



# Board/Authority Authorised Course Construction Trades Sampler - Carpentry

School District/Independent School Authority Name	Kamloops/Thompson
School District/Independent School Authority Number	#73
Developed by	Wendy Blaskovic
Date Developed	December 2013
School Name	NorKam Secondary
Principal's Name (District)	Sheryl Lindquist
Superintendent Approval Date (for School Districts only)	
Superintendent Signature (for School Districts only)	
Board/Authority Approval Date	
Board/Authority Chair Signature	
Course Name	Construction Sampler - Carpentry
Grade Level of Course	11 and 12
Number of Course Credits	4
Number of Hours of Instruction	120
Prerequisite(s)	Completion of Grade 10

## Synopsis

This course has been developed to provide students with an opportunity to explore four common trades within the Construction Sector, in the following order – Carpentry, Plumbing, Electrical (construction), and Industrial Instrumentation Mechanic (IIM). The second trade taught within the Construction Sampler, Plumbing, will expose students to the Foundation Program offered at Thompson Rivers University (TRU) which follows sections of the ITA Level 1 curriculum. The ITA Level 1 curriculum has been utilized as a guide and framework for the content covered in the Sampler.



In Plumbing (as with the three accompanying trades taught within the Construction Sampler), students will cover: Safe Work Practices (Personal and Shop), Mathematical Applications, Tools and Equipment, Materials, Cutting Processes, and Forming and Joining Processes. The approach supports safe workplace practices, student skill development and encourages meaningful methods of ideation, design, planning, production and evaluation of various construction sampler techniques and projects.

To provide students with tangible skills and assist their understanding of the trade, all trades covered within the Construction Sampler will build skill sets towards a common project. For example, a bathroom or kitchen unit framed to scale by the carpentry trade with plumbing and electrical components installed over the course of the semester. Students will gain an understanding and appreciation for trades that are in their everyday lives.

## Rationale

This course will:

1. Provide students with an overview of the Carpentry Foundation Program.
2. Provide students with an introduction to safe work practices employed in a construction facility.
3. Provide students with an overview of the practices, skill sets needed for the plumbing trade.
4. Provide students with theory and practical applications within a major project which is inclusive with the accompanying trades in the Construction Sampler.
5. Provide direct exposure to foundation training content, post-secondary and job ready expectations; therefore, providing students with the ability to make informed choices regarding which direction they choose to embark on during Senior Secondary School and/or after.
6. Provide students with 20% theory and 80% practical content. The 20-80 approach supports the purpose of the sampler –a hands-on experiential program to excite students, yet be realistic in the expectations of the trade and program.

Unit/Topic	Title	Time
Unit 1	SAFE WORK PRACTICES 1.1 Shop and Safety Practices 1.2 Personal Safety Practices	15 hours
Unit 2	TOOLS AND EQUIPMENT 2.1 Use of Hand Tools 2.2 Use of Portable Power Tools 2.3 Use of Shop Equipment	15 hours
Unit 3	SURVEY INSTRUMENTS 3.1 Use of Levelling Instruments	15 hours
Unit 4	RESIDENTIAL HOUSE FRAMING 4.1 Selection of Wood Frame Systems and Materials 4.2 Build Floors and Support Systems 4.3 Build Walls and partitions 4.4 Build Gable Roofs with Ceiling Joists	75 hours
	Total Hours	120 hours



## Grading

Although 50% is a passing grade for high school credit, recommendation for TRU's ACE IT Program will require a minimum grade of 70% per course. Students in the Construction Sampler will be encouraged and supported to meet TRU's 70% standard, but not halted by it.

## Unit 1 – Safe Work Practices - 1.1 Shop and Site Safety Practices

**Objective:** To be competent in this area, students will be able to:

- Describe safe work practices used in a woodworking shop and on a construction site.
- Apply the safe work practices used in a woodworking shop and on a construction site.

