

# Sheet Metal Worker

## Transition Plan

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## Abbreviations

<b>CCDA</b>	Canadian Council of Directors of Apprenticeship
<b>CL</b>	Current level (2013)
<b>ER</b>	Employer sponsor
<b>FDN</b>	Foundation program
<b>HL</b>	Harmonized level (2019)
<b>NOA</b>	Red Seal National Occupational Analysis
<b>RSOS</b>	Red Seal Occupational Standard; replaces NOA
<b>SLE</b>	Standardized Level Exam
<b>TP</b>	Training provider
<b>TT</b>	Technical training
<b>TW</b>	Trade worker
<b>WBT</b>	Work-based training

## Harmonization Overview

The Canadian Council of Directors of Apprenticeship (CCDA) is responsible for the Red Seal Program, which develops common interprovincial standards and examinations. The CCDA is undertaking the Harmonization Initiative in 30 Red Seal trades by 2020. British Columbia is an active participant in this initiative.

The goal is to substantively align apprenticeship systems across Canada by making apprenticeship training requirements more consistent in the Red Seal trades.

### Harmonization Priorities

1. Use of Red Seal **trade name**
2. Consistent **total training hours** (in-school and on-the-job)
3. Same number of **training levels**
4. Consistent **sequencing** of training content, including use of most recent Red Seal Occupational Standard (RSOS).

## Sheet Metal Worker

	Changing in BC?	What will it be?
<b>TRADE NAME</b>	NO	Sheet Metal Worker
<b>NUMBER OF TRAINING LEVELS</b>	NO	4
<b>TOTAL HOURS</b> Technical (TT) + work-based training (WBT)	YES	<b>7200 hours</b> TT increased by 240 WBT increased by 560
<b>TRAINING SEQUENCE</b> order of subjects taught	YES	<b>Changes to sequence</b>

## Transition Planning Process

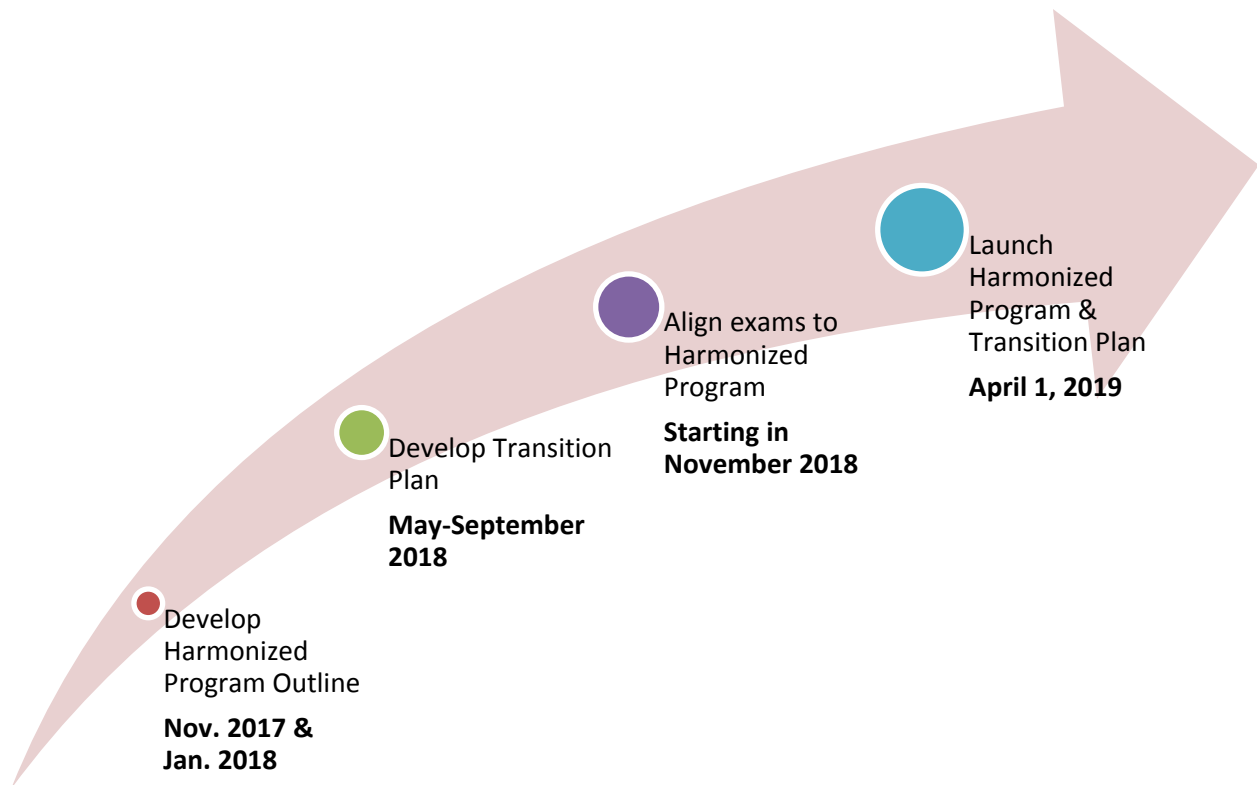
The re-sequencing of the Sheet Metal Worker program through the Harmonization Initiative has resulted in significant changes to the sequencing of technical training.

