

VOCATIONAL TRAINING PROGRAM

Preparing and Finishing Concrete (DVS 5843)

Training sector : Buildings and Public Works



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Introduction to the Program

In vocational training, a program of study presents the competencies required to practise a given trade or occupation at entry level on the job market. The training provided allows students to acquire a degree of versatility that will be useful in their career and personal development.

A program is a coherent set of competencies to be developed. It outlines the knowledge and broad orientations to be favoured during training. The competencies correspond to the tasks of the trade or occupation or to activities related to work, vocational or personal life, depending on the case. Learning is acquired in a specific achievement context and targets the ability to act, succeed and evolve.

According to the *Education Act*,¹ “every program shall include compulsory objectives and contents and may include optional objectives and contents that shall be enriched or adapted according to the needs of students who receive the services.” For behavioural competencies, the compulsory components include the statement of the competency, the elements of the competency, the achievement context and the performance criteria; for situational competencies, they include the corresponding components.

For information purposes, programs also provide a grid of competencies, educational aims, a summary of competency-related knowledge and know-how, and guidelines. They also specify the suggested duration of each competency. All optional components of a program may be enriched or adapted according to the needs of the students, the environment and the workplace.

Program Components

Program Goals

Program goals consist of the expected outcome at the end of training as well as a general description of a given trade or occupation. They also include the four general goals of vocational training.

Educational Aims

Educational aims are broad orientations to be favoured during training in order to help students acquire intellectual or motor skills, work habits or attitudes. Educational aims usually address important aspects of career and personal development that have not been explicitly included in the program goals or competencies. They serve to orient appropriate teaching strategies to contextualize students' learning, in keeping with the dimensions underlying the practice of a trade or occupation. They help guide educational institutions in implementing the program.

Competency

A competency is the ability to act, succeed and evolve in order to adequately perform tasks or activities related to one's working or personal life, based on an organized body of knowledge and skills from a variety of fields, perceptions, attitudes, etc.

A competency in vocational training can be defined in terms of a behaviour or a situation, and includes specific practical guidelines and requirements for learning.

¹ *Education Act*, R.S.Q., c. I-13.3, s 461.

1. Behavioural Competency

A behavioural competency describes the actions and the results expected of the student. It consists of the following features:

- The *statement of the competency* is the result of the job analysis, the orientations and general goals of vocational training and other determinants.
- The *elements of the competency* correspond to essential details that are necessary in order to understand the competency *and* are expressed in terms of specific behaviours. They refer to the major steps involved in performing a task or to the main components of the competency.
- The *achievement context* corresponds to the situation in which the competency is exercised at entry-level on the job market. The achievement context attempts to recreate an actual work situation but does not describe a learning or evaluation situation.
- The *performance criteria* define the requirements to be respected. They may refer to elements of the competency or to the competency as a whole. When associated with a specific element, performance criteria are used to judge whether a competency has been acquired. When associated with the competency as a whole, the criteria describe the requirements for performing a task or activity and provide information on the expected level of performance or the overall quality of a product or service.

2. Situational Competency

A situational competency describes the situation in which students are placed to acquire learning, and allows for actions and results to vary from one student to another. It consists of the following features:

- The *statement of the competency* is the result of the job analysis, the orientations and general goals of vocational training and other determinants.
- The *elements of the competency* outline the essential aspects of the competency and ensure a better understanding of the competency with respect to the expected outcome. The elements of the competency are fundamental to the implementation of the learning situation.
- The *learning context* provides a broad outline of the learning situation designed to help the students develop the *required* competency. It is normally divided into three key phases of learning: information, participation and synthesis.
- The *instructional guidelines* provide reference points and means for teachers to ensure that learning takes place and that the context in which it occurs is always the same. These guidelines may include general principles or specific procedures.
- The *participation criteria* describe requirements that the students must meet when participating in learning activities. They focus on how the students take part in the activities rather than on the results obtained. Participation criteria are normally provided for each phase of the learning situation.

Competency-Related Knowledge and Know-How

Competency-related knowledge and know-how together with related guidelines, are provided for information purposes. Competency-related knowledge and know-how define the essential and meaningful learning that students must acquire in order to apply and continue to develop the competency. They are in keeping with the job market and are accompanied by guidelines that provide information about the field of application, level of complexity and learning content. They generally encompass learning associated with knowledge, skills, strategies, attitudes, perceptions, etc.

Duration

The total duration of the program is compulsory and must be observed. It consists of teaching time, which includes time for the evaluation of learning and for enrichment or remedial activities, depending on the students' needs. The duration indicated for a given competency refers to the amount of time needed to develop the competency.

The amount of teaching time corresponds to the amount of time allotted to training, which is established during program development as the average amount of time needed to acquire a competency and evaluate learning. This duration is helpful in organizing training.

Credit

A credit is a unit used for expressing the quantitative value of each competency. One credit corresponds to 15 hours of training.

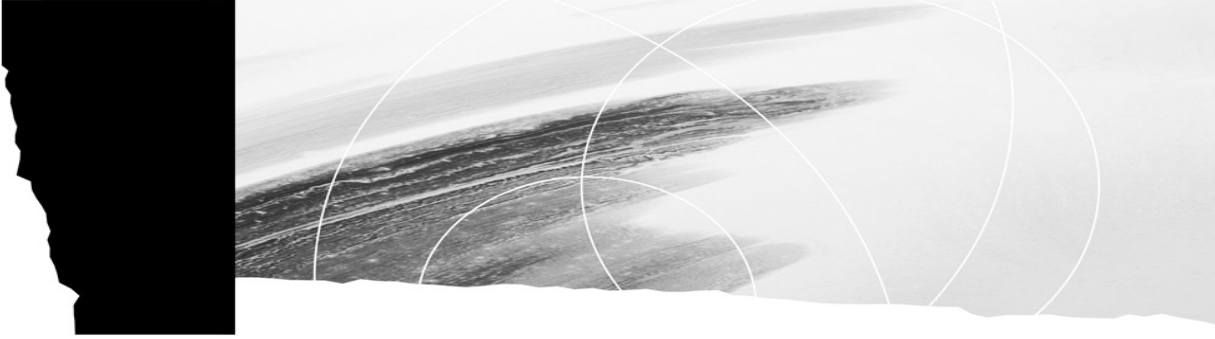
Aspects of Program Implementation

Program-Based Approach

The program-based approach is founded on a comprehensive view of a program of study and its components (e.g. goals, educational aims, competencies). It requires concerted action among all players involved, from the initial stages of program design and development, to program implementation and evaluation. It consists in ensuring that all of the actions and activities proposed are based on the same aims and take into account the same orientations. For students, the program-based approach makes training more meaningful as it presents learning as a coherent whole.

Competency-Based Approach

In vocational training, the competency-based approach is based on a teaching philosophy that is designed to help students mobilize their own individual sets of resources in order to act, succeed and evolve in different contexts, according to established performance levels with all the required knowledge and know-how (e.g. skills, strategies, attitudes, perceptions). The competency-based approach is carried out in situations that are relevant to the students' working life and personal life.



