



Feasibility Study  
Food Processing Human Resources Council

# **CERTIFICATION OF WORKERS**



## **FOOD & BEVERAGE MANUFACTURING INDUSTRY**

Professionalizing The Industry

March 2016

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# Executive Summary

The Food Processing Human Resource Council (FPHRC) commissioned Human Resource Systems Group (HRSBG), to undertake a feasibility study and propose a framework for the development of a certification program. A review of the food processing industry as well as stakeholder consultation was conducted to identify the need for certification as well as propose a framework that would be suitable for the food processing industry.

A survey conducted by FPHRC<sup>1</sup> the majority of the respondents<sup>2</sup> indicated that occupations in the food and beverage processing industry would benefit from having a certification, with a smaller proportion of respondents stating that certification would be desirable if it was simple and easy to administer and obtain. A market review also illustrated that the food and beverage processing industry would not only benefit from a certification program, but that establishing a certification program has the potential for a significant uptake in the industry. Furthermore, the large size of the sector and corresponding number of employees strongly supports the potential for uptake of certification.

Stakeholders also identified that having a training component linked to certification would provide the greatest value, especially at the production level jobs. The need for a training component led to a review of certificate as well as certification programs. Traditionally, certification programs focus on an assessment component, while certificate programs combine training with assessment for a certificate credential. The certificate programs reviewed offer concepts on assessment methods that may be used for the FPHRC to offer certificate programs as certification pre-requisites. FPHRC can also leverage its own courses to support certification. A common training method offered through these certification programs is self-administered e-learning modules and online videos. This training is predominantly assessed through online multiple choice question (MCQ) tests. This method of training and subsequent assessment is a potential way for FPHRC to assess core skills, such as occupational health and safety as part of their certification requirements. This would provide a consistent standard across the industry. Employers would benefit from hiring trained employees as well as having access to standardized training to provide their existing employees.

Any certification program that is developed needs to take into account the breadth and depth of the industry as well as the type of certification framework that will provide value and be accessible to the greatest population of employees. The proposed certification framework will target production employees, which aligns with their majority share of the employment market within this industry, and will target food safety employees. Over half of these employees are 44 years old or younger, with over two thirds having a high school education or less. The age and education level of employees will attract these individuals to seek certification in order to increase their credibility and competitive advantage within the market. In addition, employers have a challenge retaining employees with the necessary training and skills. As such, a sector-wide certification program is proposed that will focus on offering certifications based on skills that are in demand as opposed to being occupation specific. The certification program will consist of two streams: Food Production and Food Safety, each building on the skills required for the previous level. This type of certification program allows for career progression as well as ensuring that employees across the entire sector have the requisite core skills that are in demand.

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<sup>1</sup> Food Processing Human Resource Council (2012)

<sup>2</sup> The survey consisted of respondents from all commodity sub-sectors across Canada

# 1 Introduction

The Food Processing Human Resource Council (FPHRC) is a national, non-profit organization dedicated to delivering the most up-to-date human resource information and industry driven training tools to support a safe and secure food supply, and a viable and competitive food processing sector<sup>3</sup>. In October, 2014, the FPHRC commissioned Human Resource Systems Group (HRSG), to undertake a feasibility study and framework development for a certification program. The objective of this project is to define a national certification program for the food processing industry that will meet industry needs for a skilled workforce and represents a feasible approach and business model. An earlier project conducted by the FPHRC conducted research into certification programs; from this research, a certification for the HACCP Coordinator was developed. The focus for this project is to build on previous research and propose a national certification framework that addresses broader industry needs.

The food processing industry in Canada is continually evolving and is faced by many challenges, including rapidly changing technology, food health and safety issues, a diverse workforce, and challenges recruiting and retaining qualified workers. In addition, the industry is becoming increasingly regulated. The new Canadian Regulatory Framework for Federal Food Inspection and *Safe Food for Canadian Act* (SFCA) will strengthen and streamline legislative authorities across all food in Canada, whether it is imported or prepared domestically.

These challenges and the introduction of the SFCA have placed increased pressure on food processors to demonstrate that their workers are qualified, well trained and meet rigorous food safety requirements. To address this, the sector needs to provide a system to ensure that workers possess the required skills and qualifications today and in the future. Through consultations with industry, the FPHRC has identified certification as a worthwhile solution to explore in addressing this challenge.

## 1.1 Overview of Certification

Certification is a voluntary process through which industry credentials are granted to individuals meeting a predetermined standard<sup>4</sup>. Certification indicates that an individual has achieved a specific level of knowledge and skill pertaining to a specific occupation or role.

A certification program needs to be valid, fair and representative of the occupation. As such, committees of industry experts (often called subject matter experts or SMEs) are established by the certification body in order to oversee the development and implementation of the certification program. The committees normally consist of a Governance Committee, which oversees and approves the entire certification process, and task or working groups, who develop standards of practice and assessment tools required for certification.

Most often, certification consultants work closely with the SMEs to ensure that the certification process is properly developed and implemented.

There are several international standards that govern the certification of professions. These include:

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<sup>3</sup> Food Processing Human Resource Council Request For Proposal (2014).

<sup>4</sup> Emerit (2014), p. 4.



- International Organization for Standardization (ISO)
- Institute for Credentialing Excellence (ICE)
- The American National Standards Institute (ANSI), Standard 1100

This report follows the guidelines and best-practices established by these international standards and provides recommendations for the development of a certification framework for FRHRC.

Certification can have a number of benefits both for the individual as well as the organization. For example, certification helps to improve the overall quality of work since certification is based on an agreed-upon standard, established and set by the industry/organization to meet its particular needs. It is also a way of seeking and keeping motivated workers, raising the level of professionalism and promoting career development<sup>5</sup>.

The report by Emerit<sup>6</sup>, Food Processing HR Council HACCP Coordinator Certification Program Report on an Effective Model, discusses several objectives of certification programs, including the following:

- **Assisting and improving mobility of credentials** - Certification enables organizations to hire workers with the necessary skills, based on national occupational standards (NOS), to competently perform on the job. NOS are the basis for standardized job descriptions, selection criteria, training and assessment.
- **Improved quality of work** – Certification is based on standards established and set by the industry. Establishing Certification based on these standards leads to employees with skills that meet or exceed the standard, which results in improved quality of work.
- **Improved client/consumer experience, including reduction in safety and security-related risks** – Certification provides consumers with a level of assurance that products and services have been supplied by qualified practitioners.
- **Benchmarked standards of practice and promotion/fostering of a globally competitive workforce** – Pan-Canadian standards serve as a benchmark for quality practice that can be measured against guidelines in other countries and certification can establish standards for professional knowledge, skills and practice.
- **Assist with Prior Learning Assessment and Recognition (PLAR)** – Certification is an example of the PLAR model, which is founded in recognition of an individual's experiences and abilities by measuring these against the NOS.
- **Provide recognition of competent workers** – Certification is a credential that holds meaning and relevance in the professional community. Those who possess the credential develop a sense of pride and professionalism in their area of practice.
- **Address labour shortages and attracting new workers** – Certification of workers is a way to keep motivated professionals in a given area of practice.
- **Increase professionalism and promote career development** – Certification demonstrates and legitimizes the skills and knowledge of the workforce and contributes to advancement of the profession.
- **Support the achievement of business goals** – Certified professionals are able to demonstrate knowledge of their company's products and services, which assists in meeting standards that consumers seek.

The FPHRC certification program will ensure that the skills of employees are aligned with standards and increased regulatory requirements set forth by the *Safe Food for Canadians Act* (SFCA).

