

## Course Parameters for Construction Technologies

### Facilities

CTS programs centred around Construction Technologies should include courses that link with a facility or building site that is readily available in the school or in the community. When selecting or planning a facility for Construction Technologies, ensure:

- adequate space for instruction
- ample storage space for materials and projects
- adequate services to run the equipment
- provision for dust collection and fume extraction
- access to water and service doors
- appropriate ambient features that promote learning
- fire protection.

Courses that require access to facilities in addition to those present in a typical classroom setting are identified in the Course Parameters. For more information, see the corresponding course in Sections D, E and F of the *Guide to Standards and Implementation*.

### Equipment

A recommended equipment list is provided in the Course Parameters chart. Though not exhaustive, the list identifies equipment recommended as necessary to meet the course outcomes and equipment that is considered optional. Specific makes and models of equipment are to be determined at the local level.

Equipment for courses in Construction Technologies can be obtained through a combination of purchasing, borrowing, renting, improvising and constructing. When choosing a suitable option for obtaining equipment, give consideration to:

- adequacy of budgets for purchase
- capabilities regarding in-school maintenance and storage
- the logistics and cost of renting
- potential for loan from industry, government or post-secondary agencies
- joint purchases with other organizations in the community
- opportunities for improvising or constructing.

Teachers may find it desirable to develop a list of additional materials and supplies required for specific learning activities planned within each course.

### Safety and Security Considerations

A number of safety issues relate to the maintenance and use of specialized power equipment, handling and storage of materials and behaviour of students while working in a shop environment. Extra care should be taken to ensure that facilities and equipment are well maintained and that students understand and practise safe work habits at all times. In addition, it is also important to have procedures in place to lock out gas and power service as well as to secure tools and material supplies.

### Instructional Qualifications

Due to the nature of the Construction Technologies strand, most courses require some form of specialized training provided primarily by recognized institutions responsible for occupational, technical or teacher preparation. Other forms of specialized training may also be provided through training seminars, workshops and other short courses. However, if a course is to be used to gain advanced standing in an apprenticeable trade, instruction must be provided by a teacher/instructor with journeyman qualifications.

Courses requiring additional instructor credentials are identified in the Course Parameters chart. See the corresponding course in Sections D, E and F of the *Guide to Standards and Implementation* for further information regarding each instructor credential, specifically related to Explosive Actuated Tool Certification.

## **Credentialing Opportunities**

Students may earn credentials recognized by business, industry and post-secondary institutions by demonstrating a specific set of competencies. Based on an articulation agreement established with the Apprenticeship and Industry Training Division, Alberta Advanced Education and Career Development, students who complete specified CTS courses may be eligible to obtain advanced standing in the apprenticeship program for Carpenter. Further details regarding each articulation agreement, including a correlation to CTS strands and courses, are provided in Appendix 5: Planning Ahead—CTS Transitions into Post-secondary Programs and the Workplace. Additional information can be obtained by contacting the Apprenticeship and Industry Training Division, Alberta Advanced Education and Career Development. A list of local Career Development Centres throughout Alberta is also provided in Appendix 5: Planning Ahead—CTS Transitions into Post-secondary Programs and the Workplace.

See Concrete Work (CON3010) in Section F of the *Guide to Standards and Implementation* for further information regarding instructor credential, specifically related to Explosive Actuated Tool Certification.

## Course Parameters

## CONSTRUCTION TECHNOLOGIES

### LEVEL

- 1 – Introductory
- 2 – Intermediate
- 3 – Advanced

### THEME

- A. Building Systems (Processes and Applications)
- B. Manufacturing Systems (Processes and Applications)

### EQUIPMENT

- ✓ Recommended in order to meet course outcomes
- Optional in providing access to supportive learning environments

LEVEL	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
THEME	A	A	B	B	B	B	B	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B
INSTRUCTIONAL QUALIFICATIONS	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
INSTRUCTIONAL FACILITIES	*	*	*	*	*	*	*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
CREDENTIALLING OPPORTUNITIES																											
EQUIPMENT	Basic Tools & Materials	Building Construction	Project Management	Solid Stock Construction	Turning Operations	Manufactured Materials	Mold Making & Casting	Site Preparation	Concrete Forming	Alternative Foundations	Framing Systems 1	Roof Structures 1	Exterior Finishing	Electrical Systems	Plumbing Systems	Climate Control Systems	Agri-structures	Multiple Materials	Furniture Making 1	Furniture Making 2	Finishing & Refinishing	Cabinetmaking 1	Cabinetmaking 2	Wood Forming	Manufacturing Systems	Product Development	
	1010	1070	1120	1130	1140	1160	1180	2010	2020	2030	2040	2050	2060	2070	2080	2090	2100	2120	2130	2140	2150	2160	2170	2180	2190	2200	
Basic set of hand tools (1)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Bench, equipment	○	○	✓	✓	✓	✓	✓											✓	✓	✓		✓	✓	✓		✓	
Bench, woodworking	✓	✓	✓	✓	✓	✓	✓											✓	✓	✓	✓	✓	✓	✓		✓	
Biscuit joiner				○		○												○	○	○		○	○			○	
Cabinet, paint storage	✓		○	✓	✓	✓	○											✓	✓	✓	✓	✓	✓	✓		○	
Cleaner, vacuum	○	○	○	○	○	○	○											○	○	○	○	○	○	○		○	
Compressor, air				○		○	○				○	○					○	○	○	○		○	○	○		○	
Computer/printer	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Drill (variable, reversible)	✓	○	○	○		○	○			○			✓	✓	✓	✓	○	○	✓	✓	○	✓	✓	○		○	
press (floor or bench)	○	○	○	○		○	○										○	○	○	○		○	○	○		○	
set (imperial and metric)	✓	○	○	○		○	○		○	○			✓	✓	✓	✓	○	○	✓	✓		✓	✓	○		○	
impact								○					○	○	○	○	○										

(1) A basic set of hand tools might include awl, sliding T bevel, sanding block, wood chisels, assorted clamps, compass, wood files, marking gauge, hammer, putty and utility knife, level, mallet, nail set, planes, pliers, plumb bob, ruler, coping, crosscut and rip saws, screwdrivers, squares and a tape measure.