We consulted with the post-secondary training providers that delivers the Sheet Metal Worker program, and also considered the input of our internal partners. We evaluated a number of scenarios, and the transition plan outlined in this document was identified as the best option. We have also ensured that there are options for all current apprentices to complete their apprenticeship.

In all of our work on harmonization, we are guided by the following principles:

- Meet the needs of industry
- Minimize disadvantage to TWs, including those currently registered
- Minimize challenges for training providers in implementing the program

## Program Development and Transition Planning 2017-2018



### Public Training Providers (3)

Camosun College  
Okanagan College  
BCIT

### Private Training Providers (1)

Sheet Metal Workers Training Centre Society

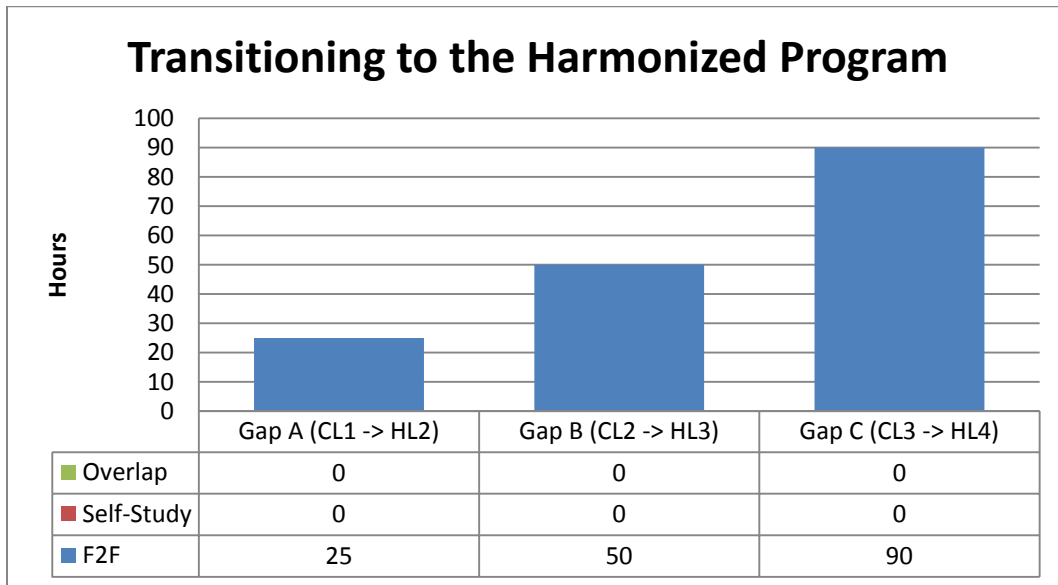
## Apprentice Numbers in Current Program

Highest Level Achieved	0TT	1TT	2TT	3TT	Total
Active	287	206	149	101	743
Inactive	286	85	41	31	443
<b>Total</b>	<b>573</b>	<b>291</b>	<b>190</b>	<b>132</b>	<b>1186</b>

### Notes on the numbers:

1. Numbers are as of May 1, 2018
2. **Current Level 4TT** - TWs who have completed CL4 TT are not considered in transition planning.
3. **Active** – apprentices for whom activity has been logged in Direct Access (DA) within the last 18 months.
4. **Inactive** – apprentices for whom **no** activity has been logged in DA within the last 18 months.

## The Gaps



**Gap A (CL1→HL2)** applies to a student who has completed Current Level 1 or Current Foundation and is moving into Harmonized Level 2.

**Gap B (CL2→HL3)** applies to a student who has completed Current Levels 1 & 2 and is moving into Harmonized Level 3.

**Gap C (CL3→HL4)** applies to a student who has completed Current Level 1, 2 & 3 and is moving into Harmonized Level 4.

**Overlap** refers to the hours of content that a student who transitions to the harmonized program will be repeating.

**Gap** is an estimate of the hours of self-study and training a student would need in order to complete the missing competencies if they transition to the harmonized program.