5843

Preparing and Finishing Concrete

Year of approval: 2011

Certification:	Diploma of Vocational Studies
Number of credits:	60 credits
Number of competencies:	15 competencies
Total duration:	900 hours

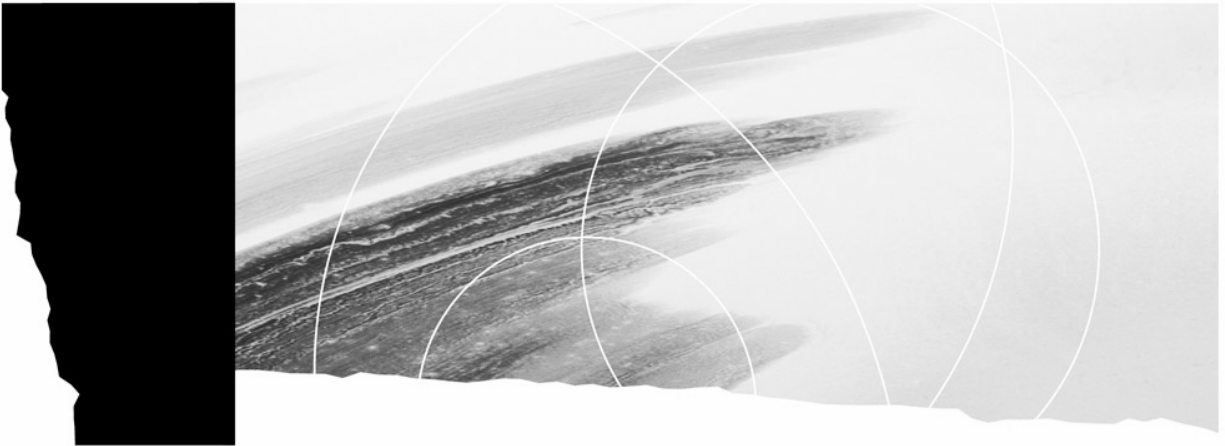
To be eligible for admission to the *Preparing and Finishing Concrete* program, candidates must meet one of the following requirements:

- Persons holding a Secondary School Diploma or its recognized equivalent.
- OR
- Persons who are at least 16 years of age on September 30 of the school year in which their training is to begin and have earned the Secondary III credits in language of instruction, second language and mathematics in the programs of study established by the Minister, or have been granted recognition of equivalent learning.
- OR
- Persons who are at least 18 years of age upon entry into the program and have the following functional prerequisites: the successful completion of the General Development Test as well as language of instruction credits in ENG 3101-1 and ENG 3102-02 or recognition of equivalent learning.

Note: For programs of study in this category, persons may continue their general education courses concurrently with their vocational training provided that they have earned at least the Secondary III credits in language of instruction, second language and mathematics in the programs established by the Minister or they are at least 18 years of age and have successfully completed the General Development Test (GDT).

The duration of the program is 900 hours, which includes 660 hours spent on the specific competencies required to practise the trade and 240 hours on general, work-related competencies. The program of study is divided into 15 competencies which vary in length from 15 to 120 hours. The total hours allocated to the program include time devoted to teaching, evaluation of learning and enrichment or remedial activities.

Competency	Code	Number	Hours	Credits
The Trade and the Training Process	942011	1	15	1
Health and Safety on Construction Sites	754992	2	30	2
Products, Materials and Equipment for Concrete Work	942024	3	60	4
Elevation Equipment	941412	4	30	2
Planning Concrete Preparation and Finishing Work	942035	5	75	5
Preparing and Laying Concrete Sidewalks, Pavements and Curbs	942045	6	75	5
Parging and Acrylic Coatings	942056	7	90	6
Preparing and Laying Concrete Floors	942068	8	120	8
Finishing Concrete Floors	942074	9	60	4
Installing Waterproof Membranes	942084	10	60	4
Building Concrete Stairways	942095	11	75	5
Repairing Concrete Surfaces	942104	12	60	4
Producing Decorative Concrete Works	942118	13	120	8
Organizations Involved in the Construction Industry	754991	14	15	1
Preparing to Enter the Work Force	942121	15	15	1



Part I

Program Goals

Educational Aims

Statements of the Competencies

Grid of Competencies

Harmonization

Program Goals

The *Preparing and Finishing Concrete* program prepares students to practise the trade of concrete finisher.

Concrete finishers place, finish and protect concrete surfaces. They work on a variety of vertical and horizontal surfaces and structures such as concrete floors, walls, sidewalks, stairs, driveways, curbs and gutters, stairs, dams, bridges and tunnels. They also texture, chip, grind and cure finished concrete work and are responsible for the repair and restoration of damaged concrete. They apply various finishes to concrete surfaces such as architectural, exposed, acid-stained, patterned, stamped, broomed overlays and smooth finishes and they also apply colours. They also apply membranes and other waterproofing products to concrete.²

In Québec, in the construction sector and according to the *Regulation respecting the vocational training of the workforce in the construction industry*,³ the term “cement finisher” means anyone who prepares and finishes cement surfaces on floors, walls, sidewalks and pavements, performs plain or designed cement coating work, applies hardeners and sealers or does all similar coating work on floors, sidewalks, pavements and other roadwork inside tunnels, and applies and finishes metallic waterproofing, including the protective coating and the installation of waterproof membranes.”⁴

Concrete finishers work in the four sectors of the construction industry (industrial, institutional and commercial, civil engineering and roadwork, and residential). They also work in sectors outside the construction industry, on renovation, restoration and other similar tasks.

The program goals of the *Preparing and Finishing Concrete* program are based on the general goals of vocational training. These goals are as follows:

- To help students develop effectiveness in the practice of a trade or occupation, that is:
 - to teach students to perform roles, functions, tasks and activities associated with the trade or occupation upon entry into the job market
 - to prepare students to progress satisfactorily on the job by fostering the development of:
 - intellectual and technical skills needed to make appropriate decisions when performing tasks
 - professional ethics
 - effective communication with superiors, coworkers, clients and other individuals
 - vigilance and diligence in their work habits
 - the required technical vocabulary
 - a constant concern for occupational health and safety and for environmental protection

² Human Resources and Skills Development Canada, Trades and Apprenticeship Division, *Occupational Analyses Series, Concrete Finishers* (Government of Canada, 2006), XIV.

³ R.R.Q., chapter R-20, r. 8, Schedule A, s. 17.

⁴ Commission de la construction du Québec, *Occupational Analysis Report, Cement Finisher* (Québec, 2010), 3.

- To help students integrate into the work force, that is:
 - to familiarize students with the job market in general, and with the specific context of their chosen trade or occupation
 - to familiarize students with their rights and responsibilities as workers
- To foster students' personal development and acquisition of occupational knowledge, skills, perceptions and attitudes, that is:
 - to help students develop their autonomy and ability to acquire effective work methods
 - to help students understand the principles underlying the techniques and the technology used in the trade or occupation
 - to help students develop initiative, as required by the trade or occupation
 - to help students learn how to work as part of a team
 - to help students adopt the attitudes required to successfully practise the trade or occupation, and instill in them a sense of responsibility and a concern for excellence
- To promote job mobility, that is:
 - to help students develop positive attitudes toward technological change and lifelong learning
 - to help students increase their ability to learn, become informed, find documentation and fully develop their skills
 - to help students develop the versatility required to work in various settings

Educational Aims

The aim of the *Preparing and Finishing Concrete* program is to help students develop attitudes and behaviours that representatives from education and the field deem essential to the practice of the trade:

- Develop dexterity and effective work methods.
- Develop awareness of the performance expected within the time available.
- Develop awareness of the consequences of poor work.
- Develop autonomy and the desire to progress.

Statements of the Competencies

List of Competencies

Determine their suitability for the trade and the training process.
Ensure health, safety and physical well-being on construction sites.
Associate products, materials and equipment with concrete preparation and finishing.
Use elevation equipment.
Plan concrete preparation and finishing work.
Prepare and lay concrete sidewalks, pavements and curbs.
Apply parging and acrylic coatings.
Prepare and lay concrete floors.
Finish concrete floors.
Install waterproof membranes.
Build concrete stairways.
Repair concrete on different surfaces.
Produce decorative concrete works.
Become familiar with the organizations involved in the construction industry.
Prepare to enter the work force.

Grid of Competencies

The grid of competencies shows the relationship between general competencies, which correspond to work-related activities, and specific competencies, which are required to practise the particular trade or occupation as well as the major steps in the work process.

