

Issued: March 1, 2018

Program: Boilermaker

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

Subject: **Boilermaker**

OPSN No.: **OPSN 2018 008**

Effective Date: **September 1, 2018**

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

These changes are as follows:

- Trade name change from Construction Boilermaker to Boilermaker
- Boilermaker Program Outline Update
- Decrease of Work-Based Training Hours – 4,950 hours (from 5,700 hours)

The Harmonized Boilermaker Program Outline and Program Profile have been posted on the Boilermaker webpage at www.itabc.ca.

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.

Boilermaker is one of five trades identified for the third phase of Harmonization. After a series of consultations and pan-Canadian webinars, the finalized priorities for the Harmonized Boilermaker program were as follows:

Boilermaker	Changing in BC?	What will it be?
Trade Name	Yes	Boilermaker
Total Hours (Technical Training + Work Based)	Yes	5,400 total (450 technical training + 4,950 work-based)
Number of Training Levels	No	3 A Harmonized Level 1 will be delivered as part of the 23-week Foundation program. <ul style="list-style-type: none"> ○ Level 1 – 5 weeks ○ Level 2 – 5 weeks ○ Level 3 – 5 weeks
Training Sequence (Order of subjects taught)	Yes	Some changes to training sequence

Details: A Boilermaker program review was conducted in December 2017 to align BC’s Boilermaker program to the Harmonized sequencing. The review resulted in some changes to the current sequence of technical training.

After conducting a Gap Analysis, it was determined that a transition strategy would not be necessary.

ITA will inform apprentices and employer sponsors of the changes to the program.

Attachments: ***Boilermaker Program Outline Review Details***

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



**For more
information
contact:**

ITA Program Standards
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cc: All Staff

Boilermaker Program Outline 2018 Review Details

Details of Changes

KEY

Blue Text = Content moved between levels

Green Text = New content added

Red text = Content removed from Program Outline

Black text = No change

	Current Level 1		Harmonized Level 1	Description of Changes
Line A	Use Safe Work Practices	Line A	Perform Safety-Related Functions	
A1	Control Workplace Hazards	A4	Control Workplace Hazards	Content unchanged
A2	Interpret OHS Regulations and WorkSafeBC Standards	A5	Interpret OHS Regulations and WorkSafeBC Standards	Content unchanged, except removed one LT re: compensation
A3	Attain Confined Space Awareness Training	A6	Monitor Confined Space	Content unchanged
A4	Use Fall Protection Systems	A2	Use Fall Protection Systems	Content unchanged
A5	Use Personal Protective Equipment	A1	Use Personal Protective Equipment	Content unchanged
A6	Use Fire Safety Procedures	A3	Use Fire Safety Procedures	Content unchanged, except a new LT added: #3 Identify Combustible Materials – some content for this new LT came from old PO.
Line B	Use Tools and Equipment	Line B	Use Tools, Equipment and Work Platforms	
B1	Use Hand Tools	B1	Use Hand Tools	Content unchanged.
B2	Use Measurement and Layout Tools	F1	Perform Fabrication	Content moved within the level.
B3	Use Power Tools and Shop Fabrication Tools	B2	Use Power Tools and Shop Fabrication Tools	CL B3 content unchanged. 2 LTs were added in HL B2: 'Shape and Check Components' and 'Finish Fabricated Material.' Achievement Criteria was modified to emphasize 'shaping and forming.'

