

Issued: January 8, 2018

Program: Steamfitter/Pipefitter

To: ITA Training Providers
Articulation Chair
System Liaison Person
School Districts

Subject: **Steamfitter/Pipefitter**

OPSN No.: **OPSN 2018 003**

Effective Date: **September 1, 2018**

Summary of Change: Please be advised that changes have occurred to the Steamfitter/Pipefitter program as a result of the Pan-Canadian Harmonization Initiative and will be implemented effective September 1, 2018.

These changes are as follows:

- Steamfitter/Pipefitter Program Outline Update
- Increase of Work-based Training Hours – 6,300 hours (from 5,620 hours)
- 4 week duration increase for the **Harmonized Steamfitter/Pipefitter Program:**
 - Level 1 – 210 hours, 7 weeks (from 180 hours, 6 weeks)
 - Level 2 – 210 hours, 7 weeks (from 180 hours, 6 weeks)
 - Level 3 – 240 hours, 8 weeks (from 180 hours, 6 weeks)
 - Level 4 – 240 hours, 8 weeks (no change)

The Harmonized Steamfitter/Pipefitter Program Outline has been posted on the Steamfitter/Pipefitter webpage at www.itabc.ca. The Harmonized Steamfitter/Pipefitter Program Profile will be posted at a later date and will be announced with a subsequent OPSN.

Also be aware that Training Providers are subject to review by Technical Safety BC - TSBC (formerly BC Safety Authority) and must be compliant with TSBC's program approval requirements to deliver Gasfitter – Class B training as per the Safety Standards Act. Further information can be found at www.technicalafetybc.ca.

Please see [OPSN 2018 002](#) for changes to the Gasfitter – Class B program.

Rationale: At the request of industry, the Canadian Council of Directors of Apprenticeship's (CCDA) Harmonization Initiative was launched in Fall 2013, and endorsed by the Forum of Labour Market Ministers (FLMM) in 2014. The goal of Harmonization is to *substantively align* apprenticeship systems across Canada by making apprenticeship training

requirements more consistent in Red Seal trades.

In consultation with stakeholders, the CCDA identified four Harmonization priorities: trade name, total training hours (in-school plus on-the-job), number of training levels, and the sequencing of the training content.

Steamfitter/Pipefitter is one of eight trades identified for the second phase of Harmonization. After a series of consultations and pan-Canadian webinars, the finalized priorities for the Harmonized Steamfitter/Pipefitter program were as follows:

1. Use of the Red Seal **trade name** – Steamfitter/Pipefitter
 - *BC – no change.*
2. Consistent **total training hours** (in-school plus on-the-job) – 7,200 hours total
 - *BC - Technical training will increase from 780 hours (26 weeks) to 900 hours (30 weeks), and Work-based Training is increased from 5,620 hours to 6,300 hours.*
3. Same number of **training levels** – 4-level program
 - *BC – no change.*
4. Consistent **sequencing** of training content
 - *BC – Significant changes required to align to the Harmonized sequencing.*

Details: A Steamfitter/Pipefitter program review was conducted in October 2017 to align BC's Steamfitter/Pipefitter program to the Harmonized sequencing. The review resulted in significant changes to the current sequence of technical training.

ITA will identify transition strategies for apprentices in the current program and invite training providers to participate in webinars beginning in late January/early February.

ITA is also working on a communication plan to inform apprentices and employer sponsors of the changes to the program.

Attachments: ***Steamfitter/Pipefitter Program Outline Review Details***
 This attachment provides details of the revisions made to the Steamfitter/Pipefitter Program Outline during the review process.

For more information contact: ITA Program Standards
 email: programstandards@itabc.ca

