Meeting Note
Advice to Minister Anne Kang

Date: January 28, 2021 **Cliff #:**

Prepared for:
Minister Anne Kang, Ministry of Advanced Education and Skills Training
Parliamentary Secretary Mercier, Ministry of Advanced Education and Skills Training

Date, Time of Meeting and Location: February 2nd, 2021, 1:00pm – 3:30pm, via online conference call.

Attendees:
Stakeholder Advisory Working Group Members (see Appendix A for list of members and biographies)
Shannon Baskerville, DM, Ministry of Advanced Education and Skills Training
Bindi Sawchuk, ADM, Ministry of Advanced Education and Skills Training

Issue:

- Meeting with Stakeholder Advisory Working Group on Mandatory Certification (also known as Compulsory Trades) to receive their recommendations.

Background:

- The Government of B.C. has committed to establishing compulsory trades requiring trades workers to be either registered apprentices or certified journeypersons. Compulsory trades will contribute to a robust trades workforce that is ready to meet the demands of a strong, sustainable and inclusive economy.
- To support this work, a 16-member Stakeholder Advisory Working Group (Working Group) was established in 2019 to recommend which trades would be best suited for mandatory certification (see Appendix B for list of recommended trades). Working Group members include representatives from industry associations, labour, post-secondary institutions, Indigenous Skills Trainers, and the ITA, bringing varying perspectives and expertise (see Appendix A for a list of members and their biographies).
- The Working Group developed a robust evidence-based framework supported by lived experience from trades training experts to determine which trades would be best suited for a mandatory designation.
- In addition to recommending trades, the Working Group also provided valuable insight on how to ensure the successful implementation of each recommended trade.
- The Working Group has now finalized its work and is ready to formally deliver its recommendations.
- Minister Kang and Parliamentary Secretary Mercier will join the Working Group's final meeting on February 2nd for the last 30 minutes for introductions, to thank the group for their work, and to receive the trades recommendations for compulsory designation.

Key Messages:

Meeting logistics:

- *The Stakeholder Advisory Working Group meeting is from 1:00pm to 3:30pm. The Minister and Parliamentary Secretary will be joining for the last forty-five minutes of the meeting (2:45pm-3:30pm).*
- *Deputy Minister Shannon Baskerville will introduce the Minister and Parliamentary Secretary*
- *The Minister and Parliamentary Secretary will provide high level remarks (suggested messaging below)*
- *Each Working Group member will introduce themselves*
- *Abigail Fulton, Construction Foundation of BC, will provide a brief summary of the Working Group's recommendations.*

Minister Anne Kang

- I am very pleased to have this opportunity to meet each of you today and to learn more about the work you have done over the past 17 months.
- As you know, one of my mandate letter commitments is to implement Compulsory Trades in B.C. I am truly excited by the opportunities and benefits that Compulsory Trades will bring to trades workers and our economy.
- As a new minister to this file, I've learned there are many complex pieces and moving parts to introducing compulsory trades.
- I was recently briefed about the work of this group and was very impressed by what has been accomplished, despite the many challenges of the COVID-19 pandemic.
- I am extremely grateful for this group's time, commitment and expertise… and for taking such a thorough, evidence-based approach to providing good recommendations for implementing compulsory trades.
- I understand that the trades assessment framework you created is the first of its kind in Canada - which you should be proud of. I genuinely believe this approach can be a useful model for other provinces.
- I recognize that there are many different views on compulsory trades, and I appreciate your commitment to work through a process together to come up with a set of balanced, well-considered recommendations and a respectful report that reflects a variety of views.
- You have provided government with a strong foundation to build a comprehensive and long-lasting Compulsory Trades system in B.C.
- This is an exciting time of change for the trades in B.C. and I am truly honoured to have the opportunity to partner with you on this important work as we move forward.
- Again, thank you for your work, and for your on-going commitment to B.C.'s trades workers.

Suggested Questions to the SAWG:

- I would appreciate hearing about some of the impacts you are most concerned about with compulsory trades.
- How should we be thinking about compulsory trades through a COVID-19 economic recovery lens?

- Given the differing views at the table, how did you find the process overall in providing recommendations to government?

- I am interested in hearing your thoughts on what the trades training system will need from government to move forward on this in the best way. Are there specific considerations for supports for the ITA that you think I should be aware of?

- I understand that there will be benefits for workers and business, but I am also aware that compulsory trades on its own isn't going to fix all challenges in the trades training system. What other kinds of trades training system enhancements would help improve outcomes?

Parliamentary Secretary Mercier

- I echo Minister Kang's comments, and would like to express my personal thanks to everyone for their impressive work over the past 17 months, and for your obvious commitment and passion to trades training in BC.
- While I think many of you know me from my former role with the B.C. Building Trades, it's an honour to be here supporting Minister Kang in the role of Parliamentary Secretary.
- For those of you I haven't met me… [OPPORTUNITY TO HIGHLIGHT RELEVANT PERSONAL EXPERIENCE IN THE TRADES]
- As Parliamentary Secretary, I have a particular focus on ensuring the implementation of compulsory trades… and I can tell you the work of this group will be vital in moving forward with this mandate commitment.
- I believe Compulsory Trades is a critical step in ensuring our Province can continue to meet its training objectives, while giving more trades workers access to apprenticeships that open the doors to opportunity.
- As a long-time advocate for B.C.'s trades workers, I am excited to begin working with you on making compulsory trades a reality in B.C.

Attachments: **Appendix A** – Stakeholder Advisory Working Group Members and Bios

Appendix B – 10 Recommended Trades, description of work, number of uncertified

Appendix C – Questions and Answers

Appendix D – Draft of the SAWG Final Recommendation Report

Contact: Shannon Baskerville, Deputy Minister, Ministry of Advanced Education and Skills Training, (250) 356-5173

Bindi Sawchuk, Assistant Deputy Minister, Ministry of Advanced Education and Skills Training, (250) 216-0346

Appendix A – Stakeholder Advisory Working Group Members and Bios

Abigail Fulton	Construction Foundation of BC
Chris Atchison	BC Construction Association
Helen Boyce*	ACCESS Trades
Irene Kerr	BC Infrastructure Benefits
Jud Martell	BC Building Trades
Kaanesh Ghosh	LNG Canada
Kathy Kinloch	BC Institute of Technology
Ken McCormack	Construction Labour Relations Association
Ken Tourand	Nicola Valley Institute of Technology
Laird Cronk	BC Federation of Labour
Larry Richardson	Christian Labour Association of Canada
Lisa Langevin	BC Tradeswomen Society & Industry Training Authority
Rieghardt van Enter	Progressive Contractors Association & Tybo Contracting
Robin Lucas	Allteck Power Line Contractors
Ron Tremblay	Automotive Retailers Association
Shelley Gray	Industry Training Authority

*Replaced by Buddy Cardinal for the last meeting (same organization- biography not available)

1. **Abigail Fulton B.A. LL. B –** Executive Director Construction Foundation of BC

2. **Chris Atchison,** President & CEO – BC Construction Association

3. **Helen Boyce,** Director – ACCESS (Note: Helen Boyce was replaced by Buddy Cardinal from ACCESS for the last Working Group meeting. A biography is not available)

4. **Irene Kerr,** President and CEO **–** BC Infrastructure Benefits, Inc

5. **Jud Martell,** Representative - BC Building Trades

6. **Kaanesh Ghosh,** HR Account Manager **–** LNG Canada **(Shell)**

7. Kathy Kinloch, President – BC Institute of Technology

8. Ken McCormack, President & CEO - Construction Labour Relations Assoc.

9. Ken Tourand, President **–** Nicola Valley Institute of Technology

10.Laird Cronk, President - BC Federation of Labour

11.Larry Richardson, BC Director of Training **–** Christian Labour Association of Canada

12.Lisa Langevin, Director Women in Trades – ITA

13. **Rieghardt van Enter,** Business Development Manager **–** Tybo Contracting

14. **Robin Lucas –** President, Allteck Line Contractors

15. **Ron Tremblay,** Chair **–** Automotive Retailers Association (ARA)

Appendix B – List of 10 Recommended Trades with description of work, and number of uncertified

Recommended Trade	Description of Work	Estimated Uncertified Workers*
Electrician	Design, install, repair, operate, maintain & decommission residential electrical systems.	274 (2%)
Industrial Electrician	Inspect, install, troubleshoot, & service industrial electrical equipment for plants, mines, mills, manufacturing, etc.	12 (0.3%)
Powerline Technician	Install, maintain & repair overhead, underground & underwater powerlines and cables.	36 (3%)
Gasfitter	Install, test, maintain & repair residential & commercial propane/natural gas lines.	39 (4%)
Refrigeration & Air Conditioning Mechanic	Install, & service residential and industrial heating, ventilation, air conditioning & refrigeration units & systems.	348 (13%)
Automotive Service Technician	Preventative maintenance diagnose problems & repair vehicle systems on vehicles weighing less than 5,500kg.	4,669 (26%)
Automotive Body Repairer	Repairs, adjusts and replaces sheet metal and allied parts of automobiles, trucks & buses.	1,356 (32%)
Heavy Duty Equipment Mechanic	Maintains, manufactures, overhauls, reconditions & repairs heavy duty equipment (excavators, trailers, trucks, tractors, etc.)	856 (16%)
Steamfitter/Pipefitter	Assemble, fabricate & service equipment and piping systems carrying water, steam, fluids, gases, chemicals and fuel in various systems.	102 (4%)
Sheet Metal Worker	Fabricates, assembles, welds, installs, & services sheet metal products.	458 (18%)

Appendix C – Questions and Answers

Questions and Answers
Stakeholder Advisory Working Group on Mandatory Certification
February 2nd, 2021

1. **Minister Kang, what is your vision for compulsory trades?**

- Restoring compulsory trades will help create the skilled workforce that B.C. needs to recover from the COVID pandemic and build a strong and sustainable economy in the future.
- It's a vision that puts workers first, with the knowledge that giving more British Columbians a path to apprenticeship completion contributes to them earning better wages, having more job opportunities and greater resiliency in a challenging labour market.
- Ultimately, this is what we mean when we say government is building an economy that works for everybody – and I think compulsory trades is an important part of that equation.

2. **I noticed the reference to the Ministry of Labour's role in your mandate letter on compulsory trades, can you please expand on your role and the role of Minister Bains?**

- The Ministry of Advanced Education and Skills Training will continue to lead on implementing compulsory trades, including supporting the ITA and other key system partners to fulfill their roles as we move forward.
- The Ministry of Labour, and Minister Bains, are interested in compulsory trades as a way to maintain and enhance high standards of safety on the worksite. My ministry will continue to seek their input and guidance on safety and regulatory legislation as we move forward.
- In addition, as the ITA begins to develop its compliance and enforcement capacity, the Ministry of Labour will have a role in supporting cooperative and mutually beneficial relationships between other regulatory bodies like WorkSafeBC and Technical Safety BC.

3. **What will the approach be for future engagement on compulsory trades, particularly with Indigenous workers, apprentices, employers, youth and uncertified workers?**

- As we move forward with compulsory trades, its critical that we expand our engagement to include all industry stakeholders who would be impacted by this policy - especially smaller employers.
- We also really need to hear from under-represented groups, youth, uncertified workers, and Indigenous communities to understand how compulsory trades may affect them.
- This will help us identify the specific kinds of supports workers and employers will need to successfully transition into mandatory certification – so that nobody is left behind.

- With respect to Indigenous partners and communities, we have a commitment to lasting and meaningful reconciliation through the Declaration of the Rights of Indigenous Peoples Act. Compulsory trades can create more opportunities for Indigenous Peoples to be full partners in B.C's economy, and we will work together to establish good pathways toward that goal.
- This broader engagement will start after a final decision is made on mandatory certification implementation – which we expect in early spring.

4. When will these 10 recommended trades be implemented? Will they all be implemented at once?

- As you know, mandatory certification is a significant change for the trades training system that needs to be carefully coordinated to be successful. Preparing for this change will take at least 18 months before the first group of trades would become mandatory… possibly sometime in late 2022.
- Government is still reviewing the business case and the Working Group's recommendations before deciding on the exact timeline. It is unlikely, however, that all recommended trades will be implemented at the same time.

5. Will government consider additional trades in the future?

- Yes. The implementation plan for mandatory certification includes a recommendation for the ITA to develop a permanent process and governance model for industry to propose additional trades for mandatory certification beyond the 10 recommended trades.
- This process will build on the framework that this Working Group developed over the past 17 months.

Appendix D

Stakeholder Advisory Working Group for Mandatory Trade Certification in British Columbia

TRADE RECOMMENDATIONS

Table of Contents

February 2, 2021

Dear Minister Kang,

The Stakeholder Advisory Working Group for Mandatory Trades is pleased to submit the following report recommending 10 trades to initially be designated as mandatory should government decide to implement mandatory trade certification in British Columbia. We would like to thank government for their willingness to have an open and transparent approach to policy development and for including system partners and industry experts in the process.

In October 2019, a 16-member Stakeholder Advisory Working Group was established to support government's commitment to explore mandatory certification and to recommend which trades would be best suited for mandatory designation. Membership included trainers, industry organizations and the Industry Training Authority (ITA), bringing together a variety of perspectives and expertise which contributed to the final recommendations.

The Working Group met 12 times over 17 months during which time a global pandemic and a provincial election took place. With the support of our co-chairs Deputy Minister Shannon Baskerville and Deputy Minister Trevor Hughes, and Ministry staff, we completed our objective – "to recommend which trades would be best suited for mandatory certification."

The recommendations were developed through an in-depth assessment process and were guided by a criteria framework that ensures mandatory trades will benefit workers and businesses while maintaining public and worker safety. Trades experts were called upon to contribute their "lived experience" working and training in their respective trade so that the working group could consider all the impacts to workers and businesses when finalizing the recommendations.

The Working Group was also asked to advise on key implementation considerations to ensure mandatory certification is successful and lays the foundation for BC's long-term mandatory trades environment. Considerations included journeyperson to apprentice ratios for mandatory trades as a means of ensuring a minimum standard of supervision for the training of apprentices, and a fair and transparent compliance system led by the Industry Training Authority.

While the recommendations are submitted to government on behalf of the Working Group as a whole, it is important to acknowledge that there was not always unanimous agreement amongst members with respect to the recommendations and their impact on workers, businesses, and the public. These differing perspectives were discussed at length, in a thoughtful way, eventually ensuring all members were comfortable moving the work forward for government consideration.

We are confident in the recommendations and rationale in this report, and believe they contribute to the successful implementation of mandatory certification.

Finally, we would like to thank ministry staff for their hard work and dedication throughout this project, and our Deputy Minister co-chairs who kept the work moving forward and ensured respectful and productive discussions.

Respectfully,

Abigail Fulton	Jud Martell	Ken Tourand	Rieghardt van Enter
Chris Atchison	Kaanesh Ghosh	Laird Cronk	Robin Lucas
Helen Boyce	Kathy Kinloch	Larry Richardson	Ron Tremblay
Irene Kerr	Ken McCormack	Lisa Langevin	Shelley Gray

Introduction

The Government of B.C. is exploring the implementation of mandatory certification for some trades, requiring trades workers to be either registered apprentices or certified journeypersons. The vision for mandatory certification is that it will contribute to a robust trades workforce that is ready to meet the demands of a strong, sustainable and inclusive economy.

Mandatory certification represents a new approach to creating systemic and cultural change in the trades by:

- building a more highly skilled trades workforce, while standardizing skill levels within specific trades;
- encouraging long-term careers in the skilled trades by raising their prestige and making the trades an occupation of choice for young people;
- improving workers' standards of living by ensuring they have the skill set to take advantage of better paid jobs in the trades and/or rise to the highest wage level in that trade;
- supporting more apprentices, including Indigenous peoples, women and equity-seeking groups and youth to achieve trades certification; and
- ensuring B.C. is prepared to meet the high demand for skilled workers over the next ten years.

Mandatory certification would represent a significant system change which would have several implications for workers, employers, the trades training system and the broader economy.

A Stakeholder Advisory Working Group (Working Group), representing Industry and Training Providers (See Appendix A for membership) was established to develop a transparent and measurable framework to recommend which trades could benefit from mandatory certification. Based on the framework described below, the Working Group is recommending the following ten trades for mandatory certification. These trades were chosen based on their benefits for workers, employers and the public, in addition to their minimal impact on labour supply or the economy. Working group analysis and discussion led to the prioritization of these trades over other trades due to their relative ease of implementation. These trades are designed to build the foundation of BC's long-term compulsory trades system and pave the way for other trades of equal importance to be designated as mandatory in the future.

Electrical Trades	*Mechanical Trades*	*Automotive Trades*
1. Electrician (Construction)	4. Refrigeration and Air Conditioning Mechanic	8. Heavy Duty Equipment Technician
2. Industrial Electrician	5. Gasfitter A & B	9. Automotive Service Technician
3. Powerline Technician	6. Steamfitter/Pipefitter	10. Motor Vehicle Body Repairer
	7. Sheet Metal Worker	

Framework to Assess Trades for Mandatory Certification

The Working Group developed a framework to consider the unique interests of three key participants in skilled trades activity and B.C.'s economy: workers, employers, and the public. The overarching objective was to benefit workers by improving their skills and standard of living, ensure continued safety, and benefit employers and the public with minimal disruptions or negative impacts (see Appendix B – Designation Framework Graphic).

Principles & Criteria

Six principles and criteria were established to guide the approach to identifying trades for consideration:

Assessment Principles and Criteria

1. **Worker -** MC should result in a substantial number of trades workers benefiting from the highest level of training and skill. To support this principle a trade must meet two criteria:
    - **Trade is in high demand:** The trade has a high number of workers currently employed and is expected to have substantial growth in job openings in the future. The higher number of workers in the trade occupation the more workers who will benefit from completing training and achieving certification.
    - **Trade Occupation requires a high level of skill:** Workers in trades requiring a high skill level have greater opportunity: for earning high wages, increasing their standard of living, and career advancement.
2. **Business –** MC should result in skilled trades workers supporting business viability and growth & supporting investment for a strong economy. To support this principle, a trade must meet two criteria:
    - Trade occupation may be **critical to large investment:** Access to an adequate supply of highly skilled workers to support large investment will increase BC's economic competitiveness; and
    - Trade occupation is **less vulnerable to economic shifts.** Trades with a workforce that is stable during economic volatility help ensures businesses remain viable and continue to prosper.
3. **Public –** MC should maintain or enhance public safety, as well as consumer confidence. To support this principle, the trade must meet two criteria:
    - Trade occupation is a **high safety risk to public:** MC will ensure all workers are certified with professional knowledge of their trade with occupational and public safety standards and practices; and
    - Trade occupation is a **service purchased by the public:** MC would give consumers confidence that the trades people they hire have the highest level of training, workmanship and service quality.

Implementation Principles

Three additional principles were developed to ensure workers and businesses were successfully supported during implementation and transition to a mandatory environment:

4. **Workers** – MC implementation should maximize opportunities for all workers to successfully transition to a MC environment
5. **Business –** MC implementation should enable businesses to successfully transition to a MC environment that doesn't hinder business viability.
6. **Public –** MC implementation should result in the public continuing to have access to trades services at reasonable costs.

Data and Analysis

The Working Group measured each trade against the above criteria informed by the following data:

- length of training;
- education levels;
- projected job openings;
- potential for increased wages;
- level of investment in the construction industry;
- level of safety risk to the public; and
- level of service purchased by the public.

Initial data analysis by the Working Group identified 10 trades that met the framework criteria. These 10 trades then underwent a full assessment, including further analysis and validation of the data[1] in addition to discussions with technical experts, to confirm the potential benefits and implications to workers and businesses and the public. The Working Group also identified implementation considerations for each of the 10 trades (See Appendix C: List of Trades Considered and Recommended for mandatory certification).

Implementation

In order to ensure mandatory certification is successful in achieving its objectives, Working Group members agreed that a well-timed and adequately funded implementation plan is put forward for Treasury Board approval and includes: an effective compliance and enforcement model; supports and services for uncertified workers to become certified; and mechanisms for ensuring adequate supervision of apprentices. Working Group members had various views and perspectives on each of these topics that are important to consider.

Indigenous Peoples and Communities

Mandatory certification will change BC's trades workforce and training landscape, which will likely impact Indigenous Peoples and their communities. While, the Working Group believes that mandatory certification will not create new barriers for indigenous workers on its own, it may exacerbate existing barriers, especially in remote communities.

Indigenous workers are more likely than others to be uncertified due to racism, a gap in essential skills, lack of training near their communities, and a lack of Indigenous mentors. Fulsome engagement with Indigenous Peoples is essential to fully understanding the supports and services needed to successfully transition Indigenous uncertified workers and employers to a mandatory environment. Mandatory certification will provide a pathway to greater economic opportunities for Indigenous Peoples with the right engagement, supports and training.

[1] Further analysis and validation of the data for the 10 trades included a targeted review of the quantitative data and thorough discussion with technical experts, expanded the analysis to consider qualitative information regarding the number of uncertified workers that may be impacted, the number of underrepresented groups working in the trades, understanding the existing regulatory environment and scope of work performed by trades workers in the 10 trades.

Effective monitoring & compliance

The Working Group agreed that without an effective compliance system, some employers may choose not to comply with mandatory certification, potentially creating unfair hiring practices between businesses. To mitigate this, the Working Group is recommending that the Industry Training Authority (ITA) is best positioned to lead an effective and robust monitoring and compliance system in partnership with relevant government agencies (e.g. WorkSafeBC), external agencies (e.g. Technical Safety BC), industry, and apprentices.

Working Group members noted that consideration should be given to separating ITA's role of supporting apprentices and employers through Apprentice Advisors with compliance and enforcement through Compliance Officers.

The Working Group also suggested that the most effective approach to monitoring and compliance was one that starts with inspiring compliance through awareness and education, before progressively moving towards a stronger compliance approach, often involving penalties, orders, and audits (i.e. similar to Nova Scotia and New Brunswick).

Certifying Experienced Workers

The Working Group agreed that is important to retain uncertified workers with extensive experience in their trade as they are essential mentors and trainers for apprentices, passing on valuable knowledge and skills to the next generation of trades workers.

