

Issued: January 8, 2018

Program: Plumber

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

Subject: **Plumber**

OPSN No.: **OPSN 2018 001**

Effective Date: **September 1, 2018**

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

These changes are as follows:

- Plumber Program Outline Update
- Reduction of Work-based Training Hours – 6,300 hours (from 6,420 hours)
- 4 week duration increase for the **Harmonized Plumber Program:**
 - Level 1 – 210 hours, 7 weeks (from 180 hours, 6 weeks)
 - Level 2 – 240 hours, 8 weeks (from 180 hours, 6 weeks)
 - Level 3 – 210 hours, 7 weeks (from 180 hours, 6 weeks)
 - Level 4 – 240 hours, 8 weeks (no change)

The Harmonized Plumber Program Outline has been posted on the Plumber webpage at www.itabc.ca. The Harmonized Plumber 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.technicalsaftybc.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.

Plumber 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 Plumber program were as follows:

1. Use of the Red Seal **trade name** – Plumber
 - 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 reduced from 6,420 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 Plumber program review was conducted in September 2017 to align BC's Plumber 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: ***Plumber Program Outline Review Details***

This attachment provides details of the revisions made to the Plumber Program Outline during the review process.

For more information contact:

ITA Program Standards
email: programstandards@itabc.ca

cc: All Staff



PLUMBER COMPETENCY MIGRATION CHART

Implementation Support

LINE	NEW COMPETENCY TITLES	New Level	Current Level	LINE	PREVIOUS COMPETENCY TITLES	Notes
LINE A	PERFORM SAFETY RELATED FUNCTIONS	1	1	LINE A	USE SAFE WORK PRACTICES	
A1	Maintains Safe Work Environment	1	1	A1 A2 A3	Control Workplace Hazards Use Information in the OHS Regulation and WCB Standards Use WHMIS	✓ 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	1	LINE B	USE TOOLS AND EQUIPMENT	
B1	Use Common Tools and Equipment	1	1	B1 B2 B3 B4	Use Hand Tools Use Portable Power Tools Use Stationary Power Tools Use Measuring and Levelling Tools	✓ Aligned
B2	Use Access Equipment	1	1	B6	Use Ladders and Platforms	✓ Aligned
B3	Use Rigging, Hoisting, Lifting and Positioning Equipment	1	1	B7	Use Rigging and Hoisting Equipment	✓ Aligned
B4	Rigs Loads for Cranes	1	1	B7	Use Rigging and Hoisting Equipment	✓ Aligned
B5	Use Soldering and Brazing Equipment	1	1	B5	Use Cutting, Brazing and Soldering Equipment	✓ Aligned
B6	Use Oxy-Fuel Cutting Equipment	1	1	B5	Use Cutting, Brazing and Soldering Equipment	✓ Aligned
B7	Use Welding Equipment	1	1	B5	Use Cutting, Brazing and Soldering Equipment	✓ Aligned
B8	Use Technical Instruments and Testers	2				New Gasfitter B, Level 1 Content
LINE C	PERFORM ROUTINE TRADE ACTIVITIES	1-4	1-4	LINE C	ORGANIZE WORK	
C1	Use Mathematics and Science	1 / 2	1	C1	Use Mathematics and Science	Level 2 = New Gasfitter B, Level 1 Content
C2	Interpret Drawings and Specifications	1-4	1-4	C2	Read Drawings and Specifications	✓ Aligned
C3	Use Codes, Regulations and Standards	1, 2, 3	1	C3	Use Codes, Regulations and Standards	✓ Aligned Level 2 = introduction to Gas Code
C4	Use Manufacturer and Supplier Documentation	2	1	C4	Use Manufacturer and Supplier Documentation	Overlap
C5	Perform Piping System Layout	2	2	E1 H1	Install Sanitary Drain, Waste and Vent Systems Install Fixtures and Trim	✓ Aligned
LINE D	PREPARE PIPING AND COMPONENTS	1	1	LINE D	PREPARE AND ASSEMBLE PLUMBING COMPONENTS	
D1	Prepare Pipe	1	1	D1	Install Pipe	✓ Aligned
D2	Join Tube, Tubing and Pipe	1	1	D1	Install Pipe	✓ Aligned



