

**RAYTHEON ELCAN OPTICAL
TECHNOLOGIES
CONTRACTOR SAFETY MANUAL**

June 02, 2014

This document has been put together as a guide to all contractors who have an agreement to perform certain contract work for and within the facilities of Raytheon Canada Limited –Raytheon ELCAN Optical Technologies.

The contractor will perform all work in compliance with the *Occupational Health and Safety Act* and all applicable Regulations. Under these requirements, the duties and responsibilities of the contractor, supervisors, workers, owners and suppliers are well defined.

Contractors are expected to know, understand and carry out their responsibilities while working at Raytheon ELCAN Optical Technologies facilities. In addition to meeting legal requirements, it is also expected and required that contractors will abide by the specific procedures that have been established for the operation of Raytheon ELCAN Optical Technologies facilities. It is understood that the following requirements cannot possibly cover all situations; therefore, it is essential that co-operation be strong between the contractor, engineering, safety and operations personnel. Specific questions should be directed to the person and department who has arranged for the contractor.

Contracting firm supervisors/managers will ensure that their workers are made aware of area rules for departments in which they are working, and ensure enforcement of these rules at all times.

In conclusion, we hope your project with us is pleasant and safe. The following guidelines are set out in the interest of the safety of everyone working within the facility and may be amended as seen fit.

Thank you for your co-operation.

1.0 GENERAL SAFETY RULES FOR CONTRACTORS

1.1 General

All contractors must agree and must ensure that their employees shall perform their work safely at all times. All contractors shall comply with all occupational health and safety, workers' compensation and environmental legislation applicable to the work and shall ensure all their workers comply. All contractors shall use safety devices required by all applicable Occupational Health and Safety legislation.

The contractor must notify the department manager before any work is started and clearance obtained.

Unsafe work practices or equipment will not be tolerated and may result in the offenders being removed from the plant.

1.2 Workers' Compensation Requirements

Contractors must provide evidence satisfactory to Raytheon ELCAN Optical Technologies of workers' compensation coverage for all employees including employees of any subcontractors. Information requested may include Rate, Class, Numbers and the Firm W.S.I.B. number. ELCAN will utilize WSIB eservices where possible to expedite this process.

1.3 Personal Protective Equipment and Clothing

All contractors' employees must wear CSA approved safety footwear; at a minimum Class I toe protection.

Approved safety eyewear and/or hard hats and/or hearing protection must be used in areas or for projects that are designated as requiring such equipment.

Contractors will supply their own protective breathing apparatus where required, and ensure that their employees are trained in such equipment.

Where a worker is working 3 meters or more above floor or any surface, approved safety lines and belts must be used, and/or approved secured platform which would prevent one from accidentally falling.

Any work with decibel A-weighted (dBA) levels greater than 85 require hearing protection. Contractors are required to wear hearing protection in areas marked "Hearing Protection Required," and are responsible for recognizing areas that may require hearing protection.

Proper personal protective equipment depends upon the nature of the exposure. This may range from chemical eye and face protection, gloves and safety footwear, to complete body covering. If there is the potential of exposure to a toxic substance or a lack of oxygen, appropriate fresh air breathing apparatus shall be provided and used by competent trained employees.

PPE shall meet all the appropriate ANSI/CSA standards.

1.4 Ladders and Scaffolds

Portable ladders shall be in good condition, be placed on a firm footing, be properly secured, and shall have non-slip feet. Ladders over 6 meters in length, which are not securely fastened, shall be held in place by one or more workers while in use. Use the proper height ladder for the job and **NEVER stand on the "cap" or "top rung"** of the ladder. When climbing a ladder, three points of contact with the ladder must be maintained. Tools or equipment should be carried up in a tool belt or lifted by a mechanical hoist.

Scaffolds shall be installed safely according to both manufacturer and OSHA requirements, be in good condition, and be designed for the type of work to be performed. They shall have a guardrail at least 42" high around the top and a toe board around the floor. Scaffolds shall be free of ice, snow, oil, and other slippery materials before being used. No loose items shall be left on the floor of the scaffold when it is in use. Person working on scaffolds higher than 4 feet must wear fall protection. Rolling scaffolds will not be moved until all workers have dismounted.