\*\*See [Appendix C: Details of Gaps](#) for a list of the missing competencies\*\*

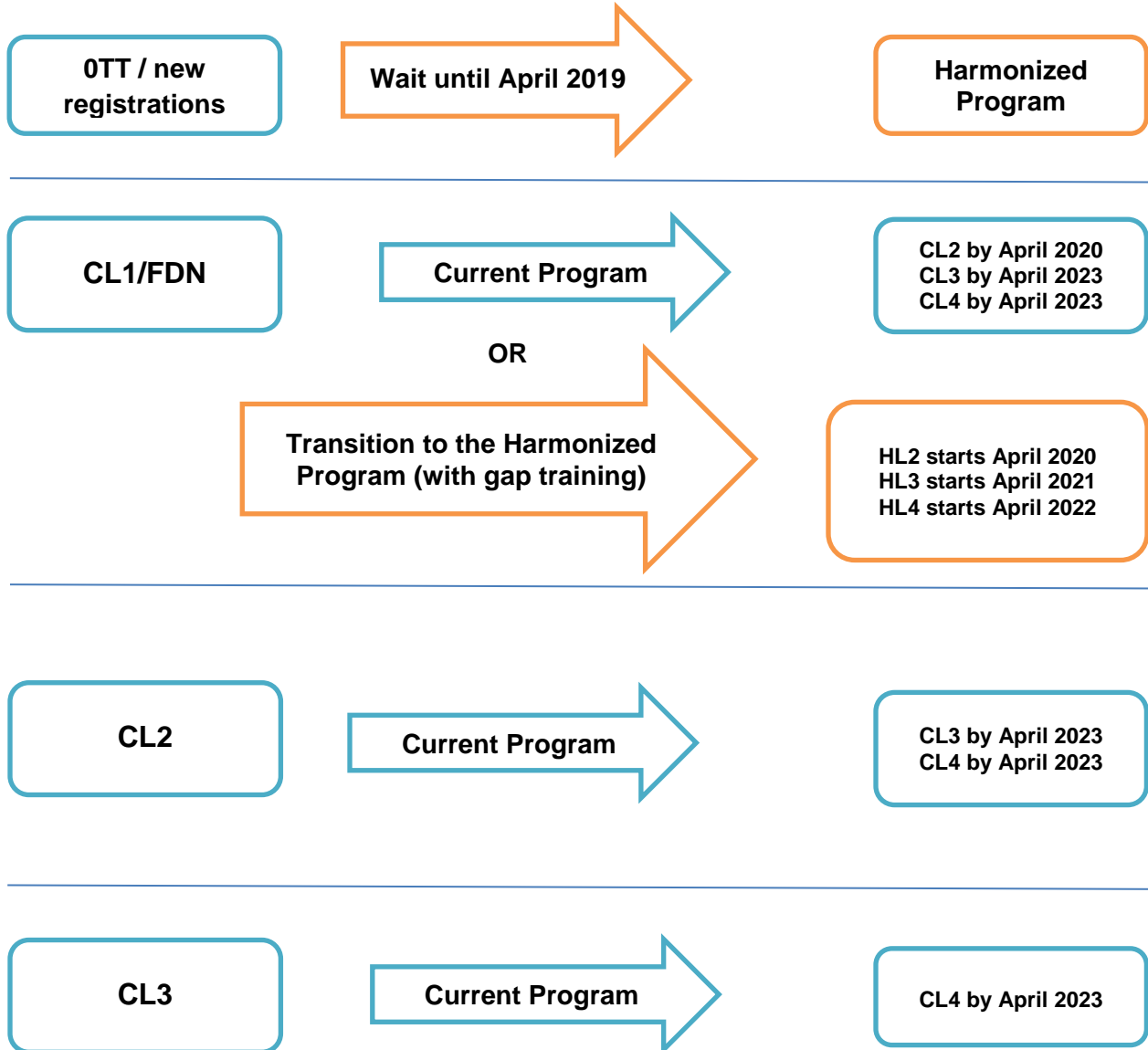


## Final Scenario

Implementation Timelines	
Level 1	April 1, 2019
Level 2	April 1, 2020
Level 3	April 1, 2021
Level 4	April 1, 2022