## Prescribed Learning Outcomes

It is expected that students will:

1. Use applicable sections of the OHS Regulation and WCB Standards.
  - place of employment
  - harmful substances
  - health hazards and work environment controls
  - personal protective equipment
  - power-actuated tools
  - electrical systems
  - temporary lighting
  - ladders
  - scaffolds, swing stages, and miscellaneous stages
  - construction procedures
  - excavation
  - demolition
  - rigging
  - woodworking machinery and processing
2. Describe general safety rules.
  - Safety gear
  - Inspect condition of tools
  - Use proper tools
  - Guards and barriers
  - Operating hazardous equipment
  - Using hazardous materials and harmful substances
  - Flammable, explosion, and electrical hazards
  - Grounding of tools and equipment
  - Lockout procedures
  - Housekeeping
  - Using compressed air
  - Sound and light signals
  - Entering confined spaces



3. Apply safety practices.
  - Ability to use OHS Regulation and WCB Standards
  - In-shop observations

## **Unit 1 – Safe Work Practices - 1.2 Personal Safety Practices**

**Objectives:** To be competent in this area, students will be able to:

- Apply the concepts of personal safety awareness and practices
- Control the stresses on the body caused by physical work
- List the hazards associated with working in confined spaces
- Select and use fall protection as outlined by the OHS Regulation and WCB Standards
- Select and use personal protective equipment

### **Prescribed Learning Outcomes**

It is expected that students will:

1. Describe safety rules for conduct, legal responsibilities affecting you, and assessment and penalty cost affecting employers.
  - Personal safety rules
  - Responsibilities affecting you and others
  - WCB assessment and penalty costs affecting employers
2. Select safety gear and work clothing a carpenter requires.
  - Personal apparel
  - Hand protection
  - Leg and foot protection
  - Headgear
  - Eye protection
  - Ear protection
  - Lung protection
  - Inspect
  - Adjustment
  - Maintain
  - Storage
  - Hypothermia
  - Hyperthermia
  - Dehydration
  - Sunstroke
  - Slippery surfaces
3. Use safety gear, clothing, and precautions for various weather conditions.
  - High winds
4. Lift and move objects safely.
  - Rules for lifting and moving objects
  - Procedures for lifting objects
  - Plywood



- Planks and beams
  - Steel pipe
  - Ladders
  - Wheelbarrows
  - Shovelling
  - Barrels and drums
  - Small pails
  - Boxes
5. Use fall protection systems.
- Guardrails
  - Fall restraint systems
  - Fall arrest
  - Rope grabs and shock-limiting devices
  - Using safety harness, lanyard, and lifeline
  - Safety equipment inspection

### **Achievement Criteria**

Performance: The student will:

- Apply proper personal safety practices during all shop activities

Conditions: The student will be given:

- Access to all personal safety equipment
- Clear expectations
- Access to OHS Regulation and WCB standards

## **Unit 2 – Tools and Equipment – 2.1 Use of Hand Tools**

**Objectives:** To be competent in this area, students will be able to:

- Describe the use of hand tools
- Use and maintain measuring and layout tools
- Use and maintain cutting, boring, and alignment tools
- Use and maintain fastening tools

### **Prescribed Learning Outcomes**

It is expected that students will:

1. Use measuring tools
  - Purpose
  - Types
  - Parts
  - Imperial and metric systems
  - Operation
  - Safety
  - Adjustment



- Maintenance
- Storage
- 2. Use layout tools
  - Purpose
  - Types
  - Parts
  - Imperial and Metric systems
  - Operation
  - Safety
  - Adjustment
  - Maintenance
  - Storage
- 3. Use squares
  - Purpose
  - Types
  - Parts
  - Imperial and Metric systems
  - Operation
  - Safety
  - Adjustment
  - Maintenance
  - Storage
- 4. Use levelling and plumbing tools
  - Purpose
  - Types
  - Parts
  - Operation
  - Safety
  - Adjustment
  - Maintenance
  - Storage
- 5. Use handsaws
  - Purpose
  - Types
  - Parts
  - Operation
  - Safety
  - Adjustment
  - Maintenance
  - Storage



6. Use planes

- Purpose
- Types
- Parts
- Operation
- Safety
- Adjustment
- Sharpening
- Maintenance
- Storage

7. Use chisels

- Purpose
- Types
- Blade type
- Handle type
- Operation
- Safety
- Sharpening
- Maintenance
- Storage