Working Group members acknowledged that BC has a well established and well supported challenge pathway to allow experienced uncertified workers opportunities to obtain certification. The Working Group felt that the challenge pathway should be leveraged rather than consideration of grandparenting provisions[2] for targeted groups as it could create inequity and does not align with the overall objective of mandatory certification to increase the total number of workers benefiting from becoming certified.

Instead, the Working Group suggested strengthening exam writing supports (e.g. for ESL trades workers), providing a transition period of at least one year for workers and employers to comply, and clearly communicating compliance requirements and available supports to employers and workers, well in advance of implementation.

Journeyperson to Apprentice Ratios

The Working Group agreed that good quality mentoring and adequate supervision during on-the-job training is the foundation of Apprenticeship training. Journeyperson to Apprentice ratios can be an effective tool for establishing a minimum standard of supervision, providing a level of protection to apprentices from "bad actor" employers who choose to register multiple uncertified trades workers as apprentices in order to comply with mandatory certification but do not provide adequate supervision. limiting the number of apprentices training under a journeyperson can ensure a more valuable mentorship experience.

Some Working Group members expressed concerns that ratios could negatively impact small businesses who may not be able to meet a restrictive ratio (e.g. 1:1).

[2] A grandparenting provision would allow older worker with extensive experience in the trade to continue working without certification until they choose to leave the trade and retire.

Working Group members recommend that Government implement a prescribed ratio for the 10 recommended mandatory trades, with the following considerations: Appropriate ratios be determined for each trade through industry consultation led by ITA; and flexibility that reflects the different needs and impact on businesses, industry and regions.

Summary of Criteria Assessment Results

	Assessment Criteria					
Principle	MC results in a substantial # of trades workers benefit from highest level of training & skill		MC results in skilled workers supporting business viability & growth & supports strong economy		MC maintains or enhances public safety & consumer confidence	
Criteria	Trade requires High Level of Technical Skill	Trade is in high demand	Trade is less vulnerable to economic shifts	Trade may be critical to large investments	Trade is a high safety risk to the public	Trade is a service purchased by the public
1. Construction Electrician	✓	✓	✓	✓	✓	
2. Industrial Electrician	✓	✓	✓	✓	✓	
3. Powerline Technician	✓		✓	✓	✓	
4. Gasfitter A/B	✓	✓		✓	✓	✓
5. Steamfitter	✓	✓	✓	✓	✓	
6. Refrigeration & Air Conditioning Mechanic	✓	✓	✓	✓	✓	✓
7. Sheet Metal Worker	✓	✓	✓	✓	✓	
8. Automotive Service Technician	✓	✓	✓		✓	✓
9. Automotive Body Repairer	✓	✓	✓		✓	✓
10. Heavy Duty Equipment Technician	✓	✓	✓			

Recommendation #1 – Construction Electrician

Background

Scope of work: Construction electricians plan, design, assemble, install, alter, repair, inspect, verify, commission, connect, operate, maintain and decommission residential, commercial, institutional, industrial and marine electrical systems.

Current regulatory environment in B.C.: In order to get a permit to legally conduct electrical work, a business must have at least one Field Safety Representative (FSR) employed and involved in the project. An FSR must hold an Electrical Certificate of Qualification issued by the Industry Training Authority (or another recognized jurisdiction). Technical Safety B.C. is responsible for certifying Field Safety Representatives (FSR) and providing work permits.

Assessment Results

The results of data analysis and expert discussion against the criteria indicate that designating Construction Electrician as a mandatory trade could provide a benefit to workers while also maintaining business viability, public safety and consumer protection. Data suggests Construction Electrician meets the following criteria:

a) Requires a *high level of technical skill*. This is demonstrated by:
   - Completing a high number of required training hours relative to other trades (7,200 in-classroom and work-based hours combined).
   - Workers in this occupation typically have some form of post-secondary education such as a diploma/certificate, and high regulation.
   - Workers in this trade, on average, earn higher wages then many other trades occupations. According to Labour Force Survey results, electricians are earning a median wage of $29 per hour with some Electricians earning upwards of $44.50 per hour. These wage levels reflect many factors, including: a worker's experience or time in the trade, education level, location within the Province (i.e. rural vs urban), and labour market supply.

b) Is an occupation that is in *high demand*. This is demonstrated by a large number of job openings expected over the next 10 years relative to the size of the occupation; 2,752 expected job openings represents 21 percent of current employment (13,065), suggesting long term demand for certified Construction Electricians to replace retiring workers and support future economic growth.

c) Plays a critical role in companies making *large investment* decisions. This is demonstrated by the largest share of electricians (88%) being employed in the construction industry which is the largest contributor to investment in B.C.

d) Supports business viability by providing stable employment and being l*ess sensitive to economic shifts*. Construction Electrician has a 27% difference between its highest point of employment and its lowest over the last 15 years. This indicates that, relative to other trades, Electrician has experienced low job fluctuations and a higher rate of stable employment.

e) Can pose a *high safety risk to the public*. Poor or incorrect wiring can lead to increased chances of a fire, power surges, arc faults, and other serious consequences to the public.

f) Is a *service sometimes purchased by the public*. Six percent of work is conducted in a consumer-oriented industry. For example: homeowners often directly hire Construction Electricians to install and repair electrical wiring in their homes. This does not reflect electrical work completed during or immediately after construction.

While Construction Electrician meets many of the criteria for mandatory certification, data analysis also suggests there are other considerations:

- A majority of Electricians are already certified or participating in an apprenticeship; only two percent of workers are estimated to be uncertified (274 uncertified workers of 13,065 employed) and Construction Electrician has the highest number of apprentices in B.C., therefore, MC would not significantly increase the number of certified workers working in the occupation.
- However, industry experts suggest that there may be more uncertified workers practising the trade than indicated by data (e.g. those working as "handy persons" making small repairs in people's homes, those that are performing smaller wiring jobs within a small business, or working under a certified tradesperson who has pulled the permit for the overall job). Implementing MC would require all workers and businesses to comply with the same certification and training requirements and standards rather than comply with existing regulation that allows for some workers to perform electrical work without certification.

Implementation Timing and Considerations

The trades training system is largely ready to support workers and businesses through a successful transition to a mandatory environment and recommends that implementation of Construction Electrician could begin immediately:

- Workers and employers in this trade would experience little disruption as they are already working in a highly regulated environment similar to mandatory certification.
- Demand for new apprentice seats could be relatively low because the majority of electrical trades workers are already certified or registered apprentices. The trades training system is well positioned to absorb a small to moderate increase in Electrical apprenticeship training seats. Construction Electrician apprenticeship training is currently delivered through 15 public and non-public training institutions, enabling any seat increases to be distributed across B.C.

Additional Notes

- Due to a high degree of crossover in the work between Industrial Electrician and Construction Electrician, the Working Group recommends that Industrial Electricians would continue to conduct work within the Construction Electrician scope of trade.
- Construction Electrician is designated compulsory in nine (9) other jurisdictions, indicating an established precedent for designation, potentially validating the need to ensure BC workers are meeting the same standards.

Recommendation #2 – Industrial Electrician

Background

Scope of work: Industrial Electricians inspect, install, test, troubleshoot, repair, and service industrial electrical equipment and associated electrical and electronic controls (usually in an industrial or plant setting).

Current regulatory environment in B.C.: In order to get a permit to legally conduct electrical work, a business must have at least one Field Safety Representative (FSR) employed and involved in the project. An FSR must hold an Electrical Certificate of Qualification issued by the Industry Training Authority (or another recognized jurisdiction). Technical Safety B.C. is responsible for certifying Field Safety Representatives (FSR) and providing work permits.

Assessment Results

The results of data analysis and expert discussion against the criteria indicate that designating Industrial Electrician as a mandatory trade could provide a benefit to workers while also maintaining business viability, public safety and consumer protection. Data suggests Industrial Electrician:

a) Requires a *high level of technical skill*. This is demonstrated by:
    - Completing a high number of required training hours relative to other trades (7,200 in-classroom and work-based hours combined).
    - Workers in this occupation typically have some form of post-secondary education such as a diploma/certificate, and high regulation.
    - Workers in this trade, on average, earn higher wages then many other trades occupations. According to Labour Force Survey results, Industrial Electricians are earning a median wage of $38.75 per hour with some Industrial Electricians earning upwards of $51.10 an hour. These wage levels reflect many factors, including: a worker's experience or time in the trade, education level, location within the Province (i.e. rural vs urban), and labour market supply.

b) Is an occupation that is in *high demand*. This is demonstrated by a large number of job openings expected over the next 10 years relative to the size of employment in the occupation due to retirement and growth; 1,171 expected job openings represents 30 percent of the current employment (3,835) in the trade, suggesting long term demand for certified Industrial Electricians to replace retiring workers and to support future economic growth.

c) Plays a critical role in companies making *large investment* decisions. This is demonstrated by a moderate share of industrial electricians (30%) employed in the construction industry which is the largest contributor to investment in B.C.

d) Supports business viability by providing stable employment and being l*ess sensitive to economic shifts*. Industrial Electrician has a 44% difference between its highest point of employment and it's lowest over the last 15 years. This indicates that, relative to other trades, Industrial Electrician has experienced moderate to low job fluctuations and a relatively higher rate of stable employment.

e) Can pose a *high safety risk to the public*. Poor or incorrect wiring can lead to increased chances of a fire, power surges, arc faults, and other serious consequences to the public.

f) Is a *service rarely purchased directly by the public*. Industrial Electrician does not meet this criteria due to the low (4%) percent of work conducted in a consumer-oriented industry.

While Industrial Electrician meets many of the criteria for mandatory certification, data analysis also suggests there are other considerations:

- Most Industrial Electricians are already certified or participating in an apprenticeship; nearly zero percent of workers are estimated to be uncertified (12 uncertified workers of 3,835 employed) therefore, MC would not significantly increase the number of certified workers working in the occupation.

Implementation Timing and Considerations

The trades training system is ready to support workers and businesses through a successful transition to a mandatory environment and recommends that implementation of Industrial Electrician could begin immediately:

- Workers and employers in this trade would experience little disruption as they are already working in a highly regulated environment similar to mandatory certification.
- Demand for new apprentice seats could be relatively low because the majority of industrial electricians are already certified or registered apprentices. The trades training system is well positioned to absorb a small to moderate increase in apprenticeship training seats. Industrial Electrician apprenticeship training is currently delivered through 3 public and non-public training institutions, enabling the small number of seats increases to be distributed across B.C.

Additional Notes

- Due to a high degree of crossover in the work between Industrial Electrician and Electrician (Construction), the Working Group recommends that Industrial Electricians would continue to conduct work in the Electrician (Construction) trade area.

Recommendation #3 – Powerline Technician (PLT)

Background

Scope of work: Powerline technicians install, maintain and repair overhead, underground and underwater powerlines and cables, and other associated equipment such as insulators, conductors, lightning arrestors, switches, metering systems, transformers and lighting infrastructure.

Current regulatory environment in B.C.: In order to get a permit to legally conduct electrical work, a business must have at least one Field Safety Representative (FSR) employed and involved in the project. An FSR must hold an Electrical Certificate of Qualification issued by the Industry Training Authority (or another recognized jurisdiction). Technical Safety B.C. is responsible for certifying Field Safety Representatives (FSR) and providing work permits.

Assessment Results

The results of data analysis and expert discussion against the criteria indicate that designating Powerline Technician as a mandatory trade could provide a benefit to workers while also maintaining business viability, public safety and consumer protection. Data suggests Powerline Technician:

a) Requires a *high level of technical skill*. This is demonstrated by:
   - Completing a high number of required training hours relative to other trades (6,830 in-classroom and work-based hours combined).
   - Workers in this occupation typically have some form of post-secondary education such as a diploma/certificate, and high regulation.
   - Workers in this trade, on average, earn higher wages then many other trades occupations. According to Labour Force Survey results, Powerline Technicians are earning a median wage of $42.00 per hour with some Powerline Technicians earning upwards of $54.70 an hour. These wage levels reflect many factors, including: a worker's experience or time in the trade, education level, location within the Province (i.e. rural vs urban), and labour market supply.

b) Is an occupation that is in *high demand*. Powerline Technician has a low number of 10-year job openings (330) compared to other trades, however, the job openings as a share of current employment (1,235) is considered high at 26 percent. This suggests there is long term demand for certified Powerline Technicians to replace retiring workers and to support future economic growth.

c) Plays a critical role in companies making *large investment* decisions. This is demonstrated by a moderate share of Powerline Technicians (43%) employed in the construction industry, which is the largest contributor to investment in B.C.

d) Supports business viability by providing stable employment and being l*ess sensitive to economic shifts*. Powerline Technician has a 51% difference between its highest point of employment and it's lowest over the last 15 years. This indicates that, relative to other trades, Powerline Technician has experienced moderate job fluctuations, suggesting relatively stable employment.

e) Can pose a *high safety risk to the public*. Poor or incorrect wiring can lead to increased chances of a fire, power surges, arc faults, and other serious consequences to the public.

f) Is a *service rarely purchased directly by the public*. Powerline technician does not meet the criteria due to the low (2%) percent of work conducted in a consumer-oriented industry.

While Powerline Technician meets many of the criteria for mandatory certification, data analysis also suggests there are other considerations:

- Most Powerline Technicians are already certified or participating in an apprenticeship; 2 percent of workers are estimated to be uncertified (36 uncertified workers of 1,235 employed) and therefore, MC would not significantly increase the number of certified workers working in the occupation.
- However, industry experts believe there are likely more uncertified workers than originally indicated in the data. Specifically, uncertified workers with a limited scope of trade, working alongside certified Powerline Technicians in a support role capacity. These workers may benefit from the opportunity to certify as a result of introducing mandatory certification. Implementing MC would require all workers and businesses to comply with the same certification and training standards, whereas existing regulations allow some workers to perform limited Powerline Technician type work without certification.

Implementation Timing and Considerations

The trades training system is largely ready to support workers and businesses through a successful transition to a mandatory environment and recommends that implementation of Powerline Technician could begin immediately:

- Workers and employers in this trade would experience little disruption as they are already working in a highly regulated environment similar to mandatory certification.
- Demand for new apprentice seats could be relatively low because the majority of Powerline Technicians are already certified or registered apprentices. The trades training system is well positioned to absorb a small to moderate increase in apprenticeship training seats. Powerline Technician apprenticeship training is only delivered through BC Hydro.

Additional Notes

- Introducing mandatory certification would ensure that only Powerline Technicians can conduct electrical work on powerlines. Extending MC regulations to include independent power producers and mines would reduce industry confusion by simplifying regulatory oversight/jurisdiction.

Recommendation #4 – Refrigeration and Air Conditioning Mechanic (RACM)

Background

Scope of work: Refrigeration and Air Conditioning Mechanics (RACM) install, maintain and service residential, commercial, industrial and institutional heating, ventilation, air conditioning and refrigeration units and systems. They also connect to air delivery systems, install and service hydronic and secondary refrigerant systems, and associated controls.

Their duties include laying out reference points for installation, assembling and installing components, installing wiring to connect components to an electric power supply and calibrating related controls. They also measure, cut, bend, thread and connect pipe to functional components and utilities. Refrigeration and Air Conditioning Mechanic is a Red Seal trade.

Current regulatory environment in B.C.: A worker must be a certified Refrigeration & Air Conditioning Mechanic (RACM) to install, repair or alter refrigeration and AC system over 5 kW. Work on these highly regulated systems (over 5 kw) usually takes place in the commercial, industrial or institutional sectors.

A fully certified RACM can work in all sectors with no restrictions on the type or size of unit being worked on. According to industry experts, the majority of unregulated and uncertified work is done in the residential and light commercial sector (units under 5kW).

Refrigeration & Air Conditioning Mechanics complete their apprenticeship with Gasfitter Class B certification enabling them to conduct residential and light commercial gas and related electrical work (excludes panel work). A RAC Mechanic may choose to pursue additional certification and upgrade to a Class A Gasfitter to expand their scope of work.

Assessment Results

The results of data analysis and expert discussion against the criteria indicate that designating Refrigeration and Air Conditioning Mechanic as a mandatory trade could provide a benefit to workers while also maintaining business viability, public safety and consumer protection. Data suggests RACM:

a) Requires a *high level of technical skill*. This is demonstrated by:
    - Completing a high number of required training hours relative to other trades (8,060) in-classroom and work-based hours combined).
    - Workers in this occupation typically have some form of post-secondary education such as a diploma/certificate.
    - Workers in this trade, on average, earn higher wages then many other trades occupations. According to Labour Force Survey results, RACM are earning a median wage of $35.00 per hour with some RACM earning upwards of $51.90 an hour. These wage levels reflect many factors, including: a worker's experience or time in the trade, education level, location within the Province (i.e. rural vs urban), and labour market supply.

b) Is an occupation that is in high demand. RACM has a low number of 10-year job openings (696) compared to other trades, however, job openings as a share of current employment (2,570) is considered high at 27 percent. This suggests long term demand for certified Refrigeration and A/C Mechanics to replace retiring workers and support future economic growth.

c) Plays a critical role in companies making *large investment* decisions. This is demonstrated by a high share of RACM (68%) employed in the construction industry, which is the largest contributor to investment in B.C.

d) Supports business viability by providing stable employment and being l*ess sensitive to economic shifts*. RACM has a 43% difference between its highest point of employment and it's lowest over the last 15 years. This indicates that RACM has experienced moderate to low job fluctuations relative to other trades, suggesting a more stable level of employment.

e) Can pose a *high safety risk to the public*. Incorrectly installed/repaired building ventilation or refrigeration equipment can lead to poor health, higher risk of infections, and refrigeration system malfunction causing serious injury or death.

f) Is a *service sometimes purchased by the public*. RACM has a high percent (16%) of work conducted in a consumer-oriented industry.

Implementation Timing and Considerations

The trades training system is largely ready to support workers and businesses through a successful transition to a mandatory environment and recommends that implementation of RACM could begin immediately:

- Workers and employers in this trade would likely experience low to moderate disruption due to a higher percent of uncertified workers, 13.5 percent of workers are estimated to be uncertified (348 uncertified workers of 2,570 employed). Most of these estimated uncertified workers are likely operating in the residential sector, conducting small residential installations and repairs.

- The trades training system is well positioned to absorb a small to moderate increase in apprenticeship training seats. However, additional seats may be needed to train all the estimated uncertified workers in this trade. Refrigeration and Air Conditioning Mechanic apprenticeship training is delivered through 5 public and non-public training throughout BC.

Additional Notes

- RACM is designated compulsory in seven (7) other jurisdictions, indicating an established precedence for designation, potentially validating the need to ensure BC workers are meeting the same standards.

Recommendation #5 – Gasfitter A & B

Background

***Scope of work**:* Class A gasfitter means a person who may install, test, maintain and repair gas pipelines, appliances, equipment and accessories in residential, commercial, and industrial premises that utilize natural gas, manufactured gas, liquefied petroleum gas, digester gas, landfill gas, biogas or hydrogen for combustion. The holder of a Gasfitter - (Class A) is involved in the installation or alteration of any gas system, except vehicle fuel systems.

The holder of a Class B Gasfitter certificate installs, tests, adjusts, maintains and repairs gas lines, appliances, equipment and accessories in various sectors. Appliances and equipment include those that do not exceed 400 000 Btuh (British Thermal Units per hour) or 120 kW (kilowatts) and are certified, which typically include residential or light commercial boilers, domestic water heaters, furnaces, fireplaces, process burners, and various other gas-fired equipment.

Current regulatory environment in B.C.: Gasfitter Class A can Install or alter any gas system (except vehicles) and is able to work in residential, commercial, or industrial settings. A certified Gasfitter A is permitted to perform electrical work related to their scope of trade, excluding connection to the distribution panel. Class A Gasfitters are usually employed by gas contractors and operating permit holders that install, service and maintain large commercial, institutional and industrial facilities as well as large gas utilities.

Class B Gasfitters work mostly in the residential and light commercial sectors. Class B Gasfitters work on limited input residential boilers, domestic water heaters, makeup air units, furnaces, process burners, and various other gas-fired equipment. A certified Gasfitter B can perform related electrical work required for the equipment, excluding connection to the distribution panel.

Assessment Results

The results of data analysis and expert discussion against the criteria indicate that designating Gasfitter A & B as a mandatory trade could provide a benefit to workers while also maintaining business viability, public safety and consumer protection. Data suggests Gasfitter:

a) Requires a high level of *technical skill*. This is demonstrated by:
   - Completing a high number of training hours relative to other trades (7,800) in-classroom and work-based hours combined.
   - Workers in this occupation typically have some form of post-secondary education such as a diploma/certificate, and high regulation.
   - Workers in this trade, on average, earn higher wages then many other trades occupations. According to Labour Force Survey results, Gasfitters are earning a median wage of $30.00 per hour with some Gasfitters earning upwards of $52.21 an hour. These wage levels reflect many factors, including: a worker's experience or time in the trade, education level, location within the Province (i.e. rural vs urban), and labour market supply.

b) Is an occupation that is in high demand. Gasfitter has a low number of 10-year job openings (379) compared to other trades, however, the job openings as a share of current employment (1,040) is considered high at 36 percent. This suggests there is long term demand for certified Gasfitters to replace retiring workers and support future economic growth.

c) Plays a critical role in companies making *large investment* decisions. This is demonstrated by a high share of gasfitters (62%) employed in the construction industry, which is the largest contributor to investment in B.C.

d) Is less supportive to business viability: Gasfitter has a less stable employment base and is more *sensitive to economic shifts*. Gasfitter has a 66% difference between its highest point of employment and it's lowest over the last 15 years. This indicates that Gasfitter has experienced moderate to high job fluctuations relative to other trades, suggesting less stable employment.

e) Can pose a *high safety risk to the public*. If improperly repaired or maintained, gas lines or other gas utilities could leak, causing serious risks to public safety.

f) Is a *service sometimes purchased directly by the public*. Gasfitter has a moderate percent (9%) of work conducted in a consumer-oriented industry. Most work is conducted in the construction, commercial services, and industrial sectors.