The contractor shall provide safety nets, full-body harnesses, lifelines, barricade, and barricade tape.

Cable trays, furniture, duct work, valves, gauges, piping systems, and support equipment shall not be used to climbing, walking, working, sitting, or supporting or other facilities or equipment.

1.5 Overhead/Roof Work

Prior approval from the Raytheon ELCAN project manager must be obtained before accessing any roof area. Notification to Raytheon ELCAN Security is also required.

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The area below the overhead work shall be roped-off with warning signs posted. The subject affected drop zone shall be designated a hardhat area. Overhead protection shall be provided where falling material may endanger any worker. Tools, parts, and material must not be left overhead at any time. Frequent, thorough inspections, must be made to prevent the hazard of falling objects.

1.6 Power Operated Lift Vehicles

Use by contractor employees of trucks, vehicle, or any lifting device owned by Raytheon ELCAN Optical Technologies is strictly prohibited. Only qualified Raytheon ELCAN Optical Technologies employees shall operate ELCAN-owned vehicles. Contractor's employees must not ride in, or on, any material handling equipment under normal operating conditions.

1.7 Compressed Gases

Compressed gas cylinders shall be held firmly in place with a chain or strap during transportation, storage, or use. Cylinders are not to be carried by hand. The valve protection cap shall be secured in position when the cylinder is not in use. The cylinders shall be protected from physical damage and heat sources at all times. All cylinders shall be inspected for correct content label, signs of corrosion, or other damage that may jeopardize the integrity of the container. Attachment of hoses and leak checking of fittings should take place outside of any building. Empty cylinders must be removed from the job site at the end of the workday.

Cylinders shall not be dropped, rolled, slid, or taken into a confined space. When not in use they should be secured to a permanent structure in and upright position using chains or appropriate straps.

Compressed air shall not be used for blowing dust or other substances from clothing worn by workers.

1.8 Tools, Equipment and Supplies

Contractors shall supply all tools, equipment, and supplies required to do the work safely. Raytheon ELCAN Optical Technologies tools and equipment may not be borrowed for use except when such use is pre-authorized by the Supervisor, Maintenance.

All defective tools and equipment shall be tagged and removed from service immediately.

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All equipment used must have appropriate guarding.

All electrical equipment shall be suitable for its use and be certified by the CSA or the relevant Hydro Electrical Inspection Department. Portable electric tools and cords must be in good condition, have ground wire intact, and be CSA approved. Unsafe electrical tools are prohibited and will be ordered to be removed from the plant. Extension cords shall be protected in traffic areas.

1.9 Welding, Brazing, Cutting

All welding, brazing, or cutting shall be performed in accordance with hot work safety procedures outlined by Raytheon ELCAN. (Request document EHS-62). Requirements include a Hot Work Permit, a posted checklist, designated fire watch, a fire extinguisher, and protective screening. During and after welding or cutting operations, a close watch for fire must be observed. The area shall not be vacated until all sparks or smouldering materials have been extinguished. All combustible material must be removed from the welding or burning area or covered with fire blankets.

1.10 Confined Space

Entry into confined space pits is prohibited without authorization from the Manager, Environmental Health and Safety. Authorization for entry shall be in accordance with Raytheon ELCAN Optical Technologies Confined Space Entry Program. (Request document EHS-41).

1.11 Isolating Equipment (Lockout/Tagout)

Contractors must notify the department's supervisor of equipment requiring isolation. Before any work is performed, all sources of energy, and/or motions (including, but not necessarily limited to, electrical, mechanical, steam, gas, air hydraulic, etc.) must be made safe and locked out by contractors, in accordance with lockout safety procedures. Contractors performing lockout/tagout must have received training in accordance with OSHA regulations 29 CFR 1910.147.

All electrical equipment shall be locked out with a standard danger tag attached in accordance with lockout safety procedures before work on lines or equipment commences. All locks must be identified with the name of the lock owner, and company as well as the date and time of the lock being installed. (Request document EHS-17) and expected end date.