The general competencies appear on the horizontal axis and the specific competencies, on the vertical axis. The symbol (○) indicates a correlation between a general and a specific competency. The symbol (△) indicates a correlation between a specific competency and a step in the work process. Shaded symbols indicate that these relationships have been taken into account in the acquisition of specific competencies. The logic used in constructing the grid influences the course sequence. Generally speaking, this sequence follows a logical progression in terms of the complexity of the learning involved and the development of the students' autonomy. The vertical axis presents the specific competencies in the order in which they should be acquired and serves as a point of departure for determining how all of the competencies will be taught.

GRID OF COMPETENCIES

Preparing and Finishing Concrete SPECIFIC COMPETENCIES	Competency number	Type of competency	Duration (in hours)	GENERAL COMPETENCIES						WORK PROCESS						
				Determine their suitability for the trade and the training process	Ensure health, safety and physical well-being on construction sites	Associate products, materials and equipment with concrete preparation and finishing	Use elevation equipment	Plan concrete preparation and finishing work	Become familiar with the organizations involved in the construction industry	Prepare to enter the work force	Organize the work	Take individual and group measures	Prepare surfaces	Place, finish, repair and add texture to concrete	Check the quality of the work done and take remedial action where necessary	Tidy up and clean
Competency number				1	2	3	4	5	14	15						
Type of competency				S	S	B	B	B	S	S						
Duration (in hours)				15	30	60	30	75	15	15						
Prepare and lay concrete sidewalks, pavements and curbs	6	B	75		●	●	●	●			△	△	△	△	△	△
Apply parging and acrylic coatings	7	B	90		●	●	●	●			△	△	△	△	△	△
Prepare and lay concrete floors	8	B	120		●	●	●	●			△	△	△	△	△	△
Finish concrete floors	9	B	60		●	●	●	●			△	△	△	△	△	△
Install waterproof membranes	10	B	60		●	●	●	●			△	△	△	△	△	△
Build concrete stairways	11	B	75		●	●	●	●			△	△	△	△	△	△
Repair concrete on different surfaces	12	B	60		●	●	●	●			△	△	△	△	△	△
Produce decorative concrete works	13	B	120		●	●	●	●			△	△	△	△	△	△

Harmonization

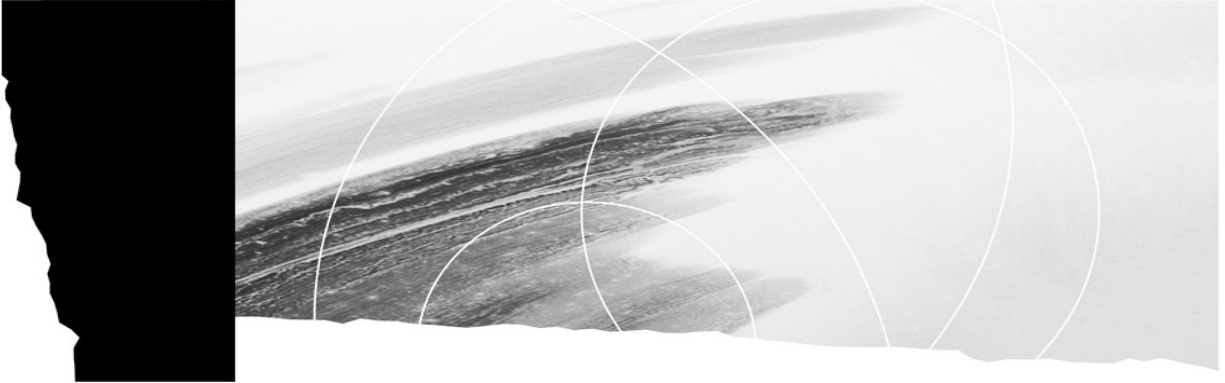
The Ministère de l'Éducation, du Loisir et du Sport harmonizes its vocational and technical programs by establishing similarities and continuity between secondary- and college-level programs within a particular sector or between sectors in order to avoid overlap in program offerings, to recognize prior learning and to optimize the students' progress.

Harmonization establishes consistency between training programs and is especially important in ensuring that the tasks of a trade or occupation are clearly identified and described. Harmonization makes it possible to identify tasks requiring competencies that are common to more than one program. Even if there are no common competencies, training programs are still harmonized.

Harmonization is said to be “inter-level” when it focuses on training programs at different levels, “intra-level” when it focuses on programs within the same educational level, and “inter-sector” when carried out between programs in various sectors.

An important aspect of harmonization is that it allows the common features of competencies to be identified and updated as needed. Common competencies are those that are shared by more than one program; once acquired in one program, they can be recognized as having been acquired in another. Competencies with exactly the same statement and elements are said to be identical. Common competencies that are not identical but have enough similarities to be of equal value are said to be equivalent.

Harmonization of the *Preparing and Finishing Concrete* program has resulted in identifying competencies that are shared with other programs. Detailed information on the harmonization of this program and its results is presented in the document entitled *Tableaux d'harmonisation, Préparation et finition de béton*.



Part II

Program Competencies

Competency 1 Duration 15 hours Credit 1

Situational Competency

Statement of the Competency

Determine their suitability for the trade and the training process.

Elements of the Competency

- Understand the realities of working in the field of concrete preparation and finishing.
- Recognize the behaviours and attitudes inherent in the trade.
- Understand the training process.
- Confirm their career choice.

Learning Context

Information Phase

- Learning about the current job market and prospects in concrete preparation and finishing.
- Recognizing the specific characteristics of the different construction and non-construction sectors in which concrete finishers work: the industrial sector, the institutional and commercial sector, the civil engineering and roadwork sector and the residential sector.
- Learning about the nature and requirements of the job, and its advantages and disadvantages.
- Becoming familiar with the general regulations and standards governing the trade.
- Recognizing the structural organization of a construction site.
- Learning about the main trends in the sector.
- Learning about the attitudes and behaviours required with respect to communication in the workplace, teamwork, employers, competitors and other construction trades.
- Learning about the attitudes, behaviours and skills required for the trade, in particular with regard to customer service.
- Recognizing the principles of time and stress management.
- Learning about the program of study and the training process.

Participation Phase

- Discussing their perceptions of the trade: its advantages and disadvantages, employers' requirements and requirements concerning customer service.
- Discussing ways of keeping up with new developments.
- Discussing information gathered during workplace visits or visits to trade specialists.
- Sharing their initial reactions to the program of study and the training process.

Synthesis Phase

- Assessing their career choice by comparing the requirements of the trade with their own aptitudes, interests, strengths and weaknesses.
- Presenting the results of their assessment.

Instructional Guideline

- Create a climate conducive to mutual respect.
- Be open to comments from all students.
- Encourage the students to take part in the suggested activities.
- Provide the students with the means to assess their career choice honestly and objectively.
- Organize activities that are representative of real situations in the workplace: invite speakers, set up visits to construction sites and meetings with suppliers, etc.
- Provide the students with appropriate documentation.

Participation Criteria

Information Phase

- Gather information on the topics to be covered.

Participation Phase

- Express their views of the trade and the training program during a group discussion.
- Take part in the suggested activities.

Synthesis Phase

- Produce a report in which they describe their preferences, interests, strengths and limitations with respect to the trade.

Competency 2 Duration 30 hours Credits 2

Situational Competency

Statement of the Competency

Ensure health, safety and physical well-being on construction sites.

Elements of the Competency

- Adopt a responsible attitude regarding dangers to personal health and safety.
- Be aware of the importance of complying with occupational health and safety standards and regulations.
- Recognize dangerous situations or unsafe behaviour and the applicable preventive measures.

