

# OCCUPATIONAL TOOLS AND EQUIPMENT LIST

## **Steamfitter/Pipefitter**



Government of Newfoundland Labrador  
Department of Education and Early Childhood Development  
Apprenticeship and Trades Certification Division

2011

## **Preface**

This document is intended as a companion to the March 2011 Plan of Training for the **Steamfitter/Pipefitter** occupation. It identifies the necessary tools and equipment required by apprentices and training institutions for the completion of apprenticeships.

## **Acknowledgements**

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We offer you a sincere thank you.

## **Contact Information**

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## **Note:**

The numbers suggested in the following Tools and Equipment List represent the required minimum. Please verify this list with your selected training institution.

**Tools and Equipment List  
Steamfitter/Pipefitter**

<b>SECTION A: TOOLS AND EQUIPMENT REQUIRED BY STUDENT</b>			
<b>Item</b>	<b>Units for Individual Students</b>	<b>Required for</b> <b>Entry (E)</b> <b>Advanced (A)</b> <b>Both (B)</b>	<b>Comments</b>
<b>PERSONAL PROTECTIVE EQUIPMENT</b>			
CSA Approved Safety Glasses (with side shield, protection)	1	B	
CSA Approved Hard Hats	1	B	
CSA Approved Safety Boots	1	B	
<b>HAND TOOLS</b>			
Standard/Metric Measuring Tape	1	B	
Phillips Screwdrivers Phillips #1, #2, #3	1 of each	B	
Robertson Screwdrivers #1, #2, #3	1 of each	B	
Slotted (flat) Screwdrivers Assorted	1 set	B	
Hacksaw with assorted hacksaw blades of different tooth numbers	1	B	
Torpedo Level	1	B	
Punches (center)	1	B	
Plumb Bobs	1	B	
Utility Knife	1	B	
Scale Rulers Metric/Standard	1	B	
Calculator (scientific)	1	B	

Note: If identifying sets, please include specific information.

**SECTION B: TOOLS AND EQUIPMENT REQUIRED BY TRAINING INSTITUTION**

Item	Units per 15 Students	Maximum Students per Unit	Required for Entry (E) Advanced (A) Both (B)	Comments
<b>TOOL CRIB CAN BE UTILIZED BY ENTRY LEVEL AND ADVANCED LEVELS DEPENDING ON SCHEDULING</b>				
<b>PIPE SHOP EXTRAS</b>				
CSA Approved Safety Glasses (with side shield, protection)	5 Spare Sets		B	
CSA Approved Hard Hats	5		B	
Dust Mask	As required by the provincial regulations		B	
Leather Gloves (welder/fitter as required)	As required by the provincial regulations		B	
Rubber Gloves (fuel)	2 pair		B	
Safety Harness (full body) c/w lanyard (minz) Retractable Lanyard	2		B	
Welding Goggles	15		B	
Hearing Protection (ear plugs/ear muffs)	As required by the provincial regulations		B	
Full Face Shield (grinding)	15		B	
Appropriate Fire Extinguishers for Hazards	As required by the provincial regulations		B	
Eye Wash Station	As required by the provincial regulations		B	
First Aid Station (number 3 equipped) Burn Kit	As required by the provincial regulations		B	
Fire Blanket	1		B	

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Item	Units per 15 Students	Maximum Students per Unit	Required for Entry (E) Advanced (A) Both (B)	Comments
<b>Hand Tools</b>				
Hammers (ball pein)	Assorted		<b>B</b>	
Hammers (chippings)	One per Welding Booth		<b>B</b>	
Hammers (sledge)	1 – 6 lb, 1 – 10 lb		<b>B</b>	
Hammers (soft face)	1		<b>B</b>	
Hammers (dead blow)	1		<b>B</b>	
Hammers (carpenters framing type)	<b>1</b>		<b>B</b>	
Standard/Metric Measuring Tape	5		<b>B</b>	
Standard/Metric Measuring Tapes	1 – 50 feet		<b>B</b>	
Phillips Screwdrivers Phillips #1, #2, #3	5		<b>B</b>	
Robertson Screwdrivers #1, #2, #3	5		<b>B</b>	
Torx Screwdrivers	1 set		<b>B</b>	
Slotted (flat) Screwdrivers Assorted	5		<b>B</b>	
Hacksaws with assorted hacksaw blades of different tooth numbers	5		<b>B</b>	
Squares	8 – 2 foot framing		<b>B</b>	
Squares	5 combination		<b>B</b>	
Levels	15 – torpedo		<b>B</b>	
Levels	4 – 2 foot		<b>B</b>	
Smart Levels (laser)	1		<b>B</b>	
Levels (lines)	1		<b>B</b>	