8. Use axes, hatchets, and knives

- Purpose
- Types
- Parts
- Operation
- Safety
- Maintenance

9. Use drills and bits

- Purpose
- Types
- Parts
- Operation
- Safety
- Maintenance

10. Use bars

- Purpose
- Types
- Parts
- Operation
- Safety
- Maintenance



11. Use hammers

- Purpose
- Types
- Parts
- Operation
- Safety
- Maintenance

12. Use screwdrivers

- Purpose
- Types
- Parts
- Operation
- Safety
- Maintenance

13. Use pliers and cutters

- Purpose
- Types
- Parts
- Operation
- Safety
- Maintenance

14. Use wrenches

- Purpose
- Types
- Parts
- Operation
- Safety
- Maintenance

**Achievement Criteria**

Performance: The student will:

- Use math concepts to layout and build a hand tool project (for example, a sawhorse).

Conditions: The student will be given:

- Partial specifications
- Work space and materials
- Hand tools

Criteria: The student will score 70% or better on a rating sheet that reflects the following criteria:

- Accurate calculations
- Accurate layout and cuts
- Proper use of hand tools





## Unit 2 – Tools and Equipment – 2.2 Use of Portable Power Tools

**Objective:** To be competent in this area, the student must be able to:

- Describe the use of portable power tools
- Use, adjust, and maintain portable power tools.
- Describe the use of power-actuated tools
- Use and maintain powder-actuated tools
- Use and maintain powder-actuated tools
- Describe the use, adjustment, and maintenance of chain saws.

### Prescribed Learning Outcomes

It is expected that students will:

1. Describe the safe use of electric power tools
  - Power supply
  - Grounding
  - Condition of equipment
  - Guards in place
  - Operating rules
  - Wear eye protection
  - Feed work or tool smoothly
  - Turn off tools when finished
  - Storage of tools
  - Avoiding common injuries
2. Use portable circular saws
  - Purpose
  - Types and size
  - Parts
  - Blade types
  - Operations
  - Accessories
  - Safety
  - Adjustments
  - Maintenance
3. Use portable mitre saws
  - Mitre saws
  - Compound mitre saws
  - Purpose
  - Types, sizes, and capacities
  - Parts
  - Blade types operations accessories
  - Safety



- Adjustments
- Maintenance
- 4. Use portable electric drills and screw guns
  - Purpose
  - Types, sizes, and speeds
  - Parts
  - Bit types
  - Fastener types
  - Operations
  - Accessories
  - Safety
  - Adjustments
  - Maintenance
- 5. Use portable pneumatic tools
  - Supply system
  - Purpose
  - Types, sizes, and speeds
  - Parts
  - Fastener types
  - Operations
  - Accessories
  - Safety
  - Adjustments
  - Maintenance
- 6. Use bench grinders
  - Purpose
  - Wheel types, sizes, and speed
  - Parts
  - Fastener types
  - Operations
  - Accessories
  - Safety
  - Adjustments
  - Maintenance
- 7. Use sabre saws and reciprocating saws
  - Purpose
  - Types, sizes, and speeds
  - Parts
  - Blade types
  - Operations
  - Accessories
  - Safety



- Adjustments
- Maintenance
- 8. Use battery-powered tools
  - Purpose
  - Types, sizes, and speeds
  - Parts
  - Fastener types
  - Operations
  - Accessories
  - Safety
  - Adjustments
  - Maintenance
  - Battery disposal
- 9. Use powder-actuated tools
  - Purpose
  - Types
  - Parts
  - Fastener types and selection
  - Cartridge types and selection
  - Operations
  - Accessories
  - Safety
  - OHS Regulation and WCB Standards
  - Hazard recognition
  - Adjustments
  - Maintenance and storage
- 10. Describe the safe operation of chain saws
  - Purpose
  - Types and sizes
  - Parts
  - Chains
  - Operations
  - Accessories
  - Safety
  - OHS Regulation and WCB Standards
  - Protective clothing and equipment
  - Adjustments
  - Maintenance

### **Achievement Criteria**

Performance: The student will:

- Use math concepts to layout and build a hand tool project (Competency C1).



