



LINE CREW GROUND SUPPORT

Line Crew Ground Support Program

The Line Crew Ground Support Program is a make "work ready" program intended for First Nations people in Ontario. Infrastructure Health and Safety Association (<http://www.ihsa.ca>) with assistance from industry partners, created this unique program in an attempt to assist participants in preparing to become productive members of a line crew with skills that would help them integrate more easily into the work force.

Participants will take part in this intensive 15-week schedule and cover a variety of topics essential to line crew ground support work. For complete details on registration and IHSA's course and cancellations policies, please contact Linda Bartlett at 1-800-263-5024 ext. 7918.

Schedule and course outlines

Week one

Program Overview and pre-course testing

During this introduction to the program, instructors will go over the curriculum as well as outline learning expectations and pre-course testing to determine the level of knowledge of participants going into the program.

Electrical Safety High Voltage

This program is for personnel who perform work in proximity to utility distribution systems including substations and overhead plant. Its purpose is to create an awareness of approved current safe work practices within the utility industry. This program complies with the *Electrical Utility Safety Rules*, and provincial and federal legislative requirements to provide a safe work environment for workers.

Program Content

- Interpretation of relevant regulations and the *Occupational Health and Safety Act*
- Grounding techniques
- High-voltage hazards
- Limits of approach
- Potential testing
- Review of basic electrical theory
- *Utility Work Protection Code*
- Utility plant identification

Introduction to Electrical Theory

This program is mainly for work groups that perform electrical work on voltages from 0 to 750 volts. The intention is to familiarize participants with electrically oriented operations and to pinpoint both general and specific electrical hazards.

Program Content

- Interpretation of relevant regulations and the *Occupational Health and Safety Act*
- Safe limits of approach
- Induction
- Effects of electric shock on the human body
- Energy flow and barriers
- Basic electrical theory
- Step and touch potentials

Week 2

Construction Health and Safety Representative

This section covers general health and safety for all types of workplaces. Participants will learn how to act effectively as construction health and safety representatives, identify hazards, and take action to protect themselves and others in the workplace.

Program Content

- *Occupational Health and Safety Act*
- Safety and health hazards
- Health and safety representative's role
- Jobsite inspection
- Communication
- Incident investigation

Week 3

Working at Heights—Fundamentals of Fall Prevention

This section addresses the basic fall-prevention information workers need to know to work safely in areas where they may be exposed to fall hazards. Upon completion, participants will be able to recognize fall hazards and apply appropriate controls. While *Working at Heights* is a great starting point, hands-on training is also required. After the in-class session, the employer must train workers on the specific hazards and types of equipment they will face on the job. Participants must wear appropriate clothing, as well as CSA-certified head, foot, and eye protection.

Program Content

- Common fall hazards
- Fall protection and types of equipment
- Working with ladders, scaffolds, elevating work platforms, and suspended access equipment
- Related laws and regulations

Propane in Construction

Propane is widely used in construction for a variety of everyday tasks, including flame cutting, space heating, heating or melting materials, and powering internal combustion engines. It is important to understand the hazards of propane and to know the procedures and controls necessary to minimize those hazards. Special training is required to work safely with propane and propane equipment. This training program is designed to provide the information and hands-on practice necessary for construction workers to be able to safely connect, activate, and disconnect heaters, torches, and propane-powered equipment of less than 400,000 Btu/h, in accordance with Technical Standards and Safety Authority (TSSA) requirements. The record of training expires after three years.

Program Content

- Propane hazards
- Legislation and safe practice
- Connection, activation, and disconnection of propane

Traffic Control—Temporary Work Zones

This section teaches participants how to develop an effective traffic control plan and identify and control hazards. They will use the *Ontario Traffic Manual (OTM) Book 7—Temporary Conditions* as a reference in class. Participants must bring their own copy to class. Copies can be ordered from Publications Ontario: 1-800-668-9938.

Program Content

- Developing a traffic protection and control plan
- Set-up and maintenance of work zones
- Temporary work zones and hazards
- Planning basics of temporary work
- Traffic protection responsibilities
- Review of *OTM Book 7*

- Temporary work zone layout

WHMIS

This section is a generic overview of the Workplace Hazardous Materials Information System (WHMIS).

Program Content

- Legislative requirements
- Responsibilities of workplace parties
- Information delivery
- Worker education and training
- Occupational health
- Recognition, assessment, and control options

Confined Space Hazard Awareness for Construction

This program shows participants how to identify confined spaces and demonstrate knowledge of legislative requirements and general procedures for confined space entry.