Learning Context

Information Phase

- Learning about the risks inherent in construction sites.
- Learning about the health and safety standards and regulations on construction sites.
- Learning about emergency measures.
- Reflecting on the importance of developing occupational health and safety skills.

Participation Phase

- Experiencing situations in which they must prevent risks and eliminate hazards related to the environment, facilities, equipment, machinery, tools, materials, energy sources, etc.
- Participating in activities in which they can learn to recognize risks associated with transporting loads and working in constricted postures.
- Participating in activities in which they can learn to recognize safety signs and symbols (e.g. hazardous products, roadwork, transportation of hazardous materials).
- Comparing different high-risk behaviours observed on construction sites and identifying the basic principles underlying safe behaviour.

Synthesis Phase

- Producing a report containing:
 - a summary of their newly acquired knowledge and skills
 - an assessment of their attitude toward occupational health and safety
 - their goals and means of improving their behaviour

Instructional Guideline

- Make available the necessary sources of information.
- If applicable, invite occupational health and safety specialists to speak to the class.
- Make effective use of audiovisual materials.
- Make extensive use of learning situations representative of conditions on construction sites.
- Do not allow students to do anything dangerous during simulations.
- Encourage all students to participate in discussions.
- Guide the students' evaluation process by providing them with appropriate tools (e.g. questionnaire) to help them analyze their experience and set goals.

Participation Criteria

Information Phase

- Consult the sources of information made available to them.
- Describe the advantages of complying with health and safety standards and regulations.

Participation Phase

- Participate responsibly in the suggested activities.
- State the principles underlying safe behaviour.
- List the risks inherent in construction sites and the applicable preventive measures.

Synthesis Phase

- Present a report containing:
 - a summary of their newly acquired knowledge and skills
 - an assessment of their attitude toward occupational health and safety
 - their goals and means of protecting their health, safety and physical well-being, as well as those of others, on a construction site

Competency 3 Duration 60 hours Credits 4

Behavioural Competency

Statement of the Competency

Associate products, materials and equipment with concrete preparation and finishing.

Achievement Context

- For preparing, finishing and repairing concrete works in the industrial, commercial/institutional, civil engineering/roadwork and residential sectors
- Using different types of concrete, solvents, sealants, mould release agents, set accelerators, mortars, resins, parging and other products and materials for concrete preparation, finishing and repair
- Using the necessary tools and equipment
- Using the necessary protective measures, technical product sheets, product safety data sheets and manufacturers' manuals

Elements of the Competency**Performance Criteria**

1. Characterize different types of concrete and concreting materials.

- Precise distinction between different concreting materials
- Accurate characterization of different types of concrete and their properties
- Accurate identification of concrete-related specifications
- Proper identification of the characteristics of obsolete or altered products

2. Characterize the methods of preparing and transporting concrete.

- Precise distinction between the different methods of transporting concrete
- Accurate identification of the different methods of preparing concrete
- Proper identification of the effects of weather conditions on concrete
- Accurate identification of how to use a discharge hose

3. Recognize different concrete finishes and surface textural patterns.

- Correct distinction between different architectural finishes
- Correct distinction between different concrete textural patterns
- Relevant association of the equipment and tools required with the different types of finishing and textural patterns

- | | |
|--|--|
| 4. Characterize different materials and products used to prepare and finish concrete surfaces. | <ul style="list-style-type: none">• Accurate characterization of form release, set acceleration and retarding, property enhancement and other products and materials• Accurate association of concrete surface preparation products with their common uses• Accurate association of concrete surface finishing products with their common uses• Accurate association of concrete surface repair products with their common uses• Proper identification of how to use and store concrete surface preparation, finishing and repair products |
| 5. Characterize different reinforcing materials used for concrete and concrete works. | <ul style="list-style-type: none">• Accurate characterization of materials and products used to lay and reinforce concrete• Identification of formwork defects |
| 6. Associate different techniques used to prepare, finish and repair concrete. | <ul style="list-style-type: none">• Precise distinction between the different steps in preparing, finishing or repairing concrete• Relevant identification of the methods and processes used to prepare concrete• Relevant identification of the methods and processes used to finish concrete• Relevant identification of the methods and processes used to repair concrete |
| 7. Associate the tools and equipment used to prepare, finish and repair concrete. | <ul style="list-style-type: none">• Relevant association of the tools and equipment required with the work to be done• Accurate identification of how to use hand and power tools• Accurate identification of how to use equipment• Accurate identification of the dangers associated with the use of tools and equipment• Proper identification of the methods commonly used to maintain tools and equipment |
| 8. Identify trends in concrete products and finishing. | <ul style="list-style-type: none">• Identification of the main trends in home decoration and renovation• Proper identification of environmental protection trends, especially with regard to ecological, biodegradable and other similar products |

For the competency as a whole:

- Compliance with occupational health and safety rules
- Compliance with environmental protection measures
- Compliance with manufacturers' instructions and Workplace Hazardous Materials Information System (WHMIS) safety data sheets
- Appropriate use of trade-specific terminology

Competency 4 Duration 30 hours Credits 2

Behavioural Competency

Statement of the Competency

Use elevation equipment.

Achievement Context

- For preparing, repairing and finishing concrete surfaces
- Using the *Safety Code for the Construction Industry*; the necessary personal and collective protective equipment; ladders, stepladders, scaffolds, aerial baskets and elevating platforms; hand and power tools and manufacturers' manuals

Elements of the Competency**Performance Criteria**

- | | |
|---|--|
| 1. Inspect scaffolds and ladders. | <ul style="list-style-type: none"> • Application of Commission de la santé et de la sécurité du travail (CSST) standards for scaffolds and ladders • Identification of defects likely to compromise the solidity and safe use of scaffolds and ladders • Application of corrective measures, where necessary |
| 2. Handle and set up scaffolds and ladders. | <ul style="list-style-type: none"> • Compliance with transportation and handling rules • Solid setup, with anchors and fasteners where applicable • Installation so as to prevent users from falling • Installation of appropriate signs and markers • Safe moving of scaffolds and ladders, in compliance with techniques and restrictions |
| 3. Move around on scaffolds and ladders. | <ul style="list-style-type: none"> • Safety of movement, in compliance with standards • Wearing of safety harness and equipment • Consideration of restrictions on movements |
| 4. Use an aerial basket and elevating platform. | <ul style="list-style-type: none"> • Safety of use, in compliance with standards • Consideration of the dangers associated with the use of this type of equipment |
| 5. Put away scaffolds and ladders. | <ul style="list-style-type: none"> • Proper protection and cleaning of equipment, depending on the material from which it is made • Basic maintenance of ladders and scaffolds • Safe storage, in accordance with the manufacturer's recommendations |

For the competency as a whole:

- Compliance with occupational health and safety rules
- Application of standards governing the equipment required, depending on the work to be done
- Adoption of ergonomic postures
- Compliance with manufacturers' instructions
- Appropriate use of trade-specific terminology

Competency 5 Duration 75 hours Credits 5

Behavioural Competency

Statement of the Competency

Plan concrete preparation and finishing work.

Achievement Context

- For work to be done in the industrial, institutional/commercial, civil engineering/roadwork and residential sectors
- For different types of preparation, finishing and repair work on concrete surfaces or concrete works
- Based on work orders, architectural or structural plans and specifications
- Using measuring instruments and devices, drawing instruments, calculators, manufacturers' manuals, purchase orders, etc.

