Apprenticeship Training Standard

Elevating Device Mechanic

Trade Code: 636E

Development Date: 2008

This document is the property of the apprentice named inside and represents the official record of his/her training.
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HOW TO USE THIS MANUAL

This Training Standard/ Skills Passport was developed jointly by the Technical Standards and Safety Authority (TSSA) and the Ministry of Training, Colleges and Universities as a record of training for the Elevating Device Mechanic. That training includes the apprenticeship program and all ongoing training where a performance sign off allows the trainee to work on the specific elevating device or system in the roles of installing, maintaining, upgrading or servicing. This document must be retained by the mechanic throughout his or her career as evidence of competence for specific trade procedures. Inspectors may ask to see this document.

The trade performances have been assembled and are described to make it as clear as possible what performances must be mastered. You will note that many of the performances relating to a specific piece of equipment or system have both an installation and a maintenance performance description. Here is what must be done to complete the apprenticeship.

1. **Prior to beginning the apprenticeship**, the apprentice must complete the safety training program and receive an EDM-T certificate from TSSA. No one can begin training in-school or on the job before they have received the EDM-T certificate.

2. **The apprentice is required to complete** objectives U0741- U0745. Objective U0746 must be completed by apprentices who are going to be installing elevators. The apprentice is required to complete either the maintenance or the installation procedure for each of the performance objectives U0747 to U0761. The apprentice may do both installation and maintenance tasks for a given performance. Objectives U0762 and U0763 are optional.

3. **Also, those performances that are shaded** are the ones that are done by a smaller proportion of the trade and need not be learned in order to complete the apprenticeship. These can be learned and signed off for those who do them as part of their job.

4. Finally, **The apprenticeship may be completed** when the apprentice has passed all schooling, has completed a benchmark of 8000 hours on the job and has signed off at least 80% of the required performances. Required performances are those that are left when all the previous options have been accounted for.

The sign-off by the trainer requires that each of the sub-performances, indicated by an underline, be initialled as it is learned. When all sub-performances are initialled, the performance can be signed off.

Trainers, you must sign-in before you sign-off. If you are going to sign off any performances in this manual, you must enter your information on the back page in the Supervisor / Trainer Sign-off Identification Form. Apprentices must also sign off each performance as it is completed. If your apprentice is a new hire, you must fill in the Employer Information form and complete it when the apprentice leaves or finishes the apprenticeship.
Please Note:

Apprenticeship Training and Curriculum Standards were developed by the Ministry of Training, Colleges and Universities (MTCU). As of April 8th, 2013, the Ontario College of Trades (College) has become responsible for the development and maintenance of these standards. The College is carrying over existing standards without any changes.

However, because the Apprenticeship Training and Curriculum Standards documents were developed under either the Trades Qualification and Apprenticeship Act (TQAA) or the Apprenticeship and Certification Act, 1998 (ACA), the definitions contained in these documents may no longer be accurate and may not be reflective of the Ontario College of Trades and Apprenticeship Act, 2009 (OCTAA) as the new trades legislation in the province. The College will update these definitions in the future.

Meanwhile, please refer to the College’s website (www.collegeoftrades.ca) for the most accurate and up-to-date information about the College. For information on OCTAA and its regulations, please visit: www.collegeoftrades.ca/about/legislation-and-regulations.
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Program Definition: Elevating Device Mechanic is defined in Ontario as a person who constructs, installs, services and maintains elevating devices including elevators, lifts and escalators, under the authority of the Technical Standards and Safety Act.

ELEVATING DEVICE MECHANIC is an approved apprenticeship program for the purposes of the Apprenticeship and Certification Act, 1998 (ACA).

Program Guidelines

- **On-The-Job Train Duration (for apprentices)**
  The Industry Committee has identified 7280 hours as the duration generally necessary for any apprentice to become competent in the skills required. There may be individual circumstances where the duration varies from this guideline.

- **In-School Training Duration**
  The Industry Committee has identified 720 hours of in-school training as the duration generally necessary for an apprentice to complete the in-school curriculum for this program, except where an apprentice has been exempted from any level of that curriculum.

- **Ratio**
  The Industry Committee has not identified a specific journeyperson-to-apprentice ratio for the purpose of training.

Program Requirements

- **Restricted Skill Sets**
  This is a compulsory trade under the Technical Standards and Safety Act. Specific skill sets are not considered restricted as the restrictions are equipment centered, i.e. the individual is required to possess an EDM-T and be a registered apprentice or an EDM-A (journeyperson) in order to work on Elevating Device equipment.

- **Academic Standard**
  The Industry Committee has identified the minimum academic standard for entry to this program as completion of Grade 12 or a ministry-approved equivalent. (See ACA Policy 102, Confirming Academic Requirements)

- **Eligibility for Exam Challenge (for Non-apprentice C of Q Applicants)**
  Those who may wish to challenge the Certificate of Qualification must apply to the TSSA Training & Certification Advisor for the Elevating & Amusement Devices Safety Program who will provide an assessment for examination eligibility. The Certificate of Qualification examination has been developed by TSSA and is not a provincial examination.
• **Eligibility for Program Completion (for Apprentices)**
  The apprentice must:
  
  D  achieve competency in at least 80% of the mandatory (unshaded) elevating device installation or maintenance skills as identified in the Training Standard and complete a benchmark 8000 hours on the job.
  
  D  complete the in-school training as outlined in the industry and ministry-approved Curriculum Standard.
  
  The apprentice will be then eligible for the Ontario Certificate of Apprenticeship.

  **NOTE:** This completion requirement is non-standard and is not covered under the ACA policies and procedures. Please review this requirement carefully.

• **Other Information**

• **Other Resources**
  Complete program requirements, policies, and standards can be obtained by referring to the following resources:
  
  •  *Apprenticeship and Certification Act, 1998 (ACA)*;
  
  •  ACA General Regulation 573/99;
  
  •  Technical Standards and Safety Act, 2000,
  
  •  O. Reg. 222/01 *Certification and Training of Elevating Device Mechanics*
  
  •  ACA Exemption Regulation 566/99;
  
  •  Program-specific Apprenticeship Training Standards or Schedules of Training; and
  
  •  ACA Program and Policy Manual

• **Other Required Certification**
  Apprentice entrant is required to register with the TSSA, complete the initial, required safety training and receive an EDM-T certificate prior to registering as an apprentice. Apprenticeship registration is required for all Elevating Device Mechanics except those who may be exempted by TSSA.