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				D3	Install Fittings	
D3	Install Pipe	1	1	D1	Install Pipe	✓ Aligned
D4	Install Valves	1	1	D2	Install Valves	✓ Aligned
D5	Install Fittings	1	1	D3	Install Fittings	✓ Aligned
D6	Penetrate Structures	1	1	D4	Penetrate Structures	✓ Aligned
LINE E	INSTALL PLUMBING FIXTURES AND APPLIANCES	2 / 4	2 / 3	LINE H	INSTALL FIXTURES AND APPLIANCES	
E1	Install Fixtures	2	2	H1	Install Fixtures and Trim	✓ Aligned
E2	Install Appliances	2	2 / 3	H2	Install Appliances	✓ Aligned
E3	Commission Fixtures and Appliances	4	2 / 3	H3	Test and Commission Fixtures and Appliances	Overlap
E4	Service Fixtures and Appliances	4	2 / 3	H4	Maintain and Repair Fixtures and Appliances	Overlap
LINE F	USE COMMUNICATION TECHNIQUES	1 / 4				
F1	Use Communication Techniques	1				New
F2	Use Mentoring Techniques	4				New
LINE G	INSTALL SEWERS AND SEWAGE TREATMENT SYSTEMS	3 / 4	2 / 4 4	LINE E LINE F	INSTALL SANITARY AND STORM DRAINAGE INSTALL PRIVATE SEWAGE SYSTEMS	
G1	Install Piping for Sewers	3	2 4	E5 E3	Maintain and Repair Sanitary and Storm Drainage Systems Install Sanitary Sewer Systems	✓ Aligned
G2	Install Manholes and Catch Basins	3	2 / 4 2 / 4 4	E1 E2 E3	Install Sanitary Drain, Waste and Vent Systems Install Storm Drainage Systems Install Sanitary Sewer Systems	✓ Aligned
G3	Test Manholes, Catch Basins and Piping for Sewers	4	4 2 / 4	E3 E4	Install Sanitary Sewer Systems Test and Commission Sanitary and Storm Drainage	Increased content to satisfy RSOS
G4	Service Manholes, Catch Basins and Piping for Sewers	4	2 / 4	E5	Maintain and Repair Sanitary and Storm Drain Systems	Increased content to satisfy RSOS
G5	Install Sewage Treatment System Components	4	4	F1	Install Private Sewage Disposal Systems	✓ Aligned
G6	Test Sewage Treatment Systems and Components	4	2 / 4	E4	Test and Commission Sanitary and Storm Drainage Systems	✓ Aligned
G7	Service Sewage Treatment Systems and Components	4	4	F2	Maintain and Repair Sewage Disposal Systems	✓ Aligned
LINE H	INSTALL DRAINAGE, WASTE AND VENT (DWV) SYSTEMS	2 / 4	2 / 4	LINE E	INSTALL SANITARY AND STORM DRAINAGE	
H1	Install Sanitary Drainage Systems	2	2 / 4	E1	Install Sanitary Drain, Waste and Vent Systems	✓ Aligned
H2	Install Storm Drainage Systems	2	2 / 4	E2	Install Storm Drainage Systems	Minor gap
H3	Test Sanitary and Storm Drainage Systems	2	2 / 4	E4	Test and Commission Sanitary and Storm Drainage Systems	✓ Aligned