<b>Year 1</b> 19/20	HL1	CL2	CL3	CL4
<b>Year 2</b> 20/21	HL1	HL2	CL3	CL4
<b>Year 3</b> 21/22	HL1	HL2	CL3	CL4
<b>Year 4</b> 22/23	HL1	HL2	CL3 (if needed)	CL4 (if needed)
			HL3	HL4

## Pathways for Current Apprentices (Summary)



## Work-Based Training Hours (WBT)

The following changes to training time for Sheet Metal Worker will come into effect **April 1, 2019**:

- An increase of **800 hours** to the total training time, which includes
  - An increase of 560 work-based training (WBT) hours
  - An increase of 240 technical training hours

These changes have been made to align with the harmonized standard of 7,200 hours of total training.

### Apprenticeship Pathway

Current Program	Hours
Technical Training	720
Work-based Training Hours	5,680
<b>Current Total Training Hours</b>	<b>6,400</b>

Harmonized Program	Hours
Technical Training	960
Work-based Training Hours	6,240
<b>Harmonized Total Training Hours</b>	<b>7,200</b>

### Challenge Pathway and Sign-off Authority

Current Program	Hours
Work-based Training Hours for Apprenticeship	5,680
ITA formula for calculating challenge trade related work experience	X 1.5
<b>Current Challenge WBT Hours</b>	<b>8,520</b>

Harmonized Program	Hours
Harmonized Work-based Training Hours for Apprenticeship	6,240
ITA formula for calculating challenge trade related work experience	X 1.5
<b>Harmonized Challenge WBT Hours</b>	<b>9,360</b>

**NOTE:** If TWs complete in current program, the 5,680 WBT hours for that program will apply. If they transition, they will have to complete the 6,240 WBT hours for the harmonized program.

# Exams

## Exams for the Harmonized Program

Exam	Exam Development	Exam Launch
HL1 (SLE)	Nov. 5 <sup>th</sup> to 9 <sup>th</sup> , 2018	Late 2019
HL2 (SLE)	TBD	Late 2020
HL3 (SLE)	TBD	Late 2021

Revised **Standardized Level Exams** (SLE) for HL1, HL2, and HL3 will be developed. They will be piloted with one or more of the first classes to complete the harmonized level. Therefore, they will not be ready for the first cohort of students. Marks for this cohort will be based on in-class assessment only. HL4 students will write the IP, as usual.

**\*\*An Official Program Standards Notification (OPSN) will be distributed and posted to announce the launch of the HL SLEs.\*\***

## Appendix A: Details of Gaps

### GAP A: CL1→HL2

Gap (Missing Content)

This table lists the content that a student will be **missing** if they have completed Current Level 1 (CL1) and then take Harmonized Level 2 (HL2).

Competency	Objectives/ Learning Tasks	Achievement Criteria	Changes	Hours	Priority
F6 Fabricate hanger systems, supports and bases systems	Describe the fabrication of knee bracket hanger systems.  Describe hanging considerations.  Describe equipment bases and supports.  Describe the fabrication of equipment bases and supports.	no	HL1←CL3/CL4	7	high
K1 Install air handling equipment	Describe air handlers.  Describe the installation of air handlers.	no	HL1←CL4	3	Low-med
K3 Install sheet metal ducts, fittings and dampers	Describe installation procedure for duct work.  Install damper in duct work.	Yes - Install a damper in duct	New	6	Low-med
K5 Install registers, grilles, diffusers and louvers	Describe inlet and outlet covers.  Describe the installation of inlet and outlet covers.	no	New	3	Low-med
K8 Install residential systems	Describe residential heating, ventilation and air conditioning.  Describe residential duct systems.  Describe the installation of residential furnaces.  Describe residential slab duct.	no	HL1←CL3	6	high
			<b>TOTAL hours</b>	<b>25</b>	

### GAP B: CL2→HL3

### Gap (Missing Content)

This table lists the content that a student will be **missing** if they have completed Current Level 2 (CL2) and then take Harmonized Level 3 (HL3).