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Item	Units per 15 Students	Maximum Students per Unit	Required for Entry (E) Advanced (A) Both (B)	Comments
Chain Pipe Tongs	1		B	
Pipe Wrenches (steel or aluminum straight pattern)	2 - 8's 2 - 10's 2 - 12's 4 - 18's 2 - 24's		B	
Pipe Wrenches (end pattern)	1 of each 10, 12		B	
Pipe Wrenches (offset)	1 of each 10, 12		B	
Pipe Wrenches (compound leverage)	1 - 36" capacity		B	
Pipe Wrenches (internal)	1		B	
Pipe Wrenches (hex)	1		B	
Tube Cutters (copper/stainless/plastic)	6 - #15 4 - #20 2 - #30 2 mini-cutters		B	
Tube Reamer/Cleaner	2		B	
Pipe Cutters (single wheel)	6 - 1/8 to 2" 4 - 2 to 4" 2 - 4 to 6"		B	
Pipe Cutters (multi wheel)	1 - ¾ to 2"		B	
Pipe Reamer (spiral)	1		B	
Pipe Reamer (fluted)	3		B	
Chisels (cold) set of assorted chisels	1 - 4 piece set		B	
Files (12" half round bastard cut)	5		B	
Files	2 sets of assorted files		B	

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Item	Units per 15 Students	Maximum Students per Unit	Required for Entry (E) Advanced (A) Both (B)	Comments
Punches (center)	5		B	
Plumb Bobs	5		B	
Combination Wrenches (metric)	2 complete sets of 8mm – 32mm		B	
Combination Wrenches (standard/metric)	2 complete sets of $\frac{1}{4}$ to 1 – $\frac{1}{4}$		B	
Wrenches (non spark)	1		B	
Wrenches (pin)	1		B	
Wrenches (hammer/slam)	1		B	
Wrenches (hex key metric set)	2 complete sets of 1mm to 15mm		B	
Wrenches (hex key standard)	2 compete sets of 3/32 to 9/16"		B	
Aviation Snips (left/right/combination)	3 left 3 right 3 combination		B	
Sheet Metal Shears (tin Snips)	2 – 10 inch		B	
Adjustable (crescent style) Wrenches	1- 6 inch 1- 8 inch 1- 10 inch 1- 12 inch 1- 15 inch)		B	
Pliers (needle nose)	1 set		B	
Pliers (linesman)	1 set		B	
Pliers (slip joint/combination)	4 sets		B	
Pliers (diagonal/side cutter)	1 set		B	
Swaging Tool (tubing)	2		B	