• **Academic Background**
  Industry may have identified relevant secondary school course(s) likely to increase an individual’s chances of success if completed prior to program entry. For details, see the document Apprenticeship Subject Pathways.
NOTICE/DECLARATION FOR COLLECTION OF PERSONAL INFORMATION

1. At any time during your apprenticeship training, you may be required to show this training standard to the Ministry of Training, Colleges and Universities (the Ministry). You will be required to disclose the signed Apprenticeship Completion form to the Ministry in order to complete your program. The Ministry will use your personal information to administer and finance Ontario’s apprenticeship training system, including confirming your completion and issuing your certificate of apprenticeship.

2. The Ministry will disclose information about your program completion and your certificate of apprenticeship to the Ontario College of Trades, as it is necessary for the College to carry out its responsibilities.

3. Your personal information is collected, used and disclosed by the Ministry under the authority of the Ontario College of Trades and Apprenticeship Act, 2009.

4. Questions about the collection, use and disclosure of your personal information by the Ministry may be addressed to the:

Manager, Employment Ontario Contact Centre
Ministry of Training, Colleges and Universities
33 Bloor St. E, 2nd floor, Toronto, Ontario M7A 2S3
Toll-free: 1-800-387-5656; Toronto: 416-326-5656
ROLES & RESPONSIBILITIES OF APPRENTICE, SPONSOR/EMPLOYER AND SUPERVISOR/TRAINER

**Apprentice** “Apprenticeship is learning on the job”

- Practice safe work habits.
- Use your apprenticeship training standard as a journal to keep track of which skills you have achieved.
- Talk over your training plan with your Training Consultant, Employer, Union, or Sponsor.
- Know what tools are required for your trade and how to use them.
- Ask questions and keep asking.
- Talk to your employer about your training needs.
- Demonstrate enthusiasm and good work habits.
- Ensure that you and your supervisor/trainer sign off skill/skill sets upon demonstration of competency.

**Sponsor/Employer** “Training is an Investment”

- Demonstrate safe work habits.
- Attest to successful achievement by signing the skill/skills sets.
- Provide opportunities and time for the apprentice to learn the trade.
- Offer practical trade training experiences that cover all of the skill sets.
- Foster work ethics that support training while minimizing productivity losses.
- Set out clear expectations, then recognize or reward performance excellence.
- Involve both the apprentice and supervisor/trainer in developing the training plan.
- Use the Training Standard as a monitoring tool and part of regular performance evaluations.
- Select supervisors/trainers with good communication skills and who work well with others.
- Encourage supervisors/trainers to take upgrading courses - (e.g. Train the Trainer, Mentor Coach, etc).
- Complete the Skill Set Completion Form once the apprentice has demonstrated competency in the training.
- Ensure that the apprentice always works under the direction of or has access to a qualified supervisor/trainer.
- Vary the apprentice’s exposure to all the skills set out in the training standard.
**Supervisor/Trainer**

- Demonstrate safe work habits.
- Treat apprentices fairly and with respect.
- Use the Training Standard as a guide to evaluating competence in each skill area. In using the Training Standard, supervisors/trainers will be able to ensure that the apprentice is developing skills detailed for the trade/occupation.
- Review the Training Standard with the apprentice and develop a training plan.
- Respond fully to all questions.
- Be patient. Explain what is to be done, then show how it is done, and then let the apprentice demonstrate the task.
- Provide continuous feedback.
- Sign off individual skills/skill sets once the apprentice demonstrates competence in the skill.

**Suggestions for Assessing the Progress of the Apprentice in the Workplace**

- Use informal daily observation.
- Provide constructive feedback to build confidence.
- Allow the supervisor/trainer time to teach and demonstrate the skills.
- Take prompt action wherever problems occur.
- Conduct regular performance reviews involving the apprentice, supervisor/trainer and sponsor/employer.
- Use the Training Standard as the reference for establishing the competency of the apprentice.
## Skill Set Completion Form

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U0741.0 DEMONSTRATE SAFE WORKING PRACTICES AND PROCEDURES

GENERAL PERFORMANCE OBJECTIVE

Demonstrate safe working practices and procedures by wearing and maintaining personal protective equipment; practising good housekeeping; handling hazardous/toxic workplace material; practising fire safety procedures; taking correct action concerning workplace hazards; working within safe physical limits; inspecting elevating devices and material handling equipment; working on equipment in elevated positions and applying lock out and tag procedures and de-energizing procedures in accordance with OHSA, WHMIS, EPA, DGTA, other relevant legislation, manufacturers' instructions and company procedures and policy.

PERFORMANCE OBJECTIVES

SKILLS

U0741.01 Wear and maintain personal protective equipment including any or all of

— eye
— ear
— hand
— respiratory
— body
— skin
— head and
— foot protection

ensuring that correct fit and optimum protection is provided to the wearer for the specific task in accordance with manufacturers' instructions and as required by OHSA regulations and company policies and procedures.

U0741.02 Practice good housekeeping by

— ensuring the workplace is clean, organized and free of obstructions
— the location of first aid equipment and supplies is identified
— materials and equipment are cleaned and stored in designated areas after use and
— protective barriers and guards are erected

in compliance with OHSA and company policy and procedures.
U0741.0  DEMONSTRATE SAFE WORKING PRACTICES AND PROCEDURE ...cont’d

U0741.03  Handle hazardous/toxic workplace materials including any or all of

- lead
- asbestos
- gases
- acids
- solvents
- paints
- thinners and
- cleaners

so that individuals are protected from injury and the environment from contamination, and safety practices are in accordance with WHMIS, EPA, DGTA, manufacturers’ instructions and company procedures and policy.