cc: All Staff



STEAMFITTER/PIPEFITTER COMPETENCY MIGRATION CHART

Implementation Support

LINE	NEW COMPETENCY TITLES	New Level	Current Level	LINE	PREVIOUS COMPETENCY TITLES	Notes
LINE A	PERFORM SAFETY RELATED FUNCITONS	1	1	LINE A	USE SAFE WORK PRACTICES	
A1	Maintains Safe Work Environment	1	1	A1 A2 A3	Control Workplace Hazards Describe Occupational Health and Safety Regulations Describe WHMIS and Hazardous Materials Safety	✓ Aligned
A2	Use Personal Protective Equipment (PPE) and Safety Equipment	1	1	A4	Use Personal Protective Equipment	✓ Aligned
A3	Perform Lock-Out and Tag-Out Procedures	1	1	A1	Control Workplace Hazards	✓ Aligned
A4	Practice Fire Prevention	1	1	A5	Practice Fire Prevention	✓ Aligned
LINE B	USE TOOLS AND EQUIPMENT	1 / 2 / 4	1	LINE B LINE F	USE TOOLS AND EQUIPMENT PERFORM LAYOUT, FABRICATION AND INSTALLATION	
B1	Use Common Tools and Equipment	1	1 1 1 1/2	B1 B6 B7 B4	Use Hand Tools Use Portable Power Tools Use Stationary Power Tools Use Measuring and Levelling Tools	Gap
B2	Use Access Equipment	1	1	B2	Use Ladders and Platforms	✓ Aligned
B3	Use Rigging, Hoisting, Lifting and Positioning Equipment	1/2/4	1/2	B7	Use Rigging and Hoisting Equipment	Level 4 = overlap
B4	Rigs Loads for Cranes	1/4				New content to satisfy RSOS
B5	Use Welding Equipment	1/2	2	F5	Use Welding Equipment	Level 1 = Gap
B6	Use Soldering and Brazing Equipment	1	1	B3	Use Cutting, Brazing and Soldering Equipment	✓ Aligned
B7	Use Oxy-Fuel Cutting Equipment	1	1	B3 F5?	Use Cutting, Brazing and Soldering Equipment	✓ Aligned
B8	Use Technical Instruments and Testers	2				Combination of Gap and Overlap depending on learning task
LINE C	PERFORM ROUTINE TRADE ACTIVITIES	1-4	1-4	LINE C	ORGANIZE WORK	
C1	Use Mathematics and Science	1 / 2	1/2	C1	Use Mathematics and Science	Level 2 = Gap
C2	Interpret Drawings and Specifications	1-4	1-4	C2	Read Drawings and Specifications	Level 1 – 3 ✓ Aligned Level 4 = 1 new learning task, P&ID
C3	Use Codes, Regulations and Standards	1, 2, 3	1	C3	Use Codes, Regulations and Standards	Level 1 & 3 ✓ Aligned Level 2 = Gap, gas code
C4	Use Manufacturer and Supplier Documentation	2	1	C4	Use Manufacturer and Supplier Documentation	Overlap



STEAMFITTER/PIPEFITTER COMPETENCY MIGRATION CHART

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LINE D	PERFORM LAYOUT AND INSTALLATION OF PIPING AND COMPONENTS	1/2	1	LINE D LINE F	PREPARE AND ASSEMBLE PIPNG COMPONENTS PERFORM LAYOUT, FABRICATION AND INSTALLATION	
D1	Install Valves	1	1	D2	Select and Install Valves	✓ Aligned
D2	Install Fittings	1	1	D3	Select and Install Fittings	✓ Aligned
D3	Penetrate Structures	1	1	D4	Describe Methods of Penetrating Structures	✓ Aligned
D4	Layout and Install Piping and Tubing	1/2	1	D1 F1 F2 F4	Join Pipe Prepare Pipe and Fittings Develop and Use Templates Fabricate from a Spool Sheet	✓ Aligned
D5	Perform Maintenance, Troubleshooting, Repairs and Testing on Valves	1				New in PO, but was covered in context
LINE E	PERFORM FABRICATION	1/2	2	LINE F	PERFORM LAYOUT, FABRICATION AND INSTALLATION	
E1	Fabricate Brackets, Supports, Hangers, Guides and Anchors	1	2	F7	Install Supports, Hangers, Guides and Anchors	Gap
E2	Fabricate Piping System Components	2	2	F1 F2 F3 F4 F6	Prepare Pipe and Fittings Develop and Use Templates Develop a Simple Spool Sheet Fabricate from Spool Sheets Bend Pipe	✓ Aligned
LINE F	USE COMMUNICATION TECHNIQUES	1 / 4				
F1	Use Communication Techniques	1				New
F2	Use Mentoring Techniques	4				New
LINE G	INSTALL HEAT TRACING SYSTEMS	2 / 3	3	LINE G	SPECIAL APPLICATION SYSTEMS	
G1	Install Heat Tracing Systems	2/3	3	G3	Install Low Pressure Steam Piping Systems	✓ Aligned
G2	Repair and Test Heat Tracing Systems	2/3	3	G3	Install Low Pressure Steam Piping Systems	✓ Aligned
LINE H	INSTALL HYDRONIC SYSTEMS	2 / 3	2	LINE E	INSTALL HYDRONIC HEATING AND COOLING SYSTEMS	
H1	Interpret Heating and Cooling Systems	2	2	E1	Describe the Operation of Hydronic Heating and Cooling Piping Systems	✓ Aligned
H2	Install Equipment for Hydronic Systems	2/3	2	E1 E2	Describe the Operation of Hydronic Heating and Cooling Piping Systems Describe Controls for Hydronic Heating and Cooling Systems	Level 2 ✓ Aligned Level 3 = some new content for Gas B
H3	Install Piping for Hydronic Systems	2/3	2	E3	Install, Test and Commission Hydronic Heating and Cooling	Level 2 ✓ Aligned