Elements of the Competency

Performance Criteria

1. Interpret plans and specifications.

- Accurate interpretation of the general data shown on a plan
- Accurate identification of the different views on a plan
- Precise identification of elevations on a plan
- Precise interpretation of the general data shown on a plan
- Precise interpretation, in the specifications, of information concerning the work and the materials and products required to do the work
- Production of appropriate dimensioned drawings

2. Take measurements.

- Appropriate use of different measuring devices and instruments
- Accurate taking of different measurements, such as height, width, length, surface area, volume, thickness, radius, diameter, etc.
- Accurate conversion of measurements to and from the imperial and international systems
- Proper maintenance and storage of measuring devices and instruments

3. Perform calculations.

- Accurate calculation of areas on the plans
- Accurate calculation of actual surface areas
- Accurate calculation of the proportions required for different mixtures

4. Estimate the work to be done.

- Estimate of the type and extent of the preparation and finishing work to be done
- Estimate of the quantities of materials and products required
- Determination of the tools and equipment required to do the work
- Estimate of the timeframe and schedule for the work, taking into account the other construction trades required
- Consideration of losses due to the materials and techniques used
- Estimate of labour and resource costs for the work to be done

5. Complete work orders and purchase orders.

- Accurate recording of information concerning the work to be done
- Accurate recording of information concerning the products, materials, equipment and tools required
- Clear communication and explanation of information to the customer or employer, where needed
- Appropriate use of technical vocabulary

For the competency as a whole:

- Compliance with manufacturers' instructions for the products to be used
- Accuracy of the measurements and calculations
- Concern for an honest and objective view of needs and the work to be done

Competency 6 Duration 75 hours Credits 5

Behavioural Competency

Statement of the Competency

Prepare and lay concrete sidewalks, pavements and curbs.

Achievement Context

- For concrete sidewalks, pavements and curbs in the industrial, institutional/commercial, civil engineering/roadwork and residential sectors
- Based on work orders, forms, plans and specifications
- Using formwork
- Working as part of a team, where necessary
- Based on current regulations and standards
- Using personal and collective protective equipment
- Using methods of transporting concrete, hand and power tools, equipment, products and accessories, and consulting the manufacturers' manuals

Elements of the Competency**Performance Criteria**

1. Plan the work.

- Precise interpretation of information concerning the work to be done in the work orders, plans and specifications
- Consideration of weather conditions
- Precise determination of personal and collective protective equipment
- Proper planning of isolation and expansion joints in sidewalks
- Determination of appropriate method of transporting concrete
- Determination of the equipment, tools, materials, products and accessories required
- Estimate of the quantities, time and human resources required
- Communication of relevant information to the people concerned

2. Prepare the sub-grade.

- Verification to ensure that forms are solid and level
- Verification of sub-grade condition
- Spreading and levelling of gravel to the required thickness
- Proper compaction of sub-grade
- Solidity of the entire structure

3. Transport the concrete.
 - Identification of all obstacles that may be in the way
 - Appropriate use of crane operators' signs and audible warning signals, where necessary
 - Constant vigilance when transporting concrete to the pouring location
 - Verification of concrete to ensure that it meets requirements
 - Proper use of the discharge hose, power buggy or crane bucket discharge handle, where necessary
4. Spread the concrete.
 - Precise determination of starting point
 - Accurate determination of required slump and consistency
 - Visual verification of the placement of rebars and wire mesh
 - Proper placement of isolation joints, where necessary
 - Even spreading of concrete using appropriate tools
 - Proper placement of expansion joints
 - Reporting of problems and taking of appropriate corrective action, where necessary
 - Proper consolidation of concrete
5. Compact the concrete.
 - Determination of areas requiring compaction
 - Precise determination of vibration frequency and field of vibration
 - Proper use of vibrator or screed
 - Assessment of vibration time required to avoid defects such as segregation and honeycombs
6. Grade the concrete.
 - Precise identification of benchmarks based on the required elevation, and transfer of marks to the site
 - Precision of calculations to determine the slope percentage
 - Determination of the grading method, based on the surface, the properties of the concrete and the levelness required
 - Appropriate use of straight edge and concrete edger
 - Proper application of retardants, based on surface evaporation levels
 - Grading of concrete according to specified tolerances

7. Float the concrete surface.
 - Determination of floating method according to type and slump of concrete
 - Determination of the proper time to float
 - Use of appropriate tools to float the concrete surface according to the required slope
8. Finish and cure the concrete.
 - Use of tools to finish the concrete
 - Shaping of control joints and surface perimeter
 - Proper finishing of surface
 - Determination of the curing method required (wet or chemical cures)
 - Application of appropriate products
 - Adequate protection of surfaces
9. Check the quality of the work.
 - Detection of all visible defects
 - Precise verification of required levels and measures
 - Observance of tolerances regarding slope and levelness
 - Verification of the quality of the surface finishing
 - Taking of appropriate corrective action, where necessary
10. Tidy and clean the work area.
 - Restoration of the area in which the work was carried out
 - Thorough cleaning, regular maintenance and proper storage of hand and power tools and equipment
 - Concern for the economical use of materials, equipment and products
 - Proper storage of products and equipment
 - Disposal or recycling of materials and products in compliance with environmental protection measures
11. Record and transmit information concerning the work.
 - Complete and accurate record of the work
 - Appropriate use of technical vocabulary
 - Communication of relevant information to the people concerned

For the competency as a whole:

- Compliance with occupational health and safety rules and use of ergonomic postures
- Compliance with information contained in plans, specifications and manufacturers' documentation
- Verification to ensure that tools and equipment are in good condition and good working order
- Quality of the finished product, especially surface uniformity
- Appropriate use of trade-specific terminology

Competency 7 Duration 90 hours Credits 6

Behavioural Competency

Statement of the Competency

Apply parging and acrylic coatings.

Achievement Context

- For concrete foundations and surfaces in the industrial, institutional/commercial, civil engineering/roadwork and residential sectors
- For applying coatings to existing surfaces or repairing concrete surfaces
- Based on work orders, forms, plans and specifications
- Based on current regulations and standards
- Using personal and collective protective equipment
- Using elevation equipment, hand and power tools, equipment, accessories, materials and products such as parging and acrylic

Elements of the Competency**Performance Criteria**

1. Plan the work.

- Precise interpretation of information concerning the work to be done in the work orders, plans and specifications
- Consideration of weather conditions
- Precise determination of personal and collective protective equipment
- Proper checking of surface condition
- Determination of preparatory work needed
- Determination of equipment, tools, materials, products and accessories required
- Estimate of the quantities, time and human resources required
- Communication of relevant information to the people concerned

2. Prepare the substrate for application of the parging or acrylic.

- Safe installation of elevation equipment
- Proper repair of surface, where necessary
- Proper cleaning of surface
- Application of bonding agent for the parging, if necessary
- Mixing and application of base coat, and installation of fibre mesh, where necessary

3. Place the parging or apply the acrylic.
 - Appropriate dosage of ingredients and proper colouring of parging, where necessary
 - Mixing to obtain a smooth product
 - Appropriate use of tools
 - Uniform layers and appropriate surface profile
4. Finish the parging or acrylic.
 - Precise determination of the finishing method required to apply texture to the parging
 - Finishing of surfaces with appropriate tools
 - Verification of the quality of the work
 - Obtaining of desired surface appearance and required tolerances
 - Taking of appropriate corrective action, where necessary
5. Repair the parging.
 - Precise determination of the area and thickness of any materials to be removed
 - Proper protection of adjacent areas
 - Appropriate use of equipment to remove materials
 - Proper cleaning of surface
 - Mixing and colouring of parging in accordance with the existing surface, where necessary
 - Surface conditioning in accordance with the bonding method required
 - Obtaining of appropriate surface profile
 - Application of parging using generally accepted methods
 - Finishing of surface with proper tools
 - Blending of repaired surface with adjacent surfaces
6. Tidy and clean the work area.
 - Restoration of the area in which the work was carried out
 - Thorough cleaning, regular maintenance and proper storage of hand and power tools and equipment
 - Concern for the economical use of materials, equipment and products
 - Proper storage of products and equipment
 - Disposal or recycling of materials and products in compliance with environmental protection measures
7. Record and transmit information concerning the work.
 - Complete and accurate record of the work
 - Appropriate use of technical vocabulary
 - Communication of relevant information to the people concerned

For the competency as a whole:

- Compliance with occupational health and safety rules and use of ergonomic postures
- Compliance with information contained in plans, specifications and manufacturers' documentation
- Verification to ensure that tools and equipment are in good condition and good working order
- Quality of the finished product
- Appropriate use of trade-specific terminology

Competency 8 Duration 120 hours Credits 8

Behavioural Competency

Statement of the Competency

Prepare and lay concrete floors.

