delta Elevator develops, manufactures, installs, and maintains high quality and dependable elevating devices, provides honest service to customers, and gives long term satisfaction and employment for our people.

Proudly Canadian

Since 1967

Delta Elevator Co Ltd

Who We Are

Delta has been in business since 1967, and has offices in London, Kitchener, Mississauga, Markham, and Peterborough, servicing Southwest and Central Ontario. With proven experience in new elevator construction, maintenance, repairs, and modernizations, Delta's products and services are high quality and field-tested.

Delta's commitment to ***Integrity, Service, and Quality*** results in elevator products and services with superior reliability.

Quality Design, Manufacturing, Installation and Service

As a leader in the elevator industry, Delta provides clients with:

Coverage throughout Southwest and Central Ontario

Delta has mechanics permanently stationed in London, Owen Sound, Kitchener, Mississauga, Markham, and Peterborough. This allows customers to single source Delta as their elevator supplier for all properties located within this extensive coverage area. The result is a uniformly superior quality level as well as easier project management.

In-house elevator mechanics who are registered with the TSSA

Delta achieves high quality installations through the use of its own mechanics, as opposed to contracting this important function out to others. Delta's carefully screened staff are licensed mechanics or enrolled in the apprenticeship program. All employees undergo rigorous on-the-job and in-the-classroom technical training, as well as thorough safety training.

Design consultation and specification writing and reviews

Delta's sales staff are qualified to assist with design consultation from the earliest part of your building project. Our staff can also help create a new elevator specification or provide feedback on existing specifications. **We believe that it is more important for you to have the right elevator even when it may not be a Delta elevator.**

50 years of industry experience on many styles of elevating devices

Delta has career elevator staff in all areas of its operation: Sales, engineering, manufacturing, maintenance, and construction. This means Delta can meet virtually all of your elevator needs, and provide a solution to even the most challenging problem. **If a standard elevator is not a viable solution, Delta has the resources and experience to design, manufacture, and install a custom unit.**

Delta continues to lead the way in providing clients with products and services that exceed expectations

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Delta Elevator Co Ltd

March 2018

Welcome to the Delta Elevator Planning Guide – your reference tool for the elevator industry in southern Ontario.

Why Choose Delta?

Full Service
Delta Elevator offers services for all aspects of the elevating devices industry: New construction sales and installation, maintenance service and repairs, and modernizations.

50 Years of Experience
We are Ontario's largest independent elevator contractor with a proven customer service record with 50 years of business.

Canadian Owned & Operated
Delta Elevator is Canadian owned and operated, with a focus on customer service and a passion for delivering ***Integrity, Service & Quality***.

Designed & Built Locally
All of our products are designed by our in-house engineering departments at our head office and built at our manufacturing plant located in Kitchener, Ontario.

No-Charge Consultation
We provide no-charge design consultation to ensure you have the information you need to make the optimal decision regarding your elevating device.

For additional information about our fully integrated approach to business and to access electronic files of our drawings and specifications, please visit our web site at ***www.delta-elevator.com****.*

More About Delta

Delta Elevator Co Ltd is a privately owned Canadian business founded in Kitchener in 1967 on the values of ***Integrity, Service & Quality***. From its beginnings as a single elevator mechanic, Delta has grown to become one of the few fully integrated Canadian elevator companies that engineers, manufactures, installs, services, and maintains elevating devices. This includes elevators, accessibility lifts, LULAs, controllers, and other custom, code-compliant elevating devices.

The company is an industry leader in built-to-order elevators. Delta Elevator has one of the largest elevator engineering departments in Canada, and includes Mechanical, Electrical, and Systems Design Engineers. As well, the seasoned sales force is able to provide in-depth, pre-contract consultation to ensure the ideal product is installed. These advantages allow Delta Elevator to offer unparalleled response time to unique customer requirements.

Delta Elevator's reputation for quality and service in the field is built on our EDM-A licensed elevator technicians and a large pool of EDM-T apprentices. This dedicated workforce installs and maintains an elevating device inventory with one of the lowest callback ratios in Ontario.

The head office, located at 509 Mill Street in Kitchener, is also the site of the manufacturing plant, the repair facility, and the main parts depot. The entire facility is over 5,600 square metres with a parts inventory in excess of $1,000,000.

The manufacturing plant features state of the art CNC equipment and highly skilled fabricating staff. The company builds both elevators and controllers on-site using lean manufacturing techniques, ensuring that only consistent, high-quality product bears the "*DELTA*" logo.

Delta Elevator has branch offices in Ontario located in Kitchener, London, Mississauga, Markham and Peterborough, and offers 24-hour service with rapid after-hours telephone response times.

Delta Elevator also sells its full line of product through third party providers: Elevator One serves the area north of the GTA, while Brock Elevator serves the Hamilton/Niagara region.

Vision Statement

Delta was founded on, and continues to operate in accordance with Biblical principles:

"The people at Delta are building a great elevator company through teamwork and through dedication to our customers."

Mission Statement

Delta's mission statement reflects the company's emphasis on long-term relationships with both customers and employees:

"Delta develops, manufactures, installs, and maintains high quality and dependable elevating devices, provides honest service to customers, and gives long term satisfaction and employment to our people."

Integrity, Service & Quality since 1967

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Toll free: 1-800-265-6348

Integrity, Service & Quality since 1967

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Grey and Bruce Counties
With local elevator maintenance representatives in Owen Sound and in Walkerton, Delta Elevator provides prompt and efficient service for the Grey-Bruce Peninsula and the Collingwood area. Through support from our Kitchener office, we provide complete coverage and 24-hour emergency service for these areas.

For more information on service and maintenance packages in Grey and Bruce Counties, please contact Delta Elevator's Head Office at 1-800-265-6348.

Resellers

Delta Elevator products are available in the Barrie, Huronia, Georgian Bay, and Muskoka areas through our reseller, **Elevator One Inc**. Elevator One is a privately-owned Canadian business founded in 1993 and based in Barrie, Ontario.

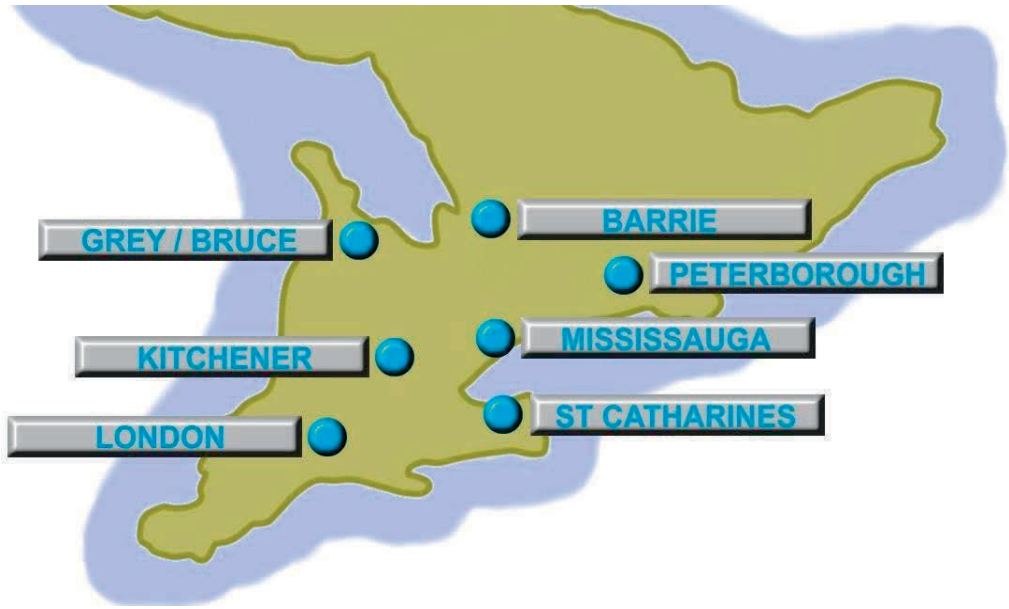
26 Morrow Road
Barrie, Ontario L4N 3V8
Phone: (705) 728-2361
Fax: (705) 728-2733

Delta Elevator products are available in Burlington, Hamilton, and the Niagara Peninsula through our reseller, **Brock Elevator Ltd**. Brock Elevator is a Canadian owned and operated full service elevator management company based in St. Catharines.

P.O. Box 2010
St. Catharines, Ontario N2R 7R7
Phone: (905) 682-0622
Fax: (905) 682-0500

Both Elevator One and Brock Elevator share Delta Elevator's passion for ***Integrity, Service & Quality*** and provide the same level of exceptional customer service.

Together with our resellers, Delta Elevator provides coverage across southern Ontario.

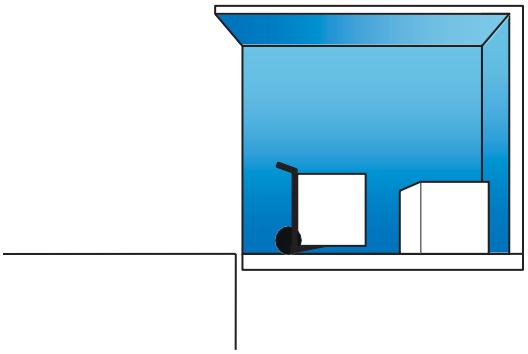


Elevator Loading Requirements

Every elevating device has a loading classification pertaining to the capacity of the elevating device and to the nature of the loading method. It is important that the loading classification matches the intended use of the elevating device in order to ensure safe operation. The following is a description of the loading classifications permitted under the B44 Elevator Code for which Delta Elevator offers solutions.

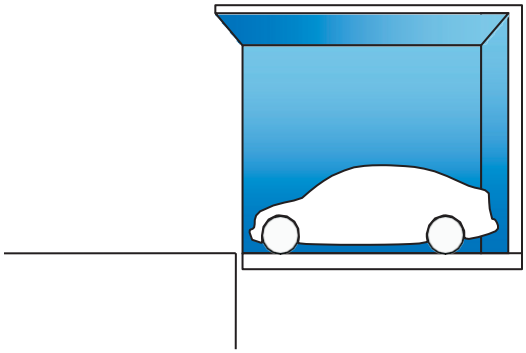
Please be advised that standard elevator systems are designed for Class A loading. All other types of loading are more rigorous. The only safe practice where the class of loading is not absolutely known is to treat the elevator as if it were specifically designated for Class A loading. Any other practice could be dangerous for the elevator equipment and unsafe for the passengers and/or cargo.

Class A Loading



Most passenger elevator systems and standard freight elevators are designed as Class A, or "General Freight Loading". Any one-piece load being moved on to or off of the elevator cannot exceed 25% of the stated capacity of the elevator system. For example, although the capacity of the elevator may be 2,000 lbs (907 kg) the actual limit of a one- piece load is 500 lbs (226.75 kg). As well, the loading or unloading of the elevator is restricted to manual means or to a hand truck. In the event that a hand truck is used the weight of the equipment must be included as part of the 25% loading restriction.