Conditions: The student will be given:

- Specifications
- Work space and materials
- Power tools

Criteria: The student will score 70% or better on a rating sheet that reflects the following criteria:

- Accurate calculations
- Accurate layout and cuts
- Proper use of hand tools

## **Unit 2 – Tools and Equipment – 2.3 Use of Shop Equipment**

**Objective:** To be competent in this area, the student must be able to:

- Describe the use of a table saw
- Use, adjust, and maintain a table saw
- Describe the use of a radial arm saw
- Use, adjust, and maintain a radial arm saw

### **Prescribed Learning Outcomes**

It is expected that students will:

1. Use a table saw
  - Purpose
  - Types and sizes
  - Parts
  - Blade types and purpose
  - Accessories
  - Operations
  - Types of cuts
  - Safety
  - Adjustments
  - Maintenance
2. Use a radial arm saw
  - Purpose
  - Types and sizes
  - Parts
  - Blade types and purpose
  - Accessories
  - Operations
  - Types of cuts
  - Safety
  - Adjustments
  - Maintenance



## Unit 3 – Survey Equipment – 3.1 Use of Levelling Instruments

**Objective:** To be competent in this area, the student must be able to:

- Use optical levels for residential applications.
- Maintain optical levels.

### Prescribed Learning Outcomes

It is expected that students will:

1. Types of levels
  - Describe types of optical levels
  - Dumpy levels
  - Engineer's levels
  - Automatic levels
  - Transit levels
2. Describe parts of a level
  - Eye piece
  - Crosshairs
  - Telescope
  - Focusing screw
  - Levelling bubbles
  - Levelling screws
  - Levelling plate
  - Tripod
3. Use levelling rods and measuring chains and tapes
  - Parts
  - Scales
  - Rod types
  - Stadia lines
  - Chain and tape types
  - Hand signals
4. Care for survey equipment
  - Storage
  - Transporting
  - Protection from elements
  - Set-up securely
  - Cleaning and checking condition of parts
5. Identify common errors that contribute to incorrect measurements
  - Instrument not level
  - Accidentally moved between readings
  - Set up on unstable surface
  - Incorrect readings
  - Wrong rod used
  - Inverted readings



6. Use levelling instruments
  - Instrument set up
  - Testing level
7. Record elevations using levelling instruments
  - Benchmark (BM)
  - Station (Stn)
  - Backsight (BS)
  - Turning point (TP)
  - Height of instrument (HI)
  - Foresight (FS)
  - Intermediate sight (IS)
  - Elevations (ELEV)
  - Field Books
8. Use electronic and laser levels
  - Parts
  - Setting up procedures
  - Target use
  - Setting elevations
  - Measuring elevations.

#### **Achievement Criteria**

Performance: The student will:

- Complete a survey circuit identifying elevations at various locations.

Conditions: The student will be given:

- Builders level and rod
- Survey points
- Field book

Criteria: The student will score 70% or better on a rating sheet that reflects the following criteria:

- Accuracy of rod readings
- Proper process for field book recordings
- Proper set-up of instrument

## **Unit 4 – Frame Residential Housing – 4.1 Selecting Wood Frame Systems and Materials**

**Objective:** To be competent in this area, the student must be able to:

- Describe framing systems
- Select standard sizes, species, and grades of wood for framing
- Handle and store framing materials
- Calculate quantities of materials for framing



## Prescribed Learning Outcomes

It is expected that the student will:

1. Describe training systems
  - Platform or Western frame construction
  - Balloon frame construction
  - Post beam and plank construction
  - Heavy timber construction
  - Preserved wood foundations
  - Energy efficient framing
2. Describe roof styles
  - Flat
  - Shed
  - Gable
  - Hip
  - Intersecting
  - Mansard
  - Gambrel
  - Butterfly
3. Describe framing members
  - Floors and ceilings
  - Walls and partitions
  - Roofs
  - Bracing and blocking
  - Sheathing
4. Describe the terms used in platform frame construction
  - Structural terms
  - Architectural terms
5. Describe general characteristics and advantages of wood for framing
  - Renewable resource
  - Strong
  - Light in weight
  - Cuts easily
  - Resists corrosive materials
  - Reusable
6. Describe lumber production.
  - Sawing
  - Drying
  - Planing
7. Describe the characteristics of softwood species
  - Douglas Fir
  - Fir
  - Larch