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<sup>5</sup> Early, L. A. (1998).

<sup>6</sup> Emerit (2014).

The outcomes of the research and industry consultation will be used to determine industry demand and assess the feasibility of developing and running the certification program. As part of the project a potential framework for certification will be proposed.

## 1.2 Report Outline

The report is organized as follows:

**Overview of Certification** provides a summary of how Certification is defined, why it is used, and its benefits.

**Food and Beverage Processing in Canada: Market Assessment** contains an overview of the Food processing sector in Canada, including a demographic and employment profile. The section also includes stakeholder consultations regarding the benefits and challenges of developing and implementing a certification program.

**Review of Certification Programs** outlines the main components of any certification program and provides a review of how similar sector councils or similar regulatory bodies have implemented certification.

**Review of Certificate Programs** provides a review of how similar sector councils or similar regulatory bodies have implemented certificate programs. This section explains how some of the programs are structured and supports how the FPHRC can leverage components, such as courses and workshops, from some of these programs to support its certification framework.

**Proposed Certification Framework for FPHRC** provides a recommended certification framework based on research, stakeholder consultation, and unique needs of the food processing sector across Canada.

## 2 Food and Beverage Processing in Canada: Market Assessment

Conducting a market assessment is essential in identifying whether or not there is a business need, or an audience, for a certification program. A market assessment will identify what the current state and future outlook is for the industry, including how the market is segmented and how many individuals are eligible for the credential. This information will allow the FPHRC to better position their certification program within the industry.

A survey conducted by FPHRC<sup>7</sup> as part of identifying a sector-wide standards framework identified that the majority of the survey respondents<sup>8</sup> (70%, n = 195) indicated that occupations in the food and beverage processing industry would benefit from having a certification<sup>9</sup>. Knowledge of industry's positive response to certification is a valuable starting point in the assessment of certification feasibility. In order to support the case for certification, a market assessment of Canada's food and beverage processing industry is conducted.

### 2.1 Industry Overview

The food and beverage processing industry has faced several challenges over the past few years: rapidly changing technology, changes in manufacturing practices, and difficulty recruiting and retaining a qualified workforce. Increased government regulations, food safety, and health and safety requirements have increased businesses' responsibility to provide food processing training where little training is currently available<sup>10</sup>. These factors will continue to impact the skill requirements of the existing and future workforce. All workers, current, new and future, need to be qualified, well trained and able to meet food safety requirements.

There are several factors that are important in predicting interest and the potential success of certification programs, including: market size and distribution; age and education level of employees; compensation levels; distribution by sub-sector; and employee retention. This section will discuss each of these factors and their impact on the proposed certification program.

### 2.2 Market Size and Distribution

Understanding food and beverage processing market size and distribution is important to help determine the type of certification model and marketing strategies to ensure appropriate dissemination of messaging to the target population. It also helps in terms of strategic planning for the location of testing/assessment centres and logistics related to the administration of the certification program. Establishing market size is essential in order to estimate the potential number of individuals that would seek certification (i.e. level of interest in the program). In turn, level of interest in the program is important for providing estimates of candidate numbers required to offset the costs of program development and delivery.

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<sup>7</sup> Food Processing Human Resource Council (2012).

<sup>8</sup> The survey consisted of respondents from all commodity sub-sectors across Canada.

<sup>9</sup> Ibid.

<sup>10</sup> Ibid.

The food and beverage processing industry is “the largest manufacturing industry in Canada”, accounting for “17% of total manufacturing shipments, worth a total of \$89 billion”<sup>11</sup>. According to the 2011 LMI report, the number of organizations in the food and beverage processing industry across Canada is approximately 6,500, employing approximately 250,000 workers. Production employees<sup>12</sup> are the largest employment population within Food and Beverage Processing with 197,057 employees, or 75% of employment. The rest of the employment breakdown are administrative employees that are not involved directly in production and related manufacturing activities (e.g., management, personnel, secretarial, sales, finance and other similar activities). Since production employees constitute the vast majority of food and beverage workforce, and their skills are directly linked to food safety and health and safety requirements, it is logical to develop a certification model that targets these employees. In addition, the food and beverage processing industry is divided into 10 sub-sectors. Hence, the certification program that is developed needs to take into account common needs across the industry as well as unique needs that may exist within the sub-sectors. Table 1 shows the number of employees separated by employment type and sub-sector.

**Table 1: Number of Employees by Sub-sector<sup>13</sup>**

Sub-Sector	Production Employees	Administration Employees	Total Employees per Sub-Sector	% Employment in Canada
Meat Product Manufacturing	56,471	11,997	68,468	26.10%
Bakeries and Tortilla Manufacturing	28,890	10,228	39,118	14.90%
Seafood Product Preparation and Packaging	28,618	3,285	31,903	12.10%
Dairy Product Manufacturing	17,746	5,879	23,625	9.00%
Other Food Manufacturing	17,001	7,722	24,723	9.40%
Fruit and Vegetable Preserving and Specialty Food Manufacturing	16,512	5,494	22,006	8.40%
Beverage Manufacturing	12,997	13,470	26,467	10.10%
Sugar and Confectionary Product Manufacturing	7,893	2,412	10,305	3.90%
Grain and Oilseed Milling	6,146	1,706	7,852	3.00%
Animal Food Manufacturing	4,783	3,454	8,237	3.10%
<b>TOTAL</b>	<b>197,057</b>	<b>65,647</b>	<b>262,704</b>	<b>100%</b>

Given the market size of over 260,000 individuals in the food and beverage processing sector, and almost 200,000 in the production area alone, even a small number of individuals wishing to be certified would result in significant numbers (e.g., a modest certification uptake of 5% of production employees would result in almost 10,000 individuals).

In addition, the majority (82%) of food and beverage processing in Canada is concentrated in Ontario, Quebec, British Columbia and Alberta<sup>14</sup>. Therefore, these provinces should be the focus of initial efforts to gain certification uptake. Figure 1 illustrates the approximate geographical breakdown of food and beverage manufacturing establishments in Canada.

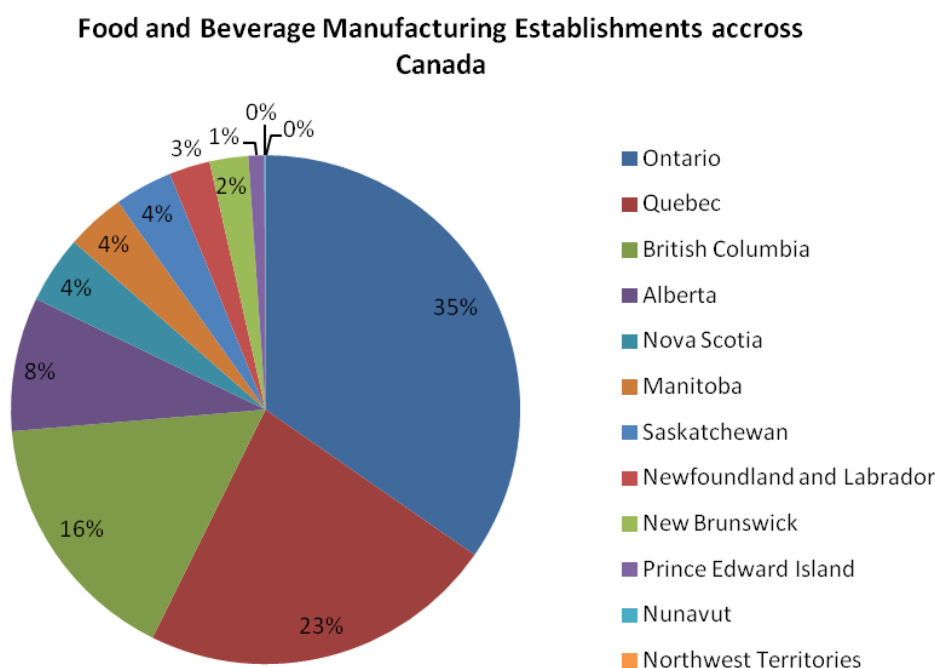
<sup>11</sup> Food Processing Human Resource Council (2011), p.6.