Achievement Context

- For floors, toppings and concrete slabs in the industrial, institutional/commercial, civil engineering/roadwork and residential sectors
- Based on work orders, forms, plans and specifications
- Working as part of a team, where necessary
- Based on current regulations and standards
- Using personal and collective protective equipment
- Using elevation equipment, hand and power tools, equipment, accessories, materials and products

Elements of the Competency

Performance Criteria

1. Plan the work.

- Precise interpretation of information concerning the work to be done in the work orders, plans and specifications
- Consideration of weather, lighting and ventilation conditions
- Precise determination of personal and collective protective equipment
- Accurate determination of methods of transporting concrete
- Proper verification of the condition of the sub-grade and forms
- Determination of the equipment, tools, materials, products and accessories required
- Estimate of the quantities, time and human resources required
- Communication of relevant information to the people concerned

2. Prepare to lay the concrete.

- Safe installation of elevation equipment, where necessary
- Thorough inspection of the condition of the equipment
- Precise determination of the locations of mechanical facilities
- Proper verification to ensure that wire mesh and, where applicable, a vapour barrier and insulating membrane have been installed

3. Transport the concrete.
 - Identification of all obstacles that may be in the way
 - Appropriate use of crane operator's signs and audible warning signals, where necessary
 - Constant vigilance when transporting concrete to the pouring location
 - Verification of concrete to ensure that it meets requirements
 - Proper use of the discharge hose, power buggy or crane bucket discharge handle, where necessary
4. Spread the concrete.
 - Precise determination of starting point
 - Accurate determination of required slump and consistency
 - Keeping in place of rebars and wire mesh
 - Even spreading of concrete using appropriate tools
 - Vigilance regarding any mechanical devices present when spreading the concrete
 - Reporting of problems and taking of appropriate corrective action, where necessary
 - Proper consolidation of the concrete
5. Compact the concrete.
 - Precise determination of areas requiring compaction
 - Precise determination of vibration frequency and field of vibration
 - Proper use of vibrator or screed
 - Assessment of vibration time required to avoid defects such as segregation and honeycombs
6. Grade the concrete.
 - Precise identification of benchmarks based on the required elevation, and transfer of marks to the site
 - Precision of calculations to determine the slope percentage (drainage)
 - Accurate determination of the grading method, based on the surface, the properties of the concrete and the levelness required
 - Appropriate use of manual and mechanical screeds
 - Grading of concrete according to specified tolerances
 - Application of surface retardants based on surface evaporation levels, where necessary

7. Float the concrete surface.
 - Accurate determination of floating method according to type and slump of concrete
 - Determination of the proper time to float
 - Use of appropriate tools to float the concrete surface according to the required slope
8. Check the quality of the work.
 - Detection of all visible defects
 - Precise verification of required levels and measures
 - Observance of tolerances regarding slope and levelness
 - Verification of the quality of the surface finishing
 - Taking of appropriate corrective action, where necessary
 - Proper protection of surfaces
9. Tidy and clean the work area.
 - Restoration of the area in which the work was carried out
 - Thorough cleaning, regular maintenance and proper storage of hand and power tools and equipment
 - Concern for the economical use of materials, equipment and products
 - Proper storage of products and equipment
 - Disposal or recycling of materials and products in compliance with environmental protection measures
10. Record and transmit information concerning the work.
 - Complete and accurate record of the work
 - Appropriate use of technical vocabulary
 - Communication of relevant information to the people concerned

For the competency as a whole:

- Compliance with occupational health and safety rules and use of ergonomic postures
- Compliance with information contained in plans, specifications and manufacturers' documentation
- Verification to ensure that tools and equipment are in good condition and good working order
- Quality of the finished product, especially surface uniformity
- Appropriate use of trade-specific terminology

Competency 9 Duration 60 hours Credits 4

Behavioural Competency

Statement of the Competency

Finish concrete floors.

Achievement Context

- For finishing floors, toppings, concrete slabs, shotcrete surfaces and roads in the industrial, institutional/commercial, civil engineering/roadwork and residential sectors
- Based on work orders, forms, plans and specifications
- Working as part of a team, where necessary
- Based on current regulations and standards
- Using personal and collective protective equipment
- Using elevation equipment, hand and power tools, equipment, accessories, materials and products

Elements of the Competency**Performance Criteria**

1. Plan the work.

- Precise interpretation of information concerning the work to be done in the work orders, plans and specifications
- Consideration of weather, lighting and ventilation conditions
- Precise determination of personal and collective protective equipment
- Consideration of the impact of sub-grade type on finishing time
- Consideration of any information provided by the team that laid the floor, where necessary
- Determination of equipment, tools, materials, products and accessories required
- Estimate of the quantities, time and human resources required
- Communication of relevant information to the people concerned

2. Finish the floors.
 - Appropriate application of hardeners, where necessary
 - Use of appropriate tools to finish shotcrete surfaces
 - Polishing of surface using appropriate tools and equipment
 - Obtaining of required finish
 - Taking of appropriate corrective action, where necessary
3. Cure the concrete.
 - Accurate determination of the curing method required
 - Appropriate application of waterproofing products, where necessary
 - Proper protection of concrete using appropriate means
4. Control cracking.
 - Appropriate control of cracking by saw cutting
 - Proper sealing of control joints
5. Check the quality of the work.
 - Detection of all visible defects
 - Precise verification of required levels and measures
 - Verification of the quality of the surface finishing
 - Observance of tolerances regarding slope and levelness
 - Taking of appropriate corrective action, where necessary
 - Proper protection of surfaces
6. Tidy and clean the work area.
 - Restoration of the area in which the work was carried out
 - Thorough cleaning, regular maintenance and proper storage of hand and power tools and equipment
 - Concern for the economical use of materials, equipment and products
 - Proper storage of products and equipment
 - Disposal or recycling of materials and products in compliance with environmental protection measures
7. Record and transmit information concerning the work.
 - Complete and accurate record of the work
 - Appropriate use of technical vocabulary
 - Communication of relevant information to the people concerned

For the competency as a whole:

- Compliance with occupational health and safety rules and use of ergonomic postures
- Compliance with information recorded in the plans, specifications and manufacturers' documentation
- Verification to ensure that tools and equipment are in good condition and good working order
- Quality of the finished product, especially surface uniformity
- Appropriate use of trade-specific terminology

Competency 10 Duration 60 hours Credits 4

Behavioural Competency

Statement of the Competency

Install waterproof membranes.