**SECTION B: TOOLS AND EQUIPMENT REQUIRED BY TRAINING INSTITUTION**

Item	Units per 15 Students	Maximum Students per Unit	Required for Entry (E) Advanced (A) Both (B)	Comments
Pry Bar (flange alignment type, jimmy)	1		B	
Hand Tube Benders	4 – sets $\frac{1}{4}$ " 4 – sets $\frac{3}{8}$ " 1 – set $\frac{1}{2}$ " 1 – set $\frac{5}{8}$ "		B	
Bolt Tap and Die Sets	3 sets $\frac{1}{8}$ " to $\frac{1}{2}$ "		B	
Pipe Tap and Die Sets	1 set of $\frac{1}{8}$ " to $1 - \frac{1}{2}$ "		B	
C-Clamps	4 – 4" 4 – 6"		B	
Flaring Tool	2 Complete sets of standard flaring tools		B	
Flaring Tool (double flare)	1 complete set of double flaring tools		B	
Socket Sets	1 complete set of sockets from $\frac{1}{4}$ " to $1 \frac{1}{4}$ ' Metric 6mm-32mm		B	
Pipe Extractors	1 set any capacity		B	
Bolt Extractor	Any capacity		B	
Chalk Line	2		B	
Wire Brushes	15 carbon steel		B	
Wire Brushes	2 stainless steel		B	
Scratch Awl	1		B	
<b>SPECIALTY HAND TOOLS</b>				
Utility Knife	6		B	
Pipe Wraparound	6 manufactured type with markings		B	

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Item	Units per 15 Students	Maximum Students per Unit	Required for Entry (E) Advanced (A) Both (B)	Comments
High - Low Gauges	2		B	
Gap Gauges	2		B	
Gasket Cutter	1		B	
Bolt Hole Punch	1		B	
Packing Hooks	4		B	
Lapping Plates	2		B	
Lapping Compound	Assortment of lapping compound		B	
Angle Finder	3 manufactured type (not fabricated)		B	
Pipe Alignment Clamps	1 internal type manufactured type (not fabricated)		B	
Pipe Alignment Clamps	1 external manufactured type (not fabricated)		B	
Contour Markers (Large)	1 Large		B	
Contour Markers (small)	2		B	
Marking Gauge Multi Trammel Scribing Tool	1		B	
Feeler Gauges (for pump alignment)	1 set		B	
Electrical Multimeter	1		B	
Dial Indicator	1 set manufactured type (not fabricated)		B	
Flange Alignment Pins	1 set manufactured (not fabricated)		B	
Flange Spreader	3		B	

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Item	Units per 15 Students	Maximum Students per Unit	Required for Entry (E) Advanced (A) Both (B)	Comments
Center Finder	2 60 inch lb – MJ		B	
Torque wrench (Plumbing)	1 manual lever type 0 – 150 ft lbs		B	
Torque Wrenches	1 ratchet type 0 – 250 ft lb		B	
Torque Wrenches	1 either electric or air drive		B	
Beveling Tool	8 either electric or air drive 4 – $\frac{1}{2}$ or 5" angle grinder		B	
Grinders	2 electric or air drive pencil or die type		B	
Grinders	1 bench mounted or pedestal		B	
Grinders	1		B	
Band Saw	1 air or electric drive portable band saw		B	
Power Electric Hacksaw (4" pipe capacity)	1		B	
Drills (electric) 3/8, $\frac{1}{2}$ , chuck capacity c/w bits for wood, steel, concrete	Electric or air drive 1 – 3/8" chuck capacity 1 – $\frac{1}{2}$ " chuck capacity		B	
Drills (hammer) c/w bits for concrete	Electric drive 1 – $\frac{1}{2}$ " chuck capacity		B	
Hole Saw Kit for wood and steel	1 set up to 2" capacity		B	
Powder Actuated Tools (ramset/hilti)	1		B	
Chop Saw	1 metal cutting with 12 14" blade		B	
Reciprocating Saw (sawzall)	1		B	
Pipe Roll Groover and/or Cut Groover	Victaulic type roll groover hydraulic types		B	