Class B Loading



This class pertains to freight elevators that are intended for the transport of motor vehicles only, up to the stated capacity of the elevator system.

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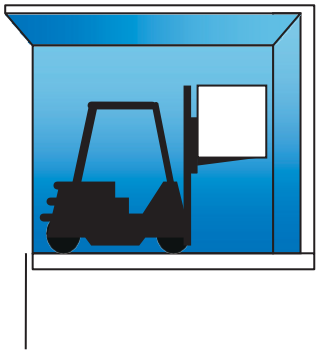
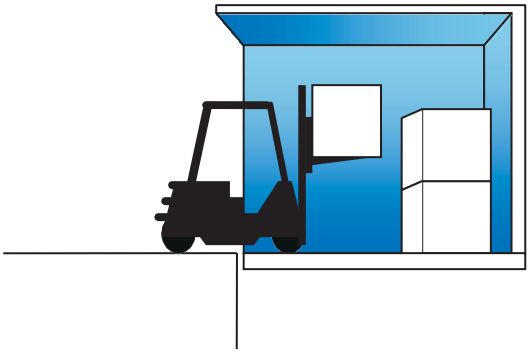
Elevator Loading Requirements

Class C Loading

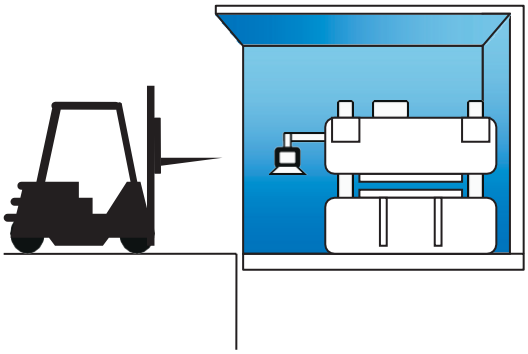
NOTE: Class C loading is not permitted for accessibility lifts or for LULAs.



Class C1 Loading: This class allows industrial truck loading or unloading of the elevator system. The combined weight of the industrial truck and the load cannot exceed the stated capacity of the elevator. The loading device can remain on the elevator during operation.



Class C2 Loading: This class allows for the loading of the platform at 150% of the stated capacity of the elevator. In most cases, this allows for a one-piece load that equals the capacity of the elevator to be loaded with a forklift or motorized lift truck on to the platform of the elevator. The loading device must be removed prior to the operation of the elevator.



Class C3 Loading: This class allows for heavy concentration loading where the static load during loading and unloading does not exceed the rated capacity. The combined weight of the load and equipment must not exceed the stated capacity of the elevator system. In practice, Class C3 elevators are most often designated to support single piece loads equal to the capacity of the elevator.

About Delta

Delta Elevator can provide consultation for loading class requirements to architects, designers and building constructors at the project design stage to minimize subsequent changes.

We also have both the engineering resources and manufacturing facilities to meet the specific requirements of projects that require custom solutions.

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Non-Proprietary Elevator Equipment

Similar to many intricate mechanical and electronic pieces of equipment, elevators and their components range in their proprietary nature.

Delta Elevator controllers are currently available with or without a diagnostic tool. If the controller is initially purchased without a diagnostic tool, it can be purchased at a later date with full engineering support.

Delta stands behind its product 100% and has both Mechanical and Electrical Engineering departments to provide technical support. Component prices are available on our web site – Delta does ***not*** use parts pricing as a method to retain service contracts.

Delta will support its elevators whether they are maintained by Delta or by another contractor. Delta's primary goal is to ensure a properly maintained, high quality product with minimal down time for the owner if issues arise.

Division 14 Elevators: Non-Proprietary Controls

Non-proprietary serviceability of elevators is an important issue to consider as part of the selection process. Many times, it is not addressed in the specifications and subsequently becomes a point of contention for the building owner after the contract is awarded or after the installation is complete and the free maintenance period expires. If the elevator is proprietary, an owner who wants to switch to a different maintenance service company other than the original manufacturer may be faced with retrofit costs or the need to purchase a prohibitively expensive access tool.

In order to provide the building owner with the freedom to choose their preferred maintenance service company at a future date, we recommend that all specifications for elevators include a clause that clearly sets out the requirement for non-proprietary serviceability. A sample clause may include the following:

> *Elevator control equipment must be non-proprietary, or a site-specific service tool which renders the control equipment non-proprietary must be provided with the elevator. The controller interface/service tool must allow full access to fault codes and maintenance related parameters, and must allow complete and thorough maintenance service to be performed by any properly licensed and qualified elevator service provider. The controller and/or site-specific service tool must come with a user's manual that effectively communicates to a qualified mechanic how to use the controller and/or tool, and also defines and explains all respective error codes. The service tool remains the property of the building owner. The elevator manufacturer must provide technical training and support to the owner/agent (including other elevator maintenance companies). All parts used in the manufacture, installation and maintenance of this elevator must be available for purchase at a fair market value by the owner/agent including their elevator maintenance contractor.*

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Controller and Elevator Non-Proprietary Worksheet

Prior to finalizing an elevator supplier decision, Delta recommends using the worksheet below to assess the non-proprietary aspects of the unit.

A. Elevator Controller & Components

Includes controller, connections, landing system, position indicators, car & hall stations, buttons, diagnostic tools

	Supplier: _____		**Delta**
	Yes	No	
1. Are spare parts available from the manufacturer to the owner and to the maintaining contractor?			Yes
2. Is a parts price list available?			Yes – on website
3. Is a diagnostic tool required?			Yes
4. Cost of after-market diagnostic tool & licence?	$_____		$4,500
5. Is engineering support available to other maintaining contractors?			Yes – per hour fee
6. Are the landing system devices non-proprietary?			Yes
7. Is third party maintenance feasible?			Yes

B. Elevator Mechanical Package

Includes rails, pit equipment, drive components (machine / cylinder), safety devices, sling, cab, entrances, lighting

	Supplier: _____		**Delta**
	Yes	No	
1. Is the elevator shaft size standard?			Yes
2. Are spare parts available to the owner and to the maintaining contractor at a reasonable cost?			Yes
3. Is engineering support available to other maintaining contractors?			Yes – per hour fee
4. Are drive components non-proprietary?			Yes
5. Are entrance components non-proprietary?			Yes
6. Are safety devices and systems non-proprietary?			Yes
7. Is third party maintenance feasible?			Yes

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Elevator Firefighters' Emergency Operation (FEO) and Elevators for Use by Firefighters (Firefighters' Elevator)

Firefighters' Emergency Operation (FEO)

The B44 Elevator Code makes Firefighters' Emergency Operation (FEO) mandatory for most new passenger elevators regardless of building height or occupancy. Firefighters' Emergency Operation consists of two parts: Phase I – Emergency Recall and Phase II – Emergency In-car Operation.

Phase I – Emergency Recall exists to protect the occupants of a building. If people are in an elevator when a Fire Alarm Initiating Device (FAID) activates, the elevator will automatically move to a safe floor, away from the fire, and shut down with the doors open. The elevator will then remain unavailable for normal use until it is reset.

Phase II – Emergency In-car Operation then comes into effect, which allows firefighters to use an elevator during fire operations by maintaining control from inside the elevator car.

Elevators for Use by Firefighters (or Firefighters' Elevator)

A Firefighters' Elevator is different from FEO Phase II. A Firefighters' Elevator is one that has been upgraded to a higher fire rating level using more flame resistant components and has additional building safety requirements such as positively pressurized elevator shafts and full generator power. A Red Hat symbol on the main floor level doorjamb identifies an Elevator for Use by Firefighters.

The determination of an elevator requires the Firefighters' Elevator designation is based the Building Code "High Building" classification. This depends on multiple factors such as building Group and Division, building occupancy, and building height.

Universal Requirements

Once FEO is enabled, the elevator must respond to the FAID emergency condition unencumbered by any security provisions in effect. This has introduced a new mode of operation for elevators with security provisions: The elevator microprocessor must over-ride the security system when FEO is enabled. Regardless of whether the building only has FEO or has a Firefighter's Elevator as well, ***all*** elevator shafts must have a pit drain capable of removing 3,000 USGPH of water ***per*** elevator.

A Final Word

Since both the Building Code and the B44 Elevator Code include specific requirements that affect the emergency operation of elevators, it becomes a relatively complex matter. Ideally, emergency operation issues should be addressed early in the project design phase in order to avoid extra costs to comply with the regulations later in the process.

Call Delta if you have questions regarding FEO or Firefighters' Elevator requirements – we would be pleased to work with you to ensure your emergency operation needs are properly met!

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Temporary Use Elevators and Construction Elevators

Background

In certain circumstances, the B44 Elevator Code allows for the use during construction of an unfinished simplex elevator, called a **"Temporary Use Elevator"**, to transport personnel, tools, and materials.

Distinct from this, the first unit in a multi-car application may be used prior to the final unit being put into service as what is often called a **"Construction Elevator"**.

Legal Requirements

The TSSA requires that a **Temporary Use Elevator** have a separate Design Submission registered either at the same time as the full submission (or later when it is realized that a **Temporary Use Elevator** is needed). In addition to the initial inspection, a subsequent inspection is required at the time when the **Temporary Use Elevator** is re-licensed as a Passenger Elevator. There are further TSSA fees associated with the separate submission and inspection and additional costs for Delta Elevator's Engineering Department. Finally, a **Temporary Use Elevator** must have its license renewed every six (6) months.

*Note that these requirements are not necessary for a **Construction Elevator** since there will be another inspection when the final car in the group is put into service.*

For both **Temporary Use** and **Construction Elevators**, the B44 Elevator Code requires that units be maintained by a registered elevator contractor during the period of their use.

Operational Use

The elevator's interior finished surfaces must be protected with fire rated plywood *supplied and installed by the General Contractor*. In addition, the exterior of every entrance frame must be provided with protection *supplied and installed by the General Contractor.* Also, many General Contractors provide an operator to limit access to the elevator to trained personnel and to limit vandalism / abuse.

Elevator Loading Requirements

Every elevator has a loading classification pertaining to its capacity and to the nature of the loading method. It is important that the loading classification matches the intended use of the elevator in order to ensure safe operation. In this respect, the intended use of the elevator for construction must be taken into account during the project design phase to make certain that the loading requirements are adequate. For additional details, see Delta Elevator's "**Elevator Loading Requirements**" document.

Return to Like-New Condition

Delta Elevator refurbishes **Temporary Use** and **Construction Elevators** to "like new condition" at the end of their use for construction purposes. This is to ensure that the wear on the elevator does not adversely affect the Warranty Maintenance Period and long term lifecycle of the equipment.