\* Refer to specific 1-credit courses listed in Sections D, E and F of the corresponding *Guide to Standards and Implementation* for additional information.

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## CONSTRUCTION TECHNOLOGIES

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- 1 – Introductory
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### THEME

- A. Building Systems (Processes and Applications)
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### EQUIPMENT

- ✓ Recommended in order to meet course outcomes
- Optional in providing access to supportive learning environments

LEVEL	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
THEME	A	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	A
INSTRUCTIONAL QUALIFICATIONS	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
INSTRUCTIONAL FACILITIES	*	*	*	*	*	*	*		*	*		*	*	*	*	*	*	*	*	*
CREDENTIALLING OPPORTUNITIES	*																			
EQUIPMENT	Concrete Work	Masonry Work	Wall & Ceiling Finishing	Stair Construction	Roof Structures 2	Doors & Trim	Floorcovering	Energy-efficient Housing	Renovations/Restorations	Commercial Structures	Site Management	Tool Maintenance	Furniture Making 3	Furniture Making 4	Furniture Repair	Cabinetmaking 3	Cabinetmaking 4	Production Planning	Production Management	Framing Systems 2
	3010	3020	3030	3040	3050	3060	3070	3080	3090	3100	3110	3120	3130	3140	3150	3160	3170	3190	3200	3210
Basic set of hand tools (1)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓		✓
Bench, equipment																		○		
Bench, woodworking																		○		
Biscuit joiner													○		○			○		
Cabinet, paint storage																				
Cleaner, vacuum			○	○	○	○	○		○			○	✓	✓	✓	○	○	○		
Compressor, air			○	○	○	○							○	○	○	○	○	○		✓
Computer/printer	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Drill (variable, reversible)	○			○		✓			○			○	✓	✓	✓	✓	✓	○		
press (floor or bench)												○	✓	✓	✓			○		
set (imperial and metric)				○		✓			○			○	✓	✓	✓	✓	✓	○		
impact	○	○							○								○			

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LEVEL	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
THEME	A	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	A
INSTRUCTIONAL QUALIFICATIONS	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
INSTRUCTIONAL FACILITIES	*	*	*	*	*	*	*		*	*		*	*	*	*	*	*	*	*	*	*
CREDENTIALLING OPPORTUNITIES	*																				
EQUIPMENT	Concrete Work	Masonry Work	Wall & Ceiling Finishing	Stair Construction	Roof Structures 2	Doors & Trim	Floorcovering	Energy-efficient Housing	Renovations/Restorations	Commercial Structures	Site Management	Tool Maintenance	Furniture Making 3	Furniture Making 4	Furniture Repair	Cabinetmaking 3	Cabinetmaking 4	Production Planning	Production Management	Framing Systems 2	
	3010	3020	3030	3040	3050	3060	3070	3080	3090	3100	3110	3120	3130	3140	3150	3160	3170	3190	3200	3210	
Fastener, explosive actuated	○	○							○												○
Former, vacuum	○																		○		
Grinder, tool						○			○			✓	✓	✓	✓	○			○		
Gun, screw			✓						○												
Heater, strip																			○		
Jointer						○							✓	✓	✓	✓	○		○		
Kiln																			○		
Lathe, wood				○					○				○	○	○				○		
Level, builders	✓	✓							○												
Level, laser	○	○	○						○								○				
Mixer, concrete	○	○							○												
Molder, rotational																			○		

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THEME	A	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	A
INSTRUCTIONAL QUALIFICATIONS	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
INSTRUCTIONAL FACILITIES	*	*	*	*	*	*	*		*	*		*	*	*	*	*	*	*	*	*	*
CREDENTIALLING OPPORTUNITIES	*																				
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	3010	3020	3030	3040	3050	3060	3070	3080	3090	3100	3110	3120	3130	3140	3150	3160	3170	3190	3200	3210	
Nailer, pneumatic				○	○	○	○		○				○	○	○		○	○			○
Planer, thickness				○		○			○				✓	✓	✓	○	○	○			
Press, injection																		○			
Router (portable)				○		○			○				✓	✓	✓	○	○	○			
Sander, belt (portable)				○		○			○				✓	✓	✓	○	○	○			
combination belt and disc													✓	✓	✓	✓		○			
finishing (portable)				○		○			○				✓	✓	✓	○	○	○			
Saw, band													✓	✓	✓	○		○			
circular (portable)	✓	○		○	✓				○												✓
circular (table)	○			○		○			○				✓	✓	✓	○	○	○			
power miter	○		○	○		✓			○				✓	✓	✓	○	✓	✓			
radial arm				○	○				○				○	○	○	○		○			○

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THEME	A	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	A
INSTRUCTIONAL QUALIFICATIONS	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
INSTRUCTIONAL FACILITIES	*	*	*	*	*	*	*		*	*		*	*	*	*	*	*	*	*	*
CREDENTIALLING OPPORTUNITIES	*																			
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Saw, sabre (portable)				○					○				✓	✓	✓	✓	✓	○		✓
scroll													○	○	○	○		○		
Shaper						○			○				○	○	○	○		○		
Table, glue													○	○	○	○		○		
Trimmer, plastic laminate									○						○	✓	✓	○		
Vises, woodworking													✓	✓	✓			○		

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