While Gasfitter meets many of the criteria for mandatory certification, data analysis also suggests there are other considerations:

- Most Gasfitters are already certified or participating in an apprenticeship; 4 percent of workers are estimated to be uncertified (39 uncertified workers of 1,040 employed) and therefore, MC would not significantly increase the number of certified workers working in the occupation.

Implementation Timing and Considerations

The trades training system is ready to support workers and businesses through a successful transition to a mandatory environment and recommends that implementation of Gasfitter A & B could begin immediately:

- Workers and employers in this trade would experience little disruption as they are already working in a highly regulated environment similar to mandatory certification. Industry experts believe the residential and light commercial sector likely has higher rates of uncertified workers. These uncertified workers are likely Class B Gasfitters as industry experts believe most Gasfitter (Class A) workers are fully certified.
- Demand for new apprentice seats could be relatively low because the majority of Gasfitters are already certified or registered apprentices. The trades training system is well positioned to absorb a small increase in apprenticeship training seats. Gasfitter apprenticeship training is currently delivered through 4 public and non-public training institutions, enabling a small seat increases to be distributed across B.C.

Additional Notes

- Gasfitter is designated compulsory in one jurisdiction (Alberta). This is likely due to the greater availability of gas utilities in BC and Alberta. Residential and commercial natural gas use is much less common in other provinces.

Recommendation #6 – Sheet Metal Worker

Background

Scope of work: A Sheet Metal Worker lays out, fabricates, assembles, welds, installs, and services the following: ducting, spouting, fittings cabinets, gutters, copings, flashings, supporting devices, wall systems, building envelope, ornamental work, blowpipe, air pollution, heating, ventilating, air-conditioning, roofing, restaurant, kitchen, marine installations and hospital equipment.

Sheet metal workers operate in the following sectors: residential, industrial, commercial, and institutional. The industry is moving towards workers having a wider scope of trade and greater transferability between sectors.

Sheet metal workers may specialize in the following areas: heating, ventilation and air conditioning (HVAC); boiler lagging/vessel cladding; roofing products; custom metal products; secondary systems for environmental projects; pneumatic conveyance or signage.

Current regulatory environment in B.C: Most sheet metal work is currently unregulated, especially in the residential sector. Many sheet metal workers conduct work in specialized areas like HVAC or boilers. These specializations require permits and, in some cases, additional training. Much of the specialization work is "regulated work" (pressure, gas, electrical, ventilation) as outlined in the BC Safety Standards Act.

Assessment Results

The results of data analysis and expert discussion against the criteria indicate that designating Sheet Metal Worker as a mandatory trade could provide a benefit to workers while also maintaining business viability, public safety and consumer protection. Data suggests Sheet Metal Worker:

a) Requires a *high level of technical skill*. This is demonstrated by:

- Completing a high number of required training hours relative to other trades (6,400 in-classroom and work-based hours combined).
- Workers in this occupation typically have some form of post-secondary education such as a diploma/certificate.
- Workers in this trade, on average, earn higher wages then many other trades occupations. According to Labour Force Survey results, Sheet Metal Workers are earning a median wage of $29.53 per hour with some Sheet Metal Workers earning upwards of $48.75 an hour. These wage levels reflect many factors, including: a worker's experience or time in the trade, education level, location within the Province (i.e. rural vs urban), and labour market supply.

b) Is an occupation that is in *high demand.* Sheet Metal Worker has a low number of 10-year job openings (693) compared to other trades, however, the job openings (693) as a share of current employment (2,515) is considered high at 27 percent. This suggests there is long term demand for certified Sheet Metal Workers to replace retiring workers and support future economic growth.

c) Plays a critical role in companies making *large investment* decisions. This is demonstrated by a high share of Sheet Metal Workers (63%) employed in the construction industry, which is the largest contributor to investment in B.C.

d) Supports business viability by providing stable employment and being l*ess sensitive to economic shifts*. Sheet Metal Worker has a 48% difference between its highest point of employment and it's lowest over the last 15 years. This indicates that Sheet Metal Worker has experienced medium to low job fluctuations relative to other trades, suggesting a more stable employment.

e) Can pose a *high safety risk to the public*. Improper work can result in structure or equipment failure, posing a serious safety risk to the public.

f) Is a *service sometimes purchased by the public*. Sheet Metal Worker does not meet the criteria due to the low percent (2%) of work conducted in a consumer-oriented industry.

Implementation Timing and Considerations

The trades training system is ready to support workers and businesses through a successful transition to a mandatory environment and recommends that implementation of Sheet Metal Worker could begin immediately:

- Workers and employers in this trade may experience low to moderate disruption due to a higher percent of uncertified workers, 18 percent of workers are estimated to be uncertified (458 uncertified workers of 2,515 total employed).
- Demand for new apprentice seats could be high, additional seats will be required to meet increased training demand. Sheet Metal Worker apprenticeship training is currently delivered through 4 public and non-public training institutions, enabling seat increases to be distributed across B.C.

Additional Notes

- Sheet Metal Worker is designated compulsory in six (6) other jurisdictions, indicating an established precedence for designation, potentially validating the need to ensure BC workers are meeting the same standards.

Recommendation #7 – Steamfitter/Pipefitter

Background

Scope of work: Steamfitter/Pipefitters lay out, assemble, fabricate, maintain, repair and service equipment and piping systems carrying water, steam, fluids, gases, chemicals and fuel in various systems such as heating, cooling, lubricating and process piping systems. They read and interpret drawings, specifications and codes to determine layout, type and size of pipe, and tools to use.

They measure, cut, thread, groove, bend, solder, braze, assemble and install metal, plastic and fiberglass pipes, valves and fittings.

They must also join and secure pipe sections of related equipment and check systems for leaks. Steamfitters/Pipefitters also do general maintenance work including replacement of worn components.

Current regulatory environment in B.C: Trade certification is not required to work as a steamfitter/pipefitter in BC. A worker may conduct steamfitter/pipefitter type work under the supervision of a fully certified journeyperson.

Certain work is strictly regulated by Technical Safety BC, work includes pressure vessels, refrigeration, boilers, gas, and electrical work. Steamfitting/Pipefitting work must be done by a licensed contractor if a pipe system operates over 15 psi. In most cases a Steamfitter/Pipefitter is required to have a Class B Gasfitter or pressure welding certification in order to practice full scope of trade

Assessment Results

The results of data analysis and expert discussion against the criteria indicate that designating Steamfitter/Pipefitter as a mandatory trade could provide a benefit to workers while also maintaining business viability, public safety and consumer protection. Data suggests Steamfitter/Pipefitter:

a) Requires a *high level of technical skill*. This is demonstrated by:
    - Completing a high number of required training hours relative to other trades (6,400 in-classroom and work-based hours combined).
    - Workers in this occupation typically have some form of post-secondary education such as a diploma/certificate, and high regulation.
    - Workers in this trade, on average, earn higher wages then many other trades occupations. According to Labour Force Survey results, Steamfitter/Pipefitters are earning a median wage of $28.00 per hour with some Steamfitter/Pipefitters earning upwards of $42.00 an hour. These wage levels reflect many factors, including: a worker's experience or time in the trade, education level, location within the Province (i.e. rural vs urban), and labour market supply.

b) Is an occupation that is in high demand. Steamfitter/Pipefitter has a low number of 10-year job openings (725) compared to other trades, however, job openings (725) as a share of current employment (2,460) is considered high at 29 percent. This suggests there is long term demand for certified Steamfitter/Pipefitter to replace retiring workers and support future economic growth.

c) Plays a critical role in companies making *large investment* decisions. This is demonstrated by a high share of Steamfitter/Pipefitters (61%) employed in the construction industry, which is the largest contributor to investment in B.C.

d) Supports business viability by providing stable employment and being l*ess sensitive to economic shifts*. Steamfitter/Pipefitters has a 48% difference between its highest point of employment and it's lowest over the last 15 years. This indicates that Steamfitter/Pipefitter has experienced moderate to low job fluctuations relative to other trades, suggesting a more stable employment.

e) Can pose a *high safety risk to the public*. Improper work can result in pressure vessel failure, posing a serious safety risk to the public.

f) Is a *service sometimes purchased by the public*. Steamfitter/Pipefitters does not meet the criteria due to the low percent (5%) of work conducted in a consumer-oriented industry.

While Steamfitter/Pipefitter meets many of the criteria for mandatory certification, data analysis also suggests there are other considerations:

- Most Steamfitter/Pipefitter are already certified or participating in an apprenticeship; 4 percent of workers are estimated to be uncertified (102 uncertified workers of 2,460 employed) and therefore, MC would not significantly increase the number of certified workers working in the occupation.

Implementation Timing and Considerations

The trades training system is ready to support workers and businesses through a successful transition to a mandatory environment and recommends that implementation of Steamfitter/Pipefitter could begin immediately:

- Workers and employers in this trade would experience little disruption as they are already working in a highly regulated environment similar to mandatory certification.
- Demand for new apprentice seats could be relatively low because the majority of Steamfitter/Pipefitters are already certified or registered apprentices. The trades training system is well positioned to absorb a small to moderate increase in apprenticeship training seats. Steamfitter/Pipefitter apprenticeship training is currently delivered through 5 public and non-public training institutions, enabling any seat increases to be distributed across B.C.

Additional Notes

- Steamfitter/Pipefitter is designated compulsory in seven (7) other jurisdictions, indicating an established precedence for designation, potentially validating the need to ensure BC workers are meeting the same standards.

Recommendation #8 – Automotive Service Technician (AST)

Background

Scope of work: Automotive service technicians (AST) perform preventative maintenance, diagnose problems and repair the vehicle systems of cars and light trucks. This includes engine, vehicle management, computer management, steering, braking, drive train, suspension, electrical, heating, and ventilation and air conditioning (HVAC) systems. They also work on restraints, trim, and accessories. This includes vehicles of all fuel types.

Current regulatory environment in B.C: The majority of AST work is done in a general automotive repair setting, either in small shops or in dealerships such as Ford or Toyota. There are no overarching regulations in BC that require Automotive Service Technicians to be certified. However, there are two exceptions where certification is required for:

1) Technicians who work in repair shops that participate in BC's Provincial Vehicle Inspections program (e.g. vehicle inspections conducted on out-of-province vehicles, vehicles with road safety violations, and vehicles obtaining rebuilt status), which requires vehicle inspections to be performed by fully certified technicians; and
2) Technicians who work on repairs related to ICBC insurance claims.

Assessment Results

The results of data analysis and expert discussion against the criteria indicate that designating Automotive Service Technician as a mandatory trade could provide a benefit to workers while also maintaining business viability, public safety and consumer protection. Data suggests AST:

a) Requires a *high level of technical skill*. This is demonstrated by:
   - Completing a high number of required training hours relative to other trades (10,380 in-classroom and work-based hours combined).
   - Workers in this occupation typically have some form of post-secondary education such as a diploma/certificate, and high regulation.
   - Workers in this trade, on average, earn higher wages then many other trades occupations. According to Labour Force Survey results, ASTs are earning a median wage of $28.00 per hour with some AST earning upwards of $39.20 an hour. These wage levels reflect many factors, including: a worker's experience or time in the trade, education level, location within the Province (i.e. rural vs urban), and labour market supply.

b) Is an occupation that is in *high demand*. This is demonstrated by the high number of expected job openings over the next 10 years; 6,176 expected job openings accounting for 35 percent of the current employment (17,575).

c) Does not play a critical role in companies making large investment decisions. This is demonstrated by a low share of ASTs (2%) employed in the construction industry, which is the largest contributor to investment in B.C.

d) Supports business viability by providing stable employment and being l*ess sensitive to economic shifts*. AST has a 22% difference between its highest point of employment and it's lowest over the

last 15 years. This indicates that AST has experienced moderate to low job fluctuations relative to other trades, suggesting a more stable employment.

e) Can pose a *high safety risk to the public*. Improper repair or maintenance can result in vehicle and roadway safety issues, posing a serious safety risk to the public.

f) Is a *service often purchased by the public*. AST has a high percent (75%) of work conducted in a consumer-oriented industry.

While AST meets many of the criteria for mandatory certification, data analysis also suggests there are other considerations:

- The estimated number of uncertified workers is 4,669. Industry experts and the working group suggest this number is high. Further analysis supports the likelihood there is lower number of uncertified workers than originally estimated. Analysis indicated that:
    - Most shops, especially manufacturers and larger dealerships, seek fully certified workers and tend to push existing workers toward certification;
    - And that Brake, tire, and oil change technicians may make up a large portion of the 4,669 uncertified worker estimates. This is due to data inconsistencies, resulting in an uncertified estimate that may not accurately reflect the AST scope of work (e.g. smaller scope of work, such as oil change technicians).
- Although the number of uncertified workers is likely much lower than the original estimate, MC will still significantly increase the number of certified workers in the occupation.

Implementation Timing and Considerations

The trades training system may need more time to prepare to effectively support workers and businesses through a successful transition to a mandatory environment. A longer lead/preparation time is recommended.

- Workers and employers in this trade will likely experience a moderate amount of disruption with the introduction of mandatory certification. In order to minimize this disruption, government should ensure adequate supports for both small employers and uncertified workers are in place before implementation. Extensive consultation and engagement should also be done with employers and uncertified workers in advance of implementation.
- Additional apprentice training seats will be needed across the province due to the large number of estimated uncertified workers requiring training. The trades training system is well positioned to absorb some seats and if required, deliver additional seats at 12 different public and private trainers throughout BC.

Additional Notes

- Automotive Service Technician is designated compulsory in five (5) other jurisdictions, indicating an established precedence for designation, potentially validating the need to ensure BC workers are meeting the same standards.
- The ITA AST training program is a progressive credentialing model. Meaning, an apprentice can earn a Certificate of Qualification at individual levels (e.g. level 1,2,3, and Red Seal certification at level 4). Each level has a different scope of work (e.g. level 1 – brakes, tires, alignments,

lubes). The Red Seal program is working with the ITA to harmonize this training and certification to meet national standards.

- Further consideration is required on whether mandatory certification should apply to each level (1,2,3,4) or applied only to the Red Seal "full" scope of work (Level 4). Government should consult and engage with industry to determine an appropriate approach to designation.

Recommendation #9 – Motor Vehicle Body Repairer (MVBR)

Background

Scope of work: A Motor Vehicle Body Repairer is a person who repairs, adjusts and replaces sheet metal and allied parts of automobiles, trucks and buses. MVBR's also play a key role in maintaining vehicle safety by inspecting or replacing seatbelts, airbags, and may align suspension and steering components.

MVBR's often work within collision repair shops which provide repair services to damaged vehicle bodies and interiors resulting from accidents or vandalism.

Current regulatory environment in B.C: There are no specific regulations prohibiting or restricting general work for this trade. However, much of the work conducted in the industry is through designated collision repair shops for ICBC insurance claims. These collision repair shops are designated through ICBC's Collision Repair Program, which requires all technical personnel working on ICBC claims to hold MVBR Certification or be a registered apprentice.

Assessment Results

The results of data analysis and expert discussion against the criteria indicate that designating Motor Vehicle Body Repairer (MVBR) as a mandatory trade could provide a benefit to workers while also maintaining business viability, public safety and consumer protection. Data suggests MVBR:

a) Requires a *high level of technical skill*. This is demonstrated by:
   - Completing a high number of required training hours relative to other trades (7,230) in-classroom and work-based hours combined).
   - Workers in this occupation typically have some form of post-secondary education such as a diploma/certificate, and high regulation.
   - Workers in this trade, on average, earn higher wages then many other trades occupations. According to Labour Force Survey results, MVBRs are earning a median wage of $25.00 per hour with some MVBRs earning upwards of $37.77 an hour. These wage levels reflect many factors, including: a worker's experience or time in the trade, education level, location within the Province (i.e. rural vs urban), and labour market supply.

b) Is an occupation that is in *high demand*. This is demonstrated by the high number of expected job openings over the next 10 years; 1,282 expected job openings accounting for 31 percent of the current employment (4,145).

c) Does not play a critical role in companies making *large investment* decisions. This is demonstrated by a low share of MVBRs (2%) employed in the construction industry, which is the largest contributor to investment in B.C.

d) Supports business viability by providing stable employment and being l*ess sensitive to economic shifts*. MVBR has a 34% difference between its highest point of employment and it's lowest over the last 15 years. This indicates that MVBR has experienced moderate to low job fluctuations relative to other trades, suggesting a more stable employment.

e) Can pose a *high safety risk to the public*. Improper repair or maintenance can result in vehicle and roadway safety issues, posing a serious safety risk to the public.

f) Is a *service often purchased by the public*. MVBR has a high percent (91%) of work conducted in a consumer-oriented industry.

While MVBR meets many of the criteria for mandatory certification, data analysis also suggests there are other considerations:

- The estimated number of uncertified workers is 1,356 or 32 percent of the current workforce (4,145). Therefore, mandatory certification will significantly increase the number of certified workers working in the occupation, resulting in increased disruption to employers and trades training.
- Data indicates a higher average age of workers, approximately 44% of workers are over 45 years of age. A higher average age of workers may indicate the need for additional transition supports for older workers.

Implementation Timing and Considerations

The trades training system may need more time to prepare to effectively support workers and businesses through a successful transition to a mandatory environment. A longer lead/preparation time is recommended.

- Workers and employers in this trade will likely experience a moderate amount of disruption with the introduction of mandatory certification. In order to minimize this disruption, government should ensure adequate supports for both small employers and uncertified workers are in place before implementation. Extensive consultation and engagement should also be done with employers and uncertified workers in advance of implementation.
- Additional apprentice training seats will be needed across the province due to the large number of estimated uncertified workers requiring training. The trades training system is well positioned to absorb some seats and if required, deliver additional seats at 4 different public and private trainers throughout BC.

Additional Notes

- The MVBR Red Seal program provides a nationally recognized base level of knowledge and skills training. In addition to the Red Seal, industry provides optional specialized training through I-CAR (industry association) and/or original equipment manufacturers (OEM). This supplemental training ensures MVBR's are keeping pace with annual changes to technologies, techniques, and vehicle models. Training is progressive and designed to continually build upon existing knowledge acquired through the Red Seal and is regularly updated to reflect current collision repair techniques.
- Supplemental OEM training is also common, ensuring MVBR's have the required knowledge to work on manufacturer specific cars. For example, BMW, Audi and many other brands require MVBR's take their OEM training before being certified to work on BMW or AUDI vehicles. OEM certification is often required to be a warranty approved autobody repair shop.

Recommendation #10 – Heavy Duty Equipment Technician (HDET)

Background

Scope of work: Heavy Duty Equipment Technician means a person who maintains, manufactures, overhauls, reconditions and repairs heavy duty equipment. Examples of heavy-duty equipment include: graders, loaders, shovels, haul truck, articulated rock trucks, forklifts, wheeled and tracked vehicles of all types used in construction, logging, sawmill, manufacturing, mining and other similar industries. Heavy duty equipment is rarely used on highways or public roads and therefore technicians most often perform work in remote areas.

Current regulatory environment in B.C: There are no specific regulations that prohibit or restrict general work for Heavy Duty Equipment Technicians. However, Industry experts suggest most service /repairs are conducted by manufacturers (e.g. Finning, John Deere, Volvo), and warranty approved vendors (e.g. Great West Equipment, SMS Equipment), employing certified Heavy-Duty Equipment Technicians.

Assessment Results

The results of data analysis and expert discussion against the criteria indicate that designating Heavy Duty Equipment Technician (HDET) as a mandatory trade could provide a benefit to workers while also maintaining business viability, public safety and consumer protection. Data suggests HDET:

a) Requires a *high level of technical skill*. This is demonstrated by:
   - Completing a high number of required training hours relative to other trades (7,200) in-classroom and work-based hours combined).
   - Workers in this occupation typically have some form of post-secondary education such as a diploma/certificate, and high regulation.
   - Workers in this trade, on average, earn higher wages then many other trades occupations. According to Labour Force Survey results, HDET are earning a median wage of $36.00 per hour with some HDET earning upwards of $49.33 an hour. These wage levels reflect many factors, including: a worker's experience or time in the trade, education level, location within the Province (i.e. rural vs urban), and labour market supply.

b) Is an occupation that is in *high demand*. This is demonstrated by the high number of expected job openings over the next 10 years; 1,644 expected job openings accounting for 31.5 percent of the current employment (5,220).

c) Plays a critical role in companies making *large investment* decisions. This is demonstrated by a moderate share of HDETs (16%) employed in the construction industry, which is the largest contributor to investment in B.C.

d) Supports business viability by providing stable employment and being l*ess sensitive to economic shifts*. HDET has a 22% difference between its highest point of employment and it's lowest over the last 15 years. This indicates that HDET has experienced low job fluctuations relative to other trades, suggesting a more stable employment.

e) Can pose a *high safety risk to the public*. Heavy Duty Equipment is usually operated off road and away from the public. There may be some instances where equipment operates in close proximity to the public. Improper repair or maintenance can result equipment malfunction posing a serious safety risk to the public and workers.

f) Is not usually *service often purchased by the public*. HDET does have a high percent (22%) of work conducted in a consumer-oriented industry. However, industry experts suggest it is not a service purchased directly from the public.

While HDET meets many of the criteria for mandatory certification, data analysis also suggests there are other considerations:

- The estimated number of uncertified workers is 856 or 16 percent of the current workforce (5,220). Suggesting MC will significantly increase the number of certified workers working in the occupation. Significantly increasing the number of certified workers may cause some disruption to employers and the trades training system.

Implementation Timing and Considerations

The trades training system may need more time to prepare to effectively support workers and businesses through a successful transition to a mandatory environment. A longer lead/preparation time is recommended.

- Workers and employers in this trade will likely experience a moderate amount of disruption with the introduction of mandatory certification. In order to minimize this disruption, government should ensure adequate supports for both small employers and uncertified workers are in place before implementation. Extensive consultation and engagement should also be done with employers and uncertified workers in advance of implementation.
- Additional apprentice training seats will be needed across the province due to the large number of estimated uncertified workers requiring training. The trades training system is well positioned to absorb some seats and if required, deliver additional seats at 12 different public and private trainers throughout BC.