				(Meet and Exceed at L1)
B4	Perform Cutting	B3	Use Cutting Tools and Equipment	Content moved within the level. The objective, LT1 and two Achievement Criteria from CL B4 become HL B3.
		D1	Cut Material	CL B4, LT2 becomes D1 in HL1.
B5	Perform Basic Welding	D2	Perform Welding	Content moved within the level. Objectives, LT 1-6 and Achievement Criteria moved from CL B5 to HL D2. Plus, LT 7-9 'Prepare Joints for Fitting', 'Fit Joints,' and 'Perform Tack Welds' and 3 Achievement Criteria pertaining to the new LTs have been added. (Added content to LT1 re: high pressure water cutting system).
B6	Use Ladders and Platforms	B4	Use Work Platforms and Access Equipment	One objective in HL changed from 'obtain certification' to apply certification principles.
Line C	Organize Work	Line C	Organize Work	
C1	Use Mathematics	C1	Use Mathematics	Content unchanged
C2	Interpret Drawings and Specifications	C2	Use Drawings and Specifications	Content unchanged
C3	Communicate with Others	C4	Use Communication and Mentoring Techniques	Content unchanged
C4	Handle Materials	C3	Handle Materials and Components	Plus, added one LT: #4 Demobilize Site to HL C3.
Line D	Use Rigging, Hoisting and Lifting Equipment	Line E	Use Rigging, Hoisting and Lifting Equipment	
D1	Plan Lifts	E1	Plan Lifts	CL D1 + 1 LT 'Demonstrate knowledge of regulatory requirements pertaining to rigging hoisting/lifting' and 1 Achievement Criteria 'Write a lift plan' added.
D2	Rig Loads	E2	Rig Loads	CL D2 + 1 LT is added: 'Inspect Rigging Equipment.'
D3	Hoist Loads	E3	Hoist Loads	CL D3 + 2 LTs are added: 'Use manually operated hoisting equipment' and 'Perform post-lift activities.' Also, 2 Achievement Criteria are added: same as #3, 4 in HL E2.

		Line D	Perform Cutting and Welding Activities	New line added
		D1	Cut Material	See above. This was LT2 in CL1 B4 'Perform Cutting'
		D2	Perform Welding	See above. This was LT 1-6 and the Achievement Criteria from CL1 in B5 'Perform Basic Welding' Plus, LT 7-9 'Prepare Joints for Fitting', 'Fit Joints,' and 'Perform Tack Welds' and 3 Achievement Criteria pertaining to the new LTs have been added.
Line E	Construct Vessels	Line F	Lay Out, Fabricate and Assemble Vessels and Components	
E1	Perform Layout	F1	Perform Fabrication	All of CL1 E1 + all content from CL1 B2; 'Use Measurement and Layout Tools Use Measurement and Layout Tools (LTs 1-2). Plus, 2 added LTs 'Inspect and maintain measurement and layout tools' and 'Make jigs and templates' and 1 Achievement Criteria 'Demonstrate the proper set up, use, care and handling of a Builder's level.'
E3	Erect Components	F2	Align and Fit Vessels and Components	1 Achievement Criteria from E3 (dismantle heat exchangers) is not included in HL.
E4	Fasten Components	F3	Fasten Components	Content unchanged
Line F	Maintain/ Upgrade / Repair Vessels and Components	Line G	Maintain, Upgrade, Repair Vessels and Components	
F1	Inspect and Test Vessels and Components	G1	Inspect and Test Vessels and Components'	Content unchanged.
F2	Service Vessels and Components	G2	Service Vessels and Components	The LT verbs have been changed to "Describe" in HL. Also, the Achievement Criteria (open towers and remove/replace trays and down-comers) from CL F2 is not in HL G2.
F3	Remove Vessels and Components	G3	Remove and Dismantle Vessels and Components	Content unchanged.