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H4	Service Sanitary and Storm Drainage Systems	4	2 / 4	E5	Maintain and Repair Sanitary and Storm Drainage Systems	✓ Aligned
LINE I	INSTALL WATER SERVICES AND DISTRIBUTION SYSTEMS	3 / 4	3 / 4	LINE G	INSTALL WATER SERVICE AND DISTRIBUTION	
I1	Install Water Services	3	3	G1	Install Water Services	✓ Aligned
I2	Install Potable Water Distribution Systems	3	3 / 4	G2	Install Private Potable Water Distribution Systems	✓ Aligned
I3	Test Water Service Piping and Distribution Systems	4	3	G6	Maintain and Repair Potable Water Systems	Minor overlap, increased content to satisfy RSOS
I4	Service Water Service and Distribution Systems	4	3	G6	Maintain and Repair Potable Water Systems	Minor overlap, increased content to satisfy RSOS
I5	Commission Water Service and Distribution Systems	4	3	G5	Test and Commission Potable Water Systems	Minor overlap, increased content to satisfy RSOS
LINE J	INSTALL CROSS CONNECTION CONTROL DEVICES AND ASSEMBLIES	3	3 / 4	LINE G	INSTALL WATER SERVICE AND DISTRIBUTION	
J1	Install and Test Cross Connection Control Devices and Assemblies	3	3 / 4	G2	Install Private Potable Water Distribution Systems	✓ Aligned (CCC is currently in Level 3)
J2	Service Cross Connection Controls and Assemblies	3	3 / 4	G2	Install Private Potable Water Distribution Systems	✓ Aligned (CCC is currently in Level 3)
LINE K	INSTALL PRESSURE SYSTEMS	4	3	LINE G	INSTALL WATER SERVICE AND DISTRIBUTION	
K1	Install Piping for Pressure Systems	4	3	G3	Install Private Potable Water Supply Systems	Overlap
K2	Install Equipment for Pressure Systems	4	3	G3	Install Private Potable Water Supply Systems	Overlap
K3	Test Pressure Systems	4	3	G5	Test and Commission Potable Water Systems	Minor overlap, increased content to satisfy RSOS
K4	Service Pressure Systems	4	3	G6	Maintain and Repair Potable Water Systems	Minor overlap, increased content to satisfy RSOS
K5	Commission Pressure Systems	4	3	G5	Test and Commission Potable Water Systems	Minor overlap, increased content to satisfy RSOS
LINE L	INSTALL HYDRONIC SYSTEMS	2 – 4	2 / 4	LINE I	INSTALL HYDRONIC COOLING AND HEATING	
L1	Interpret Heating and Cooling Systems	2	2	I1	Describe the Operation of Hydronic Heating and Cooling Systems	✓ Aligned
			2	I2	Install Hydronic Heating and Cooling Systems	
L2	Install Piping and Components for Hydronic Systems	2 / 3	2 / 4	I2	Install Hydronic Heating and Cooling Systems	Overlap
L3	Install Hydronic Heating and Cooling Generating Systems	2	2 / 4	I2	Install Hydronic Heating and Cooling Systems	✓ Aligned
L4	Install Hydronic Transfer Units	2	2 / 4	I2	Install Hydronic Heating and Cooling Systems	✓ Aligned
L5	Install Hydronic System Controls	3	2 / 4 4	I2 L4	Install Hydronic Heating and Cooling Systems Install and Service Controls and Safeguards	Gap



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L6	Test Hydronic Systems, Components and Controls	4	2 / 4	I3	Test and Commission Hydronic Systems	✓ Aligned
L7	Service Hydronic Systems, Components and Controls	4	2 / 4	I4	Maintain and Repair Hydronic Systems	✓ Aligned
L8	Commission Hydronic Systems, Components and Controls	4	2 / 4	I3	Test and Commission Hydronic Systems	✓ Aligned
LINE M	INSTALL WATER TREATMENT EQUIPMENT	4	3	LINE G	INSTALL WATER SERVICE AND DISTRIBUTION	
M1	Install Water Treatment Equipment	4	3	G4	Install Water Treatment Systems	Overlap
M2	Test and Commission Water Treatment Equipment	4				New content to satisfy RSOS
M3	Service Water Treatment Equipment	4				New content to satisfy RSOS
LINE N	INSTALL SPECIALIZED SYSTEMS	3 / 4	2 / 3 / 4	LINE J	INSTALL SPECIALIZED SYSTEMS	
N1	Install Piping for Specialized Systems Residential Irrigation Compressed Air Green Systems Process Piping Med Gas	3 3 3 4 4	4 2 NA NA 2	J2 J3 NA NA J1	Install Irrigation Systems Install Compress Air Systems NA NA Install Medical Gas Systems	Gap Overlap New content to satisfy RSOS New content to satisfy RSOS Overlap
N2	Install Equipment and Components for Specialized Systems	3 / 4			See Harmonized Line N1	Gap – irrigation New – green systems New – process piping
N3	Test Specialized Systems	3 / 4			See Harmonized Line N1	Gap – irrigation New – green systems New – process piping
N4	Service Specialized Systems	3 / 4			See Harmonized Line N1	Gap – irrigation New – green systems New – process piping
N5	Commission Specialized Systems	3 / 4			See Harmonized Line N1	Gap – irrigation New – green systems New – process piping
LINE O	APPLY ELECTRICAL CONCEPTS	1 / 3 / 4				
O1	Use the Principles of Electricity	1	2 4	I1 L4	Describe the Operation of Hydronic Heating and Cooling Systems Install and Service Controls and Safeguards	Gap/new content for Gas B
O2	Use Electrical Wiring and Diagrams	3	4	C2 L4	Read Drawings and Specifications Install and Service Controls and Safeguards	Gap/new content for Gas B
O3	Apply Single Phase Motor Theory	4				New content for Gas B