Additional Notes

- During the assessment process the group identified a considerable scope of work overlap between Heavy Duty Equipment Technician and Truck and Transport Mechanic. The scope of work for Truck and Transport Mechanics includes inspecting, repairing and maintaining all aspects and components of commercial trucks, emergency vehicles, buses and road transport vehicles. Industry experts suggest both trades have similar required knowledge and skills. In some cases, employers will hire one technician/mechanic to fix both transport trucks and off highway heavy duty equipment. Industry experts suggest mandatory certification may improve the trade by providing a clear scope of work boundary for both employees and employers.
- The working group strongly suggests government consider including Truck and Transport Mechanic as a mandatory trade. Additional assessment and consultation with industry and apprentices should be done to fully understand any potential impacts to the industry.
- **Note:** NWT and Yukon classify both Heavy Duty Equipment Technician and Truck and Transport Mechanic as one trade due to the similarities in scope of work and industry (e.g. forestry)

Appendix A: Working Group Members, Chair, and Advisory experts

Members

The Working Group is comprised of the following members alphabetically:

Abigail Fulton	Construction Foundation of BC
Chris Atchison	BC Construction Association
Helen Boyce	ACCESS Trades
Irene Kerr	BC Infrastructure Benefits
Jud Martell	BC Building Trades
Kaanesh Ghosh	LNG Canada
Kathy Kinloch	BC Institute of Technology
Ken McCormack	Construction Labour Relations Association
Ken Tourand	Nicola Valley Institute of Technology
Laird Cronk	BC Federation of Labour
Larry Richardson	Christian Labour Association of Canada
Lisa Langevin	BC Tradeswomen Society & Industry Training Authority
Rieghardt van Enter	Progressive Contractors Association & Tybo Contracting
Robin Lucas	Allteck Power Line Contractors
Ron Tremblay	Automotive Retailers Association
Shelley Gray	Industry Training Authority

Chair

The Working Group is Co-chaired by the Deputy Minister of Advanced Education and Skills Training and the Deputy Minister of Labour.

Advisory Experts

The Working Group consulted with various advisory experts for targeted advice, including:

- Clint Abbot, Director of Policy and Regulatory Affairs, Technical Safety BC
- Hamid Azarnoush, Senior Safety Officer – Boilers and Pressure Vessels, Technical Safety BC
- Rick Vanier, Senior Safety Officer – Gas, Technical Safety BC
- Jamie McPhearson, Chair- Plumbing & Pipe Trades, Camosun College
- Steve Perry, Associate Dean of Motive Power, BCIT
- Mubasher Faruki, Associate Dean of Automotive, BCIT
- David Ribeiro, Industry Relations Advisor, Automotive Retailers Association
- Kathy Parslow, Vice President – Claims, Customer, and Material Damage Services, ICBC
- Lloyd Babcock, Instructor (Heavy Duty Equipment Technician), Thompson Rivers University
- Guy Ellis, President & CEO – Trades Training BC

Appendix B: Mandatory Certification Designation Framework

Purpose of Mandatory Certification

Mandatory Certification is a key initiative among others to ensure that workers benefit from a trades' career and that B.C. has a robust trades workforce with the right skills to build 22nd Century infrastructure and services. Taken together, these things in turn support a cleaner, greener B.C.; greater business investment; and a strong, sustainable and inclusive economy.

STEP 1

Principles

Worker - Mandatory Certification should result in a substantial number of trades workers benefiting from the highest level of training & skill.

Business – Mandatory Certification should result in skilled trades workers supporting business viability and growth & supporting investment for a strong economy.

Public – Mandatory Certification should maintain or enhance public safety, as well as consumer confidence.

Criteria & Measurements

A. **Trade occupation requires a high technical skill level**
Measurements: (1) length of training (2) level of Education (3) occupation specific skill set (4) median wage (5) wage growth potential.

B. **Trade occupation is in high demand**
Measurements- (1) job openings (2) employment trends

A. **Trade occupation is not vulnerable to economic shifts**
Measurements: (1) average peak to low employment growth

B. **Trade occupation may be critical to large investment**
Measurements: (1) investment by industry (2) share of occupation in construction

1. **Trade occupation is a high safety risk to public**
Measurement: (1) yes/no

2. **Trade occupation is a service purchased by the public**
Measurement: (1) yes/no

List of potential Trades for Mandatory Certification

Validation: Data Analysis and Discussion

Final List of Trades for Mandatory Designation

STEP 2

Principles

Workers – Mandatory Certification implementation should maximize opportunities for all workers to successfully transition to a MC environment

Business – Mandatory Certification implementation should enable businesses to successfully transition to a MC environment that doesn't hinder business viability.

Public – Mandatory Certification implementation should result in the public continuing to have access to trades services at reasonable costs.

Assessing Trades Economy Readiness: Data Analysis and Discussion

Implementation Timing and Considerations

Appendix C: List of Trades Considered and Recommended for Mandatory Certification

Industry Training Authority (ITA) Designated Trades

Through the ITA, BC has 102 designated trades: 93 active trades, 4 inactive trades, and 5 endorsements. There are 49 Red Seal trades in BC (denoted by grayscale).[3] Proposed Mandatory Certification trades are highlighted in orange.

ITA-Active Trades (93)	
1. Agricultural Equipment Technician	48. Lather (Interior Systems Mechanic)
2. Aircraft Maintenance Technician	49. Locksmith
3. Aircraft Structural Technician	50. Machinist
4. Appliance Service Technician	51. Marine Service Technician
5. Arborist Technician	52. Marine Mechanical Technician
6. Architectural Sheet Metal Worker	53. Meatcutter
7. Asphalt Paving / Laydown Technician	54. Metal Fabricator (Fitter)
8. Automotive Glass Technician	55. Mobile Crane Operator
9. Automotive Painter	56. Mobile Crane Operator Hydraulic 80 tonnes and under
10. Automotive Refinishing Prep Technician	57. Motor Vehicle Body Repairer (metal & paint)
11. Automotive Service Technician	58. Motorcycle and Power Equipment Tech.
12. Baker	59. Oil Heat System Technician
13. Boilermaker	60. Painter and Decorator
14. Boom Truck Operator - Folding Boom Unlimited tonnage	61. Parts and Warehousing Person 1
15. Boom Truck Operator -Stiff Boom Unlimited tonnage	62. Partsperson 2
16. Bricklayer (mason)	63. Partsperson 3
17. Broadband Network Technician	64. Petroleum Equipment Installer
18. Cabinet Maker	65. Petroleum Equipment Service Technician
19. Carpenter	66. Piledriver and Bridgeworker
20. Climbing Arborist	67. Plumber
21. Concrete Finisher	68. Power Line Technician
22. Construction Craft Worker (Labourer)	69. Professional Cook 1
23. Cook	70. Professional Cook 2
24. Dairy Production Technician 1	71. Railway Car Technician
25. Diesel Engine Mechanic	72. Recreation Vehicle Service Technician
26. Drywall Finisher	73. Refrigeration and Air Conditioning Mechanic
27. Electric Motor Systems Technician	74. Residential Building Maintenance Worker
28. Electrician, Construction	75. Residential Steep Roofer

[3] *There are 56 national Red Seal Trades. Only 49 Red Seals are offered in BC, 3 of which are challenge only trades (Tool and Die Maker, Agricultural Equipment Technician, and Oil Heat System Technician). The following trades are not Red Seals in BC: Drywall Finisher, Heavy Equipment Operator (Dozer, Excavator, Tractor), Ironworker (Structural/Ornamental), and Gasfitter A and B, but are being reviewed as part of Red Seal Harmonization across Canada.

ITA-Active Trades (93)	
29. Electrician, Industrial	76. Rig Technician
30. Embalmer	77. Roofer (Roofer, Damp & Waterproofer)
31. Embalmer and Funeral Director	78. Saw Filer
32. Floor Covering Installer	79. Security Systems Technician
33. Funeral Director	80. Sheet Metal Worker
34. Gasfitter – Class A	81. Shipyard Labourer
35. Gasfitter - Class B	82. Sprinkler Fitter
36. Geoexchange Driller	83. Steamfitter/ Pipefitter
37. Geotechnical / Environmental Driller	84. Tidal Angling Guide
38. Glazier	85. Tilesetter
39. Hairstylist	86. Tool and Die Maker
40. Heavy Duty Equipment Technician	87. Tower Crane Operator
41. Heavy Equipment Operator	88. Transport Trailer Technician
42. Horticulturist, Landscape	89. Truck and Transport Mechanic
43. Industrial Mechanic (Millwright)	90. Utility Arborist
44. Instrumentation and Control Technician	91. Water Well Driller
45. Insulator (Heat and Frost)	92. Welder
46. Ironworkers (Generalist)	93. Well Pump Installer
47. Ironworker (Reinforcing)	

Inactive Trades: (4) – Programs currently under review
1. Inboard / Outboard Mechanic
2. Dairy Production Technician 2
3. Horticulturist, Production
4. Field Arborist

Endorsements (5)
1. Boilermaker Endorsement: Marine Fitter
2. Electrician Endorsement: Marine
3. Saw Filer Endorsement: Benchperson
4. Metal Fabricator (Fitter) Endorsement: Marine Fitter
5. Welder Endorsement: Multi-Process Alloy Welding (MPAW)

Appendix D: List of Compulsory Designated Trades by Jurisdiction

Compulsory Trades in other Canadian Jurisdictions

- In total, 28 of BC's 93 active trades are considered compulsory in at least one other jurisdiction in Canada – the majority of the 28 trades are interprovincial Red Seal trades.
- This list only includes active BC trades that are designated as compulsory in at least one other jurisdiction (province), some of these trades have been merged with other "like" trades that may have different trade names but have similar scope of work

Legend: **Red Seal Trades (Denoted in Red)** **R - Regulated Trade** **C - Compulsory Trade** **X – Formerly Compulsory in BC** ***Recommended**

Compulsory/Regulated Trade	BC	Alb.	Sask.	Man.	Ont.	Que.	NS	NB	Nfld.	PEI	Total
Automotive											
Auto Body and Collision Technician*	X	C			C		C				3
Automotive Service Technician*	X	C			C		C	C		C	5
Heavy Duty Equipment Technician*		C									1
Motorcycle Mechanic/Technician		C			C						2
Recreation Vehicle Service Technician/Mechanic		C									1
Truck and Transport Mechanic		C			C		C				3
Transport Trailer Technician					C						1
Boilers, Pressure Vessels, Pipefitting and Refrigeration											
Boilermaker	R	C				C	C	C			4
Gasfitter A*	R	C									1
Gasfitter B*	R	C									1
Industrial Instrument Mechanic (Millwright)						C					1
Plumber	X	C	C		C	C	C	C		C	7
Refrigeration & Air Conditioning Mechanic*	R X	C	C	C	C	C	C	C			7
Sprinkler Fitter	X		C	C		C	C	C			5
Steamfitter/Pipefitter*	R X	C		C	C	C	C	C		C	7
Construction											
Bricklayer						C	C	C			3
Roofer	X										0
Ironworker (Generalist & Reinforcing)		C									1
Sheet Metal Worker*	X	C	C		C	C	C	C			6
Welder		C									1
Electrical											
Appliance Service Technician	R	C									1
Electrician, Construction*	R X	C	C	C	C	C	C	C	C	C	9
Electrician, Industrial*	R			C		C					2
Powerline Technician*	R X				C						1
Elevating Devices											
Boom Truck Operator	R	C							C		2
Mobile Crane Operator	R			C	C			C	C		4
Mobile Crane Operator (Hydraulic)	R	C		C	C			C			4
Tower Crane Operator	R	C		C	C	C			C		5
Human Services											
Hairstylist		C		C	C						3
Number of Compulsory Trades	0	21	5	9	15	11	11	11	4	4	

Source: Provincial Government websites and The Ellis Chart (www.ellischart.ca) – last updated Jan. 27th, 2021.

**Note - Automotive Refinishing Prep Technician was formerly compulsory in BC (1996) but will be inactivated by the ITA effective April 1, 2021.*

AGENDA

STAKEHOLDER ADVISORY WORKING GROUP

MANDATORY CERTIFICATION

Date: February 2nd, 2021
Time: 1:00pm-3:30pm
Location: Online/Virtual

Meeting Objectives:

1. Review and approve Final Report
2. Present recommendations to Minister and Parliamentary Secretary
3. Discuss next steps for the group and MC project.

Time	Agenda Item	Lead
1:00- 1:15	Welcome/Review Agenda	Shannon Baskerville
1:15-2:00	Recommendations Discussion	Bindi Sawchuk
2:00-2:30	Wrap Up & Next Steps	Shannon Baskerville
2:30-2:45	Break	
2:45-3:30	Discussion with the Minister and Parliamentary Secretary	Shannon Baskerville

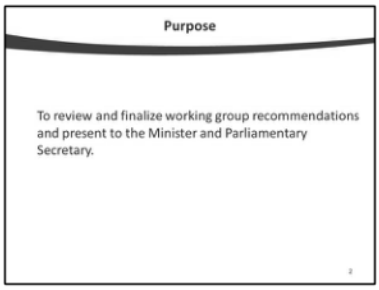
Slide 1

[HOLDING SLIDE WHILE PEOPLE ARE GETTING SEATED]

[For Co-chairs reference: intended internal objectives of today's meeting]

1. Ensure working group members are comfortable with the final recommendation report to be submitted to the Minister and Parliamentary Secretary.
2. Signal the winding down of the working group and provide an opportunity for final questions and discussion.

Slide 2



Shannon

- Hello everyone, welcome…
- I'd like to begin by acknowledging that I'm meeting with you today from the traditional territories of the Lekwungen people. Home of the Esquimalt and Songhees First Nations.
- Let's begin with a quick round table of who's joined us today. I will read out the names listed on the MS Teams list. I understand that xxxx isn't able to join us. Helen Boyce has moved onto another position within ACCESS and her colleague Buddy Cardinal has joined us for our last meeting.
- We also have Bindi Sawchuk, Emily Cronin, Kim Buchanan, and Avery Bonner from the Ministry joining us today.
- Our goal today is to review and finalize this Working Group's recommendations on mandatory certification and present them to Minister Anne Kang and Parliamentary Secretary Andrew Mercier who will be joining us after the break.
- Abigail has kindly agreed to present a summary of the group's work and recommendations to the Minister. Thank you, Abigail.
- Did everyone get a chance to review the agenda? Any questions or changes?

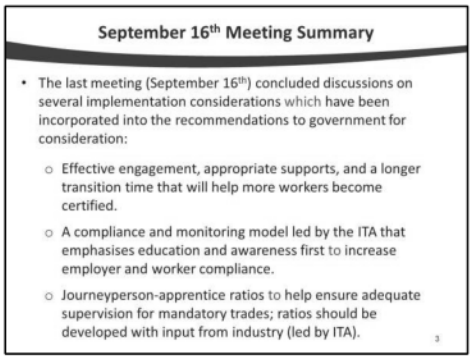
Government Update

- Before I turn to Bindi, I would like to give an update on some of the things that have been happening on our side since we last came together in September.
- As everyone knows, we had an election in the Fall, which put our Working Group meetings on hold.

- During the interregnum period, we continued to work internally on mandatory certification – and focused on implementation planning- including legislative changes, engagement, and costing.
- Our new Minister is the Honourable Anne Kang. This is her second cabinet position. Prior to the election, she was the Minister of Citizen Services and the Minister responsible for Multiculturalism.
- She believes strongly in the importance of post-secondary education and skills training. I can tell you she's a quick study, is very thorough and asks excellent, thoughtful questions… and she is a strong advocate for diversity and anti-racism.
- Minister Kang will be supported by Parliamentary Secretary, Andrew Mercier. Many of you may know Andrew from his work as Executive Director of the BC Building Trades Council.
- Having a Parliamentary Secretary is new for our ministry. The Parliamentary Secretary's role is to assist the Minister in carrying out her duties and support her in specific areas within her mandate.
- Parliamentary Secretary Mercier's experience and knowledge of the trades training system will be a strong asset in supporting the Minister.
- Post-election, the Province remains focused on its priorities to fight the COVID-19 pandemic, continuing to build on its priorities of the last three and a half years and sharpening its focus and direction on some key areas, including:
    - improving services to people;
    - implementing the *Declaration on the Rights of Indigenous Peoples Act;*
    - tackling systemic racism;
    - addressing climate change; and
    - building a sustainable economy.
- These commitments provide a clear focus for our work going forward.
- Specific to Minister Kang's mandate letter commitments related to trades training:

    - Work with the Minister of Labour, and the Industry Training Authority to restore the compulsory trades system to improve safety and give more workers a path to apprenticeship completion – and,
    - Complete and implement the CleanBC Workforce Readiness Plan to train people for jobs in the low-carbon economy and help us meet our CleanBC commitments.
- Parliamentary Secretary Mercier has been asked to support the Minister with introducing compulsory trades.
- I am sure many of you are wondering about some of the language in the compulsory trades mandate commitment, for example, "working with the Ministry of Labour"….
- This is an acknowledgement of Trevor's role as co-chair for this Working Group and the expectation that his Ministry will continue to play a critical role in advising on safety and regulatory issues as we move forward.
- We have also been working closely with Technical Safety BC, whose safety mandate regulates many of the trades we are recommending.
- This is part of our approach to building an effective compliance and enforcement model that will involve strong partnerships between ITA, TSBC, and WorksafeBC.
- Both Minister Kang and Parliamentary Secretary Mercier are very impressed with the amount and quality of work that has been done and feel we are in a very good position to deliver on this mandate commitment.
- Does anyone have any questions about our Minister's Mandate commitments before I hand it over to Bindi to remind us of our last meeting in September and run through the recommendations report?
- Bindi?

Slide 3



Bindi:

- Great, thanks Shannon.
- At our last meeting in September…. it seems like such a long time ago now…we concluded our discussion on three big policy pieces to inform implementation of mandatory certification. These were all complex topics that needed two meetings to work through.
- What we heard from you is that there needs to be:

1. An <u>adequate transition period</u> in which workers and businesses can access supports and services to transition to a mandatory working environment successfully.

- We heard concerns with singling out specific groups of workers for exemptions like grandfathering.
- Members suggested that strengthening supports and increasing the length of the transition time would help ensure that fewer experienced workers would choose to leave the workforce.

2. A <u>new compliance and monitoring model led by the ITA</u> that takes a supportive approach by focusing on education and awareness first rather than penalties and fines.

- The group suggested that the key goal of monitoring and compliance should be to promote education and awareness approach; punitive measures should be a last resort for those employers who refuse to comply; and that the ITA should engage with workers and employers to ensure a smooth transition and help inform compliance efforts.

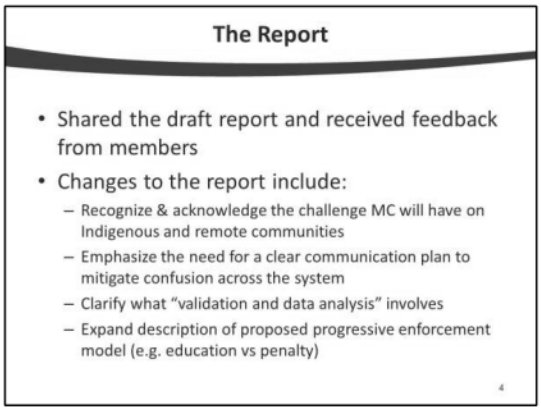
3. A way of ensuring that apprentices receive adequate supervision by setting <u>journeyperson to apprentice ratios</u>.

- The majority of the working group agreed that implementing ratio policies was an effective method to ensure adequate supervision during on the job training.
- Industry should provide input into setting the ratios to ensure they are not overly restrictive for employers, especially small businesses.

- The suggestions stemming from these discussions have been included in the Working Group's recommendations report to government.
- Does anyone have any questions?

[Pause for questions]

Slide 4



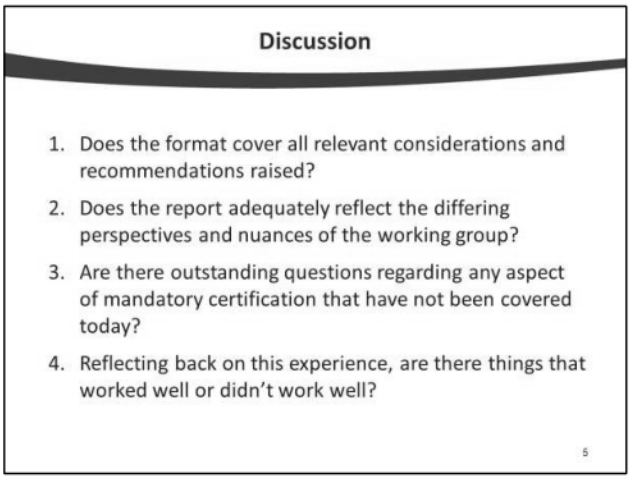
Bindi:

- I hope everyone had a chance to review the recommendations report. Thank you to those who provided feedback. We have incorporated it into the report, and you should all have been sent a copy.
- As we walk through the changes, it may help to keep in mind the scope of what we did here together…
- We were given direction to develop a new approach to mandatory certification**.**
- Over the last 20 years, we have seen the need for evidence-based policy evolve to become the expected norm. So rather than implement changes based solely on industry advice as we have in the past, we are expected to support policy decisions based on research and objective data analysis.
- When it comes to mandatory certification, there was no existing model we could adopt - so we had to build something that hadn't been done before.
- The framework we built, was based on principles that put workers skills first, while still supporting businesses and the general public.
- The 10 recommended trades are the result of prioritizing trades where large #'s of workers would benefit from MC and trades that require higher skill levels. This is to ensure that we would be making meaningful change in two ways:
    - 1. a substantial number of workers would benefit and
    - 2. standardizing the skills would be set at a high level.