Achievement Context

- For all types of concrete surfaces, with and without anchoring, in the industrial, institutional/commercial, civil engineering/roadwork and residential sectors
- Based on work orders, forms, plans and specifications
- Working as part of a team, where necessary
- Based on current regulations and standards
- Using personal and collective protective equipment
- Using elevation equipment, hand and power tools, equipment, accessories, and thermofusible and self-adhesive membranes

Elements of the Competency**Performance Criteria**

1. Plan the work.

- Precise interpretation of information concerning the work to be done in work orders, plans and specifications
- Consideration of weather, lighting and ventilation conditions
- Precise determination of personal and collective protective equipment
- Proper checking of surface condition
- Determination of preparatory work required
- Determination of the equipment, tools, materials, products and accessories required
- Estimate of the quantities, time and human resources required
- Communication of relevant information to the people concerned

2. Prepare the substrate for the application of weatherproof membranes.

- Installation of elevation equipment, where necessary
- Repair of surface, where necessary
- Proper cleaning of surface
- Application of the appropriate primer for the membrane

3. Install thermofusible membranes.
 - Cutting of thermofusible membranes to the desired size
 - Appropriate welding of the thermofusible underlay
 - Proper application of the aggregate base, where necessary
 - Attention to detail when carrying out work involving anchoring
4. Install self-adhesive membranes.
 - Cutting of self-adhesive membranes to the desired size
 - Priming of surface with the appropriate tools
 - Attention to detail when carrying out work involving anchoring
5. Check the quality of the work.
 - Detection of all visible defects
 - Obtaining of required quality of surface finish and waterproofing
 - Careful checking of membrane overlaps and flaps
 - Taking of appropriate corrective action, where necessary
6. Tidy and clean the work area.
 - Restoration of the area in which the work was carried out
 - Thorough cleaning, regular maintenance and proper storage of hand and power tools and equipment
 - Concern for the economical use of materials, equipment and products
 - Proper storage of products and equipment
 - Disposal or recycling of materials and products in compliance with environmental protection measures
7. Record and transmit information concerning the work.
 - Complete and accurate record of the work
 - Appropriate use of technical vocabulary
 - Communication of relevant information to the people concerned

For the competency as a whole:

- Compliance with occupational health and safety rules and use of ergonomic postures
- Compliance with information contained in plans, specifications and manufacturers' documentation
- Verification to ensure that tools and equipment are in good condition and good working order
- Quality of the finished product, especially surface uniformity
- Appropriate use of trade-specific terminology

Competency 11 Duration 75 hours Credits 5

Behavioural Competency

Statement of the Competency

Build concrete stairways.

Achievement Context

- For building and finishing the most common types of concrete stairways in the industrial, commercial/institutional, civil engineering/roadwork and residential sectors
- Based on work orders, forms, plans and specifications
- Working as part of a team, where necessary
- Based on current regulations and standards
- Using personal and collective protective equipment
- Using elevation equipment, hand and power tools, equipment, accessories and metal drums

Elements of the Competency**Performance Criteria**

1. Plan the work.

- Precise interpretation of information concerning the work to be done in work orders, plans and specifications
- Consideration of weather, lighting and ventilation conditions
- Precise determination of personal and collective protective equipment
- Accurate determination of method of transporting concrete
- Precise calculation of the step layout
- Verification to ensure that the sub-grade and forms are in good condition
- Determination of the equipment, tools, materials, products and accessories required
- Estimate of the quantities, time and human resources required
- Communication of relevant information to the people concerned

2. Prepare to lay the concrete.

- Proper verification of wire mesh and installation of a vapour barrier, where necessary
- Preparation of concrete according to specified characteristics

3. Transport the concrete.
 - Identification of all obstacles that may be in the way
 - Appropriate use of crane operator's signs and audible warning signals, where necessary
 - Constant vigilance when transporting concrete to the pouring location
 - Verification of concrete to ensure that it meets requirements
 - Proper use of the discharge hose, power buggy or crane bucket discharge handle, where necessary
4. Spread the concrete:
 - in metal forms
 - for fabrication of a structural or monolithic stairway
 - Precise determination of starting point
 - Keeping in place of rebars and wire mesh
 - Accurate determination of required slump and consistency
 - Even spreading of concrete using appropriate tools
 - Proper consolidation of concrete
 - Reporting of problems and taking of appropriate corrective action, where necessary
5. Compact the concrete.
 - Precise determination of areas requiring compaction
 - Precise determination of vibration frequency and field of vibration
 - Proper use of vibrator or screed
 - Assessment of vibration time required to avoid defects such as segregation and honeycombs
6. Finish the concrete stairway.
 - Consideration of any coating to be applied
 - Finishing of surface using the appropriate tools, depending on the type of finish required
 - Obtaining of appropriate finishing
7. Check the quality of the work.
 - Detection of all visible defects
 - Obtaining of desired quality of surface finishing
 - Observance of tolerances regarding slope and levelness
 - Taking of appropriate corrective action, where necessary
 - Proper protection of surfaces

8. Tidy and clean the work area.

- Restoration of area in which work was carried out
- Thorough cleaning, regular maintenance and proper storage of hand and power tools and equipment
- Concern for the economical use of materials, equipment and products
- Proper storage of products and materials
- Disposal or recycling of materials and products in compliance with environmental protection measures

9. Record and transmit information concerning the work.

- Complete and accurate record of the work
- Appropriate use of technical vocabulary
- Communication of relevant information to the people concerned

For the competency as a whole:

- Compliance with occupational health and safety rules and use of ergonomic postures
- Compliance with information contained in plans, specifications and manufacturers' documentation
- Verification to ensure that tools and equipment are in good condition and good working order
- Quality of the finished product, especially surface uniformity
- Appropriate use of trade-specific terminology

Competency 12 Duration 60 hours Credits 4

Behavioural Competency

Statement of the Competency

Repair concrete on different surfaces.

Achievement Context

- For repairing horizontal or vertical concrete surfaces or concrete works
- For reinforcing existing concrete structures in the industrial, institutional/commercial, civil engineering/roadwork and residential sectors
- Based on work orders, forms, plans and specifications
- Working as part of a team, where necessary
- Based on current regulations and standards
- Using personal and collective protective equipment
- Using elevation equipment, hand and power tools, equipment, accessories, materials and products

Elements of the Competency

1. Plan the work.

Performance Criteria

- Precise interpretation of information concerning the work to be done in the work orders, plans and specifications
- Consideration of weather, lighting and ventilation conditions
- Precise determination of personal and collective protective equipment
- Accurate determination of method of transporting concrete, where necessary
- Precise identification, visually or by resonance, of the defects to be repaired
- Determination of appropriate materials and repair process
- Determination of equipment, tools, materials, products and accessories required
- Estimate of the quantities, time and human resources required
- Communication of relevant information to the people concerned

2. Prepare surfaces for the repairs.
 - Safe installation of elevation equipment, where necessary
 - Precise determination of the location and thickness of any materials to be removed
 - Proper protection and isolation of adjacent areas, where necessary
 - Consideration of potential mechanical or electrical risks
 - Appropriate use of equipment to remove the materials
 - Proper cleaning of surface
 - Obtaining of repair profile
 - Surface conditioning in accordance with the bonding method required
3. Apply different repair methods.
 - Mixing of products in the correct proportions for the repair
 - Proper application of reinforcement membranes, where necessary
 - Application of products using the appropriate tools
 - Pouring or injection of concrete, where necessary
 - Finishing of surfaces according to the specifications
 - Blending of texture into the rest of the surface
 - Appropriate application of a sealer, where necessary
 - Adherence of the repaired portion
 - Proper protection of surfaces
4. Tidy and clean the work area.
 - Restoration of the area in which the work was carried out
 - Thorough cleaning, regular maintenance and proper storage of hand and power tools and equipment
 - Concern for the economical use of materials, equipment and products
 - Proper storage of products and equipment
 - Disposal or recycling of materials and products in compliance with environmental protection methods
5. Record and transmit information concerning the work.
 - Complete and accurate record of the work
 - Appropriate use of technical vocabulary
 - Communication of relevant information to the people concerned

For the competency as a whole:

- Compliance with occupational health and safety rules and use of ergonomic postures
- Compliance with information contained in plans, specifications and manufacturers' documentation
- Verification to ensure that tools and equipment are in good condition and good working order
- Quality of the finished product, especially surface uniformity
- Appropriate use of trade-specific terminology

Competency 13 Duration 120 hours Credits 8

Behavioural Competency

Statement of the Competency

Produce decorative concrete works.