					Systems	Level 3 = Overlap
H4	Test Hydronic Systems	3	2	E3	Install, Test and Commission Hydronic Heating and Cooling Systems	Overlap
H5	Repair Hydronic Systems	3	2	E4	Maintain and Repair Hydronic Heating and Cooling Systems	Overlap
LINE I	INSTALL STEAM SYSTEMS	3 / 4	3	LINE G	SPECIAL APPLICATION SYSTEMS	
I1	Install Equipment for Steam Systems	3/4	3	G3 G4	Install Low Pressure Steam Piping Systems Install High Pressure Steam Piping Systems	Overlap
I2	Install Piping for Steam and Condensate Systems	3/4	3	G3 G4	Install Low Pressure Steam Piping Systems Install High Pressure Steam Piping Systems	Overlap
I3	Test Steam and Condensate Systems	3/4	3	G3 G4	Install Low Pressure Steam Piping Systems Install High Pressure Steam Piping Systems	Overlap
I4	Repair Steam and Condensate Systems	3/4	3	G3 G4	Install Low Pressure Steam Piping Systems Install High Pressure Steam Piping Systems	Overlap
LINE J	INSTALL INDUSTRIAL WATER AND WASTE SYSTEMS	3				
J1	Install Equipment for Industrial Water and Waste Systems	3				New content to satisfy RSOS
J2	Install Piping for Industrial Water and Waste Systems	3				New content to satisfy RSOS
J3	Test Industrial Water and Waste Systems	3				New content to satisfy RSOS
J3	Repair Industrial Water and Waste Systems	3				New content to satisfy RSOS
LINE K	APPLY ELECTRICAL CONCEPTS	2-4				
K1	Use the Principles of Electricity	2	2 4	C1 I2	Use Math and Science Install and Service Fuel Gas Controls and Safeguards	Gap
K2	Use Electrical Wiring and Diagrams	3	4	C2	Read drawings and specifications	Gap
K3	Apply Single Phase Motor Theory	4				New content for Gas B
K4	Apply Three Phase Motor Theory	4				New content for Gas B
K5	Apply Wiring Practices	3				New content for Gas B
K6	Interpret the Canadian Electrical Code (CEC)	3	4	I5	Use Gas Codes, Regulations and Standards	Gap
LINE L	PLAN GAS-FIRED SYSTEMS INSTALLATIONS	2 – 4				
L1	Size Piping and Tubing Systems	3	1	C1	Use Math and Science	✓ Aligned
L2	Select Regulators, Valves and Valve Train Components	3	4	I1	Install and Service Fuel Gas Systems	Gap



