

Area of Interest: Construction and Skilled Trades

Carpentry and Renovation Techniques

Ontario College Certificate

Program Code: 1519X01FPM

1 Year

Pembroke Campus

Our Program

Construct your future.

The one-year Carpentry and Renovation Techniques Ontario College Certificate program prepares you for a future in construction, whether you pursue apprenticeship training, employment as a framer or finisher or simply want to tackle a few projects around the house.

You acquire a well-rounded education, combining traditional carpentry skills with newer technologies. Algonquin College's Waterfront Campus in Pembroke is a great place to learn, as you have access to high-quality tools in a state-of-the-art shop.

Gain knowledge and skills in:

- hand and power tool usage
- carpentry/framing techniques
- blueprint reading
- welding
- hoisting and rigging
- plumbing
- applied construction geometry
- mathematics
- the Ontario Building Code
- general and specific safety training

Throughout this physically demanding program, explore the latest green technology and energy-efficient construction techniques. Apply your construction skills to building projects that will help local communities.

There is an anticipated shortage of skilled workers in the construction industry as a result of an aging workforce and local expansion. That means there are many opportunities for employment available to graduates. With this certificate, you may pursue a specialized education in construction, or seek exemption from the Basic Level of the General Carpenter Apprenticeship training.

Graduates may find work as a(n):

- apprentice carpenter
- construction framer
- interior systems installer
- exterior systems applicator

- renovator
- door and window installer
- concrete form worker
- deck and porch designer/builder
- junior construction site supervisor
- junior estimator

SUCCESS FACTORS

This program is well-suited for students who:

- Are interested in pursuing a career in the skilled trades.
- Are team-oriented, enjoy physical labour and working outdoors.
- Have effective communication skills and interpersonal abilities.
- Are safety conscious and respectful of standards and regulations.
- Possess problem-solving and critical-thinking skills.
- Enjoy working with mathematical problems.

Employment

Graduates may find employment as apprentice carpenters, construction framers, interior systems installers, exterior systems applicators, renovators, door and window installers, concrete form workers, deck and porch design/builders, junior construction site supervisors or junior estimators.

Learning Outcomes

The graduate has reliably demonstrated the ability to:

- Identify and use strategies to enhance work performance and continued learning to keep pace with industry changes.
- Identify and adhere to established health and safety practices that apply to specific job sites, in accordance with current legislation and regulations.
- Perform building construction and renovation tasks in compliance with contracts, the Ontario and/or National Building Codes, applicable laws and industry's ethical practices.
- Work in accordance with established sustainability practices.
- Communicate and collaborate with diverse clients, supervisors and tradespersons to complete projects on time and to maintain effective working relationships.
- Assist with maintaining accurate project documents and use computer technologies to support building construction and renovation projects.
- Solve on-site trade-related building and renovation problems by applying principles of basic technical mathematics and building science.
- Select, maintain and safely operate hand tools, and portable and stationary power tools, to efficiently complete building construction and renovation tasks.
- Assist with the completion of building and renovation stages, from site layout and footings to the application of interior and exterior finishes, according to specifications.
- Assist in the preparation of material estimations according to building construction and renovation project documents.

- 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
CON7014	Building Tools and Materials	112.0
CON7206	Construction Safety	42.0
DAT7323	Computer Applications for the Trades	28.0
DRA7334	Plans, Specifications and Codes I	28.0
ENL7777	Communications I	42.0
MAT7013	Applied Construction Geometry	28.0
MAT7014	Applied Mathematics for the Trades I	28.0
Level: 02	Courses	Hours
CON7015	Residential Framing and Exterior Finish	154.0
CON7016	Fundamentals of Building Science	28.0
CON7017	Collaborating with Supporting Trades	28.0
DRA7335	Plans, Specifications and Codes II	28.0
MAT7015	Applied Mathematics for the Trades II	28.0
PLU7011	Introduction to Plumbing	24.0
WEL7311	Metal Cutting and Welding	14.0
Choose one from equivalencies:	Courses	Hours
GED1519	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:

- Textbooks, supplies and safety equipment cost approximately \$900.
- Textbooks are available in both hardcover and e-text versions.
- For more information and associated fees, please visit:

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<https://www.algonquincollege.com/coursematerials> .

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 11 (MBF3C or equivalent).
- 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.

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

CARPENTRY AND RENOVATION TECHNIQUES

Program Code 1519X01FPM

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 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 in the Ottawa Valley
1 College Way
Pembroke, ON K8A 0C8
Local: 613-735-4700
Toll-free 1-800-565-4723
TTY: 1-866-620-3845
Fax: 613-735-8800
<https://algonquincollege.com/pembroke>

Additional Information

Graduates who become registered as apprentice carpenters may be eligible to apply for Advanced Standing for the classroom portion of their apprenticeship training. Graduates may also be eligible to apply for Advanced Standing in Algonquin College's Building Construction Technician or Heritage Carpentry and Joinery program.