- The model also considered trades that support infrastructure and investment decisions, trades where the workforce is more likely to remain stable in times of economic volatility which supports employer access to the labour they need, and trades where requiring certification would maintain or enhance worker safety and consumer confidence.
- The ranking of trades was validated through your lens of industry experience and expertise.
- Finally, we completed an in-depth review of each trade to understand the implementation considerations like; impacts on underrepresented groups, impact on businesses, review related regulations to avoid further regulatory complexity and confirming training seat capacity for uncertified workers to become certified.
- The recommendation report outlines the process for building this framework to provide government decision makers with confidence that the final recommendations are grounded in a well thought out, evidence-based approach that combines transparent data analysis with expert discussion.
- We also wanted to respectfully reflect the full dynamic of differing perspectives the group had at various times.
- The report reflects the tremendous amount of complex work that you have done and wraps it up in a good way.
- So, with that in mind let's look at the final revisions to the report. We didn't receive a lot of suggestions for edits – I hope that's a good sign that everyone was comfortable with the report - so this discussion could go quite quickly and if that is the case, we will take a longer break.
    1. We added an Appendix (**page 35**) showing which trades were compulsory in other jurisdictions. It was suggested this provided important context to show BC's alignment with other Provinces.
    2. Expanded what was meant by "further analysis and validation" in a footnote on **page 6** to illustrate the depth of working group's assessment process.
    3. Added a new section on the impacts of mandatory certification on Indigenous peoples and communities **(page 7).** This is a very important consideration for government to be aware of.

4. Revised sentence on monitoring and compliance **(page 7)** to more accurately reflect both compliance via awareness and progressively moving towards penalties.
5. Added list of trade experts who advised in the assessment process on **page 31**.

Slide 5



Bindi:

- So, let's do a final check together:
    - Does the format cover all relevant considerations and recommendations that were raised?
    - Does the report adequately reflect the differing perspectives and nuances of the working group?

[Pause for discussion]

- We would also be really interested in hearing about your own experiences with this approach to policy development.
    - Were there aspects of the approach that worked really well or perhaps could be improved?
    - Would you support government taking this kind of approach with other policy development projects?

[Pause for discussion]

- I will pass it over to Shannon now to talk about next steps.

Slide 6

Shannon:

- So, what comes next?
- While we have been given a clear signal on government's intentions to implement compulsory trades through the Ministers' mandate letter, the what, how and when have yet to be determined. The business case will be presented to Cabinet for final decisions on which trades will be designated compulsory and how quickly they want them implemented among other considerations.
- We also recognize that implementing MC will be a significant expansion of ITA's current mandate.
- Pending government decision, a substantial amount of work is underway to start preparing the training system:
    - Staff are working closely with the ITA on the changes that will be needed to amend legislation in order to implement.
    - The legislation process in government is time-consuming and complex. It's going to take at least 18 months to bring legislative changes into force.
    - The ITA has also started to develop a framework for compliance and enforcement which will be reflected in the legislative amendments.
    - A pathway for industry to recommend additional mandatory trades in the future will also be established and it will be based on the criteria framework this group developed.

    - We expect that the ITA will work with Industry to set appropriate journeyperson to apprentice ratios for mandatory trades.
    - Following approvals, there will be a period of substantial engagement with Indigenous partners and communities, employers, workers, and industry to better understand the implementation supports that will be needed to ensure a smooth transition.
- There is a possibility that we may ask this group to meet again to have additional discussions and to provide government with other policy input as we move forward with mandatory certification – (i.e. similar to our conversations on ratios and compliance).
- Are there any questions?

Closing remarks

- Well… I think I can speak for both Trevor and I, and say that when we first started this work, we knew it was going to be tough.
- No other jurisdiction had done what we have accomplished.
- We all share a strong commitment to trades training and the apprenticeship system, and I think we can all agree that mandatory certification is complex.
- We were able to come together, despite differing perspectives, and have really constructive dialogue. I want to thank you for that.
- I am very proud of what this group has accomplished, and I know Minister Kang and Parliamentary Secretary Mercier are looking forward to meeting all of you and hear from you the recommendations being put forward.
- I'd like to thank my co-chair Trevor Hughes for his time and his support throughout this work – and for always keeping us on track.
- Trevor any closing remarks?
- I would also like to take a moment to thank Bindi and her team, for working so diligently in the background to ensure that we were able to move forward in an efficient and thoughtful way.

- Let's take a 15-minute break (or longer if needed) …. after the break Minister Kang and Parliamentary Secretary Mercier will join us to hear more about the process of selecting the trades and an overview of the Working Group's recommendations.
- I would like to remind everyone that while the Minister and the Parliamentary Secretary have been reviewing many different aspects of mandatory certification over the past month, they may not yet be aware of all the complexities and details at this point.
- They also have not had an opportunity to meet with everyone to fully understand the trades landscape and the various viewpoints on mandatory certification.
- With respect, I would like to ask everyone to refrain from asking questions that are specific to their industry or trades affiliation.

Slide 7

Slide 8

Shannon

- Welcome back everyone.
- As we shift to the second part of our agenda, it is my great pleasure to welcome Minister Anne Kang and Parliamentary Secretary Andrew Mercier for the 2nd half of our discussion.
- I know that they've been looking forward to meeting with all of you.
- We only have 30 minutes, so I would like to start by giving the Minister and Parliamentary Secretary an opportunity to introduce themselves and then I'll ask Working Group members to introduce themselves.

[Pause for MAK and PSM to introduce themselves and provide opening comments]

- Working Group members: could we have a quick roundtable introduction to introduce yourself, say your name and the organization you represent.

[Pause for Working Group roundtable]

- Thanks very much everyone – and now without further ado, I would like to ask Abigail Fulton to provide an overview of the amazing work this group has accomplished and present the groups' recommendations.
- These recommendations have been outlined in a report that will form part of the business case prepared for government's consideration. We will be sending a copy of the report following this meeting for your review and comment.

[Pause for Abigail to present – speaking notes below]

Slide 9

Abigail:

- Thank you, Shannon.
- Minister and Parliamentary Secretary, on behalf of the group we are very excited to have the opportunity to meet with you and present our recommendations on implementing mandatory certification.
- I would like to begin by thanking our co-chairs Deputy Ministers, Shannon Baskerville and Trevor Hughes, for keeping us on track and ensuring the discussions were productive.
- We would also like to thank Bindi Sawchuk and her team for their support facilitating technical discussions and the time and attention spent in preparing materials for each of our discussions.
- I am sure you are already aware of how important trades workers are to our Province's economy - they construct our roads, bridges, and hospitals; they build our homes; and they fix our cars- they are BC's foundation.
- Just as important as the trades workforce, is the training system which ensures our trade workers have opportunities to learn the skills they need to succeed in today's trades jobs.
- While we may not always agree on trades training policies – and there are some ideological differences for sure - I can say that all members of this Working Group are equally passionate about the trades and are deeply committed to ensuring BC has an excellent trades training and apprenticeship system.

- When government invited us to participate on an Advisory Working Group to provide our input into compulsory trades, we welcomed the opportunity to share our perspectives but didn't really know what to expect.
- Compulsory Trades is a very complex policy, with the potential to impact workers and businesses across the Province.
- It is also a policy that has historically been extremely divisive among stakeholders.
- Bringing us together in the same room to talk about it – well it hadn't been done before – so no one was quite sure where it would lead, or if it was even going to work.
- But I am happy to say that with the guidance of our co-chairs, we were able to bring all of our differing perspectives to the table and talk about them in a way that was respectful and productive. I hope that these kinds of discussion can continue.
- We began our work in October 2019, with a mandate to recommend which trades would benefit from mandatory designation.
- With over 100 trades in BC, we knew that not all of them should be mandatory.
- Some of us felt we shouldn't simply return to the compulsory trades list that existed before in 2003.
- But we also acknowledged that BC's trades landscape has changed a lot since then, and we wanted the trades that we recommended to reflect the needs of apprentices and employers today.
- So, our first priority was to build a framework to figure out which trades should be mandatory.
- The framework is based on 4 principles:
    - First, to ensure a significant number of workers would benefit by improving their skills, which also helps them earn more and improve their standard of living over time (I think since COVID we would also say this would help them to be more resilient in times of economic change),
    - Second, that businesses have a highly skilled trades workforce,
    - Third that public and worker safety is maintained or enhanced, and;

    - Fourth, that the public continues to have confidence in the product or service they purchase from a trades worker.

- After setting the foundation, our next step was to assess each of the trades using an evidence-based approach.
- The Ministry spent a lot of time helping us understand what an evidence-based approach looked like – several meetings focused on discussing what data and research was available to help us measure whether a trade met our criteria.
- This was a new and, at times, lengthy process with many of us questioning the results. Some of us felt that this approach was excluding trades that should have been considered for further discussion.
- Ultimately a group of 10 trades was identified as the top candidates… a short-list if you will… to go through a deeper assessment to understand the implications of implementation and identify how any negative impacts to workers, businesses and the training system could be mitigated.
- The 10 trades naturally fell into related "trades groupings" like **Electrical** (Construction Electrician, Industrial Electrician, Powerline Technician), **Mechanical** (Refrigeration and A/C Mechanic, Gasfitter A&B, Sheet Metal Worker, Steamfitter/Pipefitter), and **Automotive** (Automotive Service Technician, Motor Vehicle Body Repairer, Heavy Duty Equipment Technician) … which made it easier to discuss multiple trades at one time.
- This Working Group has a fair bit of expertise and knowledge, but we felt that in some cases we didn't have the technical knowledge to fully understand the full scope of impact in certain trades.
- So, we invited technical experts into our discussion, in some cases people who worked or taught in the trade (e.g. Lloyd Babcock – a Heavy Duty Equipment Technician and instructor in Kamloops or Mubasher Faruki, Associate Dean of Automotive at BCIT) or who had in-depth knowledge as a regulator (e.g. Kathy Parslow – former ICBC VP of Claims or Clint Abbot, Director of Policy and Regulatory Affairs with Technical Safety BC).
- This turned out to be a key part of the process – and through these discussions we got a good understanding of the current working environment for each trade – like regulatory requirements and the scope in which trades workers practice.
- This was really important because we wanted to make sure we wouldn't be recommending something that created more regulatory complexities.

- We also spent time considering the potential impacts to workers in unrepresented groups, small businesses, and those working in rural and remote communities.
- To help mitigate these impacts we suggested more supports for workers and businesses during transition and gave some thought to the timing of when each trade should be introduced to minimize disruption in the training system.
- We were also asked for our advice on key policies that would ensure implementation is successful.
- To support implementation, we are recommending government consider:
    - Setting appropriate journeyperson to apprentice ratios for mandatory trades to ensure a minimum standard of supervision for apprentices – *these ratios must be set in consultation with employers to make sure they don't unduly restrict their business activities*;
    - Building a fair and transparent compliance model led by the ITA that prioritizes education and awareness – *I will note that this was a critical component of support from those who do not inherently support this policy approach… if the competitive landscape is fair, meaning all abide by the same rules, then all parties will adopt the policy… part of this means it has to be adequately funded to ensure it is effective*; and
    - Providing workers and businesses a one-year transition period with adequate supports to ensure a smooth transition and no workers are left behind. This group did not support the idea of grandfathering provisions for uncertified workers.
- So, while these recommendations are submitted to government on behalf of the Working Group as a whole, it is important to acknowledge that there was not always unanimous agreement among members on the recommendations and their impact on workers, businesses, and the public.
- We talked about our differing perspectives at length, listened to one another, and moved on once all members were reasonably comfortable. Ministry staff payed an important role here in ensuring us that all perspectives would be reflected in the final recommendations.

- So, when it is all said and done, we are confident in the recommendations and rationale in this report, and believe that they will contribute to the successful implementation of mandatory certification.
- Thank you Minister and Parliamentary Secretary, for the opportunity to present our findings to you.
- On behalf of the Working Group, we are happy to answer any questions you may have.

Shannon:

- Thank you, Abigail
- Do any of the working group members have any questions you would like to ask the Minister or Parliamentary Secretary?

[Pause for questions]

Speaking Notes for Abigail Fulton

Stakeholder Advisory Working Group Meeting – February 2nd, 2021 (1pm-3:30pm)

Slide 9

[Shannon will "give you the floor" following the roundtable introductions]

Abigail:

- Thank you, Shannon.
- Minister and Parliamentary Secretary, on behalf of the group we are very excited to have the opportunity to meet with you and present our recommendations on implementing mandatory certification.
- I would like to begin by thanking our co-chairs Deputy Ministers, Shannon Baskerville and Trevor Hughes, for keeping us on track and ensuring the discussions were productive.
- We would also like to thank Bindi Sawchuk and her team for their support facilitating technical discussions and the time and attention spent in preparing materials for each of our discussions.
- I am sure you are already aware of how important trades workers are to our Province's economy - they construct our roads, bridges, and hospitals; they build our homes; and they fix our cars- they are BC's foundation.

- Just as important as the trades workforce, is the training system which ensures our trade workers have opportunities to learn the skills they need to succeed in today's trades jobs.
- While we may not always agree on trades training policies – and there are some ideological differences for sure - I can say that all members of this Working Group are equally passionate about the trades and are deeply committed to ensuring BC has an excellent trades training and apprenticeship system.
- When government invited us to participate on an Advisory Working Group to provide our input into compulsory trades, we welcomed the opportunity to share our perspectives but didn't really know what to expect.
- Compulsory Trades is a very complex policy, with the potential to impact workers and businesses across the Province.
- It is also a policy that has historically been extremely divisive among stakeholders.
- Bringing us together in the same room to talk about it – well it hadn't been done before – so no one was quite sure where it would lead, or if it was even going to work.
- But I am happy to say that with the guidance of our co-chairs, we were able to bring all of our differing perspectives to the table and talk about them in a way that was respectful and productive. I hope that these kinds of discussion can continue.
- We began our work in October 2019, with a mandate to recommend which trades would benefit from mandatory designation.
- With over 100 trades in BC, we knew that not all of them should be mandatory.
- Some of us felt we shouldn't simply return to the compulsory trades list that existed before in 2003.
- But we also acknowledged that BC's trades landscape has changed a lot since then, and we wanted the trades that we recommended to reflect the needs of apprentices and employers today.
- So, our first priority was to build a framework to figure out which trades should be mandatory.

- The framework is based on 4 principles:
    - First, to ensure a significant number of workers would benefit by improving their skills, which also helps them earn more and improve their standard of living over time (I think since COVID we would also say this would help them to be more resilient in times of economic change),
    - Second, that businesses have a highly skilled trades workforce,
    - Third that public and worker safety is maintained or enhanced, and;
    - Fourth, that the public continues to have confidence in the product or service they purchase from a trades worker.
- After setting the foundation, our next step was to assess each of the trades using an evidence-based approach.
- The Ministry spent a lot of time helping us understand what an evidence-based approach looked like – several meetings focused on discussing what data and research was available to help us measure whether a trade met our criteria.
- This was a new and, at times, lengthy process with many of us questioning the results. Some of us felt that this approach was excluding trades that should have been considered for further discussion.
- Ultimately a group of 10 trades was identified as the top candidates… a short-list if you will… to go through a deeper assessment to understand the implications of implementation and identify how any negative impacts to workers, businesses and the training system could be mitigated.
- The 10 trades naturally fell into related "trades groupings" like **Electrical** (Construction Electrician, Industrial Electrician, Powerline Technician), **Mechanical** (Refrigeration and A/C Mechanic, Gasfitter A&B, Sheet Metal Worker, Steamfitter/Pipefitter), and **Automotive** (Automotive Service Technician, Motor Vehicle Body Repairer, Heavy Duty Equipment Technician) … which made it easier to discuss multiple trades at one time.
- This Working Group has a fair bit of expertise and knowledge, but we felt that in some cases we didn't have the technical knowledge to fully understand the full scope of impact in certain trades.

- So, we invited technical experts into our discussion, in some cases people who worked or taught in the trade (e.g. Lloyd Babcock – a Heavy Duty Equipment Technician and instructor in Kamloops or Mubasher Faruki, Associate Dean of Automotive at BCIT) or who had in-depth knowledge as a regulator (e.g. Kathy Parslow – former ICBC VP of Claims or Clint Abbot, Director of Policy and Regulatory Affairs with Technical Safety BC).
- This turned out to be a key part of the process – and through these discussions we got a good understanding of the current working environment for each trade – like regulatory requirements and the scope in which trades workers practice.
- This was really important because we wanted to make sure we wouldn't be recommending something that created more regulatory complexities.
- We also spent time considering the potential impacts to workers in unrepresented groups, small businesses, and those working in rural and remote communities.
- To help mitigate these impacts we suggested more supports for workers and businesses during transition and gave some thought to the timing of when each trade should be introduced to minimize disruption in the training system.
- We were also asked for our advice on key policies that would ensure implementation is successful.
- To support implementation, we are recommending government consider:
    - Setting appropriate journeyperson to apprentice ratios for mandatory trades to ensure a minimum standard of supervision for apprentices – *these ratios must be set in consultation with employers to make sure they don't unduly restrict their business activities*;
    - Building a fair and transparent compliance model led by the ITA that prioritizes education and awareness – *I will note that this was a critical component of support from those who do not inherently support this policy approach… if the competitive landscape is fair, meaning all abide by the same rules, then all parties will adopt the policy… part of this means it has to be adequately funded to ensure it is effective*; and

    - Providing workers and businesses a one-year transition period with adequate supports to ensure a smooth transition and no workers are left behind. This group did not support the idea of grandfathering provisions for uncertified workers.
- So, while these recommendations are submitted to government on behalf of the Working Group as a whole, it is important to acknowledge that there was not always unanimous agreement among members on the recommendations and their impact on workers, businesses, and the public.
- We talked about our differing perspectives at length, listened to one another, and moved on once all members were reasonably comfortable. Ministry staff payed an important role here in ensuring us that all perspectives would be reflected in the final recommendations.
- So when it is all said and done, we are confident in the recommendations and rationale in this report, and believe that they will contribute to the successful implementation of mandatory certification.
- Thank you Minister and Parliamentary Secretary, for the opportunity to present our findings to you.
- On behalf of the Working Group, we are happy to answer any questions you may have.

[Shannon will take over and guide the Q&A discussion]

BRITISH COLUMBIA
Ministry of Advanced Education, Skills and Training

STAKEHOLDER ADVISORY WORKING GROUP

Mandatory Trades Certification in B.C.

February 2nd 2021

BRITISH COLUMBIA

Purpose

To review and finalize working group recommendations and present them to the Minister and Parliamentary Secretary.

September 16th Meeting Summary

- The last meeting (September 16th) concluded discussions on several implementation considerations which have been incorporated into the following recommendations:
  - Ensure effective engagement, appropriate supports, and a longer transition time to help more workers become certified.
  - Use a compliance and monitoring model (led by the ITA) that prioritizes education and awareness to increase employer and worker compliance.
  - Establish journeyperson-apprentice ratios for mandatory trades to help ensure adequate apprentice supervision; ratios should be developed with input from industry (led by ITA) to ensure it will work for employers .

The Report

- Shared the draft report and received feedback from members
- Changes to the report include:
  - Recognize & acknowledge the challenge MC will have on Indigenous and remote communities
  - Emphasize the need for a clear communication plan to mitigate confusion across the system
  - Clarify what “validation and data analysis” involves
  - Expand description of proposed progressive enforcement model (e.g. education vs penalty)

Discussion

1. Does the format cover all relevant considerations and recommendations raised?
2. Does the report adequately reflect the differing perspectives and nuances of the working group?
3. Are there outstanding questions regarding any aspect of mandatory certification that have not been covered today?
4. Reflecting back on this experience, are there things that worked well or didn't work well?

Next Steps

- Over the next 18 months, government will continue to work closely with the ITA to prepare for implementation by:
  - Completing legislative changes required to the *ITA Act* and potentially the *BC Safety Authority Act.*
  - Building a compliance and monitoring system within the ITA through legislation, regulation and internal policies and processes.
  - Working with Industry to set appropriate journeyperson to apprentice ratios for mandatory trades.
  - Engaging with Indigenous partners and communities, employers, workers, industry and public to understand implementation supports needed to ensure a smooth transition.
  - Establishing a process for industry to request additional mandatory trades in the future.

Break

Welcome

Anne Kang

Minister of Advanced Education and Skills Training

Andrew Mercier

Parliamentary Secretary for Skills Training

Recommendations

Proposed Mandatory Trades

1. Construction Electrician
2. Industrial Electrician
3. Powerline Technician
4. Gasfitter A & B
5. Refrigeration & Air Conditioning Mechanic
6. Steamfitter/Pipefitter
7. Sheet Metal Worker
8. Automotive Service Technician
9. Motor Vehicle Body Repairer
10. Heavy Duty Equipment Technician

Implementation Considerations

1. Set journeyperson to apprentice ratios for mandatory trades.
2. ITA led compliance and monitoring model focused on education & awareness.
3. One year transition time with adequate supports for workers to obtain certification.

Stakeholder Advisory Working Group for Mandatory Trade Certification in British Columbia

TRADE RECOMMENDATIONS

NOT FOR DISTRIBUTION

Table of Contents

February 2, 2021

Dear Minister Kang,

The Stakeholder Advisory Working Group for Mandatory Trades is pleased to submit the following report recommending 10 trades to initially be designated as mandatory should government decide to implement mandatory trade certification in British Columbia. We would like to thank government for their willingness to have an open and transparent approach to policy development and for including system partners and industry experts in the process.

In October 2019, a 16-member Stakeholder Advisory Working Group was established to support government's commitment to explore mandatory certification and to recommend which trades would be best suited for mandatory designation. Membership included trainers, industry organizations and the Industry Training Authority (ITA), bringing together a variety of perspectives and expertise which contributed to the final recommendations.

The Working Group met 12 times over 17 months during which time a global pandemic and a provincial election took place. With the support of our co-chairs Deputy Minister Shannon Baskerville and Deputy Minister Trevor Hughes, and Ministry staff, we completed our objective – "to recommend which trades would be best suited for mandatory certification."

The recommendations were developed through an in-depth assessment process and were guided by a criteria framework that ensures mandatory trades will benefit workers and businesses while maintaining public and worker safety. Trades experts were called upon to contribute their "lived experience" working and training in their respective trade so that the working group could consider all the impacts to workers and businesses when finalizing the recommendations.

