

Area of Interest: Construction and Skilled Trades

## Building Construction Technician

Ontario College Diploma

Program Code: 6442X04FWO

42 Weeks

Ottawa Campus

### Our Program

**Build a solid foundation of knowledge and skills for a lifelong career in the building industry.**

The two-year Building Construction Technician Ontario College Diploma program provides you with the opportunity to learn the basics of the construction industry, including techniques, industry trends, and safety. This diploma program is offered in a condensed 42-week format, allowing you to quickly get the education you need, so you can get moving into your career.

Hands-on from day one, learn various skills that give you the foundation to get started in the construction industry, including:

- how to safely work on a construction site
- drafting
- structure design
- building of different structures in our modern lab setting
- industry-standard computer applications such as AutoCAD

All practical classes are taught in the Algonquin Centre for Construction Excellence (ACCE) facility. ACCE is fully outfitted with up-to-date equipment and tools, which gives you the opportunity to learn both traditional, as well as advanced technology used in today's construction industry.

Graduates of this program may find work as:

- an entry-level construction framer
- a door and window installer
- a junior estimator
- an assistant project manager

### SUCCESS FACTORS

This program is well-suited for students who:

- Are team-oriented and like to work with others.
- Enjoy working in a dynamically-driven environment.
- Want a comprehensive introduction to the construction industry through both a hands-on approach and applied theory.

### Employment

Graduates may find work as apprentice carpenters. Graduates may also apply for entry-level positions in the following occupations: construction framer, interior systems installer, exterior systems applicator, door and window installer, concrete form worker, deck and porch design/builder, junior estimator and assistant project manager.

## Learning Outcomes

The graduate has reliably demonstrated the ability to:

- Develop and use strategies for ongoing professional development to remain current with industry changes, enhance work performance and explore career opportunities.
- Comply with worksite health and safety practices and procedures in accordance with current legislation and regulations.
- Review building plans and complete work in compliance with contractual obligations, the Ontario and/or National Building Codes, applicable laws, bylaws, standards and ethical practices in the building construction field.
- Incorporate sustainability practices in the implementation of building construction projects in accordance with sustainable building construction guidelines.
- Communicate and collaborate with a range of tradespersons and diverse project stakeholders to complete projects on time and to maintain effective working relationships.
- Produce project sketches and documents in accordance with project specifications to support building construction projects.
- Solve problems related to the implementation of building construction projects by applying basic technical mathematics and the principles of building science.
- Select, maintain and safely use hand tools, and portable and stationary power tools, to efficiently complete building construction projects.
- Complete building stages, from site layout and footings to the application of interior and exterior finishes, according to specifications.
- Prepare material and labour estimates according to building construction project specifications.
- Identify and apply discipline-specific practices that contribute to the local and global community through social responsibility, economic commitment and environmental stewardship.

## Program of Study

| Level: 01 | Courses                               | Hours |
|-----------|---------------------------------------|-------|
| CON8114   | Building Structures I                 | 182.0 |
| CON8115   | Construction Safety                   | 28.0  |
| CON8125   | Applied Construction Geometry         | 70.0  |
| DAT2004   | Computer Applications                 | 42.0  |
| DRA8110   | Drafting                              | 42.0  |
| GED2012   | Achieving Success in the 21st Century | 42.0  |
| MAT8110   | Technician Mathematics I              | 42.0  |
| Level: 02 | Courses                               | Hours |
| CAD8010   | AutoCAD I                             | 42.0  |
| CON8120   | Building Structures II                | 140.0 |
| CON8126   | Residential Building/Estimating       | 56.0  |

|   |                                   |              |
|---|-----------------------------------|--------------|
| CON8134                                       | Building Science                  | 56.0         |
| ENL1813T                                      | Communications I                  | 42.0         |
| MAT8120                                       | Technician Mathematics II         | 42.0         |
| <b>Choose one from equivalencies: Courses</b> |                                   | <b>Hours</b> |
| GED6442                                       | General Education Elective        | 42.0         |
| <b>Level: 03 Courses</b>                      |                                   | <b>Hours</b> |
| CAD8020                                       | AutoCAD II                        | 42.0         |
| CON8111                                       | Construction Layout               | 56.0         |
| CON8131                                       | Building Structures III           | 84.0         |
| ENL2003                                       | Communications II for Technicians | 42.0         |
| WOO8805                                       | Interior Systems                  | 112.0        |
| <b>Choose one from equivalencies: Courses</b> |                                   | <b>Hours</b> |
| GED6442                                       | General Education Elective        | 42.0         |

## Fees for the 2023/2024 Academic Year

Tuition and related ancillary fees for this program can be viewed by using the Tuition and Fees Estimator tool at <https://www.algonquincollege.com/fee-estimator> .