- Hemlock
  - Spruce
  - Pine
  - Cedar
8. Select wood with common defects for framing
- Warp
  - Compression wood
  - Mechanical defects
  - Split, check, shake
  - Knots
  - Wane
  - Pitch, streaks, stained wood
  - Decay
  - Insect damage
  - Manufacturing imperfections
9. Select standard sizes and grades of framing lumber
- Grading
  - Board lumber
  - Light framing
  - Joists and planks
  - Beams and stringers
  - Posts and timbers
  - Decking
  - Siding
  - Softwood lumber grades
  - Density
  - Moisture content
  - Surfaced green
  - Surfaced dry
10. Select panel products
- Veneers
  - Cross-banding
  - Cores
  - Glues
  - Softwood plywood grades
  - Plywood veneers and cores
  - Faces, backs, and cores
  - Standard sizes and thicknesses
11. Calculate quantities and costs of framing lumber
- Board measure
  - Linear measure





- Costs
- Waste factor
- 12. Store framing materials properly
  - Handling lumber
  - Stacking lumber
  - Protecting material
  - Sheathing material
- 13. Select fasteners used in frame construction
  - Pneumatic fasteners
  - Panel adhesive
  - Common nails
  - Galvanized nails
  - Stainless steel nails
  - Ardox nails
  - Hanger nails
  - Box nails
  - Treated wood fasteners
  - Screws
  - Lag bolts
  - Carriage bolts
- 14. Select framing hardware and indicate its use
  - Framing connectors
  - Treated wood connectors
  - Seismic connectors
  - Cross bridging

## **Unit 4 – Frame Residential Housing – 4.2 Build Floors and Support Systems**

**Objective:** To be competent in this area, the student must be able to:

- Describe the construction of floors and support systems
- Build floors and support systems

### **Prescribed Learning Outcomes**

It is expected that the student will:

1. Install sill plates
  - Sill plate anchorage
  - Damp-proofing material
  - Straightening sill plates
  - Installing before concrete
2. Build columns, beams, and pony walls
  - Types and sizes of columns
  - Column footings and anchorage types
  - Calculating post and beam sizes



- Installing posts and beams
- Pony wall construction
- Pony wall stud sizes and spacing
- 3. Install floor joists
  - Layout of joists
  - Types of joists
  - Calculating joist sizes
  - Nailing requirements
  - Joists supported by steel beams
  - Installation of joists
- 4. Install bridging
  - Types of bridging
  - Layout of angles and length for cross-bridging
- 5. Install floor sheathing
  - Types of sheathing
  - Layout of angles and length for cross-bridging
  - Installation of bridging
- 6. Calculate quantities of floor framing materials
  - Pony walls
  - Posts
  - Beams
  - Joists
  - Blocking and bridging
  - Connectors
  - Sheathing thickness requirements
  - Fasteners and adhesives
  - Waste allowance

#### **Achievement Criteria**

Performance: The student will:

- Layout and build a floor system.

Conditions: The student will be given:

- Plans that include openings and provisions for mechanical services
- Space
- Materials

Criteria: The student will score 70% or better on a rating sheet that reflects the following criteria:

- Joist layout reflects needs of services.
- Proper sequencing of joists around openings.
- Meets code requirements.



- Meets sheathing requirements
- Dimensionally accurate.

## **Unit 4 – Frame Residential Housing & Concrete Formwork – 4.3 Build Walls and Partitions**

**Objective:** To be competent in this area, the student must be able to:

- Describe the construction of wood frame walls
- Build wood frame walls.

### **Prescribed Learning Outcomes**

It is expected that the student will:

1. Build exterior walls
  - Wall stud sizes and spacing
  - Nailing requirements
  - Intersection and corner construction
  - Door and window openings
  - Lintel sizes
  - Plate layout
  - Assembly procedures
  - Squaring and truing walls
  - Types of sheathing
  - Erecting walls
  - Truing and bracing walls
2. Build interior walls
  - Sizes and spacing of studs
  - Nailing requirements
  - Air/vapour barrier continuity
  - Wall openings
  - Lintel sizes
  - Staggered stud construction
  - Fire stops and other backing
3. Calculate quantities of wall-framing materials
  - Number of plates
  - Total length of plates
  - Quick stud calculation
  - Detailed stud calculation
  - Sheathing surface area
  - Sheet size
  - Waste allowance
  - Fastener calculations



### **Achievement Criteria**

Performance: The student will:

- Build walls and partitions.