The Working Group was also asked to advise on key implementation considerations to ensure mandatory certification is successful and lays the foundation for BC's long-term mandatory trades environment. Considerations included journeyperson to apprentice ratios for mandatory trades as a means of ensuring a minimum standard of supervision for the training of apprentices, and a fair and transparent compliance system led by the Industry Training Authority.

While the recommendations are submitted to government on behalf of the Working Group as a whole, it is important to acknowledge that there was not always unanimous agreement amongst members with respect to the recommendations and their impact on workers, businesses, and the public. These differing perspectives were discussed at length, in a thoughtful way, eventually ensuring all members were comfortable moving the work forward for government consideration[1].

We are confident in the recommendations and rationale in this report, and believe they contribute to the successful implementation of mandatory certification.

Finally, we would like to thank ministry staff for their hard work and dedication throughout this project, and our Deputy Minister co-chairs who kept the work moving forward and ensured respectful and productive discussions.

Respectfully,

Abigail Fulton	Jud Martell	Ken Tourand	Rieghardt van Enter
Chris Atchison	Kaanesh Ghosh	Laird Cronk	Robin Lucas
Helen Boyce	Kathy Kinloch	Larry Richardson	Ron Tremblay
Irene Kerr	Ken McCormack	Lisa Langevin	Shelley Gray

[1] The views, thoughts, and opinions expressed throughout this report do not, in all cases, represent the views or opinions of the organizations in which the members of this Working Group are associated with.

Introduction

The Government of B.C. is exploring the implementation of mandatory certification for some trades, requiring trades workers to be either registered apprentices or certified journeypersons. The vision for mandatory certification is that it will contribute to a robust trades workforce that is ready to meet the demands of a strong, sustainable and inclusive economy now and in the future.

Mandatory certification represents a new approach to creating systemic and cultural change in the trades by:

- building a more highly skilled trades workforce, while standardizing skill levels within specific trades;
- encouraging long-term careers in the skilled trades by raising their prestige and making the trades an occupation of choice for young people;
- improving workers' standards of living by ensuring they have the skill set to take advantage of better paid jobs in the trades and/or rise to the highest wage level in that trade;
- supporting more apprentices, including Indigenous peoples, women and equity-seeking groups and youth to achieve trades certification; and
- ensuring B.C. is prepared to meet the high demand for skilled workers over the next ten years.

Mandatory certification would represent a significant system change which would have several implications for workers, employers, the trades training system and the broader economy.

A Stakeholder Advisory Working Group (Working Group), representing Industry and Training Providers (See Appendix A for membership) was established to develop a transparent and measurable framework to recommend which trades could benefit from mandatory certification. Based on the framework described below, the Working Group is recommending the following ten trades for mandatory certification. These trades were chosen based on their benefits for workers, employers and the public, in addition to their minimal impact on labour supply or the economy. Working group analysis and discussion led to the prioritization of these trades over other trades due to their relative ease of implementation. These trades are designed to build the foundation of BC's long-term compulsory trades system and pave the way for other trades of equal importance to be designated as mandatory in the future.

Electrical Trades	*Mechanical Trades*	*Automotive Trades*
1. Electrician (Construction)	4. Refrigeration and Air Conditioning Mechanic	8. Heavy Duty Equipment Technician
2. Industrial Electrician	5. Gasfitter A & B	9. Automotive Service Technician
3. Powerline Technician	6. Steamfitter/Pipefitter	10. Motor Vehicle Body Repairer
	7. Sheet Metal Worker	

Framework to Assess Trades for Mandatory Certification

The Working Group developed a framework to consider the unique interests of three key participants in skilled trades activity and B.C.'s economy: workers, employers, and the public. The overarching objective was to benefit workers by improving their skills and standard of living, ensure continued safety, and benefit employers and the public with minimal disruptions or negative impacts (see Appendix B – Designation Framework Graphic).

Principles & Criteria

Six principles and criteria were established to guide the approach to identifying trades for consideration:

Assessment Principles and Criteria

1. **Worker -** MC should result in a substantial number of trades workers benefiting from the highest level of training and skill. To support this principle a trade must meet two criteria:
    - **Trade is in high demand:** The trade has a high number of workers currently employed and is expected to have substantial growth in job openings in the future. The higher number of workers in the trade occupation the more workers who will benefit from completing training and achieving certification.
    - **Trade Occupation requires a high level of skill:** Workers in trades requiring a high skill level have greater opportunity: for earning high wages, increasing their standard of living, and career advancement.
2. **Business –** MC should result in skilled trades workers supporting business viability and growth & supporting investment for a strong economy. To support this principle, a trade must meet two criteria:
    - Trade occupation may be **critical to large investment:** Access to an adequate supply of highly skilled workers to support large investment will increase BC's economic competitiveness; and
    - Trade occupation is **less vulnerable to economic shifts.** Trades with a workforce that is stable during economic volatility help ensures businesses remain viable and continue to prosper.
3. **Public –** MC should maintain or enhance public safety, as well as consumer confidence. To support this principle, the trade must meet two criteria:
    - Trade occupation is a **high safety risk to public:** MC will ensure all workers are certified with professional knowledge of their trade with occupational and public safety standards and practices; and
    - Trade occupation is a **service purchased by the public:** MC would give consumers confidence that the trades people they hire have the highest level of training, workmanship and service quality.

Implementation Principles

Three additional principles were developed to ensure workers and businesses were successfully supported during implementation and transition to a mandatory environment:

4. **Workers** – MC implementation should maximize opportunities for all workers to successfully transition to a MC environment
5. **Business –** MC implementation should enable businesses to successfully transition to a MC environment that doesn't hinder business viability.
6. **Public –** MC implementation should result in the public continuing to have access to trades services at reasonable costs.

Data and Analysis

The Working Group measured each trade against the above criteria informed by the following data:

- length of training;
- education levels;
- projected job openings;
- potential for increased wages;
- level of investment in the construction industry;
- level of safety risk to the public; and
- level of service purchased by the public.

Initial data analysis by the Working Group identified 10 trades that met the framework criteria. These 10 trades then underwent a full assessment, including further analysis and validation of the data[2] in addition to discussions with technical experts, to confirm the potential benefits and implications to workers and businesses and the public. The Working Group also identified implementation considerations for each of the 10 trades (See Appendix C: List of Trades Considered and Recommended for mandatory certification).

Implementation

In order to ensure mandatory certification is successful in achieving its objectives, Working Group members agreed that a well-timed and adequately funded implementation plan is put forward for Treasury Board approval and includes: an effective compliance and enforcement model; supports and services for uncertified workers to become certified; comprehensive engagement with system partners (i.e. industry, apprentices, Indigenous Peoples, equity seeking groups, and the broader public); and mechanisms for ensuring adequate supervision of apprentices. Working Group members had various views and perspectives on each of these topics that are important to consider.

[2] Further analysis and validation of the data for the 10 trades included a targeted review of the quantitative data and thorough discussion with technical experts, expanded the analysis to consider qualitative information regarding the number of uncertified workers that may be impacted, the number of underrepresented groups working in the trades, understanding the existing regulatory environment and scope of work performed by trades workers in the 10 trades.

Indigenous Peoples and Communities

Mandatory certification will change BC's trades workforce and training landscape, which will likely impact Indigenous Peoples and their communities. While, the Working Group believes that mandatory certification will not create new barriers for indigenous workers on its own, it may exacerbate existing barriers, especially in remote communities.

Indigenous workers are more likely than others to be uncertified due to racism, a gap in essential skills, lack of training near their communities, and a lack of Indigenous mentors. Fulsome engagement with Indigenous Peoples is essential to fully understanding the supports and services needed to successfully transition Indigenous uncertified workers and employers to a mandatory environment. Mandatory certification will provide a pathway to greater economic opportunities for Indigenous Peoples with the right engagement, supports and training.

Effective monitoring & compliance

The Working Group agreed that without an effective compliance system, some employers may choose not to comply with mandatory certification, potentially creating unfair hiring practices between businesses. To mitigate this, the Working Group is recommending that the Industry Training Authority (ITA) is best positioned to lead an effective and robust monitoring and compliance system in partnership with relevant government agencies (e.g. WorkSafeBC), external agencies (e.g. Technical Safety BC), industry, and apprentices.

Working Group members noted that consideration should be given to separating ITA's role of supporting apprentices and employers through Apprentice Advisors with compliance and enforcement through Compliance Officers.

The Working Group also suggested that the most effective approach to monitoring and compliance was one that starts with inspiring compliance through awareness and education, before progressively moving towards a stronger compliance approach, often involving penalties, orders, and audits (i.e. similar to Nova Scotia and New Brunswick).

Certifying Experienced Workers

The Working Group agreed that is important to retain uncertified workers with extensive experience in their trade as they are essential mentors and trainers for apprentices, passing on valuable knowledge and skills to the next generation of trades workers.

Working Group members acknowledged that BC has a well established and well supported challenge pathway to allow experienced uncertified workers opportunities to obtain certification. The Working Group felt that the challenge pathway should be leveraged rather than consideration of grandparenting provisions[3] for targeted groups as it could create inequity and does not align with the overall objective of mandatory certification to increase the total number of workers benefiting from becoming certified.

Instead, the Working Group suggested strengthening exam writing supports (e.g. for ESL trades workers), providing a transition period of at least one year for workers and employers to comply, and

[3] A grandparenting provision would allow older worker with extensive experience in the trade to continue working without certification until they choose to leave the trade and retire.

clearly communicating compliance requirements and available supports to employers and workers, well in advance of implementation.

Journeyperson to Apprentice Ratios

The Working Group agreed that good quality mentoring and adequate supervision during on-the-job training is the foundation of Apprenticeship training. Journeyperson to Apprentice ratios can be an effective tool for establishing a minimum standard of supervision, providing a level of protection to apprentices from "bad actor" employers who choose to register multiple uncertified trades workers as apprentices in order to comply with mandatory certification but do not provide adequate supervision. Limiting the number of apprentices training under a journeyperson and adequately supporting mentors will ensure a more valuable mentorship experience.

Some Working Group members expressed concerns that ratios could negatively impact small businesses who may not be able to meet a restrictive ratio (e.g. 1:1).

Working Group members recommend that Government implement a prescribed ratio for the 10 recommended mandatory trades, with the following considerations: Appropriate ratios be determined for each trade through ITA led consultation with key system partners (i.e. industry, apprentices, and trainers); and flexibility that reflects the different needs and impact on businesses, industry and regions.

Summary of Criteria Assessment Results

	Assessment Criteria					
Principle	MC results in a substantial # of trades workers benefit from highest level of training & skill		MC results in skilled workers supporting business viability & growth & supports strong economy		MC maintains or enhances public safety & consumer confidence	
Criteria	Trade requires High Level of Technical Skill	Trade is in high demand	Trade is less vulnerable to economic shifts	Trade may be critical to large investments	Trade is a high safety risk to the public	Trade is a service purchased by the public
1. Construction Electrician	✓	✓	✓	✓	✓	✓
2. Industrial Electrician	✓	✓	✓	✓	✓	
3. Powerline Technician	✓		✓	✓	✓	
4. Gasfitter A/B	✓	✓		✓	✓	✓
5. Steamfitter	✓	✓	✓	✓	✓	
6. Refrigeration & Air Conditioning Mechanic	✓	✓	✓	✓	✓	✓
7. Sheet Metal Worker	✓	✓	✓	✓	✓	
8. Automotive Service Technician	✓	✓	✓		✓	✓
9. Automotive Body Repairer	✓	✓	✓		✓	✓
10. Heavy Duty Equipment Technician	✓	✓	✓			

Recommendation #1 – Construction Electrician

Background

Scope of work: Construction electricians plan, design, assemble, install, alter, repair, inspect, verify, commission, connect, operate, maintain and decommission residential, commercial, institutional, industrial and marine electrical systems.

Current regulatory environment in B.C.: In order to get a permit to legally conduct electrical work, a business must have at least one Field Safety Representative (FSR) employed and involved in the project. An FSR must hold an Electrical Certificate of Qualification issued by the Industry Training Authority (or another recognized jurisdiction). Technical Safety B.C. is responsible for certifying Field Safety Representatives (FSR) and providing work permits.

Assessment Results

The results of data analysis and expert discussion against the criteria indicate that designating Construction Electrician as a mandatory trade could provide a benefit to workers while also maintaining business viability, public safety and consumer protection. Data suggests Construction Electrician meets the following criteria:

a) Requires a *high level of technical skill*. This is demonstrated by:
   - Completing a high number of required training hours relative to other trades (7,200 in-classroom and work-based hours combined).
   - Workers in this occupation typically have some form of post-secondary education such as a diploma/certificate, and high regulation.
   - Workers in this trade, on average, earn higher wages then many other trades occupations. According to Labour Force Survey results, electricians are earning a median wage of $29 per hour with some Electricians earning upwards of $44.50 per hour. These wage levels reflect many factors, including: a worker's experience or time in the trade, education level, location within the Province (i.e. rural vs urban), and labour market supply.

b) Is an occupation that is in *high demand*. This is demonstrated by a large number of job openings expected over the next 10 years relative to the size of the occupation; 2,752 expected job openings represents 21 percent of current employment (13,065), suggesting long term demand for certified Construction Electricians to replace retiring workers and support future economic growth.

c) Plays a critical role in companies making *large investment* decisions. This is demonstrated by the largest share of electricians (88%) being employed in the construction industry which is the largest contributor to investment in B.C.

d) Supports business viability by providing stable employment and being l*ess sensitive to economic shifts*. Construction Electrician has a 27% difference between its highest point of employment and its lowest over the last 15 years. This indicates that, relative to other trades, Electrician has experienced low job fluctuations and a higher rate of stable employment.

e) Can pose a *high safety risk to the public*. Poor or incorrect wiring can lead to increased chances of a fire, power surges, arc faults, and other serious consequences to the public.

f) Is a *service sometimes purchased by the public*. Six percent of work is conducted in a consumer-oriented industry. For example: homeowners often directly hire Construction Electricians to install and repair electrical wiring in their homes. This does not reflect electrical work completed during or immediately after construction.

While Construction Electrician meets many of the criteria for mandatory certification, data analysis also suggests there are other considerations:

- A majority of Electricians are already certified or participating in an apprenticeship; only two percent of workers are estimated to be uncertified (274 uncertified workers of 13,065 employed) and Construction Electrician has the highest number of apprentices in B.C., therefore, MC would not significantly increase the number of certified workers working in the occupation.
- However, industry experts suggest that there may be more uncertified workers practising the trade than indicated by data (e.g. those working as "handy persons" making small repairs in people's homes, those that are performing smaller wiring jobs within a small business, or working under a certified tradesperson who has pulled the permit for the overall job). Implementing MC would require all workers and businesses to comply with the same certification and training requirements and standards rather than comply with existing regulation that allows for some workers to perform electrical work without certification.

Implementation Timing and Considerations

The trades training system is largely ready to support workers and businesses through a successful transition to a mandatory environment and recommends that implementation of Construction Electrician could begin immediately:

- Workers and employers in this trade would experience little disruption as they are already working in a highly regulated environment similar to mandatory certification.
- Demand for new apprentice seats could be relatively low because the majority of electrical trades workers are already certified or registered apprentices. The trades training system is well positioned to absorb a small to moderate increase in Electrical apprenticeship training seats. Construction Electrician apprenticeship training is currently delivered through 15 public and non-public training institutions, enabling any seat increases to be distributed across B.C.

Additional Notes

- Due to a high degree of crossover in the work between Industrial Electrician and Construction Electrician, the Working Group recommends that Industrial Electricians would continue to conduct work within the Construction Electrician scope of trade.
- Construction Electrician is designated compulsory in nine (9) other jurisdictions, indicating an established precedent for designation, potentially validating the need to ensure BC workers are meeting the same standards.

Recommendation #2 – Industrial Electrician

Background

Scope of work: Industrial Electricians inspect, install, test, troubleshoot, repair, and service industrial electrical equipment and associated electrical and electronic controls (usually in an industrial or plant setting).

Current regulatory environment in B.C.: In order to get a permit to legally conduct electrical work, a business must have at least one Field Safety Representative (FSR) employed and involved in the project. An FSR must hold an Electrical Certificate of Qualification issued by the Industry Training Authority (or another recognized jurisdiction). Technical Safety B.C. is responsible for certifying Field Safety Representatives (FSR) and providing work permits.

Assessment Results

The results of data analysis and expert discussion against the criteria indicate that designating Industrial Electrician as a mandatory trade could provide a benefit to workers while also maintaining business viability, public safety and consumer protection. Data suggests Industrial Electrician:

a) Requires a *high level of technical skill*. This is demonstrated by:
    - Completing a high number of required training hours relative to other trades (7,200 in-classroom and work-based hours combined).
    - Workers in this occupation typically have some form of post-secondary education such as a diploma/certificate, and high regulation.
    - Workers in this trade, on average, earn higher wages then many other trades occupations. According to Labour Force Survey results, Industrial Electricians are earning a median wage of $38.75 per hour with some Industrial Electricians earning upwards of $51.10 an hour. These wage levels reflect many factors, including: a worker's experience or time in the trade, education level, location within the Province (i.e. rural vs urban), and labour market supply.

b) Is an occupation that is in *high demand*. This is demonstrated by a large number of job openings expected over the next 10 years relative to the size of employment in the occupation due to retirement and growth; 1,171 expected job openings represents 30 percent of the current employment (3,835) in the trade, suggesting long term demand for certified Industrial Electricians to replace retiring workers and to support future economic growth.

c) Plays a critical role in companies making *large investment* decisions. This is demonstrated by a moderate share of industrial electricians (30%) employed in the construction industry which is the largest contributor to investment in B.C.

d) Supports business viability by providing stable employment and being l*ess sensitive to economic shifts*. Industrial Electrician has a 44% difference between its highest point of employment and it's lowest over the last 15 years. This indicates that, relative to other trades, Industrial Electrician has experienced moderate to low job fluctuations and a relatively higher rate of stable employment.

e) Can pose a *high safety risk to the public*. Poor or incorrect wiring can lead to increased chances of a fire, power surges, arc faults, and other serious consequences to the public.

f) Is a *service rarely purchased directly by the public*. Industrial Electrician does not meet this criteria due to the low (4%) percent of work conducted in a consumer-oriented industry.

While Industrial Electrician meets many of the criteria for mandatory certification, data analysis also suggests there are other considerations:

- Most Industrial Electricians are already certified or participating in an apprenticeship; nearly zero percent of workers are estimated to be uncertified (12 uncertified workers of 3,835 employed) therefore, MC would not significantly increase the number of certified workers working in the occupation.

Implementation Timing and Considerations

The trades training system is ready to support workers and businesses through a successful transition to a mandatory environment and recommends that implementation of Industrial Electrician could begin immediately:

- Workers and employers in this trade would experience little disruption as they are already working in a highly regulated environment similar to mandatory certification.
- Demand for new apprentice seats could be relatively low because the majority of industrial electricians are already certified or registered apprentices. The trades training system is well positioned to absorb a small to moderate increase in apprenticeship training seats. Industrial Electrician apprenticeship training is currently delivered through 3 public and non-public training institutions, enabling the small number of seats increases to be distributed across B.C.

Additional Notes

- Due to a high degree of crossover in the work between Industrial Electrician and Electrician (Construction), the Working Group recommends that Industrial Electricians would continue to conduct work in the Electrician (Construction) trade area.

Recommendation #3 – Powerline Technician (PLT)

Background

Scope of work: Powerline technicians install, maintain and repair overhead, underground and underwater powerlines and cables, and other associated equipment such as insulators, conductors, lightning arrestors, switches, metering systems, transformers and lighting infrastructure.

Current regulatory environment in B.C.: In order to get a permit to legally conduct electrical work, a business must have at least one Field Safety Representative (FSR) employed and involved in the project. An FSR must hold an Electrical Certificate of Qualification issued by the Industry Training Authority (or another recognized jurisdiction). Technical Safety B.C. is responsible for certifying Field Safety Representatives (FSR) and providing work permits.

Assessment Results

The results of data analysis and expert discussion against the criteria indicate that designating Powerline Technician as a mandatory trade could provide a benefit to workers while also maintaining business viability, public safety and consumer protection. Data suggests Powerline Technician:

a) Requires a *high level of technical skill*. This is demonstrated by:
   - Completing a high number of required training hours relative to other trades (6,830 in-classroom and work-based hours combined).
   - Workers in this occupation typically have some form of post-secondary education such as a diploma/certificate, and high regulation.
   - Workers in this trade, on average, earn higher wages then many other trades occupations. According to Labour Force Survey results, Powerline Technicians are earning a median wage of $42.00 per hour with some Powerline Technicians earning upwards of $54.70 an hour. These wage levels reflect many factors, including: a worker's experience or time in the trade, education level, location within the Province (i.e. rural vs urban), and labour market supply.

b) Is an occupation that is in *high demand*. Powerline Technician has a low number of 10-year job openings (330) compared to other trades, however, the job openings as a share of current employment (1,235) is considered high at 26 percent. This suggests there is long term demand for certified Powerline Technicians to replace retiring workers and to support future economic growth.

c) Plays a critical role in companies making *large investment* decisions. This is demonstrated by a moderate share of Powerline Technicians (43%) employed in the construction industry, which is the largest contributor to investment in B.C.

d) Supports business viability by providing stable employment and being l*ess sensitive to economic shifts*. Powerline Technician has a 51% difference between its highest point of employment and

it's lowest over the last 15 years. This indicates that, relative to other trades, Powerline Technician has experienced moderate job fluctuations, suggesting relatively stable employment.

e) Can pose a *high safety risk to the public*. Poor or incorrect wiring can lead to increased chances of a fire, power surges, arc faults, and other serious consequences to the public.

f) Is a *service rarely purchased directly by the public*. Powerline technician does not meet the criteria due to the low (2%) percent of work conducted in a consumer-oriented industry.