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General Contractor Requirements

Prior to scheduling the initial TSSA inspection for a **Temporary Use** or **Construction Elevator**, the General Contractor must ensure the following are in place:

- Completed *Pre-Installation Checklist.*
- Hoarded elevator walls and ceiling with fire rated plywood.
- Protected Hall Entrance Jambs.
- Dedicated phone line.
- Finished floor or fire rated plywood floor with no tripping hazard (i.e. less than 6 mm).
- Ramped hall door sills to prevent a tripping hazard (i.e. less than 6 mm).
- Connected (i.e. to a live panel) temporary lighting at each elevator entrance

It is critical to review and understand the *Pre-Inspection Checklist* in advance to ensure that time frame expectations are not missed due to outstanding items that prevent the scheduling of a TSSA inspection.

Note: It is the General Contractor's responsibility to complete and submit the checklist to the elevator contractor before both the initial and the subsequent inspection – the TSSA will not schedule an inspection without the completed and signed checklist.

Delta Elevator's Approach

Delta Elevator can provide a **Temporary Use** or **Construction Elevator** for a flat fee as part of the initial install contract. The flat fee includes regular maintenance and refurbishment to return the unit to like-new condition (whereas chargeable item related to vandalism and dirt / debris are not included).

Prior to turning a unit over as a **Temporary Use** or **Construction Elevator**, Delta requires the following documentation from the contractor:

- A Cab Acceptance Form signed by the General Contractor confirming the condition of the elevator prior to the start of its use.
- A Hall Entrance Acceptance Form signed by the General Contractor confirming the condition of the hall entrances prior to the start of its use.

It is important that discussion regarding a **Temporary Use** or **Construction Elevator** take place early in the building planning process to ensure that there is no misunderstanding later in the project.

Please contact Delta Elevator if you have questions or if you would like pricing for a Temporary Use or Construction Elevator for your building project.

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Working Safely with Elevators

Machine Room Guarding Task Force: Background

A Task Force was formed in 2007 to address elevator machine room safety concerns of building owners and the elevator industry. Representation included the Ministry of Labour (MOL), the Technical Standards and Safety Authority (TSSA), the elevator industry, and building owners. In May 2009, the Task Force released a document entitled "*Elevator Machine Room Equipment Guarding: A Best Practices Guideline Produced by Industry Stakeholders*".

The guideline is intended to be a living document to be revised as best practices evolve. It is also a timely guide for employers, supervisors, workers and owners regarding rights and responsibilities under the Occupational Safety and Health Act. (Additional information and the document itself are on the TSSA web site at: *http://www.tssa.org/viewNews.asp?ID=435*)

Enforcement: Whose Responsibility?

In Ontario, enforcement of machinery guarding and protection of workers is the responsibility of the MOL, while the TSSA ensures public and mechanic safety on elevating devices. This means that the TSSA is ***not*** the enforcing agency for machinery guarding for the safety of licensed elevator mechanics or inspectors. In any event, the elevator owner is responsible for the safety of their equipment, and thus bears the cost for appropriate machinery guarding.

The Challenge: What is Safe?

Elevator equipment varies considerably from building to building, so it is difficult to develop a standard that absolutely defines what is safe, what is not, and what must be remedied. Elevator mechanics, inspectors, and consultants may offer opinions concerning the safety of equipment and related machinery guarding, but the final decision as to adequacy ultimately rests with an MOL inspector.

The TSSA enforces the Elevator Safety Code to ensure that all elevator equipment in machine rooms and hoistways is protected by a controlled boundary (i.e. a locked door). However, some stakeholders believe that guards (either close-fitting or perimeter) custom designed for specific equipment is needed. While these guards can eliminate some accidental contact, they can also increase the cost of servicing the equipment, make it less safe to service, and/or prevent service altogether.

Delta Elevator's Primary Concerns: Protecting the Worker and Protecting the Public

In order to achieve this goal, Delta recognizes ***the need to provide a safe working environment for its employees*** as they maintain elevators, and also ***the need to allow for effective elevator maintenance*** to take place to keep riders safe. Balancing these requirements ensures that the safety of the public and the requirements of the elevator owner are best served.

Delta Elevator considers that machinery guarding is one component of the many safety aspects associated with an elevating device and that all hazards must be addressed wherever they are present within and around elevators, machine rooms, and hoistways. As such, we do not believe there is a carte blanche solution to every application. Each machine room layout is different, and each situation typically requires a customized solution.

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Recent Developments: MOL Inspections

The MOL has shown concern regarding worker safety in traction elevator machine rooms. However, machine guarding remains a difficult task because *there are no approved solutions by either the MOL or the TSSA*. Furthermore, consultants typically do not identify a solution. Instead, specifications state that the guarding has to meet OH&SA Ontario Regulation 851.

(Hydraulic elevator machine rooms generally do not require guarding. A locked door with a unique key and labeled "Restricted access to trained personnel only" is usually the best guard.)

Options: Component versus Global Guarding

The Best Practices Guideline issued by the multi-stakeholder Task Force has two main options:

Option 1: Component Guarding

This involves custom built guards that are installed over each moving component and pinch hazard (e.g. sheaves, hoist ropes, governors).

Option 2: Global Guarding

This is fencing installed in the machine room to separate the machines from the controllers. While this is usually the less expensive option in its simplest application, the Best Practices Guideline suggests that a secondary guard be included (i.e. a safety circuit that is broken if the fencing is not in place), which increases the cost significantly.

Stakeholder Response: No Standardization

In either case, the addition of machine room guarding requires a Minor A submission to the TSSA, installation by a licensed elevator contractor, and a subsequent TSSA inspection. ***Note that acceptance by the TSSA does not mean approval by the MOL.*** The MOL may inspect the installation if requested, but will only advise if the installation is acceptable to the specific inspector because the MOL does not certify machine guarding solutions in general.

Also, owners and management companies should recognize that machine guarding solutions installed today may not meet future requirements as they become standardized among industry stakeholders.

Some companies have taken the approach to sell a standard machine room guarding solution without considering site specific issues. While, their emphasis on worker safety is legitimate, such an approach may not give owners a complete picture. For example, the installation of machine guarding can make servicing the equipment less safe and can also cause owners additional costs to ensure that electrical clearance requirements are still met as per the Electrical Safety Authority.

Please contact Delta if you have any safety questions or if you would like pricing for machine room guarding for you elevating devices.

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Nov 2016

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Accessibility Considerations: Vertical Platform Lifts versus Limited Use / Limited Application (LULA) Elevators

Vertical Platform Lifts

Vertical Platform Lifts (usually referred to as Handicapped Lifts or HLs) are regulated by the CAN/CSA-B355 Lift Code. These lifts differ from elevators in four important ways:

- They do not have doors that move, but use manual or powered swing doors at each level;
- They require constant pressure buttons;
- They have limitations on speed, size, and capacity; and,
- They require limited access (e.g. key, card, or keypad).

In many cases, the decision to install an HL is based on cost rather than on features, because HLs are one of the least expensive vertical transportation options to provide building accessibility. Unfortunately, some of the limitations often become obstacles to regular use.

Limited Use, Limited Application Elevators

Limited Use, Limited Application (LULA) elevators are regulated by the CAN/CSA-B44 Elevator Code. LULAs are full elevators with automatic operation of doors and buttons and no requirement for limited access. However, there are restrictions on speed, size, and capacity which make their performance more similar to HLs rather than elevators. In terms of cost, LULAs fall between HLs and full elevators.

The Challenge

An HL requires a smaller hoistway, a shallower pit, and a lower overhead than elevators, which provides advantages at the time of construction. However, these smaller dimensions become disadvantages if there is a future desire to upgrade to a LULA or to a full elevator. Unfortunately, this is often the case once the operational limitations of the swing door, constant pressure buttons, and speed/capacity features of HLs are realized in practice. Also, although the LULA is a close fit to the hoistway dimensions of an HL, it is currently not possible to replace an HL with a LULA.

Delta Elevator's Position

Delta believes that accessibility considerations are important aspects of building design, and that these considerations should take the long term into account. One option Delta recommends considering is making an HL hoistway slightly larger during the design and construction phases. This provides for the option of a future upgrade to a LULA or to a full elevator at a much lower cost than the alternative of replacing or expanding the shaft.

*Note that neither HLs nor LULAs meet the **Accessibility for Ontarians with Disabilities Act** (AODA) since the current requirements for a wheelchair turning radius can only be met with a full elevator.*

Call Delta if you have questions regarding your accessibility needs –
We will work with you to ensure your design includes the best long-term solution!

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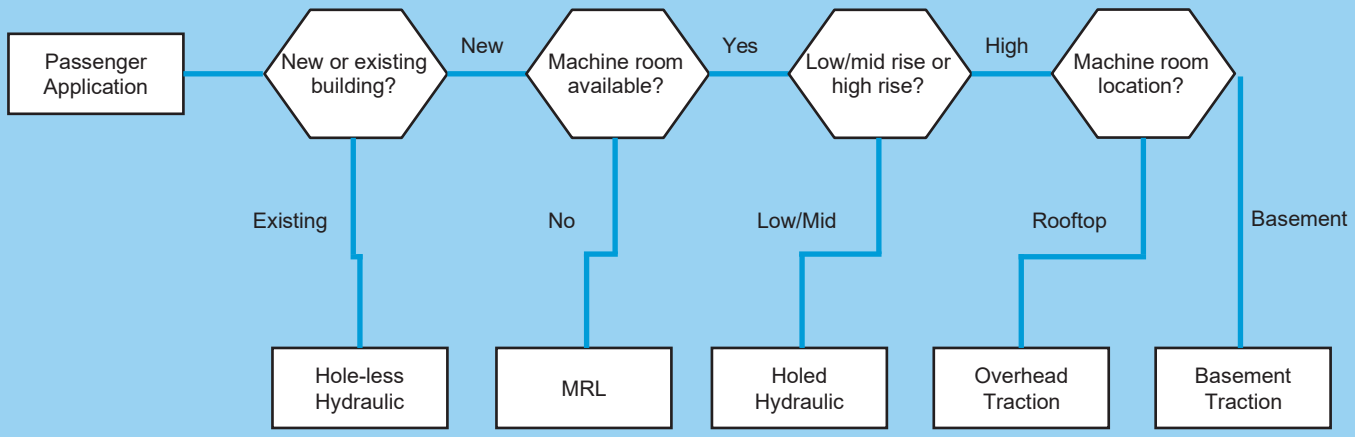
Passenger Elevators