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<b>Item</b>	<b>Units per 15 Students</b>	<b>Maximum Students per Unit</b>	<b>Required for Entry (E) Advanced (A) Both (B)</b>	<b>Comments</b>
Shop Aire Compressor (large capacity)	1 large capacity for air tools used in the occupation (ie. Machining and beveling tools)		B	
<b>SHOP EQUIPMENT</b>				
Portable Air Compressor	1 small capacity for testing water and air lines		B	
Hydraulic or Electric Bending Equipment	1 with 1 – ½ to 2" bending capacity for schedule 40 pipe		B	
Hydrostatic Test Pump	1		B	
Drill Press (floor mounted)	1		B	
Pipe Stands (various types)	15		B	
Bench Pipe Vises (chain)	4 minimum, 4" capacity		B	
Bench Pipe Vises (yoke)	4 minimum, 4" capacity		B	
Bench Machinist Vises	4 minimum, 4" capacity		B	
Impact Wrench (electric or air) 3/8, ½" drive c/w impact sockets ½" drive set	1 – ½ inch drive capacity c/w ½" impact socket		B	
Portable Pipe Vise (tristand chain vise)	4		B	
Extension cords (recommended to be industrial quality 12 gauge cords OR Suitable power supply (ie. Shop integral power bars mounted in benches, etc.)	8 – 20 – 25 ft foot extension cords with GFCI built in or added on OR Suitable shop power supply		B	
<b>PIPE THREADING EQUIPMENT</b>				
Drop Head Dies	8 – 1/8 to 1"		B	

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Item	Units per 15 Students	Maximum Students per Unit	Required for Entry (E) Advanced (A) Both (B)	Comments
Bolt Threading Dies	3 sets – $\frac{1}{4}$ " to $\frac{3}{4}$ "		B	
Jam Proof Ratchet Threading Die Set	1 set – 1" to 2" capacity		B	
Threading Machine (such as a Rigid Power Machine 535 or 300)	1		B	
Geared Pipe Threader c/w universal drive shaft for power vise	1 -2 – $\frac{1}{2}$ ' to 4" capacity		B	
Nipple Chuck	2 complete sets up to 2" capacity		B	
<b>RIGGING EQUIPMENT</b>				
Chain Hoist (Chainfalls)	4 half ton minimum		B	
Chain Puller (come-a-longs)	4-half ton minimum		B	
Cable Puller (Trifor)	1		B	
Hydraulic Jacks	2 – 10 ton bottle type jacks		B	
Block and Tackle System	1 – $\frac{1}{2}$ " rope type complete		B	
Snatch Block	1 – $\frac{1}{2}$ " rope type		B	
Wire Rope – left lay/right lay complete	3/8 wire rope with wire rope clips and thimbles		B	
Synthetic Rope	As required for shop projects including samples of different types		B	
Natural Fibre Manila/Sisal/Hemp/Cotton Rope	As required for shop projects including samples of different types		B	
Wire Rope Slings	As required for shop projects including samples of different types		B	
Poly Synthetic Slings	As required for shop projects including samples		B	

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Item	Units per 15 Students	Maximum Students per Unit	Required for Entry (E) Advanced (A) Both (B)	Comments
	of different types			
Port a Power type Jack (Remote Hydraulic Jack)	1 hydraulic jack, pump and hoses		<b>B</b>	
Shackles, turnbuckles, shoulder bolts, and various hardware for rigging	As required for shop projects including samples of different types		<b>B</b>	
Overhead Shop Cranes	1-Jib, Gantry or Trolley type crane for rigging training		<b>B</b>	
<b>LADDERS AND SCAFFOLDING</b>				
Sections of scaffolding (complete with braces/decking/toeboards, etc. according to regulations)	Sections of scaffolding (complete with braces/decking/toeboards, etc. according to regulations)		<b>B</b>	
Extension Ladder	Extension Ladder		<b>B</b>	
Step Ladder	Step Ladder		<b>B</b>	
<b>ELECTRIC WELDING EQUIPMENT</b>				
AC/DC Electric Arc Welder including cables and electrode holders	As required to deliver plan of training required welding competencies		<b>B</b>	
SMAW Welding System	1 complete systems		<b>B</b>	
GTAW Welding System	1 complete system		<b>B</b>	
Welding Helmets (with suitable lenses for welding application)	5		<b>B</b>	
Propane Torch type soldering system (turbo torch type swirl tips)	8		<b>B</b>	
Acetylene torch type soldering/brazing system (B tank included c/w swirl tips)	1		<b>B</b>	