U0741.04  Practise fire safety procedures including any or all of

- determining the potential for fire posed by the work being performed
- identifying the location of and assessing the severity of a fire
- selecting and operating fire extinguishing equipment for specific fire types
- activating alarms
- recognizing and responding to audio-visual alarms and
- following the prescribed fire evacuation plan

in accordance with the OFC, company procedures and directives.

U0741.05  Take correct action concerning workplace hazards in the machine room, hoistway and pit including any or all of

- noxious fumes and dust
- high intensity light
- fires
- elevated work sites
- suspended loads
- poor lighting
- extreme temperatures
- inadequate ventilation
- confined spaces
- untidy work sites and
- uncontrolled power sources
- pinch points
- moving equipment

so that the potential for personal injury and damage to equipment and the environment are minimized in accordance with applicable manufacturers’ instructions, government regulations and company policies.
U0741.0 DEMONSTRATE SAFE WORKING PRACTICES AND PROCEDURE ...cont’d

U0741.06 Work within safe physical limits by applying correct body mechanics when

— bending
— lifting
— transporting or
— climbing

with heavy loads in accordance with the manufacturers' instructions and company procedures and policy so that probability of personal injury is minimized.

U0741.07 Inspect elevating devices and material handling equipment for proper condition and operation by

— checking associated equipment and personal protection devices
— reviewing the prescribed hoisting procedures
— ensuring the work area is free of obstructions and hazards
— ensuring sufficient clearance and headroom is available and
— ensuring all equipment is secure, correctly positioned, clean and free of defects and stored in a designated location when not in use

in accordance with the manufacturers' specifications and instructions and company policies and procedures.

U0741.08 Work on equipment in elevated positions by

— mounting/ascending and descending/dismounting safely
— using required fall arrest systems and
— posting "Work Overhead" warning notices

in accordance with the OHSA and company policies and procedures.

U0741.09 Apply lock out and tag procedures and de-energizing procedures prior to commencing maintenance and overhaul to

— electrical
— mechanical
— hydraulic and
— pneumatic equipment

in accordance with the CEC, the TSSA manufacturers' instructions and company policies and procedures.
Signatures of:

Apprentice

Supervisor/Trainer
U0742.0 USE AND MAINTAIN TOOLS, EQUIPMENT AND DEVICES

GENERAL PERFORMANCE OBJECTIVE

Use and maintain tools, equipment and devices by using and maintaining trade specific hand tools and associated equipment; power tools and associated equipment and supplies; measuring devices and testing and troubleshooting devices for electrical, electronic and mechanical systems so that tools, equipment and devices are used for their intended purpose and are maintained at a standard of repair that is safe and functionally effective.

PERFORMANCE OBJECTIVES

SKILLS

U0742.01 Use and maintain hand tools and associated equipment including hammers, socket sets, chisels, wrenches, screw drivers, pliers, hack saws and oilers by

— determining the correct tool for the job
— selecting the tool and required components
— applying it to the job and
— identifying deficiencies

so that tools are used for their intended purpose and are maintained at a standard of repair that is safe and functionally effective.

U0742.02 Use and maintain power tools and associated equipment for electrical and mechanical system troubleshooting and maintenance including drills, saws, and drivers by

— identifying appropriate power supply sources and ensuring power
— maintaining integrity of power supply and reporting inadequate power supply
— determining the correct tool for the job
— monitoring its performance
— adjusting its operation as necessary
— identifying deficiencies
— replacing consumables and
— repairing or replacing user maintainable parts

so that tools are used for their intended purpose and are maintained at a standard of repair that is safe and functionally effective in accordance with OSHA.
U0742.03 Use and maintain measuring and testing devices including measuring tapes, scales, dividers, markers, callipers, dial indicators, multimeters, tachometers, gauges, micrometers and levels by

- determining the correct device or equipment for the job
- setting up the device
- testing it
- adjusting its operation as necessary and
- identifying deficiencies

so that devices are used for their intended purposes and are maintained at a standard of repair and accurate calibration that is safe and functionally effective.

Signatures of:

Apprentice ___________________________ Date __________

Supervisor/Trainer _____________________ Date __________
ELEVATING DEVICES MECHANIC

U0743.0  EMPLOY JOB INFORMATION RESOURCES

GENERAL PERFORMANCE OBJECTIVE

Employ job information resources by interpreting electrical, mechanical, elevating device layout and structural blueprints; communicating with co-workers and writing service documents and reports so that the information needed to plan and complete installation and maintenance activities is made available and used.

PERFORMANCE OBJECTIVES

SKILLS

U0743.01  Use electrical, mechanical, elevating device layout and structural blueprints, shop drawings or schematics to determine the

- identification of system components
- location and layout of equipment and components
- clearances
- power requirements and
- revision level of prints

so that the information needed to plan and complete the job is determined accurately enough to support a work plan.

U0743.02  Communicate with co-workers, supervisors, contractors, clients, company representatives and other tradespersons by

- verbal and
- written communication

ensuring that information delivered is concise, clear and accurate and is in accordance with company procedures or practices.
U0743.03 Write and maintain service documents and reports including

- time tickets
- logbooks
- health and safety reports
- injury reports
- preventive maintenance documents
- callback reports and
- inventory requisitions

by completing them manually or using computer systems, ensuring that written reports are concise, detailed, clear, accurate and timely, in accordance with company practices or procedures.

U0743.04 Refer to relevant installation and / or maintenance standards including

- ASME A17.1 / CSA B44. Code
- Technical Standards and Safety Act
- Elevating Device Regulation 209/01
- Active Directors Orders & Bulletins
- Certification and Training Regulation 222/01
- B44.1/A17.5 Elevator & Escalator electrical equipment
- CSA B355 – Code for Persons with Physical Disabilities
- B44.2 – Maintenance Requirements

so that the relevant standards required for sign-off are adhered to for each installation and/or repair.

**NOTE** to Supervisor/Trainer: This performance requirement (U0743.04) is in place for each of the performances in this document and forms a part of the sign–off requirement for them. The listed documents constitute the “governing regulations” referred to in each performance.