Further information on fees can be found by visiting the Registrar's Office website at <https://www.algonquincollege.com/ro> .

Fees are subject to change.

Additional program related expenses include:

- Books and supplies can be purchased at the campus store.
- Students are responsible for parking and locker fees, if applicable.
- All students are responsible for supplying and using their own personal protective equipment (such as CSA-approved safety footwear, non-tinted protective eyewear, hearing protection, gloves, hard hat) as required in each lab environment.
- Students are also required to purchase a tool belt, hammer, knife, tape measure and a chalk line.

## Admission Requirements for the 2024/2025 Academic Year

### College Eligibility

- Ontario Secondary School Diploma (OSSD) or equivalent. Applicants with an OSSD showing senior English and/or Mathematics courses at the Basic Level, or with Workplace or Open courses, will be tested to determine their eligibility for admission; OR
- Academic and Career Entrance (ACE) certificate; OR
- General Educational Development (GED) certificate; OR
- Mature Student status (19 years of age or older and without a high school diploma at the start of the program). Eligibility may be determined by academic achievement testing for which a fee of \$50 (subject to change) will be charged.

**Program Eligibility**

- English, Grade 12 (ENG4C or equivalent).
- Mathematics, Grade 12 (MAP4C or equivalent).
- Mathematics, Grade 12 (MCT4C is recommended).
- Applicants with international transcripts must provide proof of the subject-specific requirements noted above and may be required to provide proof of language proficiency. Domestic applicants with international transcripts must be evaluated through the International Credential Assessment Service of Canada (ICAS) or World Education Services (WES).
- IELTS-International English Language Testing Service (Academic) Overall band of 6.0 with a minimum of 5.5 in each band; OR TOEFL-Internet-based (iBT) Overall 80, with a minimum of 20 in each component: Reading 20; Listening 20; Speaking 20; Writing 20; OR Duolingo English Test (DET) Overall 110, minimum of 110 in Literacy and no score below 95.

Not sure if you meet all of the requirements? Academic Upgrading may be able to help with that: <https://www.algonquincollege.com/access/> .

Should the number of qualified applicants exceed the number of available places, applicants will be selected on the basis of their proficiency in English and mathematics.

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**Application Information**

**BUILDING CONSTRUCTION TECHNICIAN**  
**Program Code 6442X04FWO**

Applications to full-time day programs must be submitted with official transcripts showing completion of the academic admission requirements through:

ontariocolleges.ca  
60 Corporate Court  
Guelph, Ontario N1G 5J3  
1-888-892-2228

Students currently enrolled in an Ontario secondary school should notify their Guidance Office prior to their online application at <http://www.ontariocolleges.ca/>,

Applications for Fall Term and Winter Term admission received by February 1 will be given equal consideration. Applications received after February 1 will be processed on a first-come, first-served basis as long as places are available.

International applicants please visit this link for application process information:  
<https://algonquincollege.force.com/myACint/>.

For further information on the admissions process, contact:

Registrar`s Office  
Algonquin College  
1385 Woodroffe Ave  
Ottawa, ON K2G 1V8  
Telephone: 613-727-0002  
Toll-free: 1-800-565-4723  
TTY: 613-727-7766  
Fax: 613-727-7632  
Contact: <https://www.algonquincollege.com/ro>

## **Additional Information**

Apply directly to this program through <http://www.ontariocolleges.ca/> or our International Application Portal.