Contact Information

Program Coordinator(s)

- Adam Johns, <mailto:johnsa@algonquincollege.com>, 613-735-4700, ext. 2687

Course Descriptions

CON7014 Building Tools and Materials

It is essential for professionals in the construction industry to possess the skills and knowledge for proper selection of materials and safe operation of tools. Students gain the skills and basic theoretical and practical knowledge for the safe use of hand tools, portable power tools and stationary power tools. Students learn to select and use appropriate materials, fasteners and connectors in the construction and renovation industry in a safe and effective manner. Students use mathematics, including geometric concepts, to complete typical construction activities.

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

CON7015 Residential Framing and Exterior Finish

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 provided with the knowledge and skills to install exterior components, such as doors, windows and exterior residential finishes.

Prerequisite(s): CON7014 and CON7206
Corerequisite(s):none

CON7016 Fundamentals of 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. These results are evaluated using Canadian Construction Materials Centre (CCMC) standards for energy consumption, indoor air quality, building envelope failure and mold growth.

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

CON7017 Collaborating with Supporting Trades

To complete a successful building project, effective interaction of supporting trades is essential. Communication with and perspective of other trades is necessary for success in the trades industry. Students discover relevant knowledge of the trades with which tradespeople must collaborate. Common trade interactions include carpentry, HVAC, plumbing, electrical, architecture and civil engineering.

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

CON7206 Construction Safety

A safe work environment is paramount in today's construction industry. Students gain the knowledge required for the safe use of ladders, scaffolds, and rigging equipment as practiced on construction sites. Students examine the Construction Regulations of the Occupational Health and Safety Act, the requirements of the Workplace Hazardous Materials Information System (WHMIS), excavation hazards, and receive certification in Working at Heights.

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

DAT7323 Computer Applications for the Trades

Today's trades are relying ever-increasingly on the use of technology on and off the worksite. Students develop basic computer skills necessary to be competitive and competent in the workforce and to succeed in postsecondary programs. Students become familiar with file management, productivity software, email, online research and reports.

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

DRA7334 Plans, Specifications and Codes I

Successful construction projects and renovations begin with and depend on an understanding of accurate project plans. Students use drafting tools, scale measurements, lines and symbols to draw blueprints in both conventional and computer assisted drafting. Students also draw blueprints

utilizing geometric principles in compliance with industry standards, as well as building and environmental codes.

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

DRA7335 Plans, Specifications and Codes II

The construction industry depends heavily on comprehension of blueprint interpretation and creation. Students examine residential building blueprints, from the foundation to the finished building, learning to read and interpret the blueprints and their relationship to zoning regulations and the Ontario Building Code. Students explore how to accurately estimate materials and labour from a set of drawings and architectural specifications.

Prerequisite(s): DRA7334
Corerequisite(s):none

ENL7777 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

GED1519 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

MAT7013 Applied Construction Geometry

Knowledge of basic geometry is frequently used in the construction industry. Students examine and utilize basic geometric principles through practical application in building layout and calculate angles and slopes in framing and roofing layout. Students also identify how geometry is used in the estimating process.

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

MAT7014 Applied Mathematics for the Trades I

Mastery of mathematical theories is essential for success in the construction industry. Students practise performing technical calculations effectively and efficiently and examine trades calculations based on basic math skills, fractions, percentage and the Pythagorean Theorem. Using numerical equations and word problems, students also perform perimeter, area and volume calculations based on a variety of geometric shapes.

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

MAT7015 Applied Mathematics for the Trades II

Accurate and efficient use and estimation of time and materials is essential within the construction

industry. Students utilize applied mathematics to calculate costs of labour and materials in the preparation of estimates for residential construction projects and apply industry standards relating to allowance for material and time allotments for labour.

Prerequisite(s): DAT7323 and MAT7014

Corerequisite(s):none

PLU7011 Introduction to Plumbing

Students examine the basic theory and practice of terminology, tools, equipment and safe work practices used in residential applications of the plumbing trade. Students also explore industry regulations and standards, as well as consider environmental aspects in relation to construction practices and plumbing.

Prerequisite(s): none

Corerequisite(s):none

WEL7311 Metal Cutting and Welding

Students examine the basics of welding procedures as practised in building construction. Students examine safety precautions, types and uses of flames, welding and brazing light material, oxyacetylene welding and cutting as well as arc and MIG welding of basic joints.

Prerequisite(s): none

Corerequisite(s):none