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O4	Apply Three Phase Motor Theory	4				New content for Gas B
O5	Apply Wiring Practices	3	4	L4	Install and Service Controls and Safeguards	New content for Gas B
O6	Interpret the Canadian Electrical Code (CEC)	4	4	L5	Use Gas Codes, Regulations and Standards	✓ Aligned
LINE P	PLAN GAS-FIRED APPLIANCE SYSTEM INSTALLATIONS	2 – 4				
P1	Size Piping and Tubing Systems	3	1 3	C1 L1	Use Math and Science Install and Service Fuel Systems	✓ Aligned
P2	Select Regulators, Valves and Valve Train Components	4	4	L1	Install and Service Fuel Systems	✓ Aligned
P3	Select Gas-Fired Appliances	2	4	L2	Install and Service Gas Equipment	Gap
P4	Select Flame Safeguards	3	3 3	L2 L4	Install and Service Gas Equipment Install and Service Controls and Safeguards	Overlap
P5	Select Burners	3	3	L2	Install and Service Gas Equipment	✓ Aligned
P6	Plan a Project	4				New content for Gas B
LINE Q	INSTALL GAS-FIRED SYSTEMS	3 / 4				
Q1	Install Piping and Tubing Systems	3	3	L1	Install and Service Fuel Systems	✓ Aligned
Q2	Install Regulators, Valves and Valve Trains	4	4	L1	Install and Service Fuel Systems	✓ Aligned
Q3	Install Air Supply Systems	4	4	L3	Install Venting and Air Supply	✓ Aligned
Q4	Commission Fuel/Air Delivery Systems	4	3	L1	Install and Service Fuel Systems	✓ Aligned



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Implementation Support

PLUMBER HARMONIZED ACHIEVEMENT CRITERIA BY LEVEL (<i>PRACTICALS</i>)														
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>	25	C2	Create an isometric projection to code; plan a residential take-off	74	C2	Design: Commercial or institutional DWV system; Water distribution system; Fuel gas distribution system	95	K1	Size a pressure systems and select a pump	146			
A3	Lock-out and tag-out	27							M2	Test a water sample	157			
B1	Establish 10 sights	32	C3	Interpret codes and standards for sizing exercises	76				I2	Size a commercial potable water service and distribution system using the NPC	105	P6	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	171
B3	Manual lift and hoisted Lift	37				C5	Layout a piping system	78						
B5	Solder and braze	39	H1	Plan the layout of a commercial or institutional DWV system; Install DWV for a bathroom group	82	J1	Test cross connection assemblies	107						
B6	Cut a pipe bevel	41				L2	Design a residential hot water radiant floor heating system	109						
B7	Grind a pipe bevel	44				L5	Install/wire a relay	111						
C2	Create an isometric drawing	50	L2	Install piping for a hydronic system	89	O2	Sketch parallel and series circuit; ladder diagram	121						
D3	Prepare, join and install pipe	57												
D5	Install fittings	59												