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ELEVATING DEVICES MECHANIC

U0744.0 USE AND MAINTAIN ACCESS AND FALL ARREST EQUIPMENT

GENERAL PERFORMANCE OBJECTIVE

Use and maintain access and fall arrest equipment by securing and positioning ladders; selecting, inspecting and erecting scaffolding and work platforms; selecting, inspecting and operating work platforms and false cars; and working on scaffolding and at heights using fall arrest equipment; so that ladders, scaffolding and work platforms are erected, used, dismantled and stored properly and fall arrest equipment is used in accordance with employer’s procedures and CSA safety standards or Ontario regulation requirements.

PERFORMANCE OBJECTIVES

SKILLS

U0744.01 Use ladders by

— securing footing
— using tie-offs
— ensuring proper height and positioning
— observing load limits and
— guarding area

in accordance with employer’s procedures, manufacturer’s specifications, CSA safety standards or Ontario regulation requirements.

U0744.02 Use scaffolding by

— selecting scaffolding for the specific job
— performing pre-use inspection
— ensuring sufficient load limit
— checking for visual defects
— erecting scaffolding
— placing on a firm footing
— levelling and bracing
— guarding area
— disassembling scaffolding and
— storing it

in accordance with employer’s procedures, manufacturer’s specifications, CSA safety standards or Ontario regulation requirements.
U0744.03 **Use work platforms and false cars by**

- selecting the work platform for the specific job
- performing pre-use inspection and safety testing
- operating the work platform or false car

ensuring it is sufficient for the task, has no visual defects in accordance with employer’s procedures, manufacturer’s specifications, CSA safety standards or Ontario regulation requirements.

U0744.04 **Use fall protection at heights by**

- selecting and utilizing a fall protection system
- wearing the appropriate fall protection equipment and
- following fall protection procedures

as required by employer’s procedures, CSA safety standards and Ontario regulation requirements.

**Signatures of:**

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**Apprentice**

__Date__

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**Supervisor/Trainer**

__Date__
U0745.0  RIG & HOIST

GENERAL PERFORMANCE OBJECTIVE

Rig and hoist by selecting and inspecting rigging; positioning and employing rigging; and selecting, inspecting and operating hoisting equipment so that the rigging is appropriate to the job and is used and stored correctly, lifting and hoisting equipment is adequate for the job and the lift is correctly carried out in compliance with employer’s procedures, CSA safety standards, Ontario regulations and material handling guidelines.

PERFORMANCE OBJECTIVES

SKILLS

U0745.01  Select and inspect rigging and hoisting equipment by

— choosing appropriate equipment required for the specific lift including cable clamps, chain block hoists, chains, chokers, come-alongs, connectors, ropes, slings and tuggers
— performing preoperational check of rigging through visual checks for defects including damaged links, frayed cables, cuts in slings, damaged threads on shackles, and other physical defects and
— replacing or identifying for repair defective rigging

so that rigging is correct for the job in accordance with Ontario regulation requirements and employer’s procedures and CSA safety standards.

U0745.02  Position and employ rigging by

— estimating the weight, balance and size of work piece to be moved or lifted
— placing or attaching the rigging to the load and
— dismantling and storing the rigging equipment after use

so that correct rigging is selected with safety factors, placed and used to move and/or lift the work piece, and is stored correctly and in good repair in compliance with employer’s procedures, CSA safety standards, Ontario regulations and material handling guidelines.
U0745.03 Operate hoisting equipment by

— lifting and moving work pieces using material handling tools and equipment
— communicating with other workers using hand and voice signals and
— storing hoisting equipment

so that correct lifting and moving procedures are used in accordance with employer’s procedures, manufacturer’s specifications, CSA safety standards or Ontario regulation requirements.

Signatures of:

Apprentice __________________________ Date ____________

Supervisor/Trainer __________________________ Date ____________
U0746.0 PREPARE FOR ELEVATOR INSTALLATION (Optional for Maintainers)

GENERAL PERFORMANCE OBJECTIVE

Prepare for installation by developing an installation plan, selecting tools, materials and equipment required for the installation and determining work sequence and required personnel so that the requirements for the installation are anticipated and planned for and the plan is comprehensive and practical.

PERFORMANCE OBJECTIVES

SKILLS

U0746.01 Develop Installation Plans by

- consulting with site superintendents and other trades to ensure that the equipment and the job site meet the installation or removal requirements and that hazardous material protection, collection and disposal systems are in place and workable.
- reading and interpreting installation documents, blue prints and specifications
- identifying site relevant safety concerns and other installation variables
- determining work site layout and space usage requirements
- arranging for removal or avoidance of hazards
- ensuring all required components to begin installation are on-site and identified
- establishing lines and grades and
- determining reference points for the installation

so that relationships among the components of the installation are clear and installation is feasible; layout meets practical requirements; work can proceed in a safe and orderly manner; there is reduced interference from competing work activities, safe and efficient movement in the work space is possible. sequence of operations is effective and non-productive activities are

U0746.02 Select tools, materials and equipment required for the installation as determined by the installation plan so that all standard and special tools, materials and equipment are available at the site or acquisition is planned for them as required.
U0746.03 Determine work sequence and required personnel by reviewing

- site accessibility
- order of assembly
- size and weight of components and
- method of assembly

so that major problems are identified, work sequence is clear and workforce is available when required.

Signatures of:

Apprentice __________________________ Date

Supervisor/Trainer __________________________ Date
U0747.0 INSTALL AND MAINTAIN DRIVE MACHINES AND COMPONENTS

U0747.01 Install drive machines by

- locating suspension means and runways
- verifying equipment
- installing hoisting machine and related equipment
- installing secondary level equipment
- aligning equipment
- verifying machine operation

so that equipment is properly installed and aligned in accordance with manufacturers’ recommendations and governing regulations.

Signatures of:

Apprentice

Supervisor/Trainer

Supervisor - initial demonstrated skills and sign-off installation or maintenance procedures when completed.