Conditions: The student will be given:

- A plan which incorporates door and window openings as well as framing for services
- Space
- Materials

Criteria: The student will score 70% or better on a rating sheet that reflects the following criteria:

- Stud layout
- Framing reflects needs of services
- Proper framing around openings
- Meets code requirements
- Meets sheathing requirements
- Dimensionally accurate, square, plumb and level

## **Unit 4 – Frame Residential Housing – 4.4 Build Gable Roofs with Ceiling Joists**

\*Note: concept drawings for the final project follow the “Achievement Criteria’ for this Unit.

**Objective:** To be competent in this area, the student must be able to:

- Describe the construction of ceilings and gable roofs.
- Frame ceilings and gable roofs
- Erect truss roofs

### **Prescribed Learning Outcomes**

It is expected that the student will:

1. Frame ceilings
  - Types of joists
  - Sizes and spacing of ceiling joists
  - Nailing requirements
  - Openings
  - Installation of joists
2. Describe gable roof components
  - Roof terms
  - Common rafter
  - Roof joists
  - Collar ties
  - Purlins
  - Pony or knee walls
  - Gable studs
  - Outriggers



- Lookouts
- Ledgers
- Fascias and barge boards
- 3. Lay out roof members
  - Types of rafters
  - Sizes and spacing of rafters
  - Nailing requirements
  - Openings
  - Ventilation requirements
  - Installation of rafters
  - Calculation and layout of collar ties
  - Calculation and layout of gable studs
  - Calculation and layout of outriggers
- 4. Build a gable roof
  - Common rafters
  - Ridge board
  - Collar ties
  - Bracing
  - Gable end studs
  - Fascias and barge boards
- 5. Describe roof sheathing requirements
  - Types of sheathing
  - Nailing requirements
  - Eave protection
- 6. Erect roof trusses
  - Layout of trusses
  - Safety requirements
  - Handling and placing trusses
  - Fastening trusses
  - Bracing requirements
- 7. Calculate quantities of ceiling and roof framing materials
  - Number of joists
  - Number of rafters
  - Ridges
  - Fascias and barge boards
  - Sheathing surface area
  - Waste allowance
  - Fastener calculations

#### **Achievement Criteria**

Performance: The student will:

- Build a gable roof with ceiling joists



Conditions: The student will be given:

- A plan
- Space
- Materials

Criteria: The student will score 70% or better on a rating sheet that reflects the following criteria:

- Proper calculation, layout, and spacing of rafters and joists
- Proper calculation, layout and spacing of gable end studs
- Proper calculation, layout and spacing of outriggers
- Dimensionally accurate, straight and square
- Accuracy of cuts

### **Instructional Component**

- Direct instruction
- Indirect instruction
- Interactive (peer) instruction
- Independent instruction
- Modeling
- Practical creativity
- Brainstorming
- Group work
- Analysis of own and classmates' project work
- Project-based learning

### **Assessment Component**

- Twenty per cent (20%) of the grade will be based on safety tests, unit quizzes, skill-set evaluation through Units 1-3
- Eighty per cent (80%) of the grade will be based on demonstration of proper employability skills (proper industrial work habits ranging from the safe use of equipment to good "housekeeping" techniques, project management), demonstration of skills related to practical activities.

### **Learning Resources**

- Teacher handouts
- Guest speakers from the community in related fields
- Visit/interview local trades people in related fields
- ITA Website: <http://www.itabc.ca/>
- ITA Essential Skills: <http://www.ita.essentialskillsgroup.com/>



## Instructor Resources

- ILM Modules:  
[http://www.crownpub.bc.ca/Product/Details/7960003229\\_S#/?statesave=true](http://www.crownpub.bc.ca/Product/Details/7960003229_S#/?statesave=true)  
[http://www.crownpub.bc.ca/product/listing/13589\\_1st-Period#/?statesave=true](http://www.crownpub.bc.ca/product/listing/13589_1st-Period#/?statesave=true)
- ITA Level 1 Program Outline  
[http://www.itabc.ca/sites/default/files/program-information/carpenter-outline-august-2013\\_0.pdf](http://www.itabc.ca/sites/default/files/program-information/carpenter-outline-august-2013_0.pdf)