<sup>12</sup> Production employees are engaged in processing, assembling, storing, inspecting, handling, packing, maintenance, repair, janitorial, watchmen services and working foremen.

<sup>13</sup> Statistics Canada (2011).

<sup>14</sup> Statistics Canada (2012).

Figure 1: Food and Beverage Manufacturing Establishments Across Canada



## 2.3 Production Employees

According to the 2011 Labour Market Information (LMI) report<sup>15</sup>, the production workforce in the food and beverage processing industry is classified into five categories that correspond to National Occupational Classifications:

1. Labourers<sup>16</sup> (43%)
2. Process Control and Machine Operators, and Fish Plant Workers (28%)
3. Industrial Butchers and Meat Cutters, Poultry Preparers and Related Workers (16%)
4. Supervisors (10%)
5. Testers and Graders (3%)

As labourers constitute the greatest percentage of production employees at almost half, developing a certification program targeted to this demographic would garner the greatest numbers of employees. However, number of employees is not the only factors to take into account when developing a certification program. Of the employers surveyed in the LMI report, 59% mentioned that there is a lack of candidates with the proper training, leading to difficulties in hiring for specific occupations.

Employers face the biggest challenge in finding appropriate candidates for the following occupations:

<sup>15</sup> Food Processing Human Resource Council (2011)

<sup>16</sup> Labourers perform material handling, clean-up, packaging and other elemental activities related to food, beverage and associated products processing. They are employed in fruit and vegetable processing plants, dairies, flour mills, bakeries, sugar refineries, meat plants, breweries and other food, beverage and associated products processing and packaging plants (NOC, 9617).

1. Skilled Workers & Operators: 32%
2. Precision Workers: 27%
3. Labourers: 25%
4. Supervisors: 20%
5. Technicians/technologists (e.g. quality control): 18%

In addition, employers anticipate that these same occupations will continue to be difficult to fill in the foreseeable future. Developing a certification program to support the development of skills for skilled workers & operators and precision workers in addition to labourers would not only tap into the greatest numbers on production workers, but would also meet the greatest industry needs for skills shortages.

## Age

Age and educational level are also useful in predicting interest and potential success of certification programs. Younger individuals are typically keen on certification, as they see credentials as providing opportunities for career advancement. While employees 45 years and over may not be interested in certification as they may view themselves as well qualified based on their years of experience, the increased regulations in the industry may challenge this rationale and push these employees to seek out certification as well. Table 2 presents the employment distribution by age for production workers in Food, Beverage and Tobacco Processing.

**Table 2: Employment Distribution by Age for Production Workers in Canada**

Employment Distribution by Age	Labourers <sup>17</sup>	Process Control and Machine Operators, Food and Beverage <sup>18</sup>	Industrial Butchers and Meat Cutters, Poultry Preparers and Related Workers <sup>19</sup>	Fish Plant Workers <sup>20</sup>	Average
15 - 24 years	19.4%	10.5%	19.1%	18.6%	16.90%
25 - 44 years	43.1%	45.7%	49.5%	33.6%	42.98%
45 - 64 years	36.6%	43.0%	30.4%	47.8%	39.45%
65 years and over	0.8%	0.8%	1.0%	0.0%	0.65%

In addition, 3,500 employees industry-wide retire per year (1.5% of the total workforce) and it is estimated that 13% (32,500) will retire in the next few years.<sup>21</sup> As employees reach retirement age, firms will have more difficulty balancing a workforce that is younger and less experienced than the current workforce.

## Education Level

Education level also plays a role with regard to the type of certification program that needs to be developed, especially in relation to how the employees should be assessed against the standards. Employees with high school education or less may not have the levels of literacy and essential skills to take on-line courses, read extensive publications or write multiple choice exams. Hence, knowing the level of education of different classification

<sup>17</sup> Service Canada, Labourers in Food, Beverage and Tobacco Processing

<sup>18</sup> Service Canada, Process Control and Machine Operators, Food and Beverage

<sup>19</sup> Service Canada, Industrial Butchers and Meat Cutters, Poultry Preparers and Rel. W.

<sup>20</sup> Service Canada, Fish Plant Workers

<sup>21</sup> Food Processing Human Resource Council (2011).

categories will inform the decision of the type of assessment tool that needs to be developed. Table 3 lists the education levels of production workers across Canada.

**Table 3: Education Levels of Production Workers Across Canada**

Highest Level of Education Completed	Labourers <sup>22</sup>	Process Control and Machine Operators, Food and Beverage <sup>23</sup>	Industrial Butchers and Meat Cutters, Poultry Preparers and Related Workers <sup>24</sup>	Fish Plant Workers <sup>25</sup>	Average
Less than high-school	39.4%	25.9%	38.4%	55.0%	39.7%
High-school	31.7%	35.3%	28.8%	28.8%	31.2%
Post-secondary	26.5%	35.1%	30.7%	14.4%	26.7%
Bachelors	2.4%	3.7%	2.2%	1.8%	2.5%

Given that the almost three quarters of the production workforce (71%) has a high school education or less, the certification program needs to be accessible, easy to implement, and use assessment tools that are appropriate for the education level of these employees, such as on-the-job checklists or workplace observations.

This is supported by the 2011 FPHRC survey where 30% of the respondents did not feel that certification was required, as employees can learn on the job or that the process of certification is too complicated. For these reasons, it would be important that assessment tools support skills that can be assessed on the job, such as safe food handling).

### Compensation

Compensation of employees has the potential to impact uptake of certification. Wages of employees within the industry need to be considered in terms of establishing certification and renewal fees. Since certification is voluntary, the benefits of being certified need to outweigh the cost of certification. Both production and administration salaried employees in the food and beverage processing sector are paid slightly less than those in the Manufacturing sector as a whole. These numbers indicate that cost for employees to become certified needs to remain relatively low in order to maintain interest in the program. If certification is too costly, employees may not feel that it is worthwhile pursuing. As an alternative, a shared fee structure between employees and employers, or a fee paid for by employers should be considered to offset the cost of certification and increase uptake. In exchange, employers benefit from the assurance that employees are qualified and well-trained to perform in their roles. Employees may also be drawn to achieve certification if there are financial or career progression incentives tied to certification.

Figure 2 presents average annual salary for Food and Beverage Processing compared to the entire manufacturing sector in 2011.

