

Landscape Horticulturist *On-the-Job Training Guide*

Landscape Horticulturists are involved in growing, installing, maintaining and selling plants and related materials; landscape; operates greenhouses, nurseries and garden centres; moves trees.

Training Requirements: 6000 hours (4 years) including: four 8-week training sessions at Olds College in Olds, Alberta.

Journeyman to apprentice ratio for this trade is: 1:2

The information contained in this pamphlet serves as a guide for employers and apprentices. Apprenticeship training is mutually beneficial to both employer and apprentice. The employer's investment in training apprentices results in skilled and certified workers. The pamphlet summarizes the tasks to be covered by the apprentice during the on-the-job portion of apprenticeship training. An apprentice spends approximately 85% of the apprenticeship term training on-the-job.

It is the employer's or journeyman's training responsibility to supervise an apprentice's practical skills development until a satisfactory level of proficiency has been reached.

EMPLOYER TRAINING RESPONSIBILITY

- introduce the apprentice to daily practice in approved safety procedures
- provide guided, hands-on practice in the operation and maintenance of tools and equipment
- demonstrate the techniques of growing, transplanting, installing and maintaining healthy, vigorous plant material.

Employers should make every effort to expose their apprentices to work experience in as many areas of the trade as possible.

Below, in-school instruction is listed first; suggestions to help employers assist the apprentice to prepare for in-school training are listed next.

The content of the training component is subject to change without notice.

Level One

Safety

Occupational Health and Safety (OH&S)
WHMIS
Fire safety
Safe work practices
Handling hazardous products

The employer can assist the apprentice to prepare for this section of technical training by:

- *discussing safe work practices required by Occupational Health and Safety (OH&S)*
- *providing WHMIS and first aid training along with company-specific safety procedures*
- *explaining fire fighting equipment the procedures for extinguishing fires*
- *ensuring the apprentice maintains safe work habits*
- *Discussing safe practices in the storage, use, handling and transport of hazardous products*

Tools, Machinery and Hydraulics

Commercial vehicles
Machinery maintenance
Engines
Hydraulic systems
Tools

The employer can assist the apprentice to prepare for this section of technical training by:

- *explaining the safety equipment and devices required for commercial vehicles*
- *demonstrating recommended maintenance practices on machinery*
- *performing basic engine maintenance and operation on two and four stroke engines*
- *explaining the different fluid types, system components and basic maintenance and troubleshooting*
- *ensuring proper training for use and maintenance of hand / power tools and equipment*

Horticulture Soils

Soil formation
Soil components
Soil physical properties
Soil chemical factors
Water quality
Soil biological properties
Soil sampling and fertility

The employer can assist the apprentice to prepare for this section of technical training by:

- *discussing soil forming factors and the characteristics of grassland, forest and urban soils*
- *describing an ideal mineral soil and how soil components influence soil properties*
- *discussing soil properties and preparation, and explaining advantages and disadvantages of soil moisture and soil types*
- *performing lab tests to determine pH, EC, SAR and carbonate levels*
- *evaluating the affects of water quality on soil and plant growth*
- *describing the biological affects of soil biological properties on plant growth*
- *familiarizing the apprentice with soil testing, and with fertilizer and other soil amendments, and by discussing advantages and disadvantages of different types of mulches*

Plant Identification

Plant taxonomy
Plant use in the landscape

The employer can assist the apprentice to prepare for this section of technical training by:

- *familiarizing the apprentice with plant material by introducing characteristics used for plant classification and identification*
- *emphasizing the importance of Latin names of plant material for proper identification*

- *describing the function, value, and physical characteristics of plants for the landscape*

Introductory Botany

Cells and tissues
Stems
Leaves
Roots
Flowers
Fruit
Plant life cycles

The employer can assist the apprentice to prepare for this section of technical training by:

- *identifying the components of the plant cell and types of meristematic tissues*
- *describing the functions and growth patterns of a plant stem*
- *identifying selected aspects of leaf morphology and the function of leaves*
- *comparing the internal structure and growth characteristics of different types of root systems*
- *explaining the processes of pollination and fertilization of different flower types*
- *identifying the major internal parts, fruit types and the process of fruit development*
- *Introducing the apprentice to characteristics of parts of plants and their life cycle.*

Greenhouse Production

Containerization and media
Greenhouse environment
Propagation
Growing on
Hardening off
Plant health problems
Plant handling
Greenhouse structures
Environmental control systems

The employer can assist the apprentice to prepare for this section of technical training by:

- *comparing plant container characteristics and growing media for plant production*
- *explaining how different greenhouse environments can influence plant growth*
- *demonstrating seeding and vegetative propagation techniques*
- *practising the transplanting of seedlings and potting-up of vegetable cuttings*
- *describing the benefits, procedures and tolerance factors for hardening off plants*
- *identifying common greenhouse pests and diseases and their damage symptoms*
- *describing efficient methods for packaging, storing and shipping greenhouse crops*
- *assessing the orientation of typical greenhouse structures*
- *identifying and operating the different systems of greenhouse environmental controls*