1.12 Fire Extinguishers

The contractor shall provide the correct fire extinguisher for emergency use on the job site. However, the contractor shall immediately notify the Manager, Environmental Health and Safety if the contractor or his workers discharge any of the site's fire extinguishers.

1.13 Housekeeping

The work area shall be kept clean and orderly at all times. Floor areas shall be cleared of tools, excess material, and debris. Accumulation of trash such as oily rags, combustible materials, or fire hazards of any nature is prohibited.

Material must be piled or stacked and the site must be cleared up daily. Unless specific arrangements to the contrary are made, contractors are expected to arrange for removal of their own refuse. On completion of job, the site must be cleaned to the satisfaction of company personnel.

Access to all roadways, aisles, walkways, doorways and safety equipment must be maintained clear of obstructions for emergency vehicles and personnel.

No material shall be discarded via the sanitary or storm sewers without prior approval from the Manager, Environmental Health and Safety.

1.14 Intoxicants

No contractor or his employees shall consume, possess, sell or distribute at a work site any alcohol, non-prescription drugs, or chemicals. No contractor or his/her employees will be permitted to work in an impaired state, however caused.

1.15 Smoking

Smoking strictly prohibited inside any Raytheon facility. Smoking is only permitted outdoors at least 15 feet away from any door or in designated smoking areas.

1.16 Hazardous Waste and WHMIS-Controlled Products

All contractors and their employees shall handle potential hazardous material in a manner so as not to cause injury or overexposure. Contractor's employees must be informed about the safe handling procedures of materials with which they will be working.

All contractors are responsible for removing chemical hazards, which they bring into the work site facility. Hazardous material must be handled according to the Provincial Ministry of Environment guidelines.

1.17 Accident/Incident Reporting

Contractors shall record and report injuries and illnesses in accordance with the *Workplace Safety and Insurance Act* or equivalent regulations, and if applicable, shall file any required notice of accident with the appropriate regulatory authority after Raytheon ELCAN Optical Technologies has reviewed the same. The contractor shall provide all injured personnel with proper First Aid attention or send them to a recognized medical facility. It shall be the contractor's responsibility to arrange for the transportation of his injured personnel.

All accidents, injuries, or potentially critical incidents which occur, whether they involve Raytheon ELCAN Optical Technologies employees or not, shall be reported to the Manager, Environmental Health and Safety. Contractors are required to provide details pertaining to the accident.

All spills of chemicals, contaminants, toxic or hazardous substances or wastes or incidents involving non-compliance with environmental laws shall be reported immediately to the Manager Environmental Health and Safety. The Raytheon ELCAN spill team shall supervise the appropriate remedial actions.

1.18 Environmental Emergency Response

The contractor shall maintain a complete field First Aid Kit

The contractor shall inform all his employees of the location and use of emergency safety devices and equipment, such as safety showers, eye wash stations and fire extinguishers.

In the event of the fire alarm sounding, or any other environmental emergency, all contractors must immediately evacuate the work area, shutting down non-essential equipment, and report to the employee parking lot, nearest to the area currently being worked in. Each contractor is responsible for reviewing and knowing two evacuation routes from the work area. Once the contracting firm supervisor/manager has accounted for all of his people, he must immediately

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report to the Manager, Environmental Health and Safety or Emergency Incident Response Team Leader. If there are contractor personnel that cannot be accounted for, the names of the personnel must immediately be reported to the Emergency Incident Response Team Leader. (Request document Disaster Response Procedure).

In case of a power outage, remain in the work area until emergency power system provides light. You may stay in the work area or leave the building but you must stay on the property. Your supervisor or escort must be informed of your location. In addition, the surface treatment area and the corresponding hallways must be evacuated.

If severe weather is approaching, an alarm will sound followed by an announcement giving instructions.

1.19 Environmental Spills Response

If a spill occurs inside, into a Sanitary Sewer:

- Immediately block off drains using drain covers, water filled garbage bags or drain plugs.
- Immediately notify the EHS Manager.
- Clean up the spill using the appropriate equipment. (i.e. shovels, pails, squeegees and vacuum.)