Program Content

- Definition of confined space
- Hazards related to confined spaces
- Types of dangerous atmospheres
- Legal requirements
- Assessment and control options
- Monitoring strategies
- Entry permits and procedures

Week 4

Defensive Driving—Commercial

In a classroom setting, defensive driving techniques are presented with the aid of various audio-visual devices. These sections are designed to involve participants in group discussions of common driving problems that are encountered by drivers each day.

Program Content

Module 1—The Law (Legal Element)

- Rules and regulations that apply to commercial motor vehicle operation

Module 2—The Driver (Human Element)

- The human elements that affect our ability to drive safely including attitude, mental/emotional state, complacency, physical well-being, nutrition, sleep, vision, and knowledge

Module 3—The Vehicle (Mechanical Element)

- Vehicle inspection, basic vehicle control, and factors that affect steering, stopping, and handling

Module 4—The Environment

- Inside the vehicle, road surface conditions, traffic conditions, and weather conditions

Module 5—Driving Defensively

- Collision prevention; use of mirrors, signs, and signals; passing; intersections; turning procedures; expressway driving; and backing procedures

Ladder Handling

This section provides safe working knowledge for workers who handle ladders. It includes classroom and field work.

Program Content

- Interpretation of relevant regulations and the *Occupational Health and Safety Act*
- Review of *Canada Labour Code Part II*
- Review of IHSA's *Telecommunications Utility Safety Rules*
- Review of IHSA's *Ladder Safety Safe Practice Guide*
- Ladder set-up
- Transportation and storage of ladders

- Ladder inspection and maintenance
- Review of injuries resulting from work on ladders
- Work area protection

Hoisting and Rigging—Basic Safety Training

This section gives participants a basic knowledge of the principles related to safe hoisting and rigging practices in the construction industry. Full attendance is mandatory. The passing grade is 100 per cent for hand signals, 80 per cent for knots, and 80 per cent for the performance review. Participants must bring their own calculator.

Program Content

- Hoisting and rigging hazards
- Fibre rope, knots, and hitches
- Hardware, wire rope, and slings
- Rigging tools and devices
- Hazard awareness in crane operations

MSD Prevention Workshop – Trades

The IHSA ergonomics workshops contain hands-on scenarios in which participants will learn how to use various ergonomics checklists to complete an assessment of workplace-specific situations. These tools can also be applied to any work situation.

Program Content

Participants will learn how to conduct an assessment, and learn how to make recommendations for job-specific controls.

Week 5

Mobile Crane Operator 0-8 Ton (5-Day program)

This program covers any mobile crane with a lifting capacity of 0 to 8 tons including any of the following crane types: articulating (knuckle) boom, telescoping boom, radial boom derricks (RBDs), sign erectors, or carry deck industrial-type cranes.

This is a combination of on-the job and classroom training. The operator/trainee must pass the classroom training and written test as well as pass a demonstration of skills such as operating the mobile crane, rigging for safe hoisting, and demonstrating standard hand signals. This is designed for operators with less than 100 hours of operating experience and will allow participants additional hands-on operating exposure to articulated crane and RBD operation.

Week 6

Safe Pole Handling

Participants will learn the appropriate techniques to safely move and store utility poles. They will learn the various types of poles available and how to inspect them for defect or damage.

Program Content

- Pole installation
- Pole removal
- Job planning

Week 7

Pole Line Construction introduction

This program will introduce participants to pole line construction and its various skills.

Program Content

- Pole installation
- Mounting hardware
- Temporary and anchoring methods of support

- String, sag and tension concepts

Chainsaw Operation and Maintenance

This program is offered for those workers who use power chainsaws for general ground use. The program is designed to help workers ensure safe and proficient operating practices.

Program Content

- Field practice (an evaluated demonstration of chainsaw operation skills)
- Protection of self and others
- Working in a safe environment
- Job planning
- Maintenance and operation of a chainsaw
- Interpretation of relevant regulations and the *Occupational Health and Safety Act*

Week 8

Anchors

This program will cover anchors, their installation, as well as teach the various hazards workers may encounter when installing anchors.

- Selection of anchor points
- Guidelines for anchors
- Potential hazards
- Safe work methods

Mid-term exam

At this point in the course, participants will undergo a mid-term exam to determine whether they understand and can demonstrate the concepts taught in the first half of the course.