STEAMFITTER/PIPEFITTER COMPETENCY MIGRATION CHART

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L3	Select Gas-Fired Appliances	2	4	I1	Install and Service Fuel Gas Systems	Gap
L4	Select Flame Safeguards	3	4	I2	Install and Service Fuel Gas Controls and Safeguards	Gap
L5	Select Burners	3	3	I1	Install and Service Fuel Gas Systems	✓ Aligned
L6	Plan a Project	4				New content for Gas B
LINE M	INSTALL FUEL SYSTEMS	3/4	3/4	LINE G LINE I	SPECIAL APPLICATION SYSTEMS INSTALL AND SERVICE FUEL GAS SYSTEMS	
M1	Install Equipment For Fuel Systems	3	3	G2	Install Fuel Oil Piping Systems	✓ Aligned
M2	Install Piping and Tubing For Fuel Systems	3	3	I1	Install and Service Fuel Gas Systems	✓ Aligned
M3	Install Regulators, Valves and Valve Train Components	3	3/4	I1	Install and Service Fuel Gas Systems	Gap
M4	Install Air Supply Systems	4	4	I4	Install Venting and Air Supply	✓ Aligned
M5	Test Fuel Systems	3	3	G2	Install Fuel Oil Piping Systems	✓ Aligned
M6	Repair Fuel Systems	3	3	G2	Install Fuel Oil Piping Systems	✓ Aligned
M7	Commission Fuel/Air Delivery Systems	4	3	I1	Install and Service Fuel Gas Systems	Overlap
LINE N	INSTALL MEDICAL GAS SYSTEMS	3	4	LINE G	SPECIAL APPLICATION SYSTEMS	
N1	Install Equipment for Medical Gas Systems	3	4	G12	Install Medical Gas Piping Systems	Gap
N2	Install Piping and Tubing for Medical Gas Systems	3	4	G12	Install Medical Gas Piping Systems	Gap
N3	Test Medical Gas Systems	3	4	G12	Install Medical Gas Piping Systems	Gap
N4	Repair Medical Gas Systems	3	4	G12	Install Medical Gas Piping Systems	Gap
LINE O	INSTALL PROCESS PIPING SYSTEMS	4	4	LINE G	SPECIAL APPLICATION SYSTEMS	
O1	Install Equipment for Process Piping Systems	4	4	G9	Install Process Piping Systems	✓ Aligned
O2	Install Piping for Process Piping Systems	4	4	G9	Install Process Piping Systems	✓ Aligned
O3	Test Process Piping Systems	4	4	G9	Install Process Piping Systems	✓ Aligned
O4	Repair Process Piping Systems	4	4	G9	Install Process Piping Systems	✓ Aligned
LINE P	INSTALL HYDRAULIC SYSTEMS	4	2	LINE G	SPECIAL APPLICATION SYSTEMS	
P1	Install Equipment for Hydraulic Systems	4	2	G7	Install Hydraulic Piping Systems	Overlap
P2	Install Piping, Tubing and Hoses for Hydraulic Systems	4	2	G7	Install Hydraulic Piping Systems	Overlap
P3	Test Hydraulic Systems	4	2	G7	Install Hydraulic Piping Systems	Overlap
P4	Repair Hydraulic Systems	4	2	G7	Install Hydraulic Piping Systems	Overlap