	Current Level 2		Harmonized Level 2	Description of Changes
Line B	Use Tools and Equipment	Line B	Use Tools, Equipment and Work Platforms	
B2	Use Measurement and Layout Tools			CL2 B2 is not in HL2. The content from B2 (principally LT 2), moved to F1 'Perform Fabrication' in HL2.
		B2	Use Power Tools and Shop Fabrication Tools	This competency was not in CL2. The first 4 LTs are identical to those found in B3 CL1, but LTs 5-7 are new content: 'Describe tube removal/ expansion tools,' 'Describe bolt tensioning and torquing equipment,' 'Inspect tube tools and tensioning and torquing equipment. 1 Achievement Criteria added: 'Proper set-up and use of a given tool.
B4	Perform Cutting	B3 D1	Use Cutting Tools and Equipment Cut Material	The LT changes from 'Cut using various tools' to Cut <i>plate</i> using various tools.' (The content points also become LT 1 in D1 'Cut Material' in HL2. There the LT is changed to 'Cut <i>plate and tubes</i> using various tools.'). See below. Note: LTs 2-6 and Achievement Criteria are identical to LTs 2-6 found in D2 'Perform Welding' in HL1 and LTs 3, 4, 6, 7 in HL2.
		B4	Use Work Platforms and Access Equipment	This was not in CL2. New content.

Line C	Organize Work	Line C	Organize Work	
C2	Interpret Drawings and Specifications	C2	Use Drawings and Specifications	Content unchanged.
		C3	Handle Materials and Components	This competency was not in CL2. The objective is changed a little from L1 and LT1 is modified to emphasize handling <i>plates, tubes and fasteners</i> . Note: LT 2+3 are identical to C3 in CL1.
Line D	Use Rigging, Hoisting and Lifting Equipment	Line E	Use Rigging, Hoisting and Lifting Equipment	
D1	Plan Lifts	E1	Plan Lifts	Content unchanged.
D2	Rig Loads	E2	Rig Loads	Content unchanged, but 1 LT becomes collapsed into the content of another LT in HL2.
D3	Hoist Loads	E3	Hoist Loads	Content unchanged, but <i>one objective added, 'Assemble and disassemble jib.'</i>
		Line D	Perform Cutting and Welding Activities	
		D1	Cut Material	This was B4 'Perform Cutting' in CL2. See above. The LT is changed to <i>'Cut plate and tubes using various tools.'</i>
		D2	Perform Welding	This was not in CL2. 7 of the Learning Tasks are identical with D2 in HL1, but <i>the objectives here are directed toward preparing and fitting joints for a hopper and performing basic welding for a hopper.</i>
Line E	Construct Vessels	Line F	Lay Out, Fabricate and Assemble Vessels and Components	
E2	Fabricate and Assemble Components	F1	Perform Fabrication	This becomes included in F1 'Perform Fabrication' In HL2. E2 objective was 'Lay out, fabricate and construct a hopper.' Here, it's 'Use measurement and layout tools to layout a hopper' and 'Construct a metal hopper.' Also, LT2 from B2 'Use

				Measurement and Layout Tools' in CL2 is included here. A LT 'Construct cardboard model' is new.
		F2	Align and Fit Vessels and Components	This was E4 'Fasten Components' LT 1 in CL3.
E4	Fasten Components	F3	Fasten Components	LT 1, 2, 5 and 2 Achievement Criteria from CL2 E4 become F3 'Fasten Components' in HL2. An objective is added: Remove and replace exchanger tubes.' Two LTs from E4 CL2 are removed here: 'Describe the process of installing a fire tube in a fire tube boiler' and 'Install a tube in a fire tube boiler.' These went to F3 'Fasten Components' in HL3.
Line F	Maintain/ Upgrade / Repair Vessels and Components	Line G	Maintain, Upgrade, Repair Vessels and Components	
F1	Inspect and Test Vessels and Components	G1	Inspect and Test Vessels and Components	This is new content, except that the content points for LT 1 haven't changed. However, the actual LT for that content is changed from Inspect vessels and components for defects' to 'Identify different properties of metals.' F1 LT 2 becomes LT 1 in G1 'Inspect Test Vessels and Components' in HL3.
		G2	Service Vessels and Components	This was F2 from CL1. The Achievement Criteria 'open towers and remove/ replace trays and down-comers' is not here. It moves to G2 HL3 and is changed to 'open towers and replace defective components
		G3	Remove and Dismantle Vessels and Components	This was not in CL2. New objective, LT and Achievement Criteria: 'Dismantle bolted up components.'