<sup>22</sup> [Ibid](#)

<sup>23</sup> [Ibid](#)

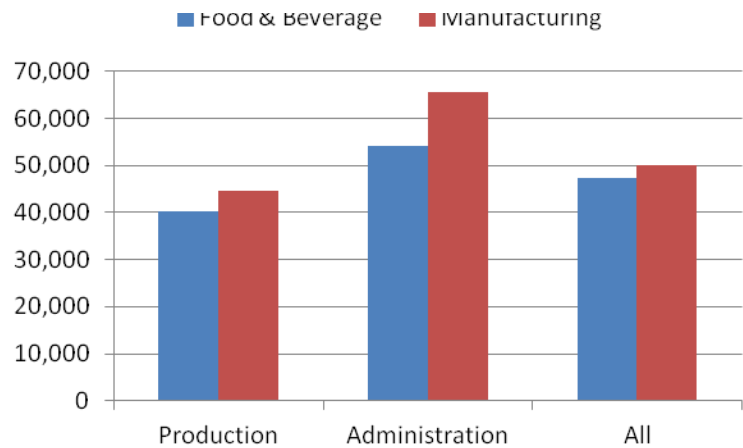
<sup>24</sup> [Ibid](#)

<sup>25</sup> [Ibid](#)

## Retention

According to the LMI Report<sup>26</sup>, the food and beverage manufacturing industry faces many of the same constraints to retention and recruitment as other industries. Some of the prominent barriers to retention of production employees in this industry are the harsh working conditions, and the “expectations from employers” by young employees regarding job expectations and work/life balance. Certification programs that are based on clearly defined standards can address retention issues related to job expectations by setting clear expectations for employee job performance. Providing clear expectations through standards in certification results in fewer employees who are unsatisfied with job expectations as these individuals know what is required of them on the job.

Figure 2: Average Annual Salary for Food and Beverage Processing



A survey of employers (n=411)<sup>27</sup> revealed that employee retention is in the top three HR issues with the potential to challenge their organization; 32.5% of employers rated retention as very important. Employers who support certification, by subsidizing or paying for certification and membership fees, have the potential to increase retention by demonstrating a corporate commitment to developing a well-trained, safety-minded workforce. Furthermore, employees who feel their skills are useful and recognized leads to a positive, loyal relationship between an organization and its employees, in turn, increasing retention. Recognizing skills through certification also provides links to performance incentives such as clearly defined career paths within an industry and opportunities for increase in pay for certified workers.

## 2.4 Industry Consultations

In support of market research and a review of certification programs, stakeholders in the food production industry were consulted through phone interviews to determine the feasibility and the structure of the certification program. The stakeholders were members of the National Advisory Committee and industry representatives. A total of 14 stakeholders were consulted representing a variety of commodity groups from across Canada. For a breakdown of the stakeholders consulted, see [Appendix](#).

Stakeholders like the idea of sector-wide certification and stated that the greatest industry need for certification is at the production worker level, followed by industrial butchers, supply chain logistics, sanitation and HACCP coordinator.

Stakeholders also like the idea of combining training with assessment as part of certification. Most facilities have their own in-house training programs where they offer training on food safety and health and safety. However,

<sup>26</sup> Food Processing Human Resource Council (2011), p. 19.

<sup>27</sup> Ibid



there is no consistency or standardization across the industry regarding the training. Employers see value in hiring a certified worker because it can cut down on their training time and costs.

Facility managers would also be willing to invest in certifying their existing employees. In addition, many facilities have an education budget that could be used to pay for certification and incorporate it as part of regular training. Some facility managers would also be willing to pay extra to workers who are certified. As production workers tend to be transient (i.e., move from one plant to the next), if everyone certified their employees it would raise the standard for the entire industry. Unionized environments can be an issue as any certification program needs to be negotiated and mandated. For unionized environments, certification can be added as a company policy or included as part of a collective agreement.

Since there are inconsistencies across the level and quality of training programs that facilities offer, FPHRC could also provide certificate courses to replace in-house training programs. These certificate courses can serve as pre-requisites for certification.

The biggest challenge that stakeholders saw with certification was the lack of visibility and awareness in the industry overall. FPHRC needs to educate the industry of the value of certification, such as the validity of the standards and the fact that they are developed with participation from the entire industry across Canada as well as keep the costs reasonable.

## 2.5 Summary of Market Assessment

The market analysis illustrates that the food and beverage processing industry would not only benefit from a certification program, but that establishing a certification program has the potential for a significant uptake in the industry.

As we have established, the food and beverage processing industry is the largest manufacturing sector in Canada with over 260,000 employees, with production employees making up three quarters of that workforce. The large size of the sector and corresponding number of employees strongly supports the potential for uptake of certification. The proposed certification framework will target production employees, which aligns with their majority share of the employment market within this industry. Almost 60% of these employees are 44 years old or younger, with almost 70% of these workers having a high school education or less. The age and education level of employees will attract these individuals to seek certification in order to increase their credibility and competitive advantage within the market. In addition, employers have a challenge retaining employees with the necessary training and skills. The food and beverage processing industry is also becoming increasingly regulated; the upcoming implementation of the Safe Food for Canadians Act (SFCA) further supports the need for standardization of skills through an accessible certification program.

Any certification program that is developed needs to take into account the breadth and depth of the industry as well as the type of certification framework that will provide value and be accessible to the greatest population of employees.

The next section presents a review of certification programs in similar sectors nationally and internationally and provides recommendations for components that could be adopted within the food and beverage processing industry that would best suit its needs.

## 3 Review of Certification Programs

Certification programs from International bodies and Canadian Sector Councils were reviewed to identify commonalities, differences and best-practices that could be used to support the FPHRC certification framework. While there are many different approaches to certification, any certification program must include the following components:

- Standards of practice that define the knowledge, skills, attitudes and judgement required for the profession.
- Eligibility pre-requisites that determine knowledge and skills that the applicant needs to possess in order to be eligible to apply to a certain occupation.
- Assessment process and tools that are used to measure the standards and ensure that the certified individual has the required knowledge, skill, attitudes and judgment to competently do their job.
- Renewal or review process and components that ensure that the certified professional maintains the quality of practice required.

### 3.1 Certification Programs

Several Canadian and International certification frameworks are reviewed to identify best practices and recommendations for the FPHRC certification framework. Each framework is reviewed against the criteria for certification programs identified above.

Looking at what others are doing regarding certification, for example, occupation-based approaches versus sector-wide approaches will assist in determining the most appropriate certification framework for the FPHRC. For purposes of this project, four international certification programs<sup>28</sup> related to food processing were identified and reviewed, as well as two Canadian Sector Council certification<sup>29</sup> programs.

#### 3.1.1 Construction Sector Council (CSC) and Alliance of Canadian Building Officials Association: The National Certification Program for Professional Building Officials<sup>30,31</sup>

The Construction Sector Council (CSC) and the Alliance of Canadian Building Officials Association partnered to develop the National Certification Program for Professional Building Officials. The Certification is based on the National Occupational Standard for Canadian Building Officials. There are three (3) stages (Candidate, Associate, and Certified) and three (3) specialty areas (Residential, Part 9, and Part 3) to the National Certification Program for Professional Building Officials.

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<sup>28</sup> Improve Food and Drink Skills Council, UK was reviewed. It was not included in the analysis because although it does have Qualifications based on standards, offered through accredited institutions; it does not have a Certification program.

<sup>29</sup> Additional Canadian Sector Councils were reviewed; however, they did not have Certification programs.

<sup>30</sup> Alliance of Canadian Building Officials Association, (2008).

<sup>31</sup> Construction Sector Council and The Alliance of Canadian Building Officials Association (2005).

### **Prerequisites: Education/Experience**

The Candidate and Associate 'stages' are the prerequisites for becoming a Certified Building Official. The Background Review compares an individual's personal background to the background requirements for the defined stages within the certification program.

#### *Background Review*

The Background Review is presented through a structured application form, which may be supplemented through an interview, if necessary.