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<b>Item</b>	<b>Units per 15 Students</b>	<b>Maximum Students per Unit</b>	<b>Required for Entry (E) Advanced (A) Both (B)</b>	<b>Comments</b>
Leather protective coats/jackets for welding as required	5		<b>B</b>	
Argon purging system for welding stainless steels and other alloys	1 complete systems		<b>B</b>	
Welding Rod Oven	1		<b>B</b>	
<b>OXYACETYLENE WELDING AND CUTTING EQUIPMENT</b>				
Oxyacetylene unit (complete with backflow preventers installed on regulators, hoses and torch assembly and assorted tips for brazing/heating/cutting OR Header system with associate piping and regulators OR Manifold system of tanks associated connections and regulators	4 complete sets		<b>B</b>	
Torch Tip Cleaners	4		<b>B</b>	
Torch Friction Lighters	4		<b>B</b>	
<b>HEATING EQUIPMENT</b>				
Electric Hot Water Tank OR Oil Fired Hot Water Tank	1		<b>B</b>	
Hot Water Heating Furnace (oil-fired)	1		<b>B</b>	
Hot Water Heating Furnace (gas-fired) or appliance	1		<b>B</b>	
Copper Finned Tube Radiation	12 feet		<b>B</b>	
Hydronic Heating Boiler and Trim (one that can be put together, tested and taken apart)	1		<b>B</b>	

**SECTION B: TOOLS AND EQUIPMENT REQUIRED BY TRAINING INSTITUTION**

Item	Units per 15 Students	Maximum Students per Unit	Required for Entry (E) Advanced (A) Both (B)	Comments
Convection-type Radiation (Horizontal or Vertical)	1		B	
Manifold and plastic tubing for Hot Water Heating application of in-floor radiant heating system	Enough for 400 square foot		B	
<b>ADVANCED TRAINING</b>				
Tables suitable for drawing (drafting not tables necessary)	1		A	
Drafting sets including 45/45/90 30/60/90 Triangles, straight edge, pencils, T-square, compass, protractor	5		A	
Scale Rulers Metric/Standard	5		A	
Calculator (scientific)	5		A	
Convertible Jet Pump (with injector assembly)	1		A	
Piston Pump	1		A	
Diaphragm Storage Tank	1		A	
Builders Level, Extension Rod	1		A	
Manometer for testing low pressure gas system	1		A	
Gas Appliance/System	1		A	
Propane Tanks 20 lb minimum	1		A	
Propane Regulator	1		A	
Equipment, material and components to install and test a basic medical gas system and/or a medical gas trimming unit	1		A	
Tubing Benders for Stainless Steel	1 of each size $\frac{1}{4}$ , $\frac{3}{8}$ , $\frac{1}{2}$ "		A	

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Item	Units per 15 Students	Maximum Students per Unit	Required for Entry (E) Advanced (A) Both (B)	Comments
Tubing				
Tray Assembly Buy or Make	1		A	
Hydraulic Benders	1		A	
Hand Benders (tubing)	1		A	
Various types of pumps	1		A	
Equipment, material components to install a basic hydraulic system and/or a hydraulic trainer	1		A	
Equipment, material components to install a basic pneumatic system and/or a pneumatic trainer	1		A	
Various types of valves	1		A	
Valve and test repair equipment (ie. grinding/lapping tools)	1		A	
<b>Various types of Cross Connection Control Devices including:</b>				
Atmospheric vacuum breaker	1 of each unit per 15 students		A	
Pressure vacuum breaker				
Double check valve assembly				
Reduced pressure zone assembly				
<b>Equipment for testing Cross Connection Devices:</b>				
Manometer	1 of each unit per 15 students		A	
High/low (differential) testing unit				
Equipment, material and components to fabricate stainless steel (including dams and purging equipment)	1		A	
Various industrial drawings	1		A	
Hydraulic torquing unit (purchase or rent)	1		A	

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Item	Units per 15 Students	Maximum Students per Unit	Required for Entry (E) Advanced (A) Both (B)	Comments
Hydraulic tensioning unit (purchase or rent)	1		A	