## Additional Information

FACILITY REQUIREMENTS (Based on ITA Carpentry Program Guidelines)

### Classroom Area

- Comfortable seating and tables suitable for learning
- Compliance with the Local and National Fire Code and occupational safety requirements
- Overhead and multimedia projectors with a projection screen
- Whiteboard with marking pens and erasers
- Lighting controls to allow easy visibility of the projection screen while allowing students to take notes
- Windows must have shades or blinds to adjust sunlight
- Heating/air conditioning for comfort all year round
- In-room temperature control to ensure comfortable room temperature
- Acoustics in the room must allow audibility of the instructor
- Computer lab complete with 16 computers and internet access
- Library complete with reference material for student and instructor use

### Shop Area

- 2,400 square feet of workshop space per class of 16 students with a minimum ceiling height of 15' 6"
  - This includes space for a tool crib
- Adequate lighting and lighting control
- Ventilation as per WorkSafeBC standards
- Refuse and recycling bins for used shop materials
- First-aid facilities

### Student Facilities

- Adequate lunch room as per WorkSafeBC requirements
- Adequate washroom facilities as per WorkSafeBC requirements
- Personal Storage lockers

### Instructor's Office Space

- Desk and filing space
- Computer



## Tools and Equipment

(Based on ITA Carpentry Program Guidelines)

### Standard Safety Equipment (per student)

- Breathing apparatus
- Safety glasses
- Dust mask
- First aid kit (class kit)
- Hearing protection
- Safety boots
- Gloves
- Reflective vest

### Stationary Equipment (Shop)

- Dust collection equipment
- Grinder
- Table saw
- Radial arm saw

### Survey Equipment (Class Set)

- Water level
- Laser level

### SHOP (FACILITY) TOOLS: STANDARD TOOLS:

#### Hand tools (Class Set)

- Adjustable wrench
- Allen wrenches
- Carpenter's apron
- Chalk line
- Clamps
- Combination square
- Cordless drill
- Drawing instruments
- Dry line
- Framing square
- Hammers (framing, finishing)
- Hand level – 24" and 48"
- Hand saws
- High speed drill set
- Knives
- Levels
- Measuring tape
- Rasp
- Aviation snips
- Back saw
- Builder's level
- Concrete bits
- File
- Hack saw
- Plane (bench)
- Plane (block)
- Plane (compass)
- Plane (fore)
- Plane (jack)
- Plane (jointer)
- Scriber
- Multi-driver screwdriver
- Nail puller
- Nail set
- Pencil/marketing instrument
- Pliers and side cutters
- Optical level
- Plumb bob
- Pry bars
- Scale rulers
- Screwdrivers (Robertson, Phillips, straight)





- Sliding T-bevel
- Stair gauges
- Speed square
- Tape measure 25 ft.
- Torpedo level
- Try square
- Wrecking bar
- Set of chisels
- Stapler
- Stones (oil and water)
- Tape measure 100 ft
- Trammel points
- Wood boring bits
- Wood chisels
- Wood space bit set
- Plane (rabbet)
- Plane (router)
- Plane (smooth)
- Plane (universal)
- Putty knife
- Scribing compass
- **Portable Power Tools and Portable Equipment Class set)**
- Calculator (per student)
- Circular saw
- Cordless drill and bits
- Electric drill
- Extension cords
- Grinder
- Ladders
- Air compressor
- Chainsaw
- Compressor
- Hammer drill
- Wall jack
- Mitre saw
- Portable power tool accessories
- Power nailer/fastener
- Reciprocating saw
- Step ladders
- Wet/dry vacuum
- Jigsaw
- Palm sander
- Pneumatic tools
- Powder actuated tools
- Sander
- Ladder jacks

#### **\*Recommended**

##### **Per Student**

Scientific calculator with trigonometry functions

Weather appropriate clothing (per student)

Small geometry set (per student)

Metric and imperial tape measure (per student)

##### **Class set**

Scriber (general)

Drafting supplies – drawing pencils, metric and imperial scales, T-square, set-squares