Landscape Construction

Basic grading and landscape construction
Turf selection and installation
Woody plant selection
Woody plant installation
Pruning fundamentals

The employer can assist the apprentice to prepare for this section of technical training by:

- *performing slope calculations for site grading and preparation*
- *describing the different characteristics of selected types of turf grass and procedures for laying sod*
- *interpreting industry standards and specifications for woody plant material*
- *demonstrating proper installation practices for woody plant material*
- *describing the effects and reasons of pruning and pruning terminology*

Level Two

Communication and Personal Management

Personal Management

Oral communication

Interpersonal communication

Written communication

Professional Practice

The employer can assist the apprentice to prepare for this section of technical training by:

- *demonstrating intrapersonal management strategies and techniques*
- *emphasizing the importance of effective communication strategies and techniques*
- *describing the guidelines and principles of ethical interpersonal communication*
- *demonstrating sentence construction, grammar. Proof-reading and editing skills in written communications*
- *demonstrating effective communication in customer relations and human relations on the job site*

Irrigation fundamentals

Introduction to irrigation

Soil-plant-water relationships

Irrigations systems

Pumping systems

The employer can assist the apprentice to prepare for this section of technical training by:

- *explaining the use of irrigation technology and regulatory requirements of water use*
- *describing irrigation requirements relative to plant type, soil type and environmental conditions*
- *identifying the components of residential and commercial irrigation systems*
- *explaining the various types of irrigation pumps*

Basic Surveying

Site Assessment

Surveying

The employer can assist the apprentice to prepare for this section of technical training by:

- *generating a base plan on selected specifications and landscape site*
- *interpreting work drawings and demonstrating the process for laying out a landscape site*

Landscape Construction

Retaining wall construction

Modular and natural stone features

Timber construction

Concrete fundamentals

The employer can assist the apprentice to prepare for this section of technical training by:

- *explaining the various types, design factors and fabricating a modular retaining wall system*
- *providing hands-on opportunity to install walkways, retaining walls, planters, etc. using pre-cast units*
- *providing hands-on opportunity to perform basic carpentry by constructing fences, decks, benches and planters*
- *assess concrete as a landscape construction material*

Plant Identification

Plant taxonomy

Plant use in the landscape

The employer can assist the apprentice to prepare for this section of technical training by:

- *familiarizing the apprentice with selected plants and plant families*

- *describing the function, value and characteristics of various plants in the landscape*

Pest Management

Integrated pest management
 insect identification and management
 Diseases identification and management
 Plant disorders
 Weeds identification and management
 Pesticide safety and legislation

The employer can assist the apprentice to prepare for this section of technical training by:

- *discussing the management of ecosystem to prevent organisms from becoming pests*
- *identifying common types of insects, their damage and their management*
- *explaining plant diseases, symptoms and compare fungi, bacteria and disease organisms*
- *assisting in the proper identification of weed problems and by discussing the methods of control*
- *describing and overseeing the practice of safe practices in the use, handling and transport of pesticide chemicals*

Turf Maintenance

Turfgrass fertilization
 Sustainable turfgrass practices

The employer can assist the apprentice to prepare for this section of technical training by:

- *by describing the function and techniques of turfgrass fertilisation*
- *ensuring an understanding of the growing requirements and maintenance of turf varieties (soil, water, aeration, fertilizer, mowing heights) to ensure sustainability*

Level Three

Landscape Design

Introduction to landscape design
 Design principals and elements
 Manual graphics
 Design process
 Master plan

The employer can assist the apprentice to prepare for this section of technical training by:

- *introducing site assessment, design layout, implementation and finished landscape*
- *emphasizing the importance of customer requirements and understanding of the design and cost relationship*
- *developing manual graphic skills using selected drafting tools, drawings and landscape symbols*
- *applying the landscape design process to a selected landscape project*
- *developing a landscape master plan for a selected project*

Plant Identification

Plant taxonomy
 Plant use in the landscape

The employer can assist the apprentice to prepare for this section of technical training by:

- *identifying selected interior plants by botanical, cultivar and common name*
- *discussing light, temperature, growing media and water for the landscape*

Plant Physiology

Biochemical processes

Transport in the plant
Growth and development in plants
Plant stress

The employer can assist the apprentice to prepare for this section of technical training by:

- *explaining photosynthesis, respiration, and other plant processes as they relate to plant growth and health*
- *describing phloem and water transport*
- *explain the processes of protein synthesis and reproduction*
- *identifying physiological factors that affect plants response to stress*

Irrigation

Irrigation system planning
Principals in hydraulics
Design concepts
Design factors
Specifications
Installation
Maintenance and repair
System Troubleshooting
Sustainable water practices