	Hole-less Hydraulic	Machine Room-Less (MRL)	Holed Hydraulic	Overhead (rooftop) Traction	Basement Traction
Elevator Code	CSA-B44				
Typical Applications	• Malls / Plazas • Mid-rise buildings • Hospitals • Universities • Colleges • Parking garages	• Malls / Plazas • Mid-rise buildings • Hospitals • Universities • Colleges • Parking garages	• Malls / Plazas • Mid-rise buildings • Hospitals • Universities • Colleges • Parking garages	• High rise towers • Office towers • Hospitals • Universities • Colleges	• Mid-rise buildings • Office towers • Hospitals • Universities • Colleges
Installation Cost	Low - Medium	Medium - High	Low - Medium	Medium - High	Medium - High
Safety Features	Infra-red light curtain / Emergency cab lighting / Emergency phone				
Speed	0.40 - 0.75 m/s	0.75 - 1.75 m/s	0.40 - 0.75 m/s	0.75 - 2.00 m/s	0.75 - 1.75 m/s
Capacity	910 - 2,500 kg	910 - 2,050 kg	910 - 2,500 kg	910 - 2,500 kg	910 - 2,500 kg
Maximum Floors	6	20	6	31	10
Maximum Travel	15 m	60 m	15 m	100 m	30m
Cab Size	2.36 - 5.19 m^2				
Hall Entrances	Horizontal sliding (single speed, two speed, or centre opening depending on elevator size)				
Car Entrances	Horizontal sliding (single speed, two speed, or centre opening depending on elevator size)				
Maintenance Cost	Low - Medium	Medium - High	Low - Medium	Medium	Medium - High
Advantages	Cost effective for retrofit sites Easier to maintain Good ride quality	Most energy efficient No machine room Excellent ride quality	Cost effective for new construction Easiest to maintain Good ride quality	Proven design for tall buildings Energy efficient Excellent ride quality	Alternate machine room location Energy efficient Excellent ride quality
Disadvantages	Maintenance is more complex than for a holed hydraulic	Most complex and expensive to maintain	Not suitable for groundwater or bedrock sites	More expensive to install and maintain than hydraulics	More expensive to maintain than overhead traction

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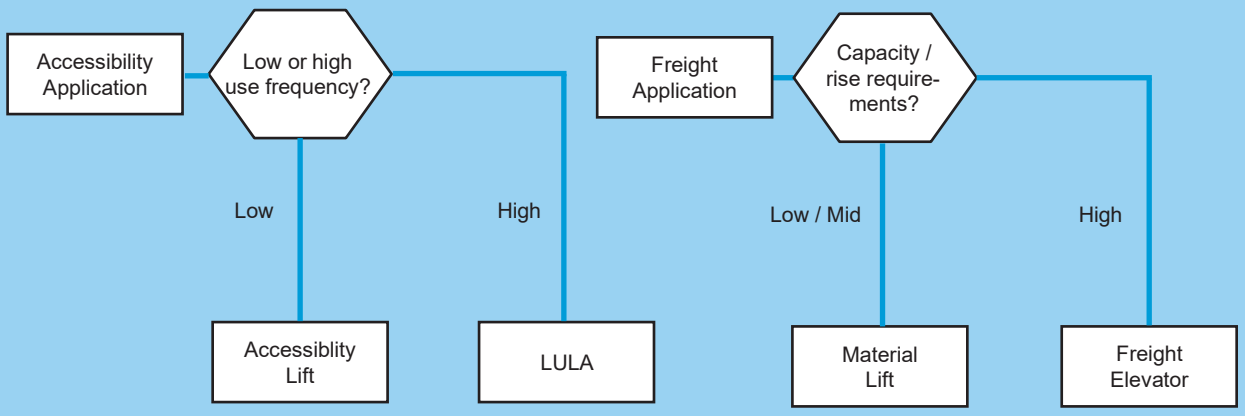
Accessibility & Freight



	Enclosed Vertical "C" Platform Lift	Limited Use / Limited Application		Material Lift Type "B"	Freight Elevator (hydraulic/traction)
Elevator Code	CSA-B355	CSA-B44		CSA-B44	CSA-B44
Typical Applications	• Churches • Funeral homes • Municipal buildings	• Schools • Low-rise buildings • Small office buildings		• Industrial buildings • Municipal buildings • Restaurants	• Industrial buildings
Installation Cost	Low	Medium		Medium	High
Control Type	Constant Pressure	Automatic		Constant Pressure	Automatic
Restricted Access	Yes	No		N/A - No public access	No
Attendant Required	Yes	No		No	Trained Operator
Safety Features	• Manual lowering • Emergency alarm • Emergency stop • Emergency lighting	• Manual lowering • Infra-red light curtain • Emergency lighting • Emergency phone		• Manual lowering • Emergency alarm • Emergency stop • Emergency lighting	• Infra-red light curtain • Emergency lighting • Emergency phone
Speed	0.15 m/s	0.15 m/s		0.15 m/s	0.15 m/s and up
Capacity	454 kg	635 kg		As required	As required
Maximum Floors	4	7		2	Call Delta
Maximum Travel	7 m	9 m		5 m	Call Delta
Cab Size	Maximum 2.00 m^2	Maximum 1.67 m^2		N/A	N/A
Hall Entrances	Swing door (1.2 m max)	Two speed sliding		Single / double swing	Vertical bi-parting
Car Entrances	None	Two speed sliding		None	Vertical sliding
Maintenance Cost	Low	Medium		Medium	High
Advantages	Low cost accessibility Shallow pit	Fully automatic Shallow pit		Cost effective Shallow pit	Higher capacity Faster speeds
Disadvantages	Not compliant with new AODA requirements	Not compliant with new AODA requirements		Relatively slow with limited door sizes	Requires increased pit depth and overhead

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Delta Elevator Co Ltd

August 2017

DELTA ELEVATOR

Hydraulic Elevators

The Hydraulic Advantage

Reliability: Hydraulic elevators have been in service in Canada and around the world for many decades. They use proven, oil-based lifting technology in low to mid-rise buildings to provide a robust and reliable elevating device.

Durability: In a normal application with regular preventive maintenance, many hydraulic elevators have a lifespan of over 20 years before requiring major upgrades. This results in less down time for riders and simpler long term planning for owners.

Affordability: Hydraulic elevators are simple in design compared to traction elevators. This makes them cost effective when the entire product life cycle is considered, from initial installation to regular operation.

Serviceability: Hydraulic elevators have fewer parts than traction elevators, which makes them easier to maintain and to service. Also, there are fewer proprietary parts, so they can be serviced by other elevator contractors instead of only the OEM.

Hydraulic Passenger Elevator Configurations

	In-Ground	Dual Upright	Dual Telescopic	Dual Roped
Initial Cost	Low - Medium	Low - Medium	Medium	Medium - High
Floors Served	Up to 6	Up to 3	Up to 4	Up to 6
Maximum Travel	15.0 m	4.2 m *	7.7 m *	15.0 m
Cylinder Location	Below ground	Elevator shaft	Elevator shaft	Elevator shaft
Drive Type	Direct acting	Direct acting	Direct acting	1:2 roping
Service Costs	Low	Low	Low	Medium
Advantages	• Cost effective for new construction • Robust design • Low maintenance cost	• Cost effective for new and retrofit sites	• Cost effective for new and retrofit sites	• Cost effective for new and retrofit sites • Higher travel than other above grounds
Disadvantages	• Not suited for bedrock / ground water sites • Requires third party hole drilling • Expensive to replace cylinder	• Limited travel distance	• More expensive to install than an in-ground elevator	• More expensive to install and maintain than an in-ground elevator • More susceptible to vandalism

* Some increases are possible with deeper pits and / or increased overhead.

Common Features:

- Governed by the CAN/CSA-B44 Elevator Code
- Capacity: 910 - 2500 kg
- Speed: 0.50 - 0.75 m/s
- Safety features: Infra-red door curtain, emergency cab lighting, emergency phone

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Hydraulic Passenger Elevator Specifications

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Capacity (kg)	**910**	**950**	**1134**	**1200**	**1365**	**1587**	**1587**	**1815**	**2050**	**2275**
Orientation	Wide	Deep	Wide	Deep	Wide	Deep	Wide	Deep	Deep	Deep
Inside Cab Size										
Width (mm)	1726	1370	2032	1406	2032	1610	2032	1598	1598	1726
Depth (mm)	1300	1726	1300	2032	1406	2032	1610	2364	2554	2554
Height (mm)	2286	2286	2286	2286	2286	2286	2286	2286	2286	2286
Door Width (mm)	914	914	1067	1067	1067	1067	1067	1219	1219	1372
Hoistway Depth										
Front Door Only (mm)	1800	2302	1800	2608	1906	2608	2110	2940	3130	3130
Front & Rear Doors (mm)	2036	2614	2036	2920	2142	2920	2346	3252	3442	3442
In-Ground										
Hoistway Width (mm)	2264	1908	2540	1980	2540	2148	2540	2240	2240	2489
Pit Depth (mm)	1525	1525	1525	1525	1525	1525	1525	1525	1525	1525
Overhead (mm)*	3800	3800	3800	3800	3800	3800	3800	3800	3800	3800
Dual Upright										
Hoistway Width (mm)	2334	1978	2640	2032	2640	2252	2674	2310	2310	2540
Travel < 3450 mm, Pit Depth = 1525 mm										
Overhead (mm)*	3800	3800	3800	3800	3800	3800	3800	3800	3800	3800
Travel < 4200 mm, Pit Depth = 1829 mm										
Overhead (mm)*	4100	4100	4100	4100	4100	4100	4100	4100	4100	4100
Dual Telescopic										
Hoistway Width (mm)	2334	1978	2640	2032	2640	2252	2674	2310	2310	2540
Travel < 6500 mm, Pit Depth = 1525 mm										
Overhead (mm)*	4100	4100	4100	4100	4100	4100	4100	4100	4100	4100
Travel < 7700 mm, Pit Depth = 1829 mm										
Overhead (mm)*	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400
Dual Roped										
Hoistway Width (mm)	2438	2081	2743	2118	2743	2322	2743	2438	2438	2696
Pit Depth (mm)	1525	1525	1525	1525	1525	1525	1525	1525	1525	1525
Overhead (mm)*	4200	4200	4200	4200	4200	4200	4200	4200	4200	4200

* Overhead is based upon 2438 mm cab height. For taller cabs, please contact Delta.

Notes:

- Other capacities and door configurations are available. See www.delta-elevator.com or call for details.
- Applications with a single rear door should use a pocket at the rear door to reduce the hoistway depth required. Please call for details.
- Dual upright and dual telescopic overhead requirements can be reduced in some circumstances by increasing pit depth.
- Some slight increases in travel are possible with dual upright and dual telescopic designs on a case by case basis.