The education and experience is cumulative from Candidate through to the Certified level. To be eligible for the Candidate stage, an individual must have a high school diploma (or equivalent) and one or more of the following:

- Diploma or degree program related to the building industry (e.g. architecture, relevant engineering or engineering technology)
- Journey person provincial trade ticket in a building trade
- Five years of relevant work experience

To progress to the Associate stage, the Candidate must have taken more specialized training related to the required skills, which include: a 'Legal Course', an introductory 'Code Course' and a 'Communications Course' appropriate to the province

To become certified, an Associate must have a predetermined time spent as an appointed building official, have completed a minimum number of inspections and/or plan reviews according to the area of specialty. Associates must maintain a log to verify that the inspections and/or plan reviews were conducted.

### **Assessment**

Assessment is conducted through document review, by the National Certification Council, of the following dimensions:

- Duration – the total length of time working as a building official
- Quantity – the total number of inspections or plan reviews performed in a career
- Frequency – the total number of inspections or plan reviews performed in the last year
- Quality – confirmation that work performed complies with National Occupational Standard criteria

Associates apply for Certified status in their area(s) of specialty. An individual certified in all three specialties is recognized as a Registered Canadian Building Official.

### **Fees**

Registration fees are \$50 for background review and \$50 fee to apply for certification.

### **Renewal Program**

Maintenance of Certified status is achieved by: complying with a National Code of Ethics; staying current by passing an exam within three years of the introduction of a new code; and completing a minimum of 30 hours of

continuing education or service to the National Certification Body (or affiliated organizations) within a five-year period.

### **3.1.2 Mining Industry Human Resources Council (MiHR): Canadian Mining Certification Program (CMCP)<sup>32</sup>**

The Canadian Mining Certification Program (CMCP) is a national certification program designed to recognize and certify the skills and competencies of experienced workers in undesignated occupations in the mining industry. There are four certification classes available corresponding to each of the MiHR NOS: Underground Miner, Surface Miner, Minerals Processing Operator, and Diamond Driller. The CMCP is only available to workers who are employed with Canadian mining companies. Before a candidate can begin the certification process, his/her company or site must be CMCP-designated.

#### **Prerequisites: Education/Experience**

Each NOS has 2 levels of certification: Level 1 – requires a minimum of 2,000 hours of experience and Level 2, which requires up to an additional 7,000 hours depending on the occupation.

#### **Assessment**

A trained assessor (Workplace Assessor), also employed by the company, assesses an employee's skills and knowledge against the NOS using a combination of a self-assessment checklist and on-the-job skill demonstrations. Candidates must be assessed against the tasks outlined in the NOS and have completed a minimum number of working hours for Level 1 or Level 2, in order to qualify for certification.

#### **Fees**

The registration fee is \$50 and the certification fee is \$300 per candidate.

#### **Renewal Program**

This certification does not require renewal and there are no continuing education or professional development activities included.

### **3.1.3 Institute of Food Technologists (IFT): Certified Food Scientist<sup>33, 34</sup>**

The International Food Science Certification Commission (IFSCC), which was established by the Institute of Food Technologists (IFT) oversees the Certified Food Scientist (CFS) program, based in the United States. The CFS examination focuses on the practical applied knowledge that food scientists need to be competent professionals. The exam was developed by evaluating the global practice of food science and is grounded in the established fundamental knowledge and skills food scientists apply every day in all aspects of their jobs.

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<sup>32</sup> Mining Industry Human Resources Council (n.d.).

<sup>33</sup> Institute of Food Technologists (IFT) (n.d.).

<sup>34</sup> Institute of Food Technologists (IFT) (2014).

### **Prerequisites: Education/Experience**

A combination of education in food science and work experience is required. The more experience one possesses the lower education requirement and vice versa, e.g., Master's or Doctorate level education would require less work experience.

### **Assessment**

The assessment is a computer-based Multiple Choice Question Exam consisting of 120 questions and lasting for 3 hours. Testing can be completed at any Pearson Professional Testing Center.

### **Fees**

Application fees are different for IFT members and non-members.

Fees	IFT Members	Non-members
Application Fee	\$550	\$750
Exam Retest Fee	\$200	\$300
Renewal Fee	\$300	\$425

### **Renewal Program**

Certified Food Scientists are required to complete 75 continuing education (contact hours) every five (5) years in order to maintain certification.

### **3.1.4 National Registry of Food Safety Professionals: Certified Food Safety HACCP Manager<sup>35</sup>**

The National Registry of Food Safety Professionals, based in the United States, developed the Certified Food Safety HACCP Manager Certification based on the Food Safety Modernization Act (FSMA). The certification has only one level.

### **Prerequisites: Education/Experience**

No pre-requisites are required; however, work experience, studying, or taking a course in food safety and sanitation is recommended before taking the exam.

### **Assessment**

The assessment is a Multiple Choice Question Exam (MCQ). The MCQ can be administered either via paper and pencil or online through over 1,500 Pearson VUE locations. The certification examination covers the seven principles of HACCP and measures the level of food safety comprehension essential for workers in facilities such as food manufacturing, processing plants, distribution centers, food packing, and warehouses storing food for human consumption.

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<sup>35</sup> National Registry of Food Safety Professionals (2014).

## **Fees**

The fee to take the exam is \$85.

## **Renewal Program**

The Certification is valid for up to five (5) years. To renew certification, the certificant is required to take a Food Safety Manager exam before the expiration of current certification. In some areas, continuing training hours may be required.

### **3.1.5 Prometric: Certified Professional Food Manager (CPFM)<sup>36</sup>**

Prometric is a provider of technology-enabled testing and assessment solutions. Prometric offers a certified Professional Food Manager (CPFM) Program, which is accredited by the American National Standards Institute (ANSI). The program is recognized by the Conference for Food Protection (CFP)<sup>37</sup> for any person or business operating in the food service industry. The Conference for Food Protection is an independent voluntary organization that has identified the essential components of a nationally recognized Food Protection Manager Certification Program and established a mechanism to determine if certification organizations meet these standards. The Conference Standards for Accreditation of Food Protection Manager Certification Programs are intended for all legal entities that provide certification for this profession.

## **Prerequisites: Education/Experience**

Specific information on eligibility is not provided; the certification appears to be open for everyone.

## **Assessment**

The CPFM assessment is a MCQ proctored exam. There are 80 questions and candidates have two (2) hours to complete the exam. The minimum passing score is 70% unless designated otherwise by a jurisdictional governmental agency.

## **Fees**

If the exam is taken in a Prometric testing center the cost is \$48. If the exam is taken at an alternative facility, the cost is \$28.

## **Renewal Program**

Information is not provided regarding certification maintenance.

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<sup>36</sup> Prometric (2014).

<sup>37</sup> Conference for Food Protection (2014).

### **3.1.6 American Society for Quality (ASQ): Certified HACCP Auditor (CHA)<sup>38</sup>**

The American Society for Quality (ASQ) provides the quality community with training, professional certifications, and knowledge. ASQ offers a HACCP Auditor Certification program. The certification is based on the Certified HACCP Auditor Body of Knowledge (BOK)<sup>39</sup>, similar to national occupational standards.

#### **Prerequisites: Education/Experience**

As a prerequisite, an applicant must have five years of on-the-job experience in one or more of the areas of the Certified HACCP Auditor BOK, with at least one year in a decision-making role. A completed degree from an accredited college, university or technical school can be used to supplement a portion of the five-year experience requirement.

#### **Assessment**

The assessment is a 135-question, four-hour MCQ exam. All examinations are open-book. Each participant must bring his or her own reference materials.

#### **Fees**

The fee to take the exam is \$419 for non-members and \$269 for ASQ members; exam retake fee is \$219.