	Current Level 3		Harmonized Level 3	Description of Changes
Line B	Use Tools and Equipment	Line B	Use Tools, Equipment and Work Platforms	
B2	Use Measurement and Layout Tools	F1	Perform Fabrication	Content moved within the level. LT 1 + 2 of B2 are included in F1 'Perform Fabrication' in HL 3. Content points change somewhat. LT 3 'Lay out nozzle installation' is moved to F2 'Align and Fit Vessels and Components' in HL 3, LT 1.
		F2	Align and Fit Vessels and Components	
		B2	Use Power Tools and Shop Fabrication Tools	This competency is not in CL3. New content re: grinders for pipe and nozzle application.
B4	Perform Cutting	B3	Use Cutting Tools and Equipment	This was B4 'Perform Cutting' in CL 3, but the objective and LT have changed from 'Cut materials using various methods and tools' to 'Cut pipe and vessel shells using various methods and tools.'
		B4	Use Work Platforms and Access Equipment	This competency is not in CL3. New content.
		Line C	Organize Work	
		C2	Use Drawings and Specifications	This competency is not in CL3. Here, it is based on LT 1+2 in C2 Level 2, but higher level. Content points are the same. Also, one new LT added: 'Use drawings to determine layout for pipe fabrication.'
		C3	Handle Materials and Components	This competency is not in CL3. It's based on C3 in HL2, but here the focus is on piping, nozzles, flanges, rather than plates, tubes, fasteners.

		C4	Use Communication and Mentoring Techniques	This competency was not in CL3. New content.
Line D	Use Rigging, Hoisting and Lifting Equipment	Line E	Use Rigging, Hoisting and Lifting Equipment	
D1	Plan Lifts	E1	Plan Lifts	Content unchanged.
D2	Rig Loads	E2	Rig Loads	Content unchanged.
D3	Hoist Loads	E3	Hoist Loads	Content unchanged, except that 1 LT has been added: 'Disassemble rigging equipment.'
		E4	Fabricate Rigging Equipment	Not in Current Program Outline. New content.
		Line D	Perform Cutting and Welding Activities	
		D1	Cut Material	This competency was not in CL3. This is adapted from B4 'Perform Cutting' in CL2, but with a focus on cutting pipe.
		D2	Perform Welding	This competency was not in CL3. Here, the LTs and content are identical to D2 in HL2, but the objectives focus on fitting joints and welding for piping, nozzle installation, and patch.
Line E	Construct Vessels	Line F	Lay Out, Fabricate and Assemble Vessels and Components	
E2	Fabricate and Assemble Components	F1	Perform Fabrication	This was E2 in CL3, except for LT 1 comes from B2 'Use Measurement and Layout Tools' in CL1.
E3	Erect Components	F2	Align and Fit Vessels and Components	This was E3 'Erect Components' in CL3. Plus, two new objectives are listed: 'Layout and install nozzle' and 'Install flush patch.'
E4	Fasten Components	F3	Fasten Components	This was CL2 E4 LT2, plus, LT 3 is from E4 'Fasten Components' in CL2.
		Line G	Maintain, Upgrade, Repair Vessels and Components	
		G1	Inspect and Test Vessels and Components	This was LT 2 in CL2 F1 'Inspect and Test Vessels and Components.' Plus, there is a new LT: Describe hydrostatic testing.'
		G2	Service Vessels and Components	This was F2 "Service Vessels and Components' in CL1.

				Some content points from F2 are removed. Also, the Achievement Criteria (open towers and remove/replace trays and down-comers) in F2 is now 'open towers and replace defective components.'
		G3	Remove and Dismantle Vessels and Components	LTs based on LT 1 + 3 in F3 'Remove Vessels and Components' in CL1, but modified to reflect welded vessels and components and removing a flange and nozzle. Achievement Criteria has been replaced.