1.20 Environmental Waste Control

Raytheon ELCAN Optical Technologies is committed to the protection of the natural environment through:

- Prevention of pollution
- Promotion of the sustainable use of natural resources
- Continuous improvement in environmental performance

We will reduce waste, conserve energy, reuse and recycle where practical. To do this, we have a recycling system in place. Containers are marked for dry garbage (paper towels, latex gloves, tape pieces, etc.) or recycling. No construction and Demolition waste allowed. Any waste generated from the work on Raytheon property must be managed according to Raytheon's environmental requirements. For construction projects, the contractor shall comply with applicable regulations concerning control of storm water.

1.21 Cameras/Radios/Recording Devices

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Cameras, phone cameras, tape recorders, cellular phones, transmitting devices, radios, and video recording devices are not permitted on Raytheon ELCAN premises without prior approval from Raytheon ELCAN security. Contractors may not take pictures at any time unless given expressed written permission from Raytheon ELCAN Optical Technologies.

1.22 Odour Protocol

Offensive or strong odours within Raytheon buildings are a major source of interruption to manufacturing and other operations. Odours that cause such interruptions include: diesel exhaust, cleaning chemicals, paints, solvents, and fibreglass resin vapours. Contractors must notify the EHS Manager at least 24 hours in advance of any tasks that have the potential to generate odours.

1.23 Radiation Sources

The use of lasers and other radiation sources is prohibited without prior written approval of the ELCAN Radiation Safety Officer. If the contractor uses radiation sources or provides servicing to radiation sources, the contractor shall be required to carry with them proof of their training and qualifications (as required in CFR 1926.54) to operate lasers while on Raytheon property.

1.24 Powder-Actuated Tools

In general, the use of powder-actuated tools is prohibited in Raytheon buildings.

2.0 OTHER RULES

2.1 Parking

Contractors must park in the Raytheon ELCAN Optical Technologies parking lot, located off Ellen Street (surrounding the facility). Contractors are not permitted to park on the side of the street or in fire lanes along the sides of the facility.

2.2 Access to the ELCAN Optical Technologies Facility

There is a security system to all Raytheon ELCAN Optical Technologies facilities. All contractors must follow the steps below to gain access to the facility:

- Provide your name and citizenship to your Raytheon ELCAN contact prior to your site visit
- Obtain a visitor badge from the main entrance daily signing in with the main receptionist
- The visitor badge must be worn in plain sight and above the waistline.
- When the work is complete, the contractor must sign out in the logbook and return the visitor badge to the receptionist. If the project work continues for several consecutive

days, the contractor may keep the card for the duration of the project; however, the contractor must sign in and out in the visitor logbook on a daily basis.

Visitors are required to be escorted through the facility at all times.

2.3 Good Manufacturing Practices

Raytheon ELCAN Optical Technologies is an outstanding manufacturer of high tech optical products. Keeping our products at such a high level of quality relies greatly on high standards of cleanliness and personal hygiene. As a result, Raytheon ELCAN Optical Technologies has stringent rules regarding hygienic practices that must be adhered to at all times:

- safety shoes must be in good, hygienic condition
- hairnets and beard nets and lab coats must be worn when in clean rooms.
- hands must be washed and sanitized before leaving the washroom and lunchroom
- smoking is not permitted inside the facility.
- no food or drinks are permitted in the plant, except in authorized break areas or other approved areas
- work that results in particulate being dispersed is prohibited in clean rooms and may need to be conducted during an off-shift. Approval may be required in advance from the Project and/or Production Manager
- contractor's employees must not go into any other area than that where they are working.

2.4 Harassment

Raytheon ELCAN is committed to maintaining an environment free of harassment for everyone working or visiting the facilities. Harassment is defined as behaviour that offends other individuals on the basis on sex, race, religion, national origin, sexual orientation or other protected basis. Contractors are expected to observe this code of conduct.

2.5 Vehicular Safety

Contract employees must always obey the posted speed limit. Riding in the back of a pick-up truck on Raytheon property is prohibited.