STEAMFITTER/PIPEFITTER COMPETENCY MIGRATION CHART

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LINE Q	INSTALL COMPRESSED AIR AND PNEUMATIC SYSTEMS	4	2	LINE G	SPECIAL APPLICATION SYSTEMS	
Q1	Install Equipment for Compressed Air and Pneumatic Systems	4	2	G8	Install Pneumatic and Compressed Air Piping Systems	Overlap
Q2	Install Piping, Tubing and Hoses for Compressed Air and Pneumatic Systems	4	2	G8	Install Pneumatic and Compressed Air Piping Systems	Overlap
Q3	Test Compressed Air and Pneumatic Systems	4	2	G8	Install Pneumatic and Compressed Air Piping Systems	Overlap
Q4	Repair Compressed Air and Pneumatic Systems	4	2	G8	Install Pneumatic and Compressed Air Piping Systems	Overlap
LINE R	INSTALL HEAT RECOVERY SYSTEMS	4	4	LINE G	SPECIAL APPLICATION SYSTEMS	
R1	Install Equipment for Heat Recovery Systems	4	4	G14	Describe Renewable Energy Systems	✓ Aligned
R2	Install Piping for Heat Recovery Systems	4	4	G14	Describe Renewable Energy Systems	✓ Aligned
R3	Test for Heat Recovery Systems	4	4	G14	Describe Renewable Energy Systems	✓ Aligned
R4	Repair Heat Recovery Systems	4	4	G14	Describe Renewable Energy Systems	✓ Aligned
LINE S	INSTALL HVACR SYSTEMS	4	4	LINE G	SPECIAL APPLICATION SYSTEMS	
S1	Install Equipment for HVACR Systems	4	4	G10 G11	Install Air Conditioning Piping Systems Install Refrigeration Piping Systems	✓ Aligned
S2	Install Piping for HVACR Systems	4	4	G10 G11	Install Air Conditioning Piping Systems Install Refrigeration Piping Systems	✓ Aligned
S3	Test HVACR Systems	4	4	G10 G11	Install Air Conditioning Piping Systems Install Refrigeration Piping Systems	✓ Aligned
S4	Repair HVACR Systems	4	4	G10 G11	Install Air Conditioning Piping Systems Install Refrigeration Piping Systems	✓ Aligned
LINE T	INSTALL SPECIALTY SYSTEMS	4	4	LINE G	SPECIAL APPLICATION SYSTEMS	
T1	Install Equipment for Specialty Systems	4	4	G14	Describe Renewable Energy Systems	✓ Aligned
T2	Install Piping for Specialty Systems	4	4	G14	Describe Renewable Energy Systems	✓ Aligned
T3	Test Specialty Systems	4	4	G14	Describe Renewable Energy Systems	✓ Aligned
T4	Repair Specialty Systems	4	4	G14	Describe Renewable Energy Systems	✓ Aligned
LINE U	PERFORM COMMISSIONING	4	2	LINE F	PERFORM LAYOUT, FABRICATION AND INSTALLATION	
U1	Prepare System for Commissioning, Start-up and Turnover	4	2	F9	Test and Commission a Piping Assembly	Overlap
U2	Balance and Commission Systems	4	2	F9	Test and Commission a Piping Assembly	Overlap



STEAMFITTER/PIPEFITTER COMPETENCY MIGRATION CHART

Implementation Support

LINE V	INSTALL MARINE SYSTEMS	2	2	LINE G	SPECIAL APPLICATION SYSTEMS	
V1	Perform Penetration and Layout of Marine Structures and Piping	2	2	G1	Install Marine Piping Systems	✓ Aligned
V2	Install Piping for Marine Systems	2	2	G1	Install Marine Piping Systems	✓ Aligned
V3	Repair Marine Piping Systems	2	2	G1	Install Marine Piping Systems	✓ Aligned
LINE W	INSTALL BACKFLOW PREVENTION	3	3	LINE H	WATER SUPPLY	
W1	Install Cross Connection Assemblies and Devices	3	3	H2	Describe the Installation of Cross Connection Assemblies	✓ Aligned
W2	Test Cross Connection Assemblies and Devices	3	3	H3	Test and Commission Cross Connection Assemblies	✓ Aligned
W3	Troubleshoot and Repair Cross Connection Assemblies and Devices	3	3	H2	Describe the Installation of Cross Connection Assemblies	✓ Aligned

STEAMFITTER/PIPEFITTER HARMONIZED ACHIEVEMENT CRITERIA BY LEVEL (*PRACTICALS*)

LEVEL 1			LEVEL 2			LEVEL 3			LEVEL 4		
Line #	Practical Overview	PO page #	Line #	Practical Overview	PO page #	Line #	Practical Overview	PO page #	Line #	Practical Overview	PO page #
A1	WHMIS – <i>workplace assessment</i>	26	B3	Perform a multi-point hoisted lift	65	C2	Create a piping installation drawing	98	B3	Perform a multi-point lift For an unbalanced load	147
A3	Lock-out	29									
B3	Perform a basic lift	37	B5	Fit and tack 2 pieces of pipe	67	H2	Install/wire a relay	104	L6	Plan a layout of a residential piping installation (Gas B project); Sketch an isometric drawing; Size the piping system; Generate a tools and materials list	161
B5	Tack together 2 pieces of plate	41	C2	Create a spool sheet	73						
B6	Braze and solder	43	E2	Cold bend pipe; Develop a template; Fabricate and assemble piping components	80	H3	Perform heat loss/gain calculations from a drawing	106			
B7	Cut plate using oxy-fuel	44				K2	Sketch parallel and series circuit; ladder diagram	120			
C2	Create an isometric drawing	50	V2	Bend pipe for a marine assembly	95				P2 or Q2	Assemble a hydraulic piping system	172
D4	Prepare, join and install pipe	59							Q2 or P2	Assemble a pneumatic piping system	178
E1	Fabricate a pipe support	62									