Graduates who become registered as apprentice carpenters, may be eligible to apply for Advanced Standing for the in-school portion of their apprenticeship training. Graduates may also be eligible to apply for Advanced Standing in the Construction Engineering Technician, Civil Engineering Technology, Architecture Technician/Technology and Green Architecture programs.

## **Contact Information**

### **Program Coordinator(s)**

- Craig Barlow, <mailto:barlowc@algonquincollege.com>, 613-727-4723, ext. 6769

## **Course Descriptions**

### **CAD8010 AutoCAD I**

Students are introduced to computer-aided drafting using AutoCAD. Focus is placed on the drawing and editing commands required to produce two-dimensional architecture drawings.

Prerequisite(s): DAT2004 and DRA8110  
Corerequisite(s):none

### **CAD8020 AutoCAD II**

Students enhance acquired skills and learn how to produce professional two-dimensional architectural drawings.

Prerequisite(s): CAD8010  
Corerequisite(s):none

### **CON8111 Construction Layout**

Students gain the skills and knowledge needed to use tapes, levels and transits/theodolites to determine distances, angles, and elevations for survey applications, such as level loops, profiles, cross sections and traverses. Students work in groups to carry out survey exercises.

Prerequisite(s): none  
Corerequisite(s):none

### **CON8114 Building Structures I**

Students gain the skills and basic theoretical and practical knowledge for the safe use of hand tools and portable power tools. Through theory and practice, students develop skills to frame houses and small buildings. Students examine the Ontario Building Code and the structural requirements pertaining to materials selection, span tables and nailing patterns. Students are introduced to the methods and materials of floor, wall, and roof framing, and learn the practical application required for the safe use of ladders, scaffolding and personal protective equipment as practised on construction sites.

Prerequisite(s): none  
Corerequisite(s):none

### **CON8115 Construction Safety**

Students gain the knowledge required for the safe use of ladders, scaffold and rigging equipment as practised on construction sites. Students are introduced to the Construction Regulations of the Occupational Health and Safety Act, the requirements of the Workplace Hazardous Materials Information System (WHMIS), fall protection and excavation hazards.

Prerequisite(s): none  
Corerequisite(s):none

### **CON8120 Building Structures II**

Class discussion and hands-on learning provide students with the knowledge and skills to safely operate and maintain stationary power tools. Students gain knowledge and experience in building construction terminology and building code requirements, wood technology and fasteners. Projects and exercises focus on a scaled model of a wood-framed structure and exterior finishing techniques. The installations of a variety of exterior finishes are covered: door and window installation; flashing techniques; design and finishing of roof and wall systems.

Prerequisite(s): CON8114  
Corerequisite(s):none

### **CON8125 Applied Construction Geometry**

Students examine and utilize basic geometric principles through practical application to determine angles, compound angles and sloped surfaces from simple to complex roof layouts and false-work. Students solve a variety of layout problems involving metric and U.S. customary units. They study the properties of lines, curves, acute and obtuse angles.

Prerequisite(s): none  
Corerequisite(s):none

### **CON8126 Residential Building/Estimating**

The principles of residential building and estimating are essential tools for the modern workplace. Plan reading and construction methods for residential wood-frame construction are introduced. Examples of residential plans are used, along with the Ontario and/or National Building Code, to explain construction procedures. Students learn an organized approach to properly take off the quantities of materials required, price the items and assemble a cost estimate.

Prerequisite(s): DAT2004  
Corerequisite(s):none



**CON8131 Building Structures III**

Building upon acquired skills, students gain knowledge and experience in the installation of stair layout and construction, insulated concrete forms, residential steel wall framing, deck and porch design and construction, equal pitch hip roofs and dormers. Building construction terminology and building code requirements are covered. Projects are designed to emphasize: reading plans and span tables (proprietary and Building Code); problem solving and critical thinking.

Prerequisite(s): CON8120

Corerequisite(s):none

**CON8134 Building Science**

Professionals in the construction industry must possess an awareness of both the environmental and green energy effects on buildings and materials during design and construction. Students explore the basic concepts of moisture, air and heat flow and their relationship to the "House as a System". Students also analyze building materials as found in foundation, wall and roof assemblies, weather barriers, windows, exterior doors, air barriers, insulation and Vapour Diffusion Retarders. These results are evaluated using Canadian Construction Materials Centre (CCMC) standards for energy consumption, indoor air quality, building envelope failure and mold growth. Course delivery combines online material, classroom theory and hands-on in shop projects.