U0747.02 Maintain drive machines, motors and generators by

- inspecting motors and generators including carbon contamination, worn or sticking brush gear, loose connections and bearing oil levels and recording equipment performance outcomes
- servicing motors and generators including cleaning, lubricating, adjusting and repairing or replacing maintainable parts
- inspecting drive machines including condition of bearings and seals, mating of machine surfaces, stability of shafts and supports, security of all fasteners on machines, isolation of machines, gear and bearing lubrication and recording equipment performance outcomes
- servicing drive machines including cleaning, lubricating, adjusting and repairing or replacing maintainable parts
- adjusting and testing brake

so that machines, motors and generators are maintained in accordance with manufacturers’ recommendations and governing regulations.

Signatures of:

Apprentice

Supervisor/Trainer

Supervisor - initial demonstrated skills and sign-off installation or maintenance procedures when completed.
U0748.0 INSTALL AND MAINTAIN HYDRAULIC DRIVE SYSTEMS

**U0748.01 Install hydraulic pumping units** by

- verifying equipment
- installing pumping unit and oil line
- securing and isolating pumping unit
- verifying operation

so that units are properly installed and aligned in accordance with manufacturers’ recommendations and governing regulations.

**U0748.02 Install hydraulic cylinders** by

- verifying equipment
- installing jack units
- aligning units
- installing oil lines
- verifying operation

so that cylinders are properly installed and aligned in accordance with manufacturers’ recommendations and governing regulations.

**U0748.03 Maintain hydraulic pump units** by

- inspecting and testing hydraulic pump units including drive components, control valves and oil distribution system, causes/sources of oil loss, log books and recording equipment performance outcomes and
- servicing hydraulic pump units machines by cleaning, lubricating, adjusting and repairing or replacing maintainable parts

so that hydraulic pump units are maintained in accordance with manufacturers’ recommendations and governing regulations.

**U0748.04 Maintain hydraulic systems** by

- inspecting hydraulic systems for leaks, unexplained oil loss and vibration
- checking for belt wear
- performing no-load leak down test
- pressure testing hydraulic cylinders
- adjusting valve operation
- guarding against mechanical stored energy

so that hydraulic systems are maintained in accordance with manufacturers’ recommendations and governing regulations.

**Signatures of:**

**Apprentice**

__________________________  Date

**Supervisor/Trainer**

__________________________  Date

Supervisor - initial demonstrated skills and sign-off installation or maintenance procedures when completed.
U0748.05 Maintain Hydraulic Jack Units by

— maintaining hydraulic oil level

in accordance with manufacturers’ recommendations and governing regulations.

Signatures of:

Apprentice ___________________________ Date __________

Supervisor/Trainer ___________________________ Date __________

Supervisor - initial demonstrated skills and sign-off installation or maintenance procedures when completed.
U0749.0 INSTALL AND MAINTAIN GOVERNORS

U0749.01 Install governors by

— verifying equipment
— installing tension sheave
— installing governor
— aligning governor
— installing governor rope fastenings
— verifying operation

so that governors are properly installed and aligned in accordance with manufacturers’ recommendations and governing regulations.

U0749.02 Maintain governors by

— carrying out functional and operational test of governor and associated equipment including electrical switches, overspeed switches, tripping speed and pull through force
— spin testing and adjusting governors
— inspecting governor rope and fastenings
— inspecting tension sheave operation & clearances
— cleaning and lubricating (servicing) governors

so that governors are maintained in accordance with manufacturers’ recommendations and governing regulations.

Signatures of:

Apprentice _______________ Date _______________

Supervisor/Trainer _______________ Date _______________

Supervisor - initial demonstrated skills and sign-off installation or maintenance procedures when completed.
U0750.0 INSTALL AND MAINTAIN CONTROL EQUIPMENT

**U0750.01 Install control equipment by**

- installing controllers
- installing car position devices
- installing electric drives
- installing monitoring devices and
- verifying equipment operation

so that equipment is properly installed and aligned in accordance with manufacturers’ recommendations and governing regulations.

**Signatures of:**

Apprentice ______________________ Date

Supervisor/Trainer ______________________ Date

Supervisor - initial demonstrated skills and sign-off installation or maintenance procedures when completed.

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**U0750.02 Maintain control equipment by**

inspecting and servicing

- controllers
- dispatchers
- selectors
- car position devices
- generators
- direct drives and
- monitoring devices

so that control equipment is maintained in accordance with manufacturers’ recommendations and governing regulations.

**Signatures of:**

Apprentice ______________________ Date

Supervisor/Trainer ______________________ Date

Supervisor - initial demonstrated skills and sign-off installation or maintenance procedures when completed.
U0751.0 INSTALL AND MAINTAIN MACHINE ROOM ELECTRICAL SYSTEMS AND COMPONENTS

U0751.01 Install wiring and electrical protective devices by

- planning raceway layouts
- installing wireways and conduits
- grounding the electrical system and
- ensuring the integrity of connections and devices

so that devices are properly installed and aligned in accordance with manufacturers’ recommendations and governing regulations.

Signatures of:

Apprentice ___________________________ Date __________

Supervisor/Trainer ___________________________ Date __________

Supervisor - initial demonstrated skills and sign-off installation or maintenance procedures when completed.

U0751.02 Maintain power equipment and control equipment wiring by

- inspecting the condition and integrity of connections, contacts, leads, relays, contactors, solid state components, electrical protective devices, and overload and overheat protection devices
- testing and diagnosing power and control equipment and
- servicing or replacing defective wiring and components

so that wiring is maintained in accordance with manufacturers’ recommendations and governing regulations.

Signatures of:

Apprentice ___________________________ Date __________

Supervisor/Trainer ___________________________ Date __________

Supervisor - initial demonstrated skills and sign-off installation or maintenance procedures when completed.
U0752.0 INSTALL AND MAINTAIN MACHINE ROOM ELECTROMECHANICAL SYSTEMS AND COMPONENTS

U0752.01 Install and verify the operation of wiring and the electromechanical device responses by installing temporary jumpers and removing them after completing the testing of the

— brake
— fusing and electrical protection
— wiring and safety & door lock circuits and the
— ascending car over speed device

so that testing is carried out in accordance with manufacturers’ recommendations and governing regulations.