#### **Renewal Program**

ASQ requires Renewal every three years, achieved either by documenting Renewal unit (RU) credits or by taking an exam. A minimum of 18 Renewal units (RUs) during the three-year certification period are required.

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<sup>38</sup> American Society for Quality (n.d.)

<sup>39</sup> Ibid.

## 3.2 Summary of Certification Programs

Table 4: Summary of Certification Programs

Certification	Certification Overview	Based on Standard	Pre-requisites	Assessment Type	Fees	Renewal / Renewal
<b>The National Certification Program for Professional Building Officials</b>	Staged process	NA	High School Diploma or equivalent Specialized training Specialized courses	Portfolio review based on work experience	\$50 background review \$50 application	Exam Continuing education courses / service Comply with a National Code of Ethics
<b>Canadian Mining Certification Program (CMCP)</b>	Four certifications for each NOS Two levels of certification	NOS	Level 1 – min 2000 hours of experience Level 2 - additional 7000 hours depending on the occupation	Self-assessment checklist and on-the-job skill demonstrations	\$50 registration \$300 certification	NA
<b>Certified Food Scientist</b>	One certification; one level	NA	Education in food science Work experience	MCQ	<b>IFT Members</b> Application: \$550 Exam Retest: \$200 Renewal: \$300 <b>Non-members</b> Application: \$750 Exam Retest: \$300 Renewal: \$425	75 contact hours every five (5) years
<b>Certified Food Safety HACCP Manager</b>	One certification; one level	NA	None	MCQ	Exam: \$85	Food Safety Manager exam requirements within 5 years of certification
<b>Certified Professional Food Manager (CPFM)</b>	One certification, one level	NA	None	MCQ	Exam \$48 Prometric Testing Centre; \$28 Other	NA
<b>Certified HACCP Auditor (CHA)</b>	One certification, one level	Body of Knowledge	Work experience Degree from accredited school	MCQ	Exam Fee: \$419 non-members; \$269 for ASQ members Retake fee: \$219	Renewal required every three years 18 RUs during three-year period



It is important to note that most of the programs presented have some certification requirement absent:

- The National Certification Program for Professional Building Officials is not based on occupational standards or equivalent
- Canadian Mining Certification Program (CMCP) has no Renewal program
- Certified Food Scientist is not based on occupational standards or equivalent
- Certified Food Safety HACCP Manager is not based on occupational standards or equivalent; no prerequisites for program entry
- Certified Professional Food Manager (CPFM) has no prerequisites for program entry

In addition, many programs reviewed are based on target occupations within the industry, offering a single certification based on individual standards. This type of standards-based framework presents a number of challenges:

- Does not account for other occupations across the sector
- Cannot address sector-wide concerns such as rapidly changing technology and health concerns
- Costly to develop multiple certifications based on individual standards
- Costly and time consuming to update certifications based on individual standards
- May not encompass the variety of jobs that may exist across the industry

As previously indicated, the food processing industry in Canada consists of hundreds of jobs across the industry and the sub-sectors. While the sector is large and diverse, the challenges are comparatively few, e.g., rapidly changing technology, and food health and safety issues. The skills required to address these challenges can be applied across the diverse workforce. Therefore, FPHRC should consider developing a sector-wide certification program based on competency standards that can be implemented and used across multiple occupations and sub-sectors.

## 4 Review of Certificate Programs

It is important to understand the differences between certificate and certification frameworks when conducting an industry review of certification programs.

### 4.1 Certification versus Certificate

Certificate programs provide evidence of course completion provided by an educational course or entity. Certificates are provided to individuals (participants) who have attended or participated in classes, courses, or other education/training programs or events. The participant is awarded a certificate at the end of the course or training program, which signifies that they have attended and completed the program. Certificate based programs may or may not have an assessment component. The focus of certificate programs is on education and training, whereas the focus of certification programs is on the assessment of applicants. Certificate programs can be stand-alone or they can serve to support the attainment of certification, either in terms of serving as formal pre-requisites to certification<sup>40</sup>, or informal preparation to certification. Table 5 summarizes the main differences between certificate and certification frameworks.

Table 5: Certificate vs Certification

Certificate	Certification
Provides evidence of course completion	Provides evidence that an industry standard is demonstrated
Provided by an educational institute or course entity	Provided by an independent professional association not affiliated with any commercial entity
Demonstrated by passing a course or a program	Demonstrated by meeting industry standard through education, experience and assessment
Developed and offered by a particular provider	Developed by industry representatives
Provides certificate of completion	Grants credential

Certificate programs were included during this research in order to explore frameworks and components that could support the development of a certification program for FPHRC. The majority of these programs consist of a course comprised of a series of modules. Learning is typically assessed through a test after completion of the online modules.

The following Canadian and International food processing certificate programs, as well as Canadian sector council certificate programs are reviewed in the context of components of a certificate program:

- Food Industry Training (F.I.T.) Centre: HACCP & Food Safety Certificate Program<sup>41</sup>
- Toronto Public Health: Food Handler Certification Program<sup>42</sup>
- Trucking HR Canada: National Standards Certificate, Profession: Dispatcher<sup>43</sup>

<sup>40</sup> Certificates that are formal pre-requisites to certification are defined as accredited programs and will be discussed in a separate report.

<sup>41</sup> Food Centre Training, HACCP & Food Safety Certificate Program (2015).

<sup>42</sup> City of Toronto, Food Handler Training (2015).

<sup>43</sup> Trucking HR Canada, Courses and Training (2015).

- Australian Food Training Centre<sup>44</sup>
- University of Nebraska-Lincoln: Food Processing Management Online Certificate Program<sup>45</sup>
- William Reed (WR) eLearning: Food Safety & Hygiene eLearning Programs<sup>46</sup>

## 4.2 Optional Components of a Certificate Program

The components of certificate programs are similarly structured and consist of pre-requisites, as required, training, assessment and granting of a certificate credential.

### 4.2.1 Prerequisites

In general, certificate courses do not require the completion of education or experience prerequisites for program entry. However, two of the programs reviewed have pre-requisite requirements, either mandatory or suggested. For example:

- The Australian Food Training Centre requires applicants to attend an information session and undertake a “Basic Skills” assessment.
- The William Reed (WR) eLearning: Award in Supervising Food Safety – Level 3 suggests that candidates ideally complete a Level 2 Food Safety course prior to taking a Level 3 course, unless the candidate is already working as a supervisor.

### 4.2.2 Courses

Courses and programs are developed by training organizations or educational institutions, and the content of the courses may or may not be aligned with industry standards<sup>47</sup>; both types of certificates were reviewed for this research. For example:

- Certificates delivered through the Australian Food Training Centre are competency-based and are nationally-accredited by the Australian Qualifications Framework (AQF)<sup>48</sup>.
- Food Hygiene Certificate in Manufacturing delivered through the William Reed (WR) eLearning Food Safety & Hygiene eLearning Programs are all accredited by City and Guilds<sup>49</sup>.

The majority of the courses associated with the certificate programs reviewed are delivered online. Typically, these are separated into modules, or stages, and allow the candidate to review the material at their own pace, within a pre-described time frame. Some courses offer alternative training and delivery options, for example:

- The Toronto Public Health: Food Handler Certification Program can be completed through a classroom session, home study, or a course

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<sup>44</sup> Australian Food training Centre, Certificates in Food Processing (2014).

<sup>45</sup> Food Processing Management, On-Line Certificate program, University of Nebraska-Lincoln (2014).

<sup>46</sup> William Reed Training in Partnership with Virtual College (2015).