Week 9

Pole Line Construction – Climbing

Climbing continues to be a valued skill in the utility trade. Participants will learn the basics of pole climbing and practice in real-life scenarios.

Program Content

- Pole climbing
- Tools and equipment
- Safety considerations
- Hazards
- Legislation pertaining to fall protection and equipment
- Use and care of personal safety equipment

Week 10

Pole Line Construction – Framing

Participants will learn the basic concepts required for pole line framing including various design elements required. Framing standards and installation of poles to their proper depth and appropriate mounting hardware will be reviewed.

Program Content

- Installation of poles
- Dismantling of poles
- Mounting hardware and other equipment
- Framing Standards

Week 11

Pole Line Construction – Theory

This program will go over the basic theory of pole line framing including safe work procedures and hazard recognition.

Program Content

- identifying hazardous poles
- temporary supports/rope guys
- guying and anchoring systems
- anchor selection and soil conditions

Week 12

Pole Line Construction – Transformers

Transformers are a vital component to the pole line. Participants will learn basic transformer theory, installation and hazard recognition.

Program Content

- Single-phase transformers
- Ratio and polarity checks
- Installation, maintenance and removal
- Transformer operations
- Reading standard drawings
- Wiring at primary and secondary sides

Week 13

Hydraulic Aerial Equipment

Basic hydraulic theory, coupled with a thorough understanding of safe operating practices, stability ratings, and load charts is of the utmost importance in preventing injuries, equipment damage, abuse, and subsequent lost time. Classroom and field sessions in this program increase the participants' awareness of all aspects of hydraulic equipment.

Program Content

- Interpretation of relevant regulations and the *Occupational Health and Safety Act*
- Identification of equipment and stability ratings
- Introduction to the theory of hydraulics
- Overview of hydraulic systems used in utility vehicles
- Use of manufacturers' current manuals
- Study of IHSA's *Hydraulics Safe Practice Guide*
- Field practice on insulated aerial devices

Electrical Safety–Hydrovac operators

This section will help create an awareness of approved current safe work practices.

This complies with the *Electrical Utility Safety Rules*, and provincial and federal legislative requirements to provide a safe work environment for workers.

Program Content

- Interpretation of relevant regulations, *Electrical Utility Safety Rules*, and the *Occupational Health and Safety Act*
- Job planning, tailboard talks and, emergency response procedures
- Electrical terms and basic electrical theory
- Identifying and understanding the hazards of electrical contact, step and touch potential, and flash
- Effects of electricity on the body
- The selection/application of effective barriers to eliminate/control electrical hazards using the multi-barrier principle
- The principles of equipotential grounding and bonding and their application to hydrovac excavation
- Inspection, maintenance, installation, and use of the hydrovac equipotential grounding and bonding equipment

Rescue Practices

This section will provide participants with experience in a variety of rescue techniques including

- Bucket rescue
- Bucket evacuation
- Confined space rescue

On completion of this module, participants will be able to successfully perform aerial device rescue and evacuation techniques incorporating the associated emergency response procedures.

Program content

- Participate in an Instructor led review of the application of various aerial device rescue/evacuation techniques used at the training facility
- Recognize how the rescue and evacuation devices are applied to the aerial device
- Participate in an Instructor led field demonstration on how the various devices are applied to the aerial devices.

Equipotential Grounding and Bonding

Temporary grounding systems were developed to provide safety for those working on de-energized equipment. This addresses the advantages of equipotential grounding and bonding over traditional methods. Discussions include the process by which a safe work environment can be created using equipotential grounding and bonding systems.

Program Content

- Electrical theory
- Permanent grounding methods
- Fault current availability
- Current capacities of temporary grounding connectors
- Potential testing
- Testing and maintaining grounding components, including vehicle grounds
- Demonstration of grounding methods—traditional versus equipotential
- Field practice of equipotential grounding and bonding installations

Week 14

This section acquaints individuals with conductor stringing methods (tension or conventional), safe work practices, proper operation of pullers and tensioners, and the necessary equipment to carry out a stringing operation in a safe manner.

Program Content

- Review of applicable IHSA *Safe Practice Guides*
- Step and touch potentials
- Proper set up of ground gradient mats and grounding techniques
- Proper operation of tensioners and pullers
- Work area protection
- Communication and teamwork

Week 15

Evaluations and Review and Final Knowledge Verification

During the final week of the program, participants will be evaluated to ensure they have not only learned the basic principles but can apply them in a real-world situation.