Signatures of:

Apprentice ___________________________ Date ________________

Supervisor/Trainer _____________________ Date ________________

Supervisor - initial demonstrated skills and sign-off installation or maintenance procedures when completed.

U0752.02 Maintain electromechanical components by

— lubricating and adjusting electromechanical components and devices and
— Replacing worn and non-functional electromechanical components and devices

so that system and components are maintained in accordance with manufacturers’ recommendations and governing regulations.

Signatures of:

Apprentice ___________________________ Date ________________

Supervisor/Trainer _____________________ Date ________________

Supervisor - initial demonstrated skills and sign-off installation or maintenance procedures when completed.

U0752.03 Carry out Return-to-Service Procedures by

— checking fusing and electrical protective devices
— removing all temporary jumpers and wiring
— testing safety and door lock circuits
— checking contract, levelling and inspection speeds

so that wiring is maintained in accordance with manufacturers’ recommendations and governing regulations.

Signatures of:

Apprentice ___________________________ Date ________________

Supervisor/Trainer _____________________ Date ________________

Supervisor - initial demonstrated skills and sign-off installation or maintenance procedures when completed.
U0753.0 INSTALL AND MAINTAIN HOISTWAY CAR COUNTERWEIGHTS

U0753.01 Install counterweight and car guide system by

- using grid line references
- establishing working and plumb lines
- installing and aligning rail brackets
- inspecting counterweight assembly

so that system is properly installed and aligned in accordance with manufacturers’ recommendations and governing regulations.

U0753.02 Install car counterweight assemblies by

- installing car frames, platforms and car cabs
- building and installing counter weight frames
- installing sheaves, suspension hitches, safeties, guiding means and toe guards (apron)
- aligning and static balancing car assembly and counterweight
- building the counterweight frame
- positioning car and counterweight assemblies and
- balancing car and counterweight
- establishing car and counterweight runby

so that assemblies are properly installed and aligned in accordance with manufacturers’ recommendations and governing regulations.

Signatures of:

Apprentice

Date

Supervisor/Trainer

Date

Signatures of:

Apprentice

Date

Supervisor/Trainer

Date

Supervisor - initial demonstrated skills and sign-off installation or maintenance procedures when completed.
U0754.0 INSTALL AND MAINTAIN DOOR OPERATORS AND PROTECTIVE DEVICES

U0754.01 Install electrical protective devices by

- installing fixtures and
- testing operation of safety devices

so that devices are properly installed and aligned in accordance with manufacturers’ recommendations and governing regulations.

U0754.02 Install door operators and re-opening devices by

- installing door operators and
- installing door reopening devices

so that operators and devices are properly installed and aligned in accordance with manufacturers’ recommendations and governing regulations.

U0754.03 Maintain car door operators and re-opening devices by

- testing door operators and re-opening devices
- servicing door operators and re-opening devices

so that door operators and reopening devices are maintained in accordance with manufacturers’ recommendations and governing regulations.

Signatures of:

Apprentice __________________________ Date

Supervisor/Trainer __________________ Date

Supervisor - initial demonstrated skills and sign-off installation or maintenance procedures when completed.
U0755.0 INSTALL AND MAINTAIN HOISTWAY DOOR AND FRAME

U0755.01 Install hoistway door and frame assemblies by

— establishing elevation of finished floors
— building, aligning and installing door frames
— installing hoistway doors, gates and locks and
— installing unlocking means and hoistway access switches

so that assemblies are properly installed and aligned in accordance with manufacturers’ recommendations and governing regulations.

Signatures of:

Apprentice                      Date

Supervisor/Trainer             Date

Supervisor - initial demonstrated skills and sign-off installation or maintenance procedures when completed.

AND / OR

U0755.0 INSTALL AND MAINTAIN HOISTWAY DOOR AND FRAME

U0755.02 Maintain hoistway door environment by

— servicing hoistway doors, gates, locks and related door components

so that door and frame are maintained in accordance with manufacturers’ recommendations and governing regulations.

Signatures of:

Apprentice                      Date

Supervisor/Trainer             Date

Supervisor - initial demonstrated skills and sign-off installation or maintenance procedures when completed.
U0756.0 INSTALL AND MAINTAIN CAR SUSPENSION MEANS

U0756.01 Install car suspension means by
   — inspecting rope
   — establishing runby clearances
   — installing rope
   — compensating ropes or chains
   — tensioning ropes and
   — installing rope termination devices

so that roping is properly installed and aligned in accordance with manufacturers’ recommendations and governing regulations.

U0756.02 Maintain car suspension means by
   — inspecting for condition
   — maintaining suspension means and compensating means attachments and
   — lubricating wire ropes

so that ropes and chain attachments are maintained in accordance with manufacturers’ recommendations and governing regulations.

Signatures of:

Apprentice ______________________ Date __________

Supervisor/Trainer ______________________ Date __________

Supervisor - initial demonstrated skills and sign-off installation or maintenance procedures when completed.

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U0757.0 INSTALL AND MAINTAIN TRAVELLING CABLES AND HOISTWAY CONDUIT

U0757.01 Install trough and conduit by

— planning and laying out wireways, conduit runs, fitting and raceways
— grounding and bonding the electrical circuit
— sizing and numbering conduits and
— installing duct risers and conduits

so that equipment is properly installed and aligned in accordance with manufacturers’ recommendations and governing regulations.

U0757.02 Install travelling cables by

— installing hangers and
— installing cables

so that cables are properly installed and aligned in accordance with manufacturers’ recommendations and governing regulations.

U0757.03 Maintain travelling cables by

— inspecting travelling cables suspension means
— inspecting travelling cables for wear and damage
— replacing travelling cables where necessary

so that travelling cables and hoistway conduit are maintained in accordance with manufacturers’ recommendations and governing regulations.