2.6 Dock Safety

Be aware of your surroundings and keep dock areas clear of debris. Housekeeping is crucial to safe working conditions on the docks.

2.7 Safety Signs and Barricades

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Work areas must be properly barricaded and marked. Contractors will be responsible for providing all safety signs, barricades, stanchions, safety cones, or safety taping as required to isolate the contractor's work area from pedestrian traffic and to prevent unauthorized access to the area.

2.7 Weapons

Firearms, Explosives, and any other weapons are strictly forbidden on Raytheon ELCAN premises.

3.0 Specific EHS Requirements

3.1 Asbestos

Raytheon buildings may contain asbestos-containing materials. Examples include pipe insulation, floor tile, mastic, etc. With the exception of floor tile and mastic, items containing asbestos will be labelled as "Danger – Asbestos Containing Material" or other wording with similar intent.

Before any work is performed on items containing asbestos, contractors must contact the project manager to ensure appropriate regulatory requirements as well as Raytheon policies have been met.

Any activity involving the removal of floor tile must be coordinated with the ELCAN project manager before any floor penetrations are made.

3.2 Bloodborne Pathogens

Due to the potentially infectious nature of blood and other body fluids, federal regulations require that universal precautions be followed when cleaning blood and body fluids. In the event of a spill of blood or other body fluids, contact the on-site Nurse or ERT Member if after hours. Contractor personnel are not to attempt to clean up these.

3.3 Chemical/Waste Management

Contractors must have Raytheon ELCAN project manager or sponsor approval to bring any chemicals onto Raytheon ELCAN property. Contractor companies are required to submit chemical lists and Material Safety Data Sheets (MSDS) to the Raytheon ELCAN project manager or sponsor in advance for all chemicals approved to be brought onto a Raytheon site.

Contractors shall not bring chemicals onto Raytheon ELCAN property in quantities above the threshold quantity listed in the OSHA Process Safety Management Standard 29 CFR 1910.119 or the Clean Air Act, Accidental Release Prevention Rules 40 CFR part 68. Chemical quantities shall be maintained at minimum essential levels

Contractors shall not handle any chemicals at a Raytheon site unless authorized to do so through the contract with Raytheon and with completion of appropriate training. Raytheon reserves the right to disapprove the use of specific chemicals on its property. Under no circumstances shall any contractor place ANY substance down an INSIDE or OUTSIDE drain or on the ground without prior notification and approval by the Raytheon ELCAN EHS. When any contractor uses chemicals (solids, liquids, or gases), the contractor must do everything reasonably possible to eliminate the potential for spills, drips, or leaks.

Contaminated construction debris including piping, ductwork, equipment, and other debris must be disposed of properly and must NOT be disposed of off-site or in Raytheon waste containers without specific direction from the Raytheon ELCAN project manager, sponsor, or Raytheon EHS representative.

3.4 Empty Chemical Containers

Empty chemical containers must maintain their original labels. All empty chemical containers must be properly disposed of according to the protocol established by the Raytheon ELCAN project manager and Raytheon EHS, and in accordance with the law. Empty containers, which previously held any chemical substance, may not be used for another chemical unless assurance can be given that the container has been properly cleaned.

3.5 Hazard Communication (HAZCOM)

Contractors are responsible for ensuring that their employees as well as their subcontractors receive HAZCOM training before working at ELCAN Optical Technologies. This training must meet or exceed OSHA 29 CFR 1910.1200 and 29 CFR 1926.59. Proof of HAZCOM training shall be made available upon request.

Revision History

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Contractor Safety Manual

3	September 13, 2010	Changed Logo	Michael Reid
4	July 19 th 2010	Reviewed updated dates	Michael Reid
5	May 11 2011	Reviewed	M Reid
6	June 20 2012	ELCAN will utilize WSIB eservices where possible to expedite this process	M Reid
7	May 7, 2013	Reviewed	M Reid
8	June 2, 2014	- Reviewed and added new EHSS logo - Title changes - Changed 1.15 to 15 feet as per legislation - Changed Visitor Card to Visitor Badge	M. Reid