<sup>47</sup> Courses and programs that are aligned with industry standards can be accredited by the accrediting agency.

<sup>48</sup> Australian Qualifications Framework (n.d.).

<sup>49</sup> City and Guilds (n.d.).

- The courses offered through the Australian Food Training Centre provide a combination of both on-the-job and off-the-job (classroom) training. Off-the-job training can include:
  - Classroom based activities,
  - Workplace tasks and exercises,
  - Simulations,
  - Workplace documentation (SOP's, Check sheets, Production reports, WH&S forms, policies, procedures, etc.).

### 4.2.3 Assessment

Assessment for the certificate courses reviewed is most commonly done through MCQ exams. The following programs use MCQ exams for assessment:

- Food Industry Training (F.I.T.) Centre: HACCP & Food Safety Certificate Program
- Toronto Public Health: Food Handler Certification Program
- Trucking HR Canada: National Standards Certificate, Profession: Dispatcher
- University of Nebraska-Lincoln: Food Processing Management Online Certificate Program
- William Reed (WR) eLearning: Food Safety & Hygiene eLearning Programs

### 4.2.4 Certificate

The certificate programs reviewed offer training which provides industry recognition, allowing employees to position themselves as qualified candidates. The completion of a certificate can offer several advantages; for example:

- The Food Industry Training (F.I.T.) Centre: HACCP & Food Safety Certificate Program positions candidates to take on the role of HACCP Coordinator. In addition, it is the foundation for a role as a Quality Assurance/ Quality Control Technician or Manager.
- The Toronto Public Health: Food Handler Certification Program indicates that an individual meets the Ontario Ministry of Health's food handling training protocol and the City of Toronto's requirement for mandatory certification of food handlers, allowing an individual to work within the food industry.
- The Trucking HR Canada: National Standards Certificate, Profession: Dispatcher provides individuals with a National Standards Certificate.

Industry recognition is increased if a certificate is offered through an accredited course or program such as through The Australian Food Training Centre and William Reed (WR) eLearning: Food Safety & Hygiene eLearning Programs.

## 4.3 Summary of Certificate Programs

The certificate programs reviewed offer concepts on assessment methods that may be used for the FPHRC to offer certificate programs as certification pre-requisites. FPHRC can also leverage its own courses to support certification. A common training method offered through these certification programs is self-administered e-learning modules and online videos. This training is predominantly assessed through online multiple choice question (MCQ) tests. This method of training and subsequent assessment is a potential way for FPHRC to assess core skills, such as occupational health and safety as part of their certification requirements.

# 5 Certification and Renewal Framework for FPHRC

## 5.1 Certification Frameworks

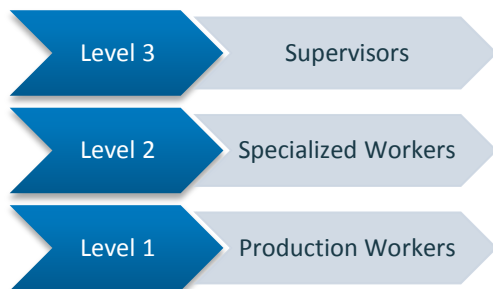
### 5.1.1 Occupational Grouping

In order to encompass the occupations in demand across the sector, the certification framework is divided into two main categories or streams:

Food  
Production

Food  
Safety

### 5.1.2 Food Production



Food production stream is further divided into three production levels:

The production certification stream will be based on competencies shared across occupations at a particular level. Examples of occupations that can be certified under Level 1 are Front Line Worker, Fishline Workers, Poultry Preparers, Sanitation Workers, Graders, or Packagers. Level 2 would include experienced or specialized workers such as: Butcher, Baker, Blender, Machine Operators, Machinists, Logistics and

Supply Chain Workers. These occupations would be logically grouped based on their area of specialization. Level 3 would include supervisors across the industry sub-sectors such as Foreman/Forewoman, Supervisors, Packaging Supervisors, and Production Supervisors.

A person can be certified under Level 1, 2 or 3 without having to progress from one level to the next. They can apply for any level of certification provided that they have the pre-requisite and that they successfully pass the required assessment (i.e., on-line exam or on-site observation). The framework also offers a career path to move from one level to the next. If a Production Worker wishes to become a Specialized Worker, they can refer to the framework to see how much additional experience or training they require.

### 5.1.3 Food Safety

The Food Safety Professional certification stream includes individuals that work in the food safety areas across the industry. Similar to the production stream, the levels will be based on competencies that define food safety and will not be dependent on a particular job or role. The certification framework is divided into two levels:



Examples of occupations that can be certified under Level 1 would be: HACCP Professionals, Health & Safety Coordinators. Examples of occupations that can be certified under Level 2 are: Quality Assurance, Food Inspectors, Internal Auditors, Quality Control Technicians, Food Safety Managers, Chemical and Food Technologists.

### 5.1.4 Identifying Competencies and Proficiency Levels

Before a mechanism is established to assess that the certified professional has the knowledge, skills, judgment (i.e., competencies) to do their job, competencies and associated proficiency levels need to be defined for each stream. FPHRC is currently establishing competency-based standards for the food processing industry. The competency-based standards will be developed with a modular approach identifying which competencies and levels are required for each certification stream. Each competency and proficiency level will have associated measurable tasks (behavioral indicators) which define the behaviours required to competently do the job.

## 5.2 Certification Requirements

The following section outlines the certification requirements for the certification streams, taking into account best practices as defined by ICE, ANSI and ISO standards for certification programs.

### 5.2.1 Governance Committee

Once the feasibility for a certification program has been established, a Governance Committee (GC) needs to be put in place. The committee needs to be independent and impartial in relation to applicants and certified persons. It is comprised of a representative constituency of interested stakeholders.

The GC is responsible for:

- Program evaluation and quality assurance;
- Formulation and implementation of policies related to development, administration and maintenance of the certification program, and with regard to certification of persons;
- Decisions on certification (including decisions on possible appeals) – establish an Appeals Committee;
- Finances of the certification body; and
- Delegation of authority to any committee or individuals to undertake defined activities on its behalf.

Individuals on this committee can be members from the National Advisory Committee. Ideally they should represent the interests of the food processing industry in all of the subsectors and from across Canada. The GC should meet at regular intervals during the development of the certification program (in-person or through teleconference) in order to approve the materials developed (e.g., policies, standards, communication materials, selection of sub-committees, etc.).

### 5.2.2 Application Process

The application process is the first step in any certification process. During the application process, the applicant completes all forms required to begin the process and typically pays an administrative fee. It is during this stage that the applicant would need to demonstrate that he or she has met any pre-requisites before the application is processed. Pre-requisites should be aligned with standards of practice (i.e., competencies) and can be any of the following:

- Educational qualifications in a relevant field to demonstrate knowledge and understanding
- Minimum years of experience to demonstrate application of the knowledge
- Reference checks to verify experience and education

The certifying body needs to have an administrative process in place to handle the applications and fees as well as establishing a committee to review the pre-requisites. Given the numbers, diversity and distribution of candidates across Canada, an online applicant management system is proposed.

### 5.2.3 Entry-Requirements

To achieve a designation in any one of the certification classes, candidates must:

1. Meet the minimum work experience requirements
2. Successfully pass the assessment requirement (e.g., exam, on-the job observation)

The pre-requisites and entry requirements for each certification framework need to be established. Education and experience for each certification class will be assessed through a combination of education and experience using a point-based system which balances education and experience. Experience is emphasized for both certification streams.