While Powerline Technician meets many of the criteria for mandatory certification, data analysis also suggests there are other considerations:

- Most Powerline Technicians are already certified or participating in an apprenticeship; 2 percent of workers are estimated to be uncertified (36 uncertified workers of 1,235 employed) and therefore, MC would not significantly increase the number of certified workers working in the occupation.
- However, industry experts believe there are likely more uncertified workers than originally indicated in the data. Specifically, uncertified workers with a limited scope of trade, working alongside certified Powerline Technicians in a support role capacity. These workers may benefit from the opportunity to certify as a result of introducing mandatory certification. Implementing MC would require all workers and businesses to comply with the same certification and training standards, whereas existing regulations allow some workers to perform limited Powerline Technician type work without certification.

Implementation Timing and Considerations

The trades training system is largely ready to support workers and businesses through a successful transition to a mandatory environment and recommends that implementation of Powerline Technician could begin immediately:

- Workers and employers in this trade would experience little disruption as they are already working in a highly regulated environment similar to mandatory certification.
- Demand for new apprentice seats could be relatively low because the majority of Powerline Technicians are already certified or registered apprentices. The trades training system is well positioned to absorb a small to moderate increase in apprenticeship training seats. Powerline Technician apprenticeship training is only delivered through BC Hydro.

Additional Notes

- Introducing mandatory certification would ensure that only Powerline Technicians can conduct electrical work on powerlines. Extending MC regulations to include independent power producers and mines would reduce industry confusion by simplifying regulatory oversight/jurisdiction.

Recommendation #4 – Refrigeration and Air Conditioning Mechanic (RACM)

Background

Scope of work: Refrigeration and Air Conditioning Mechanics (RACM) install, maintain and service residential, commercial, industrial and institutional heating, ventilation, air conditioning and refrigeration units and systems. They also connect to air delivery systems, install and service hydronic and secondary refrigerant systems, and associated controls.

Their duties include laying out reference points for installation, assembling and installing components, installing wiring to connect components to an electric power supply and calibrating related controls. They also measure, cut, bend, thread and connect pipe to functional components and utilities. Refrigeration and Air Conditioning Mechanic is a Red Seal trade.

Current regulatory environment in B.C.: A worker must be a certified Refrigeration & Air Conditioning Mechanic (RACM) to install, repair or alter refrigeration and AC system over 5 kW. Work on these highly regulated systems (over 5 kw) usually takes place in the commercial, industrial or institutional sectors.

A fully certified RACM can work in all sectors with no restrictions on the type or size of unit being worked on. According to industry experts, the majority of unregulated and uncertified work is done in the residential and light commercial sector (units under 5kW).

Refrigeration & Air Conditioning Mechanics complete their apprenticeship with Gasfitter Class B certification enabling them to conduct residential and light commercial gas and related electrical work (excludes panel work). A RAC Mechanic may choose to pursue additional certification and upgrade to a Class A Gasfitter to expand their scope of work.

Assessment Results

The results of data analysis and expert discussion against the criteria indicate that designating Refrigeration and Air Conditioning Mechanic as a mandatory trade could provide a benefit to workers while also maintaining business viability, public safety and consumer protection. Data suggests RACM:

a) Requires a *high level of technical skill*. This is demonstrated by:
    - Completing a high number of required training hours relative to other trades (8,060) in-classroom and work-based hours combined).
    - Workers in this occupation typically have some form of post-secondary education such as a diploma/certificate.
    - Workers in this trade, on average, earn higher wages then many other trades occupations. According to Labour Force Survey results, RACM are earning a median wage of $35.00 per hour with some RACM earning upwards of $51.90 an hour. These wage levels reflect many factors, including: a worker's experience or time in the trade, education level, location within the Province (i.e. rural vs urban), and labour market supply.

b) Is an occupation that is in high demand. RACM has a low number of 10-year job openings (696) compared to other trades, however, job openings as a share of current employment (2,570) is considered high at 27 percent. This suggests long term demand for certified Refrigeration and A/C Mechanics to replace retiring workers and support future economic growth.

c) Plays a critical role in companies making *large investment* decisions. This is demonstrated by a high share of RACM (68%) employed in the construction industry, which is the largest contributor to investment in B.C.

d) Supports business viability by providing stable employment and being l*ess sensitive to economic shifts*. RACM has a 43% difference between its highest point of employment and it's lowest over the last 15 years. This indicates that RACM has experienced moderate to low job fluctuations relative to other trades, suggesting a more stable level of employment.

e) Can pose a *high safety risk to the public*. Incorrectly installed/repaired building ventilation or refrigeration equipment can lead to poor health, higher risk of infections, and refrigeration system malfunction causing serious injury or death.

f) Is a *service sometimes purchased by the public*. RACM has a high percent (16%) of work conducted in a consumer-oriented industry.

Implementation Timing and Considerations

The trades training system is largely ready to support workers and businesses through a successful transition to a mandatory environment and recommends that implementation of RACM could begin immediately:

- Workers and employers in this trade would likely experience low to moderate disruption due to a higher percent of uncertified workers, 13.5 percent of workers are estimated to be uncertified (348 uncertified workers of 2,570 employed). Most of these estimated uncertified workers are likely operating in the residential sector, conducting small residential installations and repairs.
- The trades training system is well positioned to absorb a small to moderate increase in apprenticeship training seats. However, additional seats may be needed to train all the estimated uncertified workers in this trade. Refrigeration and Air Conditioning Mechanic apprenticeship training is delivered through 5 public and non-public training throughout BC.
-

Additional Notes

- RACM is designated compulsory in seven (7) other jurisdictions, indicating an established precedence for designation, potentially validating the need to ensure BC workers are meeting the same standards.

Recommendation #5 – Gasfitter A & B

Background

***Scope of work**:* Class A gasfitter means a person who may install, test, maintain and repair gas pipelines, appliances, equipment and accessories in residential, commercial, and industrial premises that utilize natural gas, manufactured gas, liquefied petroleum gas, digester gas, landfill gas, biogas or hydrogen for combustion. The holder of a Gasfitter - (Class A) is involved in the installation or alteration of any gas system, except vehicle fuel systems.

The holder of a Class B Gasfitter certificate installs, tests, adjusts, maintains and repairs gas lines, appliances, equipment and accessories in various sectors. Appliances and equipment include those that do not exceed 400 000 Btuh (British Thermal Units per hour) or 120 kW (kilowatts) and are certified, which typically include residential or light commercial boilers, domestic water heaters, furnaces, fireplaces, process burners, and various other gas-fired equipment.

Current regulatory environment in B.C.: Gasfitter Class A can Install or alter any gas system (except vehicles) and is able to work in residential, commercial, or industrial settings. A certified Gasfitter A is permitted to perform electrical work related to their scope of trade, excluding connection to the distribution panel. Class A Gasfitters are usually employed by gas contractors and operating permit holders that install, service and maintain large commercial, institutional and industrial facilities as well as large gas utilities.

Class B Gasfitters work mostly in the residential and light commercial sectors. Class B Gasfitters work on limited input residential boilers, domestic water heaters, makeup air units, furnaces, process burners, and various other gas-fired equipment. A certified Gasfitter B can perform related electrical work required for the equipment, excluding connection to the distribution panel.

Assessment Results

The results of data analysis and expert discussion against the criteria indicate that designating Gasfitter A & B as a mandatory trade could provide a benefit to workers while also maintaining business viability, public safety and consumer protection. Data suggests Gasfitter:

a) Requires a high level of *technical skill*. This is demonstrated by:
    - Completing a high number of training hours relative to other trades (7,800) in-classroom and work-based hours combined.
    - Workers in this occupation typically have some form of post-secondary education such as a diploma/certificate, and high regulation.
    - Workers in this trade, on average, earn higher wages then many other trades occupations. According to Labour Force Survey results, Gasfitters are earning a median wage of $30.00 per hour with some Gasfitters earning upwards of $52.21 an hour. These wage levels reflect many factors, including: a worker's experience or time in the trade, education level, location within the Province (i.e. rural vs urban), and labour market supply.

b) Is an occupation that is in high demand. Gasfitter has a low number of 10-year job openings (379) compared to other trades, however, the job openings as a share of current employment (1,040) is

considered high at 36 percent. This suggests there is long term demand for certified Gasfitters to replace retiring workers and support future economic growth.

c) Plays a critical role in companies making *large investment* decisions. This is demonstrated by a high share of gasfitters (62%) employed in the construction industry, which is the largest contributor to investment in B.C.

d) Is less supportive to business viability: Gasfitter has a less stable employment base and is more *sensitive to economic shifts*. Gasfitter has a 66% difference between its highest point of employment and it's lowest over the last 15 years. This indicates that Gasfitter has experienced moderate to high job fluctuations relative to other trades, suggesting less stable employment.

e) Can pose a *high safety risk to the public*. If improperly repaired or maintained, gas lines or other gas utilities could leak, causing serious risks to public safety.

f) Is a *service sometimes purchased directly by the public*. Gasfitter has a moderate percent (9%) of work conducted in a consumer-oriented industry. Most work is conducted in the construction, commercial services, and industrial sectors.

While Gasfitter meets many of the criteria for mandatory certification, data analysis also suggests there are other considerations:

- Most Gasfitters are already certified or participating in an apprenticeship; 4 percent of workers are estimated to be uncertified (39 uncertified workers of 1,040 employed) and therefore, MC would not significantly increase the number of certified workers working in the occupation.

Implementation Timing and Considerations

The trades training system is ready to support workers and businesses through a successful transition to a mandatory environment and recommends that implementation of Gasfitter A & B could begin immediately:

- Workers and employers in this trade would experience little disruption as they are already working in a highly regulated environment similar to mandatory certification. Industry experts believe the residential and light commercial sector likely has higher rates of uncertified workers. These uncertified workers are likely Class B Gasfitters as industry experts believe most Gasfitter (Class A) workers are fully certified.
- Demand for new apprentice seats could be relatively low because the majority of Gasfitters are already certified or registered apprentices. The trades training system is well positioned to absorb a small increase in apprenticeship training seats. Gasfitter apprenticeship training is currently delivered through 4 public and non-public training institutions, enabling a small seat increases to be distributed across B.C.

Additional Notes

- Gasfitter is designated compulsory in one jurisdiction (Alberta). This is likely due to the greater availability of gas utilities in BC and Alberta. Residential and commercial natural gas use is much less common in other provinces.

Recommendation #6 – Sheet Metal Worker

Background

Scope of work: A Sheet Metal Worker lays out, fabricates, assembles, welds, installs, and services the following: ducting, spouting, fittings cabinets, gutters, copings, flashings, supporting devices, wall systems, building envelope, ornamental work, blowpipe, air pollution, heating, ventilating, air-conditioning, roofing, restaurant, kitchen, marine installations and hospital equipment.

Sheet metal workers operate in the following sectors: residential, industrial, commercial, and institutional. The industry is moving towards workers having a wider scope of trade and greater transferability between sectors.

Sheet metal workers may specialize in the following areas: heating, ventilation and air conditioning (HVAC); boiler lagging/vessel cladding; roofing products; custom metal products; secondary systems for environmental projects; pneumatic conveyance or signage.

Current regulatory environment in B.C: Most sheet metal work is currently unregulated, especially in the residential sector. Many sheet metal workers conduct work in specialized areas like HVAC or boilers. These specializations require permits and, in some cases, additional training. Much of the specialization work is "regulated work" (pressure, gas, electrical, ventilation) as outlined in the BC Safety Standards Act.

Assessment Results

The results of data analysis and expert discussion against the criteria indicate that designating Sheet Metal Worker as a mandatory trade could provide a benefit to workers while also maintaining business viability, public safety and consumer protection. Data suggests Sheet Metal Worker:

a) Requires a *high level of technical skill*. This is demonstrated by:

- Completing a high number of required training hours relative to other trades (6,400 in-classroom and work-based hours combined).
- Workers in this occupation typically have some form of post-secondary education such as a diploma/certificate.
- Workers in this trade, on average, earn higher wages then many other trades occupations. According to Labour Force Survey results, Sheet Metal Workers are earning a median wage of $29.53 per hour with some Sheet Metal Workers earning upwards of $48.75 an hour. These wage levels reflect many factors, including: a worker's experience or time in the trade, education level, location within the Province (i.e. rural vs urban), and labour market supply.

b) Is an occupation that is in *high demand.* Sheet Metal Worker has a low number of 10-year job openings (693) compared to other trades, however, the job openings (693) as a share of current employment (2,515) is considered high at 27 percent. This suggests there is long term demand for certified Sheet Metal Workers to replace retiring workers and support future economic growth.

c) Plays a critical role in companies making *large investment* decisions. This is demonstrated by a high share of Sheet Metal Workers (63%) employed in the construction industry, which is the largest contributor to investment in B.C.

d) Supports business viability by providing stable employment and being l*ess sensitive to economic shifts*. Sheet Metal Worker has a 48% difference between its highest point of employment and it's lowest over the last 15 years. This indicates that Sheet Metal Worker has experienced medium to low job fluctuations relative to other trades, suggesting a more stable employment.

e) Can pose a *high safety risk to the public*. Improper work can result in structure or equipment failure, posing a serious safety risk to the public.

f) Is a *service sometimes purchased by the public*. Sheet Metal Worker does not meet the criteria due to the low percent (2%) of work conducted in a consumer-oriented industry.

Implementation Timing and Considerations

The trades training system is ready to support workers and businesses through a successful transition to a mandatory environment and recommends that implementation of Sheet Metal Worker could begin immediately:

- Workers and employers in this trade may experience low to moderate disruption due to a higher percent of uncertified workers, 18 percent of workers are estimated to be uncertified (458 uncertified workers of 2,515 total employed).
- Demand for new apprentice seats could be high, additional seats will be required to meet increased training demand. Sheet Metal Worker apprenticeship training is currently delivered through 4 public and non-public training institutions, enabling seat increases to be distributed across B.C.

Additional Notes

- Sheet Metal Worker is designated compulsory in six (6) other jurisdictions, indicating an established precedence for designation, potentially validating the need to ensure BC workers are meeting the same standards.

Recommendation #7 – Steamfitter/Pipefitter

Background

Scope of work: Steamfitter/Pipefitters lay out, assemble, fabricate, maintain, repair and service equipment and piping systems carrying water, steam, fluids, gases, chemicals and fuel in various systems such as heating, cooling, lubricating and process piping systems. They read and interpret drawings, specifications and codes to determine layout, type and size of pipe, and tools to use.

They measure, cut, thread, groove, bend, solder, braze, assemble and install metal, plastic and fiberglass pipes, valves and fittings.

They must also join and secure pipe sections of related equipment and check systems for leaks. Steamfitters/Pipefitters also do general maintenance work including replacement of worn components.

Current regulatory environment in B.C: Trade certification is not required to work as a steamfitter/pipefitter in BC. A worker may conduct steamfitter/pipefitter type work under the supervision of a fully certified journeyperson.

Certain work is strictly regulated by Technical Safety BC, work includes pressure vessels, refrigeration, boilers, gas, and electrical work. Steamfitting/Pipefitting work must be done by a licensed contractor if a pipe system operates over 15 psi. In most cases a Steamfitter/Pipefitter is required to have a Class B Gasfitter or pressure welding certification in order to practice full scope of trade

Assessment Results

The results of data analysis and expert discussion against the criteria indicate that designating Steamfitter/Pipefitter as a mandatory trade could provide a benefit to workers while also maintaining business viability, public safety and consumer protection. Data suggests Steamfitter/Pipefitter:

a) Requires a *high level of technical skill*. This is demonstrated by:
    - Completing a high number of required training hours relative to other trades (6,400 in-classroom and work-based hours combined).
    - Workers in this occupation typically have some form of post-secondary education such as a diploma/certificate, and high regulation.
    - Workers in this trade, on average, earn higher wages then many other trades occupations. According to Labour Force Survey results, Steamfitter/Pipefitters are earning a median wage of $28.00 per hour with some Steamfitter/Pipefitters earning upwards of $42.00 an hour. These wage levels reflect many factors, including: a worker's experience or time in the trade, education level, location within the Province (i.e. rural vs urban), and labour market supply.

b) Is an occupation that is in high demand. Steamfitter/Pipefitter has a low number of 10-year job openings (725) compared to other trades, however, job openings (725) as a share of current employment (2,460) is considered high at 29 percent. This suggests there is long term demand for certified Steamfitter/Pipefitter to replace retiring workers and support future economic growth.

c) Plays a critical role in companies making *large investment* decisions. This is demonstrated by a high share of Steamfitter/Pipefitters (61%) employed in the construction industry, which is the largest contributor to investment in B.C.

d) Supports business viability by providing stable employment and being l*ess sensitive to economic shifts*. Steamfitter/Pipefitters has a 48% difference between its highest point of employment and it's lowest over the last 15 years. This indicates that Steamfitter/Pipefitter has experienced moderate to low job fluctuations relative to other trades, suggesting a more stable employment.

e) Can pose a *high safety risk to the public*. Improper work can result in pressure vessel failure, posing a serious safety risk to the public.

f) Is a *service sometimes purchased by the public*. Steamfitter/Pipefitters does not meet the criteria due to the low percent (5%) of work conducted in a consumer-oriented industry.

While Steamfitter/Pipefitter meets many of the criteria for mandatory certification, data analysis also suggests there are other considerations:

- Most Steamfitter/Pipefitter are already certified or participating in an apprenticeship; 4 percent of workers are estimated to be uncertified (102 uncertified workers of 2,460 employed) and therefore, MC would not significantly increase the number of certified workers working in the occupation.

Implementation Timing and Considerations

The trades training system is ready to support workers and businesses through a successful transition to a mandatory environment and recommends that implementation of Steamfitter/Pipefitter could begin immediately:

- Workers and employers in this trade would experience little disruption as they are already working in a highly regulated environment similar to mandatory certification.
- Demand for new apprentice seats could be relatively low because the majority of Steamfitter/Pipefitters are already certified or registered apprentices. The trades training system is well positioned to absorb a small to moderate increase in apprenticeship training seats. Steamfitter/Pipefitter apprenticeship training is currently delivered through 5 public and non-public training institutions, enabling any seat increases to be distributed across B.C.

Additional Notes

- Steamfitter/Pipefitter is designated compulsory in seven (7) other jurisdictions, indicating an established precedence for designation, potentially validating the need to ensure BC workers are meeting the same standards.

Recommendation #8 – Automotive Service Technician (AST)

Background

Scope of work: Automotive service technicians (AST) perform preventative maintenance, diagnose problems and repair the vehicle systems of cars and light trucks. This includes engine, vehicle management, computer management, steering, braking, drive train, suspension, electrical, heating, and ventilation and air conditioning (HVAC) systems. They also work on restraints, trim, and accessories. This includes vehicles of all fuel types.

Current regulatory environment in B.C: The majority of AST work is done in a general automotive repair setting, either in small shops or in dealerships such as Ford or Toyota. There are no overarching regulations in BC that require Automotive Service Technicians to be certified. However, there are two exceptions where certification is required for:

1) Technicians who work in repair shops that participate in BC's Provincial Vehicle Inspections program (e.g. vehicle inspections conducted on out-of-province vehicles, vehicles with road safety violations, and vehicles obtaining rebuilt status), which requires vehicle inspections to be performed by fully certified technicians; and

2) Technicians who work on repairs related to ICBC insurance claims.

Assessment Results

The results of data analysis and expert discussion against the criteria indicate that designating Automotive Service Technician as a mandatory trade could provide a benefit to workers while also maintaining business viability, public safety and consumer protection. Data suggests AST:

a) Requires a *high level of technical skill*. This is demonstrated by:
   - Completing a high number of required training hours relative to other trades (10,380 in-classroom and work-based hours combined).
   - Workers in this occupation typically have some form of post-secondary education such as a diploma/certificate, and high regulation.
   - Workers in this trade, on average, earn higher wages then many other trades occupations. According to Labour Force Survey results, ASTs are earning a median wage of $28.00 per hour with some AST earning upwards of $39.20 an hour. These wage levels reflect many factors, including: a worker's experience or time in the trade, education level, location within the Province (i.e. rural vs urban), and labour market supply.

b) Is an occupation that is in *high demand*. This is demonstrated by the high number of expected job openings over the next 10 years; 6,176 expected job openings accounting for 35 percent of the current employment (17,575).

c) Does not play a critical role in companies making large investment decisions. This is demonstrated by a low share of ASTs (2%) employed in the construction industry, which is the largest contributor to investment in B.C.

d) Supports business viability by providing stable employment and being l*ess sensitive to economic shifts*. AST has a 22% difference between its highest point of employment and it's lowest over the

last 15 years. This indicates that AST has experienced moderate to low job fluctuations relative to other trades, suggesting a more stable employment.

e) Can pose a *high safety risk to the public*. Improper repair or maintenance can result in vehicle and roadway safety issues, posing a serious safety risk to the public.

f) Is a *service often purchased by the public*. AST has a high percent (75%) of work conducted in a consumer-oriented industry.

While AST meets many of the criteria for mandatory certification, data analysis also suggests there are other considerations:

- The estimated number of uncertified workers is 4,669. Industry experts and the working group suggest this number is high. Further analysis supports the likelihood there is lower number of uncertified workers than originally estimated. Analysis indicated that:
    - Most shops, especially manufacturers and larger dealerships, seek fully certified workers and tend to push existing workers toward certification;
    - And that Brake, tire, and oil change technicians may make up a large portion of the 4,669 uncertified worker estimates. This is due to data inconsistencies, resulting in an uncertified estimate that may not accurately reflect the AST scope of work (e.g. smaller scope of work, such as oil change technicians).
- Although the number of uncertified workers is likely much lower than the original estimate, MC will still significantly increase the number of certified workers in the occupation.

Implementation Timing and Considerations

The trades training system may need more time to prepare to effectively support workers and businesses through a successful transition to a mandatory environment. A longer lead/preparation time is recommended.

- Workers and employers in this trade will likely experience a moderate amount of disruption with the introduction of mandatory certification. In order to minimize this disruption, government should ensure adequate supports for both small employers and uncertified workers are in place before implementation. Extensive consultation and engagement should also be done with employers, uncertified workers, apprentices, and industry associations in advance of implementation.
- Additional apprentice training seats will be needed across the province due to the large number of estimated uncertified workers requiring training. The trades training system is well positioned to absorb some seats and if required, deliver additional seats at 12 different public and private trainers throughout BC.