Achievement Context

- For new or existing concrete surfaces or works in the industrial, commercial/institutional, civil engineering/roadwork and residential sectors
- For different concrete surface finishes, including architectural and decorative finishes, patterns, stamped finishes, broom finishes, smooth finishes and staining
- Based on work orders, forms, plans and specifications
- Working as part of a team, where necessary
- Based on current regulations and standards
- Using personal and collective protective equipment
- Using elevation equipment, hand and power tools, equipment and accessories
- Using materials and products such as plastic concrete, aggregates, gravel, retardants, surface hardeners, epoxy resins, concrete stains and others

Elements of the Competency**Performance Criteria**

1. Plan the work.

- Precise interpretation of information concerning the work to be done in the work orders, plans and specifications
- Consideration of weather, lighting and ventilation conditions
- Careful verification of the condition of the sub-grade and forms
- Precise determination of personal and collective protective equipment
- Accurate determination of method of transporting concrete, where necessary
- Determination of equipment, tools, materials, products and accessories required
- Estimate of the quantities, time and human resources required
- Proper verification of any previous work done
- Communication of relevant information to the people concerned

2. Carry out preparatory work according to the desired finish.
 - Proper preparation of products to be incorporated into the fresh concrete surfaces, according to the manufacturers' instructions
 - Appropriate levelling of the concrete surface by hand
 - Floating of the concrete, using appropriate tools
 - Proper application of concrete by hand
 - Proper use of a trowel to even out the concrete
 - Proper application of surface treatments to plastic or hardened concrete, where applicable
3. Expose the aggregates.
 - Even spreading and pressing of stones into concrete at random, or to form a pattern
 - Proper application of a set retardant, where necessary
 - Exposure of aggregates by washing, stripping or sandblasting
 - Proper application of a surface protector, where necessary
4. Stamp a concrete surface.
 - Colouring of concrete, where necessary
 - Proper finishing of concrete surface using a trowel to remove imperfections
 - Proper application of an evaporation retardant, where necessary
 - Proper application of a powdered or liquid release agent
 - Precise determination of a starting point and installation of the stamps
 - Proper stamping to produce the desired pattern
 - Proper washing of surface
 - Appropriate placement of control joints and sealants
5. Produce a polished concrete surface:
 - for new surfaces
 - for existing surfaces
 - Colouring of concrete and addition of decorative aggregates in the case of new concrete surfaces
 - Proper laying and finishing of the concrete
 - Assessment of the existing surface and taking of corrective action, where necessary
 - Wet or dry polishing of the surface using a diamond grinder
 - Observance of the required curing time
 - Obtaining of desired finish
 - Proper application of a surface protector, where necessary

6. Apply concrete stains.
 - Proper preparation of the concrete surface
 - Observance of drying time and application of the required number of coats
 - Proper application of a surface protector, where necessary
7. Finish the surface using decorative microsurfacing products.
 - Proper cleaning of surface
 - Proper mixing of product
 - Application of microsurfacing products to obtain the desired finish
 - Colouring of surface or product, where necessary
 - Proper application of release agents, where necessary
 - Proper stamping of the surface, where necessary
 - Cleaning of surface, where necessary
8. Apply an epoxy resin coating.
 - Proper mixing of epoxy resin, and incorporation of quartz, where necessary
 - Cleaning of surface using chemical products, where necessary
 - Proper application of a primer, where necessary
 - Application of the required number of epoxy resin coats
 - Proper incorporation of decorative particles, where necessary
 - Proper application of a surface protector, where necessary
9. Finish concrete surfaces using integral colour or surface colour.
 - Proper incorporation of colour during mixing
 - Proper application of the colour and surface finishing
 - Proper application of a surface protector, where necessary
10. Check the quality of the work.
 - Detection of all visible defects
 - Verification of the quality of the surface finishing
 - Obtaining of desired surface finishing
 - Taking of appropriate corrective action, where necessary
 - Proper protection of surfaces

11. Tidy and clean the work area.
- Restoration of the area in which the work was carried out
 - Thorough cleaning, regular maintenance and proper storage of hand and power tools and equipment
 - Concern for the economical use of materials, equipment and products
 - Proper storage of products and equipment
 - Disposal or recycling of materials and products in compliance with environmental protection measures
12. Record and transmit information concerning the work.
- Complete and accurate record of the work
 - Appropriate use of technical vocabulary
 - Communication of relevant information to the people concerned

For the competency as a whole:

- Compliance with occupational health and safety rules and use of ergonomic postures
- Compliance with information contained in plans, specifications and manufacturers' documentation
- Verification to ensure that tools and equipment are in good condition and good working order
- Quality of the finished product, especially surface uniformity
- Appropriate use of trade-specific terminology

Competency 14 Duration 15 hours Credit 1

Situational Competency

Statement of the Competency

Become familiar with the organizations involved in the construction industry.

Elements of the Competency

- Learn about the construction industry.
- Learn about the role and importance of the organizations involved in the industry.
- Form a realistic impression of labour relations in the industry.

Learning Context

Information Phase

- Learning about the construction industry.
- Learning about the roles and responsibilities of the organizations involved in the construction industry (e.g. management and union associations, CCQ, CSST).
- Learning about labour relations in the construction industry.

Participation Phase

- Participating in activities aimed at understanding:
 - the development and future of the construction industry
 - the interdependence of different trades and occupations
 - the effects of regulation on the labour system in the industry
- Exploring the possibility of continuing training for workers in the industry.

Synthesis Phase

- Presenting a report that contains a summary of the learning they acquired, as well as an assessment of its impact on their career path.

Instructional Guideline

- Make available the necessary sources of information.
- Use learning situations representative of the situation in the construction industry.
- Encourage students to share their opinions and express themselves.
- Guide students by providing the necessary tools (e.g. a questionnaire).

Participation Criteria

Information Phase

- Consult the sources of information made available to them.

Participation Phase

- Participate seriously and consistently in the suggested activities.

Synthesis Phase

- Present a report containing a summary of the learning they have acquired, as well as an assessment of its impact on their career path.

Competency 15 Duration 15 hours Credit 1

Situational Competency

Statement of the Competency

Prepare to enter the work force.

Elements of the Competency

- Consult sources of information.
- Plan a job search.
- Prepare to undertake a job search.

Learning Context

Information Phase

- Learning about the legal requirements for practising the trade.
- Becoming familiar with the sources of information available during a job search.
- Learning about the elements that should be included in a résumé.
- Learning about the strengths to be emphasized and the pitfalls to be avoided in a recruitment interview.
- Learning about the labour market from potential employers and union authorities in the construction industry.
- Exploring the potential for entrepreneurship in the field of concrete preparation and finishing.

Participation Phase

- Examining different types of résumés and cover letters.
- Determining which workplaces correspond to their areas of interest.
- Indicating the steps in finding a job.
- Taking part in simulated interviews, in person and on the telephone.

Synthesis Phase

- Analyzing their strengths and weaknesses in a job search.
- Listing ways to overcome their deficiencies.
- Presenting a summary of their reflection.

Instructional Guideline

- Make all relevant documentation available to the students.
- Moderate group discussions.
- Organize meetings with labour market representatives in construction and non-construction sectors.
- Encourage students to express themselves.
- Encourage students to take the exercises seriously and to respect others.
- Encourage self-criticism.

Participation Criteria

Information Phase

- Consult the sources of information made available to them.
- Play an active role at meetings with labour market authorities and during group discussions.

Participation Phase

- Take part in the activities.
- Sketch out the steps needed to find a job, based on their own preferences and interests.

Synthesis Phase

- Present a summary of their reflection.