Competency	Objectives/ Learning Tasks	Achievement Criteria	Changes	F2F Hours	Priority
E1 Develop patterns using simple and straight line method	Develop patterns for advanced sheet metal components and duct fittings.	Yes - Develop patterns for change cheek ogee offset, drop cheek elbows, transitional ogee offset, two way transition, drop cheek transitional elbow.	HL2←CL4	2	med
E3 Develop patterns using radial line development	Describe drafting techniques for oblique cones using radial line development.	Yes	HL2←CL4	4	med
F6: Fabricate hanger systems, supports and bases systems	Describe the fabrication of knee bracket hanger systems.  Describe hanging considerations.  Describe equipment bases and supports.  Describe the fabrication of equipment bases and supports.	no	HL1←CL3/CL4	7	med
I1 Perform on-site measurements	Select and use measuring tools and equipment.  Use construction drawings, specifications and codes to measure and position components.	no	New	2	low
J1 Install chimneys	Describe venting and its purpose.  Describe the installation of bracing, hangers and supports.  Describe the installation of flashing.	no	HL2←CL3	5	high
J2 Connect appliances or	Describe breeching.	no	HL2←CL4	5	high

mechanical equipment to chimney and breeching	Describe the installation of bracing, hangers and supports  Describe the connection of venting and breeching to appliances.				
J3 Install high efficiency appliances and mechanical equipment	Describe high efficiency appliances and mechanical equipment.  Describe the installation of high efficiency appliances and mechanical equipment.  Describe venting requirements for high efficiency appliances and mechanical equipment.	no	New	4	high
K1 Install air handling equipment	Describe air handlers.  Describe the installation of air handlers.	no	HL1←CL4	6	med
K2 Install hangers, cables, braces and brackets	Describe the installation of hangers.  Describe the installation of cables.  Calculate the hanger requirements	no	HL2←CL3/CL4	6	med
K7 Install system component accessories	Describe the installation of system component accessories.	no	HL2←CL4	3	med
K8 Install residential systems	Describe residential heating, ventilation and air conditioning.  Describe residential duct systems.  Describe the installation of residential furnaces.	no	HL1←CL3	6	high

	Describe residential slab duct.				
				<b>TOTAL Hours</b>	<b>50</b>



## GAP C: CL3→HL4

### Gap (Missing Content)

This table lists the content that a student will be **missing** if they have completed Current Level 3 (CL3) and then take Harmonized Level 4 (HL4).

Competency	Objectives/ Learning Tasks	Achievement Criteria	Changes	F2F Hours	Priority
B3 Use gas metal arc welding (GMAW) equipment	Describe gas metal arc welding (GMAW) in all positions	Yes - Weld 16 gauge coupons in all positions	New	12	med
E2: Develop patterns using parallel line method	Develop advanced patterns using parallel line development	Use parallel line development to develop patterns for: tee on a taper, clean out on round elbow throat, Flat back elbow, tee on an offset, finial.	New	9	Med-high
E3 Develop patterns using radial line development	Objective: Develop patterns for oblique cones using radial line development.  Describe drafting techniques for advanced industrial fittings using radial line development.	Yes	HL2←CL4  Some new	14	Med-high
F4 Fabricate material handling system components.	Describe gravity material handling systems.  Fabricate gravity material handling system components.	Yes - Fabricate a material handling system component	New	2	low
F6 Fabricate hanger systems, supports and bases systems	Describe the fabrication of knee bracket hanger systems.  Describe equipment bases and supports.  Describe the fabrication of equipment bases and supports.	no	HL1←CL4  Some new	8	
H2 Fabricate specialty products	Describe specialty applications and products.  Describe shop equipment used for specialty products.	Yes	New	2	low

	Use power tools for specialty products.				
J2 Connect appliances or mechanical equipment to chimney and breeching	Describe breeching.  Describe the installation of bracing, hangers and supports  Describe the connection of venting and breeching to appliances.	no	HL2←CL4	4	med
K1 Install air handling equipment	Objectives: Describe air handlers.  Describe the installation of air handlers  Describe air handlers.  Describe the installation of air handlers.	no	HL1←CL4	6	med
K1 Install air handling equipment	Describe heat and energy recovery ventilators.  Describe the installation of heat and energy recovery ventilators	no	HL3←CL4	3	med
K2 Install hangers, cables, braces and brackets	Describe the installation of cables.  Calculate the hanger requirements	no	HL2←CL4  New	6	med
K6 Install terminal boxes and coils	Describe terminal boxes.  Describe the installation of terminal boxes.  Describe coils.  Describe the installation of coils.	no	HL3←CL4  New	6	high
K7 Install system component accessories	Describe the installation of system component accessories.	no	HL2/HL3←CL4	6	med
K9 Install industrial, commercial and institutional systems	Describe commercial, industrial and institutional plenums.  Describe commercial, industrial and institutional plenum components.	no	New	3	med