The employer can assist the apprentice to prepare for this section of technical training by:

- *describing the factors in planning an irrigation system*
- *utilizing hydraulic data to design sprinkler irrigation systems*
- *explaining the block-system and quick-coupler design theories and design a residential irrigation system*
- *explain design factors in both residential and commercial systems*
- *interpreting basic irrigation specifications and materials*
- *performing installation procedures for irrigation systems*
- *both maintaining and repairing an irrigation system*
- *assisting the apprentice in understanding the importance of available pressure, flow rate and water source as it relates to irrigation design and troubleshooting*
- *identifying design techniques for water conservation and implementing water auditing procedures*

Arboriculture

Introduction
Tree biology
Pruning
Tree support systems
Tree removal
Working aloft
Tree risk assessment
Tree valuation
Tree inventory
Tree protection
Arboriculture and the law

The employer can assist the apprentice to prepare for this section of technical training by:

- *discussing to common goals and challenges involved in urban forest management*
- *explaining tree anatomy to determine the health of trees*
- *demonstrating pruning techniques such as crown reduction and raising, thinning and removal*
- *describing tree bracing, cabling and flexible support systems and other tree repair techniques*
- *demonstrate general chainsaw use, tree felling and removal rigging techniques and procedures*
- *identifying climbing gear and equipment, climbing techniques, selected rope knots and various aerial procedures and operations*

- *practising methods of determining tree conditions and risk assessment processes*
- *describing the factors involved in valuation and the replacement cost methods*
- *Identifying the factors in inventory and describing the use of the Global Information System(GIS) for tree inventory*
- *Calculating tree protection zones and construction site conservation of trees*
- *Describing the means of liability issues and determining legislation related to arboriculture work*

Landscape Construction

Advanced landscape construction

Water feature construction

Landscape lighting

Sustainable practice in landscape construction

The employer can assist the apprentice to prepare for this section of technical training by:

- *assisting the apprentice complete a carpentry project from interpreting plan details, estimating quantities and types of materials needed and construct a project from plan specifications*
- *developing a water feature project construction plan*
- *assisting the apprentice to design, estimate and construct a project in a water feature*
- *describing design and construction strategies reducing the environmental impact*

Level Four

Landscape Design

Construction plans

Contract documentation

Sustainable landscape technologies

Landscape design software

The employer can assist the apprentice to prepare for this section of technical training by:

- *preparing landscape construction plans for a project site*
- *describing the functions and specifications of bid documents*
- *defining the materials and strategies of low impact development*
- *describing the functions of computer-aided drafting, 3D modelling and digital image rendering applications*

Business Operations

Human resource management

Staff recruitment and retention strategies

Workplace mentoring skills

Advisory network

Basic business administration

The employer can assist the apprentice to prepare for this section of technical training by:

- *describing the Labour Standards Act, OH&S, WCB coverage and typical employee benefits packages*
- *explaining employee retention and recruitment strategies*
- *defining mentoring skills for enhancing employee productivity and job satisfaction*
- *explaining the roles of the advisory network and apprenticeship committees*
- *explaining basic financial information in operating a business*

Plant Identification

Plant taxonomy

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- *identifying selected interior plants by botanical, cultivar and common name*

- *discussing light, temperature, growing media and water for the landscape*

Nursery and Sod Production

Nursery production
 Container production
 Grading and shipping of nursery stock
 Propagation of woody plants
 Sod production

The employer can assist the apprentice to prepare for this section of technical training by:

- *explaining cost of production vs. purchase from other sources as it relates to nursery vs. field production, container production and sod production*
- *discussing and comparing selected nursery containers*
- *explaining the importance of standardized stock as it is referred to in the Canadian Nursery Landscape Association (CNLA) specification book*
- *practising storage practices, seed collection and selected treatments to enhance germination*
- *outlining the sod establishment, production and harvesting processes*

Estimating, Tendering and Contracts

Estimating
 Guarantees and warranties
 Tendering, contracts, bonds
 Types of contracts
 Scheduling

The employer can assist the apprentice to prepare for this section of technical training by:

- *assisting the apprentice prepare a quote for a landscape project*
- *describing the parameters of the suppliers / contractors guarantees and warranties*
- *assisting the apprentice prepare a written tender for a landscape project*
- *describing selected types of contracts and regulations used in landscape construction and maintenance*
- *assisting the apprentice to prepare a written schedule for a landscape project*

Consider apprenticeship training as an investment in the future of your company and in the future of your workforce. Ultimately, skilled and certified workers increase your bottom line.

Get involved in the apprenticeship training system. Your commitment to training helps to maintain the integrity of the trade.

Do you have employees who have been working in the trade for a number of years but don't have trade certification? Contact your local apprenticeship office for details on how they might obtain the certification they need.

Saskatchewan Apprenticeship & Trade Certification Commission

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