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Aug 2017

Traction Elevators

Traction Elevator Components

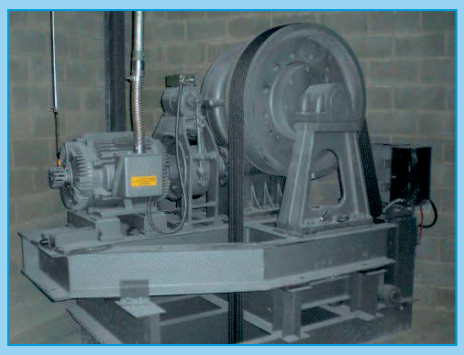
Delta uses proven components throughout its traction elevator design:

The DMPC controller is designed by Delta and manufactured at our Kitchener, Ontario plant. It is reliable, upgradeable, easily serviced, and fully supported for all maintaining contractors.

Delta uses Hollister-Whitney or Torin machines for traction elevator installations, depending on the application. Hollister is a well-respected American manufacturer that has been supplying superior elevator components for over 90 years, while Torin is the world's largest elevator machine manufacturer.

The Delta entrance system and applied panel cab finishes come standard on our elevators. They are designed in-house, are fully tested to meet all CSA requirements, and are manufactured at our Kitchener plant.

Fixtures and premium cab finishing options are sourced from high quality suppliers to ensure the final elevator appearance suits your building's aesthetics and durability requirements.



A Long Term Investment in Your Building

The traction elevator configuration has shown its reliability and durability for decades in a variety of uses.

When combined with a preventive maintenance program, many installations operate for over 20 years before a modernization is necessary.

Traction elevators are ideal for applications that require a combination of rapid speed, high travel, and heavy lifting capacity. This includes mid to high rise residential buildings, office towers, hospitals, and universities & colleges.

The heart of the Delta traction elevator is the machine, located either in a rooftop penthouse or in a basement machine room when a penthouse location is not available.

Traction technology combines a smooth, quiet ride, accurate levelling ability, and energy efficiency through the use of counterweights.

As well, modern traction elevators use a variable voltage, variable frequency (VVVF) drive to improve ride quality and reduce energy consumption.

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Traction Passenger Elevator Specifications

Capacity (kg)	910	950	1134	1200	1365	1587	1587	1815	2050	2275	2500
Orientation	Wide	Deep	Wide	Deep	Wide	Deep	Wide	Deep	Deep	Deep	Deep
Cab Size											
Width (mm)	1726	1370	2032	1406	2023	1610	2032	1598	1598	1698	2032
Depth (mm)	1300	1726	1300	2032	1406	2032	1610	2364	2554	2554	2554
Height (mm)	2286	2286	2286	2286	2286	2286	2286	2286	2286	2286	2286
Door Width (mm)	914	914	1067	1067	1067	1067	1067	1219	1219	1219	1372
Hoistway Size											
Front Only Door											
Depth (mm)	2036	2302	2036	2608	2142	2608	2346	2940	3130	3130	3130
Width (mm)	2264	2098	2540	2134	2540	2338	2540	2426	2426	2576	2910
Hoistway Size											
Front & Rear Doors											
Depth (mm)	2036	2614	2036	2920	2142	2920	2346	3252	3442	3442	3442
Width (mm)	2540	2098	2845	2134	2845	2338	2845	2426	2426	2576	2910
Speed of 0.75 - 1.00 m/s											
Pit Depth (mm)	1626	1626	1626	1626	1626	1626	1626	1750	1750	1750	1750
Overhead (mm)*	4500	4500	4500	4500	4500	4500	4500	4575	4575	4575	4575
Speed of >1.00 - 1.75 m/s											
Pit Depth (mm)	1676	1676	1676	1676	1676	1676	1676	1750	1750	1750	1750
Overhead (mm)*	4675	4675	4675	4675	4675	4675	4675	4750	4750	4750	4750

* Overhead is based upon 2438 mm cab height. For taller cabs, please contact Delta.

Features

- Governed by the CSA-B44 Elevator Code
- Capacity: 910 – 2,500 kg
- Speed: 0.50 – 2.00 m/s
- Maximum floors: 31
- Maximum travel: 100 m
- Cab size: 2.36 – 5.19 m^2
- Entrances: 1 or 2 speed or centre opening
- Safety features:
  - Infra-red door curtain
  - Emergency cab lighting
  - Emergency phone
  - Rope gripper
- Applications:
  - Mid and high rise residential & commercial
  - Hospitals
  - Universities & Colleges

Custom Traction Elevators

Need a custom traction elevator installation?

Interested in a traction freight elevator?

Call us – Delta has the resources to meet your custom application needs:

- Delta's experienced sales staff will work with you and your architect to assess the elevator requirements for your building project.
- Our mechanical and electrical engineering staff will design the best solution for your specific needs.
- Your custom elevator will be manufactured at our ISO-certified production facilities located in Kitchener, Ontario.
- Our field operations staff will ensure that the elevator is installed to the highest standard.

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DELTA ELEVATOR

MRL Elevators

The MRL: A New Approach

The Machine Room-Less (MRL) elevator was developed in Europe, where space constraints for elevators are more severe than in North America.

Traditional elevators require a separate machine room, either for the pumping unit in a hydraulic application or for the machine in a traction application.

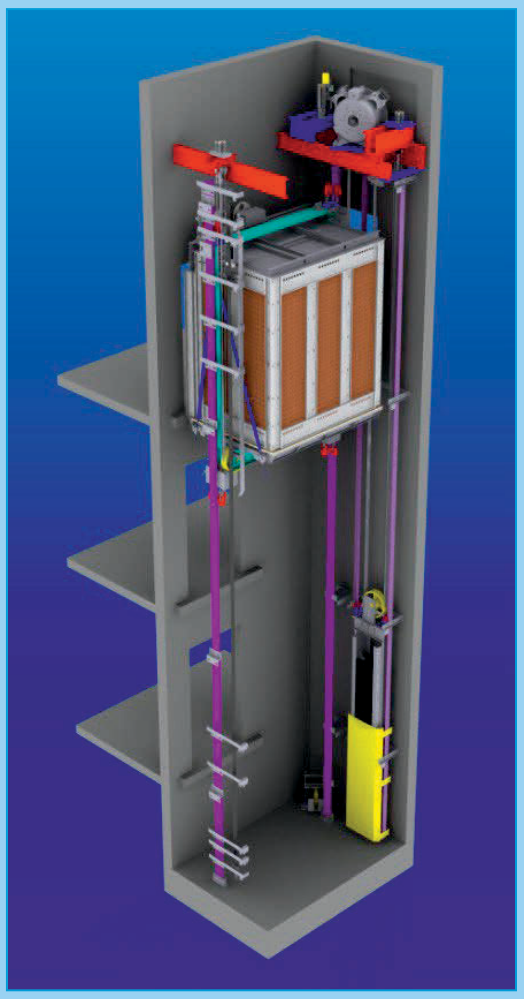
The key initial benefit of the MRL elevator was that these machine room spaces were no longer required since the machine was placed directly in the elevator shaft.

It is important to note that MRL elevators still require a secure space for the controller and associated components, as current regulations do not allow these to be located in the shaft.

However, the ancillary benefits of this new drive configuration – savings in time, money, and energy - has led to a growing market share in North America and worldwide.

The heart of the MRL is the compact gearless machine that is sized to fit directly in the elevator shaft.

Gearless technology combines a smooth, quiet ride, extremely accurate levelling ability, and energy efficiency through the use of counterweights and regenerative drives.



The MRL Advantage

Save Space
MRL elevators save space by placing the machine in the elevator shaft. This allows for more space efficient building designs.

Save Money
There is no need to build a machine room on top of the roof, saving both initial installation costs and ongoing building maintenance costs.

Save Energy
MRLs are a good solution to the relatively high level of energy consumption of elevators. The MRL machines use counterweights, direct drives, and regeneration to reduce energy use.

Save Time
When compared with traditional mid-rise hydraulic applications, the MRL can achieve higher speeds. This translates directly into shorter flight times for riders.

MRL Passenger Elevator Specifications

Capacity (kg)	910	950	1134	1200	1365	1587	1587	1815	2050
Orientation	Wide	Deep	Wide	Deep	Wide	Deep	Wide	Deep	Deep
Cab Size									
Width (mm)	1726	1370	2032	1406	2023	1610	2032	1598	1598
Depth (mm)	1300	1726	1300	2032	1406	2032	1610	2364	2554
Height (mm)	2286	2286	2286	2286	2286	2286	2286	2286	2286
Door Width (mm)	914	914	1067	1067	1067	1067	1067	1219	1219
Hoistway - Front Door Only	Side Counterweight								
Depth (mm)	1800	2302	1800	2608	1906	2608	2110	2940	3130
Width (mm)	2540	2185	2845	2221	2845	2425	2845	2448	2448
Hoistway - Front Door Only	Rear Counterweight								
Depth (mm)	2036		2036		2142		2346		
Width (mm)	2264		2540		2540		2540		
Hoistway - Front & Rear Doors									
Depth (mm)	2036	2614	2036	2920	2142	2920	2346	3252	3442
Width (mm)	2540	2185	2845	2221	2845	2425	2845	2448	2448
Speed of 0.75 - 1.00 m/s									
Pit Depth (mm)	1626	1626	1626	1626	1626	1626	1626	1676	1676
Overhead (mm)*	4750	4750	4750	4750	4750	4750	4750	5100	5100
Speed of >1.00 - 1.75 m/s									
Pit Depth (mm)	1676	1676	1676	1676	1676	1676	1676	1750	1750
Overhead (mm)*	5250	5250	5250	5250	5250	5250	5250	5400	5400

* Overhead is based on 2438 mm cab height. For taller cabs, please contact Delta.

Control Room Details

	Simplex		Duplex	
Control Room Type	Room with 914 mm door swinging outward	Closet with 1829 mm double swing doors	Room with 914 mm door swinging outward	Closet with 1829 mm double swing doors
Located Beside Hoistway	Hoistway depth x 1524 mm	Hoistway depth x 914 mm	Hoistway depth x 1829 mm	N/A
Located Behind Hoistway	Hoistway depth x 1524 mm	Hoistway depth x 914 mm	Total hoistway width x 1524 mm	Total hoistway width x 914 mm (2 sets of double doors)
Height	2400 mm (208V, 480V Power Supply), 3000 mm (600V Power Supply)			

Features

- Governed by the CSA-B44 Elevator Code
- Capacity: 910 – 2050 kg
- Speed: 0.75 – 1.75 m/s
- Non-proprietary configuration and components
- Safety features:
  - Infra-red door curtain
  - Emergency cab lighting
  - Emergency phone

The Delta MRL includes a rope gripper to prevent unintended motion. Talk to us about this important safety feature!

Applications

MRL passenger elevators are ideal for mid-rise buildings with higher speed requirements and where the presence of a rooftop machine room is not desirable or possible.