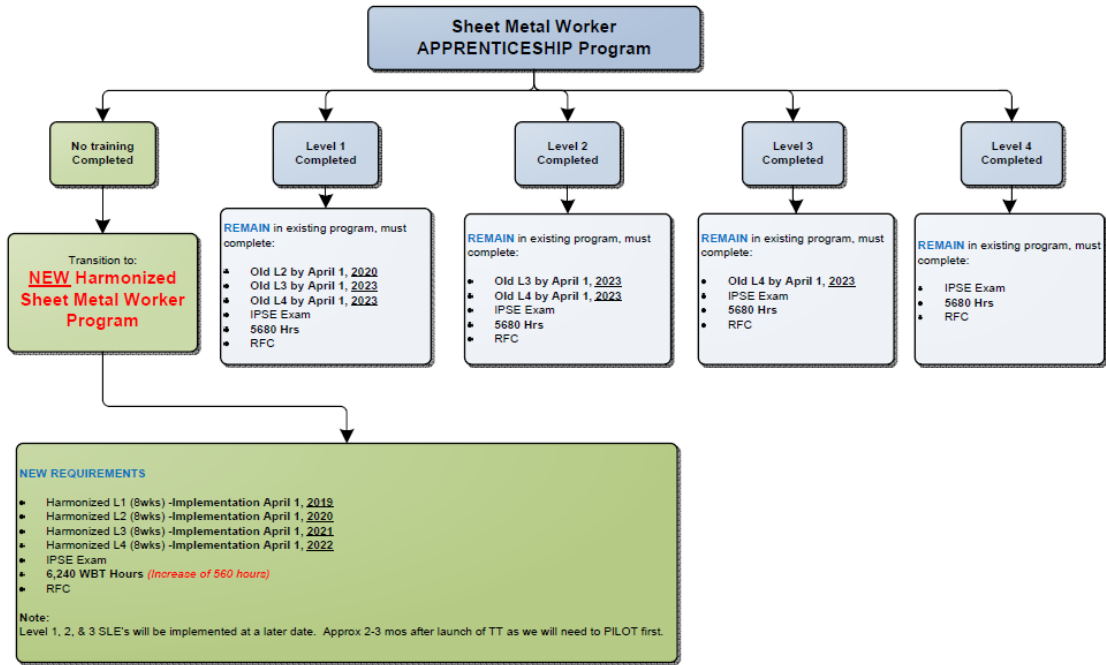
	Install commercial, industrial and institutional plenums.				
N3 Participate in the commissioning of air and material handling equipment	Describe knowledge of commissioning and its purpose.  Describe knowledge of the procedures used to commission air and material handling systems and components.	no	New	3	med
R1 Diagnose system faults	Describe normal operation of a system.  Identify signs of abnormality.	No	HL3←CL4	3	med
R2 Repair worn or faulty components	Describe the servicing and repair of components	no	HL3←CL4	3	med
<b>TOTAL hours</b>				<b>90</b>	

## Appendix B: Overall Communication Plan

Audience	Purpose	Mode
<b>Training Providers</b>	To announce the changes to training standards and the publication of a new Program Outline and Program Profile on the trade webpage on the ITA website	Official Program Standards Notification (OPSN) via email and posting on trade webpage
<b>Training Providers</b>	To plan for transitioning to the new program	Webinar(s), phone calls and/or face to face meetings
<b>Training Providers</b>	To announce the final transition plan	Program Update and Transition Plan via email and posting on trade webpage
<b>Training Providers</b>	To announce the launch of the harmonized level exams	OPSN via email and posting on trade webpage
<b>Employers</b>	To gather input on transition scenarios	Webinar(s), phone calls and/or face to face meetings
<b>Employers</b>	To inform on the upcoming changes to the program and the pathways to completion for their apprentices	Letters sent through ITA Direct Access (DA)
<b>Employers</b>	To inform on the upcoming changes to the program and the pathways to completion for their apprentices	Presentations at Program Advisory Committees (PAC) and other industry events
<b>Apprentices</b>	To inform on the upcoming changes to the program and their pathways to completion	Letters sent through ITA Direct Access (DA)
<b>Apprentices</b>	To inform on the upcoming changes to the program and their pathways to completion	Targeted outreach via phone and email
<b>Apprentices</b>	To inform on the upcoming changes to the program and their pathways to completion	Classroom visits by Apprenticeship Advisors

# Appendix C: Transition Map

## Sheet Metal Worker Transition Map EFFECTIVE April 1, 2019



**CHALLENGE PATHWAY**  
Sheet Metal Worker Hours Requirement: 9,380 hours (was 8,520 hours)

Last Updated: September 10, 2018