### Credential Equivalents and Training

The model will look at credential equivalents. Credential equivalents may be included to supplement the formal education requirement. For example, if a worker does not have the formal education, they can obtain equivalency through other training that is directly relevant to requirements of the certification class. This allows flexibility to candidates from a variety of backgrounds to meet the entry pre-requisites. For example, FPHRC is currently developing food production and food safety courses necessary for the certification framework. Courses developed by other training providers that meet the FPHRC standards will also be eligible to be used as substitutes (i.e., equivalent). One of the courses that FPHRC is developing is the Essential Skills On-line Training and Exam, which offers equivalency to a high-school diploma. This is an entry level on-line course and exam designed to test candidates' basic proficiency in the 9 essential skills (e.g., reading, numeracy, document use, oral communication, etc.). The course will consist of several modules, each focused on an essential skills area.

### 5.2.4 Assessment Methods

There are many assessment tools that can be used to assess competence. Selecting the appropriate assessment tool depends on the following:

- Applicability or validity (is the assessment tool aligned with the work that the individual is doing);
- Reliability (is the assessment tool consistently measuring what it is intended to measure);
- Feasibility (can the assessment tool be developed, administered and maintained at a reasonable cost to the council and the individual).

Assessment tools that are valid and reliable also need to be legally defensible such that they can stand up to challenges, which may be related to factors not related to the job such as language, culture, age, gender, etc.

Assessments need to be based on the competencies and the proficiency levels that are required for each certification class. A job that requires the demonstration of foundational concepts and theory may be well suited

for a multiple choice question based exam; however, jobs that are very task oriented and applied in nature may require alternate forms of assessment such as: skill demonstrations or observations. Each one of these methods has strengths and weaknesses and can be used together with other assessment methods or stand-alone. The following section describes assessments suitable for FPHRC's certification framework along with their main strengths and weaknesses.

There are two main assessment methodologies that are recommended to be used for the certification streams:

### **Observations and Workplace Assessments**

Observations and Workplace Assessments can take the place in the workplace or in a staged setting. Applicants are observed performing their work and consequently it is the most natural method of assessing competency. Reliability of assessment is increased if observers are trained as to what to look for and are given guidelines and templates to follow (i.e., checklists). Observations are a good way to assess actual on-the-job performance; however, because they require a dedicated resource to observe the applicants they can be time-consuming and expensive to conduct.

### **Multiple-choice Question Exams**

Most certification programs assess competence through a multiple-choice question (MCQ) exams because of their ability to assess a large number of candidates and ease of scoring. The challenge in using exams for certification or licensing purposes is that the questions have to be very carefully developed to ensure that, to the extent possible, all applicants have a clear and consistent understanding of the meaning of the question. In other words, the language in the questions must not present a barrier that is unrelated to applicants' actual content knowledge. For example, the level of English needs to be appropriate to satisfy the requirements of practice and care must be taken not to use jargon or colloquialisms. Other drawbacks are that exams do not adequately capture the nuances of someone's behavior on the job. Recent advances in alternative item types and online assessments have also allowed the development of graphic or high-fidelity item types. These items can be used to test concepts such as judgement, ordering or sequencing, speed, special orientation, etc., and lend themselves to testing applied skills as opposed to written comprehension.

Deciding which assessment method, or combination thereof, is most appropriate depends on the following factors:

- Psychometric properties – does the method reliably<sup>50</sup> measure the required competencies, and is it valid<sup>51</sup> in predicting how well someone will be able to do their job?
- Applicability – how accurately does the assessment method test the competency?
- Feasibility – are the costs of developing and implementing the assessment acceptable?

The table below summarizes each method described in the previous sections and how well each assesses competence.

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<sup>50</sup> Reliability or generalizability is a measure of relative magnitude or change in scores due to error (Shavelson & Webb, 1991), with the aim of minimizing error in measurement.

<sup>51</sup> Validity is the degree to which inferences made about job performance (competence) based on assessment scores are correct (Messick, 1989).



**Table 6: Applicability and Feasibility of Different Assessment Methods**

Assessment Method	Applicability			Feasibility			
	Knowledge-based	Applied-knowledge	Work Performance	Reliability	Validity	Cost to Develop	Cost to Implement
<b>Workplace Observations</b>		✓	✓	Moderate	Moderate	Moderate	Moderate to High
<b>Written Examinations</b>	✓	✓		High	High	High	Low

Based on industry consultation, the current certification framework recommends using three different assessment methods suited for a respective certification class.

### **Food Production Supervisor Observation**

The Food Production supervisor observation is intended for Level 1 – Production Workers. The supervisor will be provided with a guide that includes step-by-step instructions on how to assess the employee on the job and criteria (i.e., competencies) that the employee needs to be assessed against. The structured nature of the observation will increase the reliability of the assessment. In addition, FPHRC can develop workshops or on-line training for supervisors to help them consistently apply the assessment criteria. The supervisor will be required to sign an affidavit stating that the observation is true and accurate. The supervisor will be given a period of time (e.g., one month) to assess the employee and submit their observations. This can be done by filling out an on-line form or mailing a written checklist to FPHRC.

### **Workplace Assessment**

The Specialized Worker assessment will consist of a structured workplace observation. The observation will be conducted by specially trained assessors provided by the FPHRC. The assessors will be subject matter experts (SMEs) in their respective fields, such as Butchers, Process Control Operators or Machine Operators. Assessment Guides will be developed for each specialization which will include step-by-step instructions on how to assess the employee on the job and criteria (i.e., competencies) that the employee needs to be assessed against. The structured nature of the observation will increase the reliability of the assessment. The assessors can fill out an on-line form or mail a written checklist to FPHRC. **On-Line Exams**

The Supervisor level of Food Production certification stream and the Intermediate and Advanced level of Food Safety Professionals will be assessed through an on-line MCQ exam. This exam will test content related to food production and food safety. The exam will consist of a combination of written MCQ, and high-fidelity items such as drag and drop, ordering, hotspot, etc., depending on the nature of the content area being tested. It is anticipated that the exam will have approximately 100 to 150 items depending on the certification level. It will be a timed, virtually-proctored, exam that could be taken anywhere where there is access to a computer and the internet.

### **5.2.5 Additional Requirements**

Food Processing HR Council may stipulate additional requirements for becoming certified and maintaining certification. These requirements are often:

- Asking if the applicant is legally allowed to work in Canada such as by producing a copy of their Citizenship, work permit, or landed immigrant status,

- Demonstrating a certain level of proficiency in English or French, either by having completed their education on Canada or by obtaining a certain level of proficiency through one of the standardized language tests,
- Demonstrating that they have never been accused of a crime or professional misconduct, by producing a criminal record check.

### 5.2.6 Certification Fees

The certification fees include administrative fees associated with receiving and processing the application for certification, fees associated with taking pre-requisite courses and training, and fees associated with the assessment. The fees associated with the assessment methods are dependent on the time and costs associated with developing and administering them. Based on industry consultation and the costs to develop and administer the certification program, the following fees are proposed.

**Table 7: Certification Fees**

	Food Production Level 1: Production Workers	Food Production Level 2: Specialized Workers	Food Production Level 3: Supervisors	Food Safety Level 1: Intermediate	Food Safety Level 2: Advanced
<b>Administration</b>	\$50	\$50	\$50	\$50	\$50
<b>On-line Courses*</b>	\$50	\$500	\$50	\$50	\$50
<b>Assessment</b>	\$50**	\$750**	\$250	\$400	\$400
<b>Total</b>	\$150	\$1,300	\$350	\$500	\$500

\*If taken through FPHRC. \*\*See bulk discount below.