Prerequisite(s): none

Corerequisite(s):none

**DAT2004 Computer Applications**

Knowledge of common computer applications is crucial in any modern workplace. Students examine the essentials of the computer operating system and use current software packages to perform practical workplace tasks. Tasks incorporate file management, file sharing, email and electronic calendars, documents with graphical illustrations, spreadsheets and presentations. Assignments are linked to vocationally-specific problems and projects.

Prerequisite(s): none

Corerequisite(s):none

**DRA8110 Drafting**

Manual drawing skills are used to develop a set of basic working drawings including plans, elevations, sections and details for a wood-frame house. Emphasis is placed on communicating information through the use of hand drawn graphics.

Prerequisite(s): none

Corerequisite(s):none

**ENL1813T Communications I**

Communication remains an essential skill sought by employers, regardless of discipline or field of study. Using a practical, vocation-oriented approach, students focus on meeting the requirements of effective communication. Through a combination of lectures, exercises, and independent learning, students practise writing, speaking, reading, listening, locating and documenting information and using technology to communicate professionally. Students develop and strengthen communication skills that contribute to success in both educational and workplace environments.

Prerequisite(s): none

Corerequisite(s):none

**ENL2003 Communications II for Technicians**

Communicating effectively in the workplace is a key component of career advancement and essential skills development. The ability to read, understand, reframe and deliver technical information to varied audiences is critical in a competitive marketplace. Students are exposed to a variety of common communication challenges related to working in their field of study. To meet

these challenges, students are required to do basic research and data gathering, to summarize and reframe written, oral and visual information and to present their findings to a defined audience in an appropriate medium or media.

Prerequisite(s): ENL1813T  
Corerequisite(s):none

### **GED2012 Achieving Success in the 21st Century**

Rapid changes in technology have created new employment and business opportunities that challenge each of us to find our place as citizens in the emerging society. Life in the 21st century presents significant opportunities, creates potential hazards and demands that we face new responsibilities in ethical ways. Students explore the possibilities ahead, assess their own aptitudes and strengths, and apply critical thinking and decision-making tools to help resolve some of the important issues present in our complex society with its competing interests.

Prerequisite(s): none  
Corerequisite(s):none

### **GED6442 General Education Elective**

Students choose one course, from a group of general education electives, which meets one of the following five theme requirements: Arts in Society, Civic Life, Social and Cultural Understanding, Personal Understanding, and Science and Technology.

Prerequisite(s): none  
Corerequisite(s):none

### **GED6442 General Education Elective**

Students choose one course, from a group of general education electives, which meets one of the following five theme requirements: Arts in Society, Civic Life, Social and Cultural Understanding, Personal Understanding, and Science and Technology.

Prerequisite(s): none  
Corerequisite(s):none

### **MAT8110 Technician Mathematics I**

Carpenters regularly measure, cut and calculate distances, areas, volumes and angles. Students first develop the skills to efficiently add, subtract, multiply and divide, as well as calculating distances, areas, and volumes in both metric and U.S. customary units. Students use ratio and proportion for scale modelling and use percents and percentages for estimating and tax calculations. Students explore basic math operations along with exponents and algebra to aid them with their calculations.

Prerequisite(s): none  
Corerequisite(s):none

### **MAT8120 Technician Mathematics II**

Carpenters often need to determine angles, lengths, or resultant forces on a building. Students first develop the skills to appropriately use trigonometry along with the sine and cosine laws to solve for missing angles or sides of any triangle. Students use vector components to find resultant vectors, and solve linear systems and quadratic equations. Students learn about statistical variations and the ability for statistics to predict the outcomes of physical processes.

Prerequisite(s): MAT8110  
Corerequisite(s):none

### **WOO8805 Interior Systems**



Students gain the knowledge and skills to design and build residential interior systems. Structure and aesthetics are considered in the guided approach to floor, wall, and ceiling finishes and mouldings.

Prerequisite(s): CON8120

Corerequisite(s):none