In addition to the standard designs listed above, Delta's in-house engineering department has the ability to meet your unique MRL needs.

Please call us to discuss other MRL elevator capacities, hoistway dimensions, or control room configurations.

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Delta Elevator Co Ltd

Jan 2018

DELTA ELEVATOR

Elevator Finishes

Passenger Elevator Cabs

The selection of cab interiors is an important part of your elevator design: It is the elevator component which riders see, touch, and use on a regular basis.

Delta offers a selection of standard interior options and finishes to provide customers with an excellent combination of value, attractiveness, and durability.

Delta's standard cabs are manufactured and assembled at our Kitchener plant and installed by our elevator mechanics to ensure high quality, consistent finishes, and short turnaround times.

Cab interiors can also be selected from Delta's third party cab finishing suppliers. These companies provide a wide range of finishes, including custom colours and materials to match any decor.

	Standard	Optional
Entrance Wall (Front/Rear)	• Stainless Steel #4	• Textured metal
Non-Access Walls (Side/Rear)	• Raised plastic laminate panels (Colour from Delta's standard selection chart)	• Mirror on side and / or rear walls • Stainless Steel or textured metal
Ceiling	• Fluorescent light fixtures above aluminum louvers and t-bar	• LED lights in Stainless Steel #4 or plastic laminate panels
Handrails	• 2 1/2" x 1/4" Stainless Steel #4 flat bar	• 1 1/2" Stainless Steel #4 tubular • 4" x 1/4" Stainless Steel #4 flat bar
Base & Reveals	• Black enamel	• Stainless Steel #4
Flooring	• Installed by others	• Installed by others

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Ceilings

Aluminum Louvres
Aluminum louvres and t-bar provide an inexpensive ceiling solution for basic cab finishes. They use fluorescent fixtures to give good lighting levels.

Stainless Steel Panels
Stainless steel panel systems allow the use of various lightings systems, including LED lights. This ceiling is also more durable and vandal resistant.

Laminate Panels with Pot Lights
Laminate panels provide a wide variety of colour choices to suit your building decor.

Lighting

Fluorescent Lighting
Traditional fluorescent strip lighting provides durable lighting for applications where higher end ceiling finishes are not required. Fluorescent fixtures and bulbs are inexpensive and reasonably energy efficient and can be upgraded to LED lighting solutions when and if required.

LED
LED lights provide energy efficient, long lasting lighting solutions. They are available in strip lighting for solutions where a higher end ceiling finish is not required or in downlight solutions for higher end cab interiors. LED lighting provides the latetest in lighting technology solutions to meet the needs of today's energy efficient buildings.

Handrails

Flat Stainless Steel Handrails
Delta's standard flat stainless steel handrail is durable and easy to maintain. Return bent ends are standard.

Tubular Stainless Steel Handrails
Tubular handrails add a touch of class to the cab finish. They are also more ergonomic for users by providing a rounded gripping surface.

Custom Finishes

Delta can design custom stainless steel or laminate panel finishes for ceilings and walls to match specific cab and durability requirements.

Custom handrail finishes, such as brushed bronze or painted enamel, are also available to match various custom cab designs.

Delta's cab finishing suppliers can provide more elaborate custom finishes, including mirrors, wood panelling, and alternate material handrails.

About Delta

Delta Elevator Co Ltd has been in operation since 1967. With experience in maintenance, repairs, modernizations, and new construction, Delta's products are field tested and high quality.

Delta's products are designed and manufactured at our plant in Kitchener, Ontario.

Our commitment to high quality has resulted in an exceptionally reliable full line of accessibility lifts and passenger and freight elevators in MRL, traction, and hydraulic configurations.

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Delta Elevator Co Ltd

April 2017

Standard Line Formica Plastic Laminate Cab Wall Panel Patterns

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Phone: (519) 745-5789 Fax: (519) 745-7587
Toll Free: 1-800-265-6348

DELTA ELEVATOR

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Canadian Elevator Contractors Association
www.delta-elevator.com

November 2021

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February 2018

DELTA ELEVATOR

Accessibility Solutions

		Delta 9000 LULA Elevator	Delta 7000 Accessibility Lift
Design	Standard Cab Sizes	1067 x 1525 mm (42" x 60") 1220 x 1372 mm (48" x 54")	915 x 1525 mm (36" x 60") 1190 x 1525 mm (47" x 60") 915 x 2212 mm (36" x 87")
	Minimum Pit Depth	356 mm	305 mm
	Minimum Overhead	3048 mm (minimum); 3400 mm (recommended)	2438 mm
	Maximum Travel	9000 mm	7000 mm
	Capacity	635 kg	454 kg (std), 635 kg (opt)
	Speed	0.15 metres per second	0.15 metres per second
	Drive Type	Direct acting or 1:2 roped hydraulic	1:2 roped hydraulic
	Motor	5 HP submersible	3 HP subersible
	Required Power Supply	220V 1 phase or 208V 3 phase	220V 1 phase or 208V 3 phase
	Warranty	1 year parts warranty	5 years conditional parts warranty*
Controls / Fixtures	Control Type	Automatic	Constant pressure
	Controller	DMPC with diagnostic tool included	Printed Circuit Board
	Restricted Access	Not required	Key (std), key pad (opt)
	Attendant Required	No	Yes
	Push Buttons	Light up in car and hall	Mushroom head push buttons
	udible Floor Signal	Standard	Not available
	Car Position Indicator	Standard	Optional
	Car Direction Indicator	Standard	Not available
	Autodial Telephone System	Standard	Optional
Cabs	Melamine Cab Panels	Not available	Standard
	Plastic Laminate Cab Panels	Raised P-Lam panels (std), st/steel (opt)	Optional
	Base	Black enamel (std), st/steel (opt)	St/steel kickplate
	Reveals	Black enamel (std), st/steel (opt)	Not applicable
	Door Header, Return & Strike Post	#4 brushed st/steel	Not applicable
	Ceiling	White enamel (std), st/steel (opt)	Diffuser panels (std), aluminum louver (opt)
	Lighting	CFL down lights	Fluorescent strip
	Handrail	64 mm flat st/steel on all walls	Chrome plated round on control wall
	Car Station	#4 brushed st/steel	#4 brushed st/steel
	Floor	By others	By others
	Cab Pad Hooks & Pads	Pad hooks (std), Cab pads (Opt)	Not available
	Car Door	2 speed ng - prime (std), st/steel or baked enamel (opt)	Not available
	Cab Height	2134 mm side opening	2032 mm
Entrances	Hall Entrance Type	2 speed sliding	Manual swing metal flush door
	Hall Entrance Width	914 mm	915 mm
	Hall Entrance Finishes	Primed (std), baked enamel or st/steel (opt)	Primed
	Power Operator	Standard	Not available
	Safety Edge	Infra-red light curtain (std)	Not applicable
Safety	Code Compliant	CAN/CSA B44	CAN/CSA B355
	Emergency Manual Lowering	Standard	Standard
	E-Power Lowering with Battery Backup	Standard	Standard
	Emergency Lighting	Standard	Standard
	Emergency Communications	Standard	Optional
	Slack Rope Safety	Standard	Standard

*Delta will replace any defective parts on the Delta 7000, unless part failure was due to improper use or care, which may develop within five years from the date of shipment from the Delta Elevator factory provided same has been properly used, oiled and maintained.

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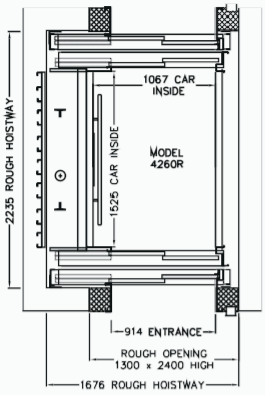
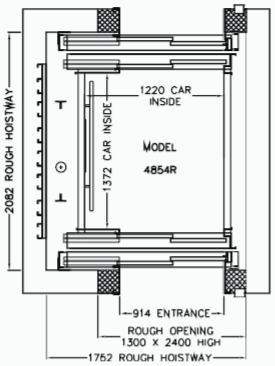
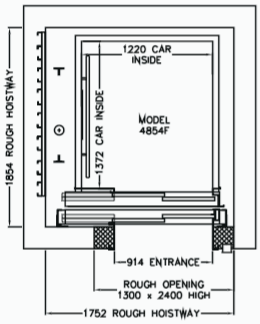
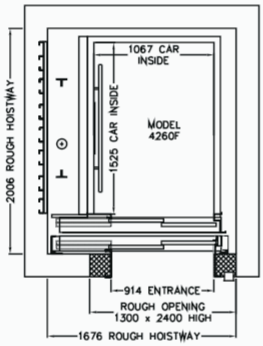
Hoistway Drawings

DELTA 9000 LULA Accessibility Elevator

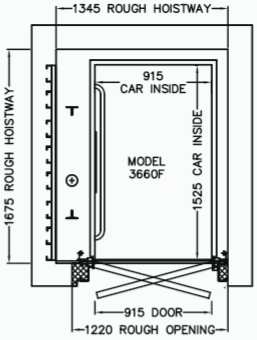


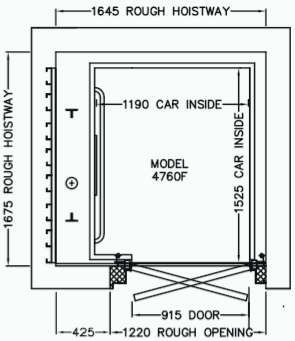


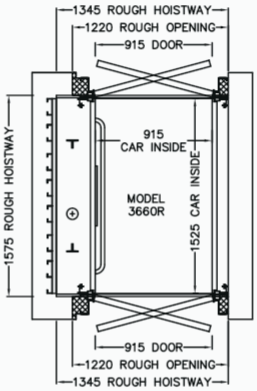


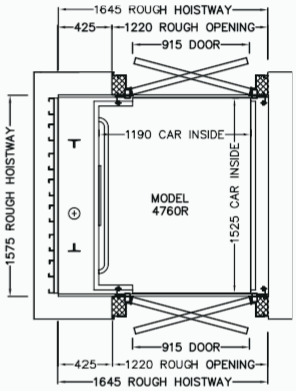


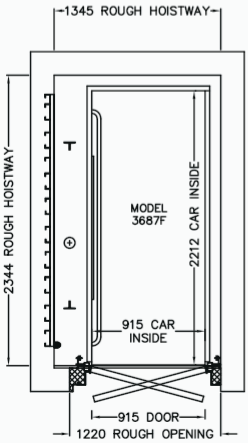
DELTA 7000 Accessibility Lift

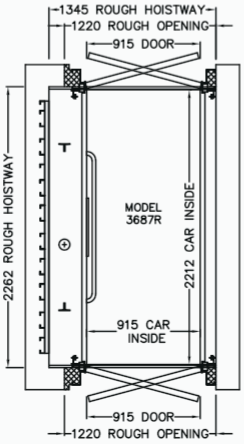


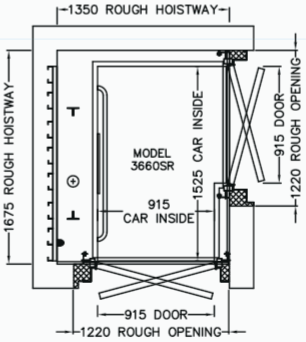


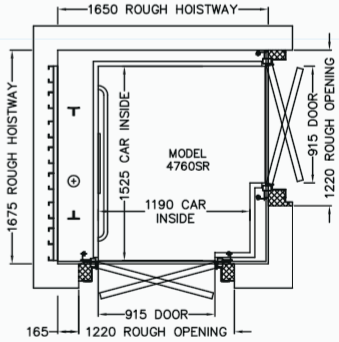


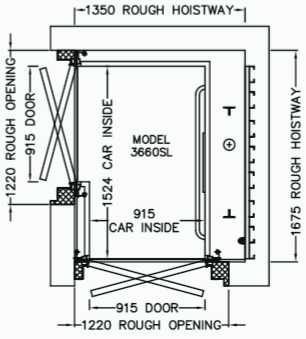


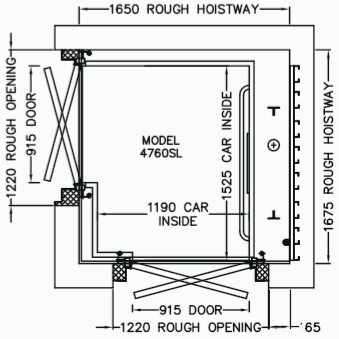












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Delta Elevator Co Ltd

Standard Line Panolam Melamine
Cab Wall Panel Patterns - Accessibility Lifts

October 2016

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DELTA ELEVATOR

Elevator Modernizations

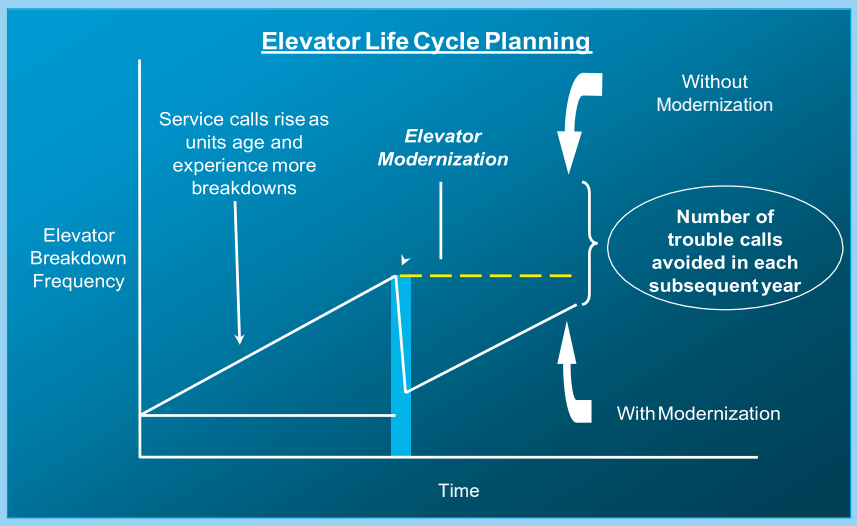
Life Cycle Planning

Having an efficient elevator system is an important part of the building infrastructure.

However, despite regular service and component repairs, the overall operational integrity of elevator systems will deteriorate due to operating environments, duty cycle, and parts obsolescence.

Modernizations address this problem, even as theaverageageofresidential tenantsincreases and as commercial tenant expectations rise.

Tenants will see a dramatic improvement in elevator operations as trouble calls decrease and elevator reliability increases.



Delta's modernization packages:

- Extend your elevator's life cycle
- Improve your elevator's reliability
- Enhance your elevator's aesthetics

Cab Upgrades

An elevator cab upgrade is optional when an elevator is modernized. The upgrade reuses the existing car and platform and sets new wall panels on the supporting shell structure that are separated with stainless steel reveals. As well, the face of the car and the front transom are capped in stainless steel and the hand railings are replaced to suit the current Code.

If the elevator is constructed with unremovable panels, the new look is simulated by adding new panels to the walls of the elevator; however, maximum weight restrictions set by the Code must be taken into account to prevent a structural review of the supporting structure.

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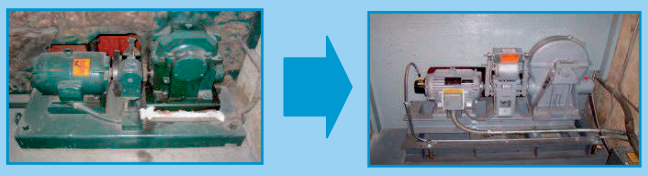
Machine Replacement

A traction elevator machine may sustain sufficient degradation and obsolescence over the years that it will need to be modernized. A complete machine replacement or a partial modernization (such as converting from a DC voltage drive to a variable frequency drive) is possible when changing an existing controller.



Hydraulic Pumping Units

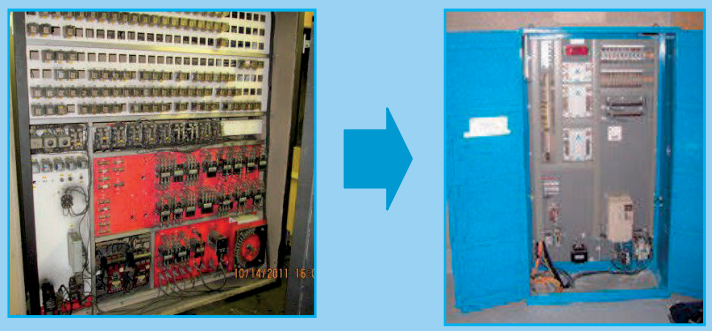
Hydraulic elevator valves and pumping units may need to be partially or fully replaced. Frequent re-levelling, over heating, and erratic stopping at floor levels may indicate that this type of modernization is required. Options available for this type of modernization include:

- Replacement of the entire pumping unit (tank, motor, pump, and valve).
- Replacement of the control valve.
- Replacement of the pump and motor.

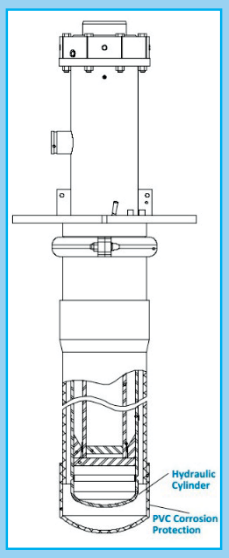
Controller Replacement

Controllers become obsolete even though elevators have a long service life. New controllers improve monitoring with memory that can store operational logs and quickly point technicians to the root cause of a problem.

Since Delta manufactures its own CSA-approved controller, we have the expertise and knowledge to replace virtually any control system – from accessibility lifts to passenger elevators and freight elevators.



Cylinder Replacement



New in-ground hydraulic elevator cylinders are protected from corrosion by encasing the cylinder in PVC.

However, some older existing installations without this type of effective corrosion protection could pose a serious safety or environmental issue.

If your elevator cylinder does not have an impermeable barrier like the PVC pipe, we recommend to address this potential issue by considering a replacement.

Other Upgrades

Door Operator: Door operators are prone to continuous wear and to abuse. When replacement parts are no longer available, an upgrade is required. This can include replacement of the entire door operator or of the door re-opening components only.

Drives: Drive upgrades can help improve ride quality as well as reduce energy consumption. Often, local power companies approve rebate applications when changing to a VFD (Variable Frequency Drive) when submitted with a pre- and post-evaluation report.

Safety: Dramatic advances in safety-related devices and circuitry mean that rider safety has never been as sure. Examples include:

- The introduction of up-direction over speed protection with the addition of a rope brake, which clamps the suspension ropes and prevents movement away from the landing.
- Increased sensitivity in detecting out-of-level floors to help reduce trips and falls and improve navigation for wheel chairs and walkers by keeping floor levels within a 6mm range.

Accessibility: The Accessibility for Ontarians with Disabilities Act now provides legislated standards for accessibility lifts and elevators. In many cases, existing units may need to be re-designed to meet these important guidelines in order to provide full and equal building access.

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Jan 2018

Elevator Controllers

Elevator Control Systems

Elevators are made of two distinct systems: The mechanical system that provides the physical framework and finishes of the elevator, and the electrical system that provides and monitors the movement and safety of the elevator.

Controllers are the brains behind the electrical system of every elevator. Controllers are responsible for motion control, call dispatching, and safety functions, all while maintaining uninterrupted service.

In the past, controllers have relied on relay logic or even mechanical inputs to do their job. Today, they are purpose built and programmed computers that rely on high tech microprocessors.

This means that newer controller designs, such as the DMPC, have an increased level of safety through the use of redundant systems and fault checking systems. At the same time, they allow for great flexibility to accommodate today's varied elevating device needs and they allow for greater ease of upgrades when there are Code changes.

Non-Proprietary Equipment

Similar to many intricate mechanical and electronic pieces of equipment, elevators and their components range in their proprietary nature.

Delta stands behind its product 100% and has both Mechanical and Electrical Engineering departments to provide technical support. Component prices are available on our web site – **Delta does not use parts pricing as a method to retain service contracts.**

Delta supports its elevators and controllers whether they are maintained by Delta or by another contractor. Delta's goal is to ensure a properly maintained, high quality product with a long service life and with minimal down time for the owner.

Contact Delta if you have questions about what "non-proprietary" means in your specific elevator application. There are as many definitions as there are elevator companies and consultants in the industry!

The Delta DMPC Controller

Proven Technology: The Delta DMPC controller has been operational in the field for over 10 years, with hundreds of units installed and a track record of reliability.

Feature Rich: The Delta DMPC controller has industry leading features such as:

- Non-proprietary diagnostics
- Electronic soft-start or Wye-Delta
- Remote monitoring capability
- Regenerative drives (optional)
- Battery backup power fail evacuation
- Upgradeable to accommodate Code changes

Affordability: The Delta DMPC is competitively priced in comparison to both third party non-proprietary controllers and to OEM proprietary controllers.

Serviceability: The modular design of the Delta DMPC makes it easily serviceable. Common technology and service interfaces are used across all drive configurations.

Delta is a Canadian manufacturer with a local support network for rapid response. We provide DMPC technical support to all maintaining contractors.

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The DMPC

Developed by Delta

The Delta DMPC controller was internally designed and developed to meet a broad range of ownership needs:

- It is robustly built to be maintained far into the future, minimizing life cycle costs;
- It shares a common software base and user interface across lift configurations, improving contractor familiarity and serviceability;
- It is integrated into the overall elevator design, ensuring a problem free interface with system components; and
- It can be customized to meet specialized elevating needs, including freight handling and health care.

Because we developed our own controller, Delta can ensure the future serviceability of your elevating device, including program upgrades to comply with new Code requirements as they are released.

Our team of designers and engineers know the design of your controller and will support it regardless of the maintaining contractor.

Basic Features

- Modular design - reducing wiring to the elevator (data is carried on the serial bus from distributed I/O points)
- Simplex or group elevator operation
- CSA and B44/A17.1 approved
- Redundant monitoring of all critical circuits
- High speed microprocessor monitors all functions
- Diagnostic logging and cycle counting
- User-friendly troubleshooting interface
- Robust and proven solid state technology
- Upgradeable to accommodate future Code changes
- Universally compatible processors between DMPC's

Advanced Features

- Regenerative drives (optional)
- Remote monitoring
- Optional battery evacuation for 1365 kg MRL elevators
- Solid state freight door control

Applications

The DMPC is a flexible control platform capable of running many different drive configurations and can be used for both passenger and freight applications:

- Schools
- Hospitals
- Universities & colleges
- Commercial developments
- Condominium & apartment buildings
- Churches
- Parking garages

Custom Controllers

Delta can custom design a controller for your unique specifications - customized elevator solutions are our strength.

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Jan 2018

Delta DDI

The Delta Diagnostic Interface for DMPC Controllers

The Delta Diagnostic Interface (DDI) is the state of the art interface for maintaining contractors to access DMPC elevator controllers. The DDI provides user feedback and input capabilities to facilitate maintenance and repair of the elevator controller.

Easy Installation
Field installation is straightforward since the DDI utilizes the same wiring and physical mounting characteristics as the machine room position indicator in the controller. A software upgrade and revised parameter set is all that is required to enable system functionality.

Access to Controller Data
Elevator contractors can access all data required to maintain a DMPC controller. Display outputs include real time operational and performance characteristics, historical performance data, and maintenance-related testing functions.

Full Technical Support
Delta's technical staff are available 24/7 to provide expert support for all DDI units.

Generic Unit
The DDI is a generic unit that can be transferred between DDI-enabled DMPC controllers.

Backwards Compatibility
The DDI is backwards compatible to all Delta DMPC passenger and freight elevators to ensure these elevating device continue to be serviceable. It can also replace existing NPTool handhelds.

User Friendly Interface
The DDI provides users with intuitive access to the data required to perform all the maintenance functions for a DMPC controller. It features a large, easy-to-read dot matrix backlit graphic display coupled with an integrated and durable input device. The touch-sensitive scroll wheel allows rapid data entry and easy scrolling through multiple lines of data.

For more information contact Delta Elevator or an authorized re-seller representative.

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The Delta Diagnostic Interface

Optional Upgrade

For new elevator installations, the DDI is standard on LULAs as part of the basic model configuration. As well, the DDI is an integral part of the MRL test and inspection panel and so is included standard for MRLs.

For other elevator models, the DDI is the optional upgrade required to make the DMPC controller field serviceable by other maintaining contractors.

NPTool Replacement

With the introduction of the DDI, Delta will no longer be issuing the NPTool as the access device for DMPC controllers. However, Delta will still provide ongoing technical support for legacy NPTools.

Instead of the NPTool, existing units that need to be replaced due to loss or damage or due to owner preference will be substituted with the DDI.

For NPTool replacements, the existing unit must be returned and will become the property of Delta.

DDI Addition to an Existing DMPC

The DDI can be added to an existing controller as a post elevator installation upgrade. There is a discount for multi-car groups when all units are upgraded concurrently.

Pricing

Pricing is available on the Delta website at: www.delta-elevator.com/parts_price_list.html. The price includes hardware and re-programming of the customer-supplied MCP unit from the controller at the Delta factory.

Installation

The maintaining contractor is responsible for mounting the DDI using the existing bolt pattern and wiring of the machine room position indicator in the DMPC controller.

Alternatively, Delta or its re-sellers can install the unit on a Time & Materials basis. Please call for pricing this option.

DDI

Key Features

- **Easy installation**
- **Backwards compatibility**
- **Access to controller data**
- **Full technical support**
- **Generic unit**
- **User friendly interface**

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Delta Elevator Co Ltd

Jan 2018

DELTA ELEVATOR

Elevator Maintenance

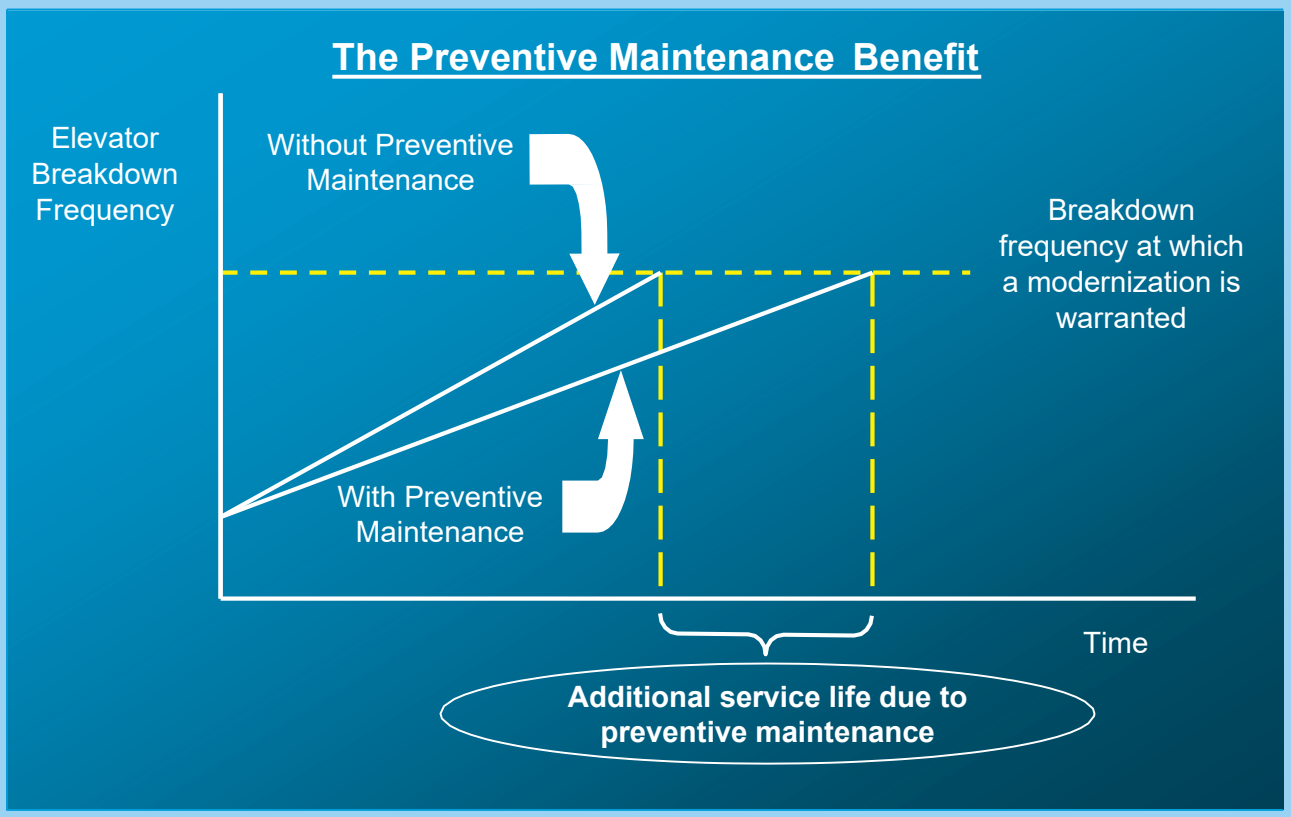
Preventive Maintenance Program

Delta's approach to elevator maintenance is to focus on preventive maintenance, including regular on-site visits on a monthly or quarterly basis depending on the characteristics of elevator being serviced.

With a full preventive maintenance program in place, many elevators will be in service for 20 years or more before requiring a major modernization expenditure.

Regular on-site preventive maintenance has several benefits:

- It provides a higher level of reliability by addressing issues before they result in shut-downs.
- It extends the service life of the elevator by replacing or repairing parts before they cause additional wear on other components.
- It allows for better financial planning by smoothing expenses rather than incurring unplanned repairs.



Delta's preventive maintenance packages:

- Meet your unique needs
- Improve your elevator's reliability
- Extend your elevator's life cycle

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Maintenance Contract Types

Delta has three basic elevator maintenance contract service levels:

Labour, Oil & Grease (LOG) contracts provide the minimum service level required to comply with TSSA requirements, including routine maintenance during regular visits (cleaning, lubricating, minor adjustments, and visual inspections) and safety tests. Repairs and callbacks are not included.

Full Maintenance (FM) contracts provide the benefits of the LOG contract plus a full preventive maintenance program on most major elevator components, including repairs. Callbacks during regular working hours are also included.

Full Maintenance Extended (FMX) contracts provide the benefits of the FM contract, with the addition of all callbacks being included regardless of time of day or week.

Type	Callbacks	Price	PM Repairs
LOG	Extra	Low	Extra
FM	Included (during regular hours	Medium	Included
FMX	Included	Premium	Included

Maintenance Supervisor

Each Delta mechanic is registered with the TSSA and is thoroughly trained in preventive maintenance, repairs, and troubleshooting.

As well, Delta has dedicated Maintenance Supervisors on staff to provide additional coverage and trouble-shooting resources as circumstances require. These senior mechanics provide timely assistance to the route mechanics on difficult elevator issues, as well as ensuring high quality and consistent service throughout Delta's portfolio.

Trouble Calls

Because of our emphasis on preventive maintenance, Delta has one of the lowest trouble call ratios of all elevator contractors in Ontario. On average, a Delta-maintained elevator has less than two equipment related calls per year.

Response Times

Delta can respond quickly and effectively to unplanned service calls. With a large presence throughout Southwest and Central Ontario, one of Delta's GPS-equipped mechanics is always available to respond to your emergency needs.

Payment Options

Delta provides multiple payment options to suit the needs of your business. Billing frequency can be monthly, quarterly, or annually. Payment can be made by cheque or direct bank debit.

Telephone Monitoring

Delta can also provide monitoring of your elevator telephone. Delta provides live answering from its Kitchener office during business hours and through a dispatching service at other times.

Repairs & Modernizations

Delta has the resources, contacts, and expertise to repair or modernize most elevators.

We can provide timely, competitive quotes for full modernization projects, for repair items, or for TSSA-mandated upgrades and retrofits.

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June 2017