Additional Notes

- Automotive Service Technician is designated compulsory in five (5) other jurisdictions, indicating an established precedence for designation, potentially validating the need to ensure BC workers are meeting the same standards.

- The ITA AST training program is a progressive credentialing model. Meaning, an apprentice can earn a Certificate of Qualification at individual levels (e.g. level 1,2,3, and Red Seal certification at level 4). Each level has a different scope of work (e.g. level 1 – brakes, tires, alignments, lubes). The Red Seal program is working with the ITA to harmonize this training and certification to meet national standards.
- Further consideration is required on whether mandatory certification should apply to each level (1,2,3,4) or applied only to the Red Seal "full" scope of work (Level 4). Government should consult and engage with industry to determine an appropriate approach to designation.

Recommendation #9 – Motor Vehicle Body Repairer (MVBR)

Background

Scope of work: A Motor Vehicle Body Repairer is a person who repairs, adjusts and replaces sheet metal and allied parts of automobiles, trucks and buses. MVBR's also play a key role in maintaining vehicle safety by inspecting or replacing seatbelts, airbags, and may align suspension and steering components.

MVBR's often work within collision repair shops which provide repair services to damaged vehicle bodies and interiors resulting from accidents or vandalism.

Current regulatory environment in B.C: There are no specific regulations prohibiting or restricting general work for this trade. However, much of the work conducted in the industry is through designated collision repair shops for ICBC insurance claims. These collision repair shops are designated through ICBC's Collision Repair Program, which requires all technical personnel working on ICBC claims to hold MVBR Certification or be a registered apprentice.

Assessment Results

The results of data analysis and expert discussion against the criteria indicate that designating Motor Vehicle Body Repairer (MVBR) as a mandatory trade could provide a benefit to workers while also maintaining business viability, public safety and consumer protection. Data suggests MVBR:

a) Requires a *high level of technical skill*. This is demonstrated by:
   - Completing a high number of required training hours relative to other trades (7,230) in-classroom and work-based hours combined).
   - Workers in this occupation typically have some form of post-secondary education such as a diploma/certificate, and high regulation.
   - Workers in this trade, on average, earn higher wages then many other trades occupations. According to Labour Force Survey results, MVBRs are earning a median wage of $25.00 per hour with some MVBRs earning upwards of $37.77 an hour. These wage levels reflect many factors, including: a worker's experience or time in the trade, education level, location within the Province (i.e. rural vs urban), and labour market supply.

b) Is an occupation that is in *high demand*. This is demonstrated by the high number of expected job openings over the next 10 years; 1,282 expected job openings accounting for 31 percent of the current employment (4,145).

c) Does not play a critical role in companies making *large investment* decisions. This is demonstrated by a low share of MVBRs (2%) employed in the construction industry, which is the largest contributor to investment in B.C.

d) Supports business viability by providing stable employment and being l*ess sensitive to economic shifts*. MVBR has a 34% difference between its highest point of employment and it's lowest over the last 15 years. This indicates that MVBR has experienced moderate to low job fluctuations relative to other trades, suggesting a more stable employment.

e) Can pose a *high safety risk to the public*. Improper repair or maintenance can result in vehicle and roadway safety issues, posing a serious safety risk to the public.

f) Is a *service often purchased by the public*. MVBR has a high percent (91%) of work conducted in a consumer-oriented industry.

While MVBR meets many of the criteria for mandatory certification, data analysis also suggests there are other considerations:

- The estimated number of uncertified workers is 1,356 or 32 percent of the current workforce (4,145). Therefore, mandatory certification will significantly increase the number of certified workers working in the occupation, resulting in increased disruption to employers and trades training.
- Data indicates a higher average age of workers, approximately 44% of workers are over 45 years of age. A higher average age of workers may indicate the need for additional transition supports for older workers.

Implementation Timing and Considerations

The trades training system may need more time to prepare to effectively support workers and businesses through a successful transition to a mandatory environment. A longer lead/preparation time is recommended.

- Workers and employers in this trade will likely experience a moderate amount of disruption with the introduction of mandatory certification. In order to minimize this disruption, government should ensure adequate supports for both small employers and uncertified workers are in place before implementation. Extensive consultation and engagement should also be done with employers, uncertified workers, apprentices, and industry associations in advance of implementation.
- Additional apprentice training seats will be needed across the province due to the large number of estimated uncertified workers requiring training. The trades training system is well positioned to absorb some seats and if required, deliver additional seats at 4 different public and private trainers throughout BC.

Additional Notes

- The MVBR Red Seal program provides a nationally recognized base level of knowledge and skills training. In addition to the Red Seal, industry provides optional specialized training through I-CAR (industry association) and/or original equipment manufacturers (OEM). This supplemental training ensures MVBR's are keeping pace with annual changes to technologies, techniques, and vehicle models. Training is progressive and designed to continually build upon existing knowledge acquired through the Red Seal and is regularly updated to reflect current collision repair techniques.
- Supplemental OEM training is also common, ensuring MVBR's have the required knowledge to work on manufacturer specific cars. For example, BMW, Audi and many other brands require MVBR's take their OEM training before being certified to work on BMW or AUDI vehicles. OEM certification is often required to be a warranty approved autobody repair shop.

Recommendation #10 – Heavy Duty Equipment Technician (HDET)

Background

Scope of work: Heavy Duty Equipment Technician means a person who maintains, manufactures, overhauls, reconditions and repairs heavy duty equipment. Examples of heavy-duty equipment include: graders, loaders, shovels, haul truck, articulated rock trucks, forklifts, wheeled and tracked vehicles of all types used in construction, logging, sawmill, manufacturing, mining and other similar industries. Heavy duty equipment is rarely used on highways or public roads and therefore technicians most often perform work in remote areas.

Current regulatory environment in B.C: There are no specific regulations that prohibit or restrict general work for Heavy Duty Equipment Technicians. However, Industry experts suggest most service /repairs are conducted by manufacturers (e.g. Finning, John Deere, Volvo), and warranty approved vendors (e.g. Great West Equipment, SMS Equipment), employing certified Heavy-Duty Equipment Technicians.

Assessment Results

The results of data analysis and expert discussion against the criteria indicate that designating Heavy Duty Equipment Technician (HDET) as a mandatory trade could provide a benefit to workers while also maintaining business viability, public safety and consumer protection. Data suggests HDET:

a) Requires a *high level of technical skill*. This is demonstrated by:
   - Completing a high number of required training hours relative to other trades (7,200) in-classroom and work-based hours combined).
   - Workers in this occupation typically have some form of post-secondary education such as a diploma/certificate, and high regulation.
   - Workers in this trade, on average, earn higher wages then many other trades occupations. According to Labour Force Survey results, HDET are earning a median wage of $36.00 per hour with some HDET earning upwards of $49.33 an hour. These wage levels reflect many factors, including: a worker's experience or time in the trade, education level, location within the Province (i.e. rural vs urban), and labour market supply.

b) Is an occupation that is in *high demand*. This is demonstrated by the high number of expected job openings over the next 10 years; 1,644 expected job openings accounting for 31.5 percent of the current employment (5,220).

c) Plays a critical role in companies making *large investment* decisions. This is demonstrated by a moderate share of HDETs (16%) employed in the construction industry, which is the largest contributor to investment in B.C.

d) Supports business viability by providing stable employment and being l*ess sensitive to economic shifts*. HDET has a 22% difference between its highest point of employment and it's lowest over the last 15 years. This indicates that HDET has experienced low job fluctuations relative to other trades, suggesting a more stable employment.

e) Can pose a *high safety risk to the public*. Heavy Duty Equipment is usually operated off road and away from the public. There may be some instances where equipment operates in close proximity to

the public. Improper repair or maintenance can result equipment malfunction posing a serious safety risk to the public and workers.

f) Is not usually *service often purchased by the public*. HDET does have a high percent (22%) of work conducted in a consumer-oriented industry. However, industry experts suggest it is not a service purchased directly from the public.

While HDET meets many of the criteria for mandatory certification, data analysis also suggests there are other considerations:

- The estimated number of uncertified workers is 856 or 16 percent of the current workforce (5,220). Suggesting MC will significantly increase the number of certified workers working in the occupation. Significantly increasing the number of certified workers may cause some disruption to employers and the trades training system.

Implementation Timing and Considerations

The trades training system may need more time to prepare to effectively support workers and businesses through a successful transition to a mandatory environment. A longer lead/preparation time is recommended.

- Workers and employers in this trade will likely experience a moderate amount of disruption with the introduction of mandatory certification. In order to minimize this disruption, government should ensure adequate supports for both small employers and uncertified workers are in place before implementation. Extensive consultation and engagement should also be done with employers and uncertified workers in advance of implementation.
- Additional apprentice training seats will be needed across the province due to the large number of estimated uncertified workers requiring training. The trades training system is well positioned to absorb some seats and if required, deliver additional seats at 12 different public and private trainers throughout BC.

Additional Notes

- During the assessment process the group identified a considerable scope of work overlap between Heavy Duty Equipment Technician and Truck and Transport Mechanic. The scope of work for Truck and Transport Mechanics includes inspecting, repairing and maintaining all aspects and components of commercial trucks, emergency vehicles, buses and road transport vehicles. Industry experts suggest both trades have similar required knowledge and skills. In some cases, employers will hire one technician/mechanic to fix both transport trucks and off highway heavy duty equipment. Industry experts suggest mandatory certification may improve the trade by providing a clear scope of work boundary for both employees and employers.
- The working group strongly suggests government consider including Truck and Transport Mechanic as a mandatory trade. Additional assessment and consultation with industry and apprentices should be done to fully understand any potential impacts to the industry.
- **Note:** NWT and Yukon classify both Heavy Duty Equipment Technician and Truck and Transport Mechanic as one trade due to the similarities in scope of work and industry (e.g. forestry)

Appendix A: Working Group Members, Chair, and Advisory experts

Members

The Working Group is comprised of the following members alphabetically:

Abigail Fulton	Construction Foundation of BC
Chris Atchison	BC Construction Association
Helen Boyce	ACCESS Trades
Irene Kerr	BC Infrastructure Benefits
Jud Martell	BC Building Trades
Kaanesh Ghosh	LNG Canada
Kathy Kinloch	BC Institute of Technology
Ken McCormack	Construction Labour Relations Association
Ken Tourand	Nicola Valley Institute of Technology
Laird Cronk	BC Federation of Labour
Larry Richardson	Christian Labour Association of Canada
Lisa Langevin	BC Tradeswomen Society & Industry Training Authority
Rieghardt van Enter	Progressive Contractors Association & Tybo Contracting
Robin Lucas	Allteck Power Line Contractors
Ron Tremblay	Automotive Retailers Association
Shelley Gray	Industry Training Authority

Chair

The Working Group is Co-chaired by the Deputy Minister of Advanced Education and Skills Training and the Deputy Minister of Labour.

Advisory Experts

The Working Group consulted with various advisory experts for targeted advice, including:

- Clint Abbot, Director of Policy and Regulatory Affairs, Technical Safety BC
- Hamid Azarnoush, Senior Safety Officer – Boilers and Pressure Vessels, Technical Safety BC
- Rick Vanier, Senior Safety Officer – Gas, Technical Safety BC
- Jamie McPhearson, Chair- Plumbing & Pipe Trades, Camosun College
- Steve Perry, Associate Dean of Motive Power, BCIT
- Mubasher Faruki, Associate Dean of Automotive, BCIT
- David Ribeiro, Industry Relations Advisor, Automotive Retailers Association
- Kathy Parslow, Vice President – Claims, Customer, and Material Damage Services, ICBC
- Lloyd Babcock, Instructor (Heavy Duty Equipment Technician), Thompson Rivers University
- Guy Ellis, President & CEO – Trades Training BC

Appendix B: Mandatory Certification Designation Framework

Purpose of Mandatory Certification

Mandatory Certification is a key initiative among others to ensure that workers benefit from a trades' career and that B.C. has a robust trades workforce with the right skills to build 22nd Century infrastructure and services. Taken together, these things in turn support a cleaner, greener B.C.; greater business investment; and a strong, sustainable and inclusive economy.

STEP 1

Principles

Worker - Mandatory Certification should result in a substantial number of trades workers benefiting from the highest level of training & skill.

Business – Mandatory Certification should result in skilled trades workers supporting business viability and growth & supporting investment for a strong economy.

Public – Mandatory Certification should maintain or enhance public safety, as well as consumer confidence.

Criteria & Measurements

A. **Trade occupation requires a high technical skill level**
Measurements: (1) length of training (2) level of Education (3) occupation specific skill set (4) median wage (5) wage growth potential.

B. **Trade occupation is in high demand**
Measurements- (1) job openings (2) employment trends

A. **Trade occupation is not vulnerable to economic shifts**
Measurements: (1) average peak to low employment growth

B. **Trade occupation may be critical to large investment**
Measurements: (1) investment by industry (2) share of occupation in construction

1. **Trade occupation is a high safety risk to public**
Measurement: (1) yes/no

2. **Trade occupation is a service purchased by the public**
Measurement: (1) yes/no

List of potential Trades for Mandatory Certification

Validation: Data Analysis and Discussion

Final List of Trades for Mandatory Designation

STEP 2

Principles

Workers – Mandatory Certification implementation should maximize opportunities for all workers to successfully transition to a MC environment

Business – Mandatory Certification implementation should enable businesses to successfully transition to a MC environment that doesn't hinder business viability.

Public – Mandatory Certification implementation should result in the public continuing to have access to trades services at reasonable costs.

Assessing Trades Economy Readiness: Data Analysis and Discussion

Implementation Timing and Considerations

Appendix C: List of Trades Considered and Recommended for Mandatory Certification

Industry Training Authority (ITA) Designated Trades

Through the ITA, BC has 102 designated trades: 93 active trades, 4 inactive trades, and 5 endorsements. There are 49 Red Seal trades in BC (denoted by grayscale).[4] Proposed Mandatory Certification trades are highlighted in orange.

ITA-Active Trades (93)	
1. Agricultural Equipment Technician	48. Lather (Interior Systems Mechanic)
2. Aircraft Maintenance Technician	49. Locksmith
3. Aircraft Structural Technician	50. Machinist
4. Appliance Service Technician	51. Marine Service Technician
5. Arborist Technician	52. Marine Mechanical Technician
6. Architectural Sheet Metal Worker	53. Meatcutter
7. Asphalt Paving / Laydown Technician	54. Metal Fabricator (Fitter)
8. Automotive Glass Technician	55. Mobile Crane Operator
9. Automotive Painter	56. Mobile Crane Operator Hydraulic 80 tonnes and under
10. Automotive Refinishing Prep Technician	57. Motor Vehicle Body Repairer (metal & paint)
11. Automotive Service Technician	58. Motorcycle and Power Equipment Tech.
12. Baker	59. Oil Heat System Technician
13. Boilermaker	60. Painter and Decorator
14. Boom Truck Operator - Folding Boom Unlimited tonnage	61. Parts and Warehousing Person 1
15. Boom Truck Operator -Stiff Boom Unlimited tonnage	62. Partsperson 2
16. Bricklayer (mason)	63. Partsperson 3
17. Broadband Network Technician	64. Petroleum Equipment Installer
18. Cabinet Maker	65. Petroleum Equipment Service Technician
19. Carpenter	66. Piledriver and Bridgeworker
20. Climbing Arborist	67. Plumber
21. Concrete Finisher	68. Power Line Technician
22. Construction Craft Worker (Labourer)	69. Professional Cook 1
23. Cook	70. Professional Cook 2
24. Dairy Production Technician 1	71. Railway Car Technician
25. Diesel Engine Mechanic	72. Recreation Vehicle Service Technician

[4] *There are 56 national Red Seal Trades. Only 49 Red Seals are offered in BC, 3 of which are challenge only trades (Tool and Die Maker, Agricultural Equipment Technician, and Oil Heat System Technician). The following trades are not Red Seals in BC: Drywall Finisher, Heavy Equipment Operator (Dozer, Excavator, Tractor), Ironworker (Structural/Ornamental), and Gasfitter A and B, but are being reviewed as part of Red Seal Harmonization across Canada.

ITA-Active Trades (93)	
26. Drywall Finisher	73. Refrigeration and Air Conditioning Mechanic
27. Electric Motor Systems Technician	74. Residential Building Maintenance Worker
28. Electrician, Construction	75. Residential Steep Roofer
29. Electrician, Industrial	76. Rig Technician
30. Embalmer	77. Roofer (Roofer, Damp & Waterproofer)
31. Embalmer and Funeral Director	78. Saw Filer
32. Floor Covering Installer	79. Security Systems Technician
33. Funeral Director	80. Sheet Metal Worker
34. Gasfitter – Class A	81. Shipyard Labourer
35. Gasfitter - Class B	82. Sprinkler Fitter
36. Geoexchange Driller	83. Steamfitter/ Pipefitter
37. Geotechnical / Environmental Driller	84. Tidal Angling Guide
38. Glazier	85. Tilesetter
39. Hairstylist	86. Tool and Die Maker
40. Heavy Duty Equipment Technician	87. Tower Crane Operator
41. Heavy Equipment Operator	88. Transport Trailer Technician
42. Horticulturist, Landscape	89. Truck and Transport Mechanic
43. Industrial Mechanic (Millwright)	90. Utility Arborist
44. Instrumentation and Control Technician	91. Water Well Driller
45. Insulator (Heat and Frost)	92. Welder
46. Ironworkers (Generalist)	93. Well Pump Installer
47. Ironworker (Reinforcing)	

Inactive Trades: (4) – Programs currently under review
1. Inboard / Outboard Mechanic
2. Dairy Production Technician 2
3. Horticulturist, Production
4. Field Arborist

Endorsements (5)
1. Boilermaker Endorsement: Marine Fitter
2. Electrician Endorsement: Marine
3. Saw Filer Endorsement: Benchperson
4. Metal Fabricator (Fitter) Endorsement: Marine Fitter
5. Welder Endorsement: Multi-Process Alloy Welding (MPAW)

Appendix D: List of Compulsory Designated Trades by Jurisdiction

Compulsory Trades in other Canadian Jurisdictions

- In total, 28 of BC's 93 active trades are considered compulsory in at least one other jurisdiction in Canada – the majority of the 28 trades are interprovincial Red Seal trades.
- This list only includes active BC trades that are designated as compulsory in at least one other jurisdiction (province), some of these trades have been merged with other "like" trades that may have different trade names but have similar scope of work.

Legend: **Red Seal Trades (Denoted in Red)** **R - Regulated Trade** **C - Compulsory Trade** **X – Formerly Compulsory in BC** ***Recommended**

Compulsory/Regulated Trade	BC	Alb.	Sask.	Man.	Ont.	Que.	NS	NB	Nfld.	PEI	Total
Automotive											
Auto Body and Collision Technician*	X	C			C		C				3
Automotive Service Technician*	X	C			C		C	C		C	5
Heavy Duty Equipment Technician*		C									1
Motorcycle Mechanic/Technician		C			C						2
Recreation Vehicle Service Technician/Mechanic		C									1
Truck and Transport Mechanic		C			C		C				3
Transport Trailer Technician					C						1
Boilers, Pressure Vessels, Pipefitting and Refrigeration											
Boilermaker	R	C				C	C	C			4
Gasfitter A*	R	C									1
Gasfitter B*	R	C									1
Industrial Instrument Mechanic (Millwright)						C					1
Plumber	X	C	C		C	C	C	C		C	7
Refrigeration & Air Conditioning Mechanic*	R X	C	C	C	C	C	C	C			7
Sprinkler Fitter	X		C	C		C	C	C			5
Steamfitter/Pipefitter*	R X	C		C	C	C	C	C		C	7
Construction											
Bricklayer						C	C	C			3
Roofer	X										0
Ironworker (Generalist & Reinforcing)		C									1
Sheet Metal Worker*	X	C	C		C	C	C	C			6
Welder		C									1
Electrical											
Appliance Service Technician	R	C									1
Electrician, Construction*	R X	C	C	C	C	C	C	C	C	C	9
Electrician, Industrial*	R			C		C					2
Powerline Technician*	R X				C						1
Elevating Devices											
Boom Truck Operator	R	C							C		2
Mobile Crane Operator	R			C	C			C	C		4
Mobile Crane Operator (Hydraulic)	R	C		C	C			C			4
Tower Crane Operator	R	C		C	C	C			C		5
Human Services											
Hairstylist		C		C	C						3
Number of Compulsory Trades	0	21	5	9	15	11	11	11	4	4	

Source: Provincial Government websites and The Ellis Chart (www.ellischart.ca) – last updated Jan. 27th, 2021.

Note - Automotive Refinishing Prep Technician was formerly compulsory in BC (1996) but will be inactivated by the ITA effective April 1, 2021.

Tlucko, Alannah AEST:EX

From: Hannah, Jeff AEST:EX
Sent: February 1, 2021 2:18 PM
To: Mercier, Andrew AEST:EX
Subject: KMs SAWG

- **The B.C government is committed to improving access to skilled trades training to meet the demand for skilled tradespeople across sectors.**
- **The ministry is working toward ensuring everyone currently working or considering a career in the trades has access to the highest standards of skills training, credentialing and professional recognition that lead to jobs.**
- **Over the next decade, 73,000 job openings are forecasted in the trades with the rapid adoption of technology and retirements.**
- **Establishing mandatory certification in trades will ensure trades workers are trained and certified to the highest level to support the infrastructure and services needs through COVID-19 recovery and beyond.**
- **We would like to thank the members of the Stakeholder Advisory Working Group for their hard work and commitment to recommending which trades could benefit from Mandatory Certification.**
- **Our government will review these recommendations and consult with Indigenous people, workers, employers and associations to develop our approach to implementing mandatory certification.**

Jeff Hannah
Ministerial Advisor
Ministry of Advanced Education & Skills Training
cell: 250-812-5204 | email: Jeff.Hannah@gov.bc.ca