Signatures of:

Apprentice                      Date

Supervisor/Trainer             Date

Supervisor - initial demonstrated skills and sign-off installation or maintenance procedures when completed.
U0758.0 INSTALL AND MAINTAIN CAR ELECTRICAL DEVICES AND DESIGNATED LANDING SWITCH GEAR

U0758.01 Install fixtures and switches by

— installing electrical protective device switches
— installing lobby panels, fixtures, emergency switches
— testing operation of switches

so that equipment is properly installed and aligned in accordance with manufacturers’ recommendations and governing regulations.

U0758.02 Install car wiring by

— installing and wiring top of car electrical devices and
— installing car operating panels and position indicator

so that wiring is properly installed and aligned in accordance with manufacturers’ recommendations and governing regulations.

U0758.03 Maintain call and alarm systems by

— inspecting and servicing call buttons, alarm buttons, emergency power supply, key switches, fixtures and bulbs, and communication devices
— inspect and service car controls, lighting and safety switches

so that car electrical devices and landing switch gear are maintained in accordance with manufacturers’ recommendations and governing regulations.

Signatures of:

Apprentice ___________________________ Date __________

Supervisor/Trainer ___________________________ Date __________

Supervisor - initial demonstrated skills and sign-off installation or maintenance procedures when completed.
U0759.0 INSTALL AND MAINTAIN PIT MECHANICAL COMPONENTS

U0759.01 Install pit structures by
  — installing compensating sheaves
  — installing counterweight guards
  — installing ladders and pit equipment and
  — adjusting sheaves and tensioning assemblies

so that pit structures are properly installed and aligned in accordance with manufacturers’ recommendations and governing regulations.

Signatures of:

Apprentice __________________________ Date

Supervisor/Trainer __________________________ Date

Supervisor - initial demonstrated skills and sign-off installation or maintenance procedures when completed.

U0759.02 Maintain sheaves by
  — cleaning, lubricating and adjusting sheaves and tensioning assemblies and
  — checking and adjusting car and counterweight run-bys

so that pit mechanical components are maintained in accordance with manufacturers’ recommendations and governing regulations.

Signatures of:

Apprentice __________________________ Date

Supervisor/Trainer __________________________ Date

Supervisor - initial demonstrated skills and sign-off installation or maintenance procedures when completed.
U0760.0 INSTALL AND MAINTAIN BUFFERS

U0760.01 Install buffers by

- installing spring, elastomeric or oil buffers and stands
- installing oil level gauge
- installing electrical protection devices

so that buffers are properly installed and aligned in accordance with manufacturers’ recommendations and governing regulations.

Signatures of:

Apprentice ___________________________ Date

Supervisor/Trainer ___________________________ Date

Supervisor - initial demonstrated skills and sign-off installation or maintenance procedures when completed.

AND

U0760.02 Maintain buffers by

- inspecting buffers and buffer striker plates
- perform buffer test and
- cleaning, lubricating and adjusting buffer and stand
- inspecting and refilling to recommended hydraulic oil level

so that buffers are maintained in accordance with manufacturers’ recommendations and governing regulations.

Signatures of:

Apprentice ___________________________ Date

Supervisor/Trainer ___________________________ Date

Supervisor - initial demonstrated skills and sign-off installation or maintenance procedures when completed.
U0761.0 INSTALL AND MAINTAIN PIT ELECTRICAL COMPONENTS

U0761.01 Install pit electrical components by

— installing pit wiring and
— installing pit switches and Electrical Protective Device switches

so that wiring is properly installed and aligned in accordance with manufacturers’ recommendations and governing regulations.

Signatures of:

Apprentice
Date

Supervisor/Trainer
Date

Supervisor - initial demonstrated skills and sign-off installation or maintenance procedures when completed.

U0761.02 Maintain pit electrical components by

— checking pit wiring connections and
— checking pit electrical lights and switches

so that pit electrical components are maintained in accordance with manufacturers’ recommendations and governing regulations.

Signatures of:

Apprentice
Date

Supervisor/Trainer
Date

Supervisor - initial demonstrated skills and sign-off installation or maintenance procedures when completed.
U0762.0 INSTALL AND MAINTAIN ESCALATORS AND MOVING WALKWAYS

U0762.01 Assess installation site by

- determining location and well size
- assessing bearing surfaces
- identifying access to site and storage space and
- organizing equipment delivery

so that equipment is properly installed and aligned in accordance with manufacturers’ recommendations and governing regulations.

U0762.02 Construct and install mechanical systems and components by

- establishing working lines
- setting trusses
- setting and levelling tracks and brackets
- setting machine, bull gear and tension carriage
- installing chains or belts
- installing steps
- installing and aligning decking and skirting
- installing newels and tracks and
- installing handrails and guide assemblies

so that equipment is properly installed and aligned in accordance with manufacturers’ recommendations and governing regulations.

U0762.05 Adjust and replace equipment by

- setting and testing steps and mechanical components
- setting and testing electronic protective devices switches and switches
- setting and testing brake tension and brake slide and
- testing and writing field data reports

so that equipment is properly installed and aligned in accordance with manufacturers’ recommendations and governing regulations.

U0762.06 Maintain electrical equipment and operation by

- inspecting and testing operation
- inspecting and testing components
- inspecting and testing all safety devices

so that equipment is properly installed and aligned in accordance with manufacturers’ recommendations and governing regulations.

Signatures of:

Apprentice __________________________ Date __________

Supervisor/Trainer __________________________ Date __________

Supervisor - initial demonstrated skills and sign-off installation or maintenance procedures when completed.
U0762.03 Install electrical systems and components by

- installing and wiring electrical components and
- testing all connections and operations

so that equipment is properly installed and aligned in accordance with manufacturers’ recommendations and governing regulations.

U0762.04 Adjust mechanical systems and components by

- setting equipment to specifications
- setting and testing electrical protective device switches
- adjusting brake and slide and
- completing field test and data reports

so that equipment is properly installed and aligned in accordance with manufacturers’ recommendations and governing regulations.

Signatures of:

__________________________    __________
Apprentice                     Date

__________________________    __________
Supervisor/Trainer             Date

Supervisor - initial demonstrated skills and sign-off installation or maintenance procedures when completed.
U0763.0 PERFORMANCE TEST AND INSPECT ELEVATING DEVICES

U0763.01 Prepare elevating devices for inspection by

- removing device from temporary operation
- removing all temporary jumpers
- testing all safety and door lock circuits
- setting door operations including opening and closing speeds and closing force
- setting contract, levelling and inspection speeds
- setting up communication link and
- completing a report on preparation including field test and data

so that equipment is properly installed and aligned in accordance with manufacturers’ recommendations and governing regulations.

U0763.02 Carry out performance tests by

- preparing inspection check lists
- carrying out full load safety test
- carrying out full load buffer test
- carrying out full load running test
- checking runby distances and clearances
- running ground tests on primary electrical protective devices
- identifying machine room equipment and
- carrying out a clean-up and turn-over inspection

so that equipment is properly installed and aligned in accordance with manufacturers’ recommendations and governing regulations.

U0763.03 Adjust and set hydraulic valves by

- setting up control valve
- setting operating sequence for valve solenoids
- setting up the relief valve

so that equipment is properly installed and aligned in accordance with manufacturers’ recommendations and governing regulations.
U0763.04 Adjust equipment by

— setting and testing steps and mechanical components
— setting and testing electronic protective devices switches and switches and
— setting and testing brake tension and brake slide

so that equipment is properly installed and aligned in accordance with manufacturers’ recommendations and governing regulations.

U0763.0 Signoff

Signatures of:

_________________________________________  Date

[Signatures]

Apprentice  Date

Supervisor/Trainer  Date
Sign-off on Experience by Class and Type of Elevating Devices:

Note to the Employer/Contractor:

A key responsibility for the elevating device mechanic and the employer/contractor under the Technical Standards and Safety Act and Regulations is to ensure that the elevating device mechanic is employed only on those devices or parts of those devices on which he or she has documented experience. Bearing this in mind, a mechanic may hold a Class A certificate but still be restricted in the type of work he or she may be allowed to perform.

For example, a Class A mechanic that holds a Class A certificate may have 10 years experience, all of which may be on manlifts. The contractor/employer is legally required to only employ that elevating device mechanic on work that involves manlifts until such time as the ED mechanic has been able to demonstrate competency on another class of device. The skills and experience must be documented and signed off by a company signing officer using this training standard/passport. The sign off attests to the fact that the ED mechanic has demonstrated the full range of skills required for that device while under the supervision of a mechanic who has those skills and experience.

The key is to make certain the type of device is recorded in the passport and to have that experience signed off as a permanent record. The following two pages provide a listing of the devices that are regulated and classified under the Act.

Please ensure that all employer company signing officers identify themselves and sign the document next to the respective devices as the experience has been demonstrated.

Note to the Trainee / Mechanic:

Whether you are a trainee or a fully certified mechanic, it is important to maintain the training standard/passport up-to-date. For the same reasons as noted above, it is mandatory to maintain a record of the devices on which you have acquired experience and to have that experience verified in this training standard/passport.

You will be required to disclose this signed form to the Ministry of Training, Colleges and Universities in order to complete your program. The Ministry will use your personal information to administer and finance Ontario’s apprenticeship training system.

For further information please see the notice/declaration for collection of personal information that is referenced in the table of contents of this training standard.
<table>
<thead>
<tr>
<th>TYPE OF ELEVATING DEVICE</th>
<th>COMPANY</th>
<th>Install/Maint.</th>
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</thead>
<tbody>
<tr>
<td><strong>Class 1: Elevators</strong></td>
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<tr>
<td>Freight elevators</td>
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<td>Freight elevators - E</td>
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<tr>
<td>Hand-powered freight elevators</td>
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<tr>
<td>Observation elevators</td>
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<td>Passenger elevators</td>
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<td>Sidewalk elevators</td>
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<tr>
<td>Temporary elevators</td>
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<tr>
<td><strong>Class 2: Dumbwaiters</strong></td>
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<tr>
<td>Dumbwaiters (not hand-powered)</td>
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<tr>
<td>Hand-powered dumbwaiter</td>
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<tr>
<td><strong>Class 3: Escalators</strong></td>
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<td>Escalators</td>
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<tr>
<td><strong>Class 4: Moving Walkways</strong></td>
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<tr>
<td>Moving walkways</td>
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<tr>
<td><strong>Class 5: Freight Platform Lifts</strong></td>
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<td>Type A</td>
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<td>Type B</td>
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<tr>
<td><strong>Class 6: Handicapped</strong></td>
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<tr>
<td>Stair chair lifts</td>
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<tr>
<td>Stair platform lifts - Type C</td>
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<tr>
<td>Stair platform lifts - Type D</td>
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<tr>
<td>Vertical platform lifts - Type C</td>
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<tr>
<td>Vertical platform lifts - Type D</td>
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<tr>
<td>TYPE OF ELEVATING DEVICE</td>
<td>EMPLOYER/SIGNING OFFICER</td>
<td>COMPANY</td>
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<tr>
<td>Class 7: Man lifts</td>
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<tr>
<td>Counter-balanced Man lifts</td>
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<td>Endless belt Man lifts</td>
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<td>Power type Man lifts</td>
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**Class 9: Construction Hoists**

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<tr>
<td>Material construction hoists</td>
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<tr>
<td>Workers’ rail guided hoists</td>
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<td>Workers’ rope-guided hoists</td>
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**Class 10: Incline Lifts**

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<tbody>
<tr>
<td>Inclined elevators</td>
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<tr>
<td>Inclined dumbwaiters</td>
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<tr>
<td>Inclined Man lifts</td>
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<tr>
<td>Inclined construction hoists</td>
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<tr>
<td>Inclined freight platforms</td>
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<tr>
<td>Funicular railways</td>
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**Class 11: Stage lifts**

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<tbody>
<tr>
<td>Stage lifts</td>
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Supervisor / Trainer Sign-off Identification Form

<table>
<thead>
<tr>
<th>Name [print]</th>
<th>Date</th>
<th>Signature for Sign-off</th>
<th>Sign-off Initials</th>
<th>Company</th>
<th>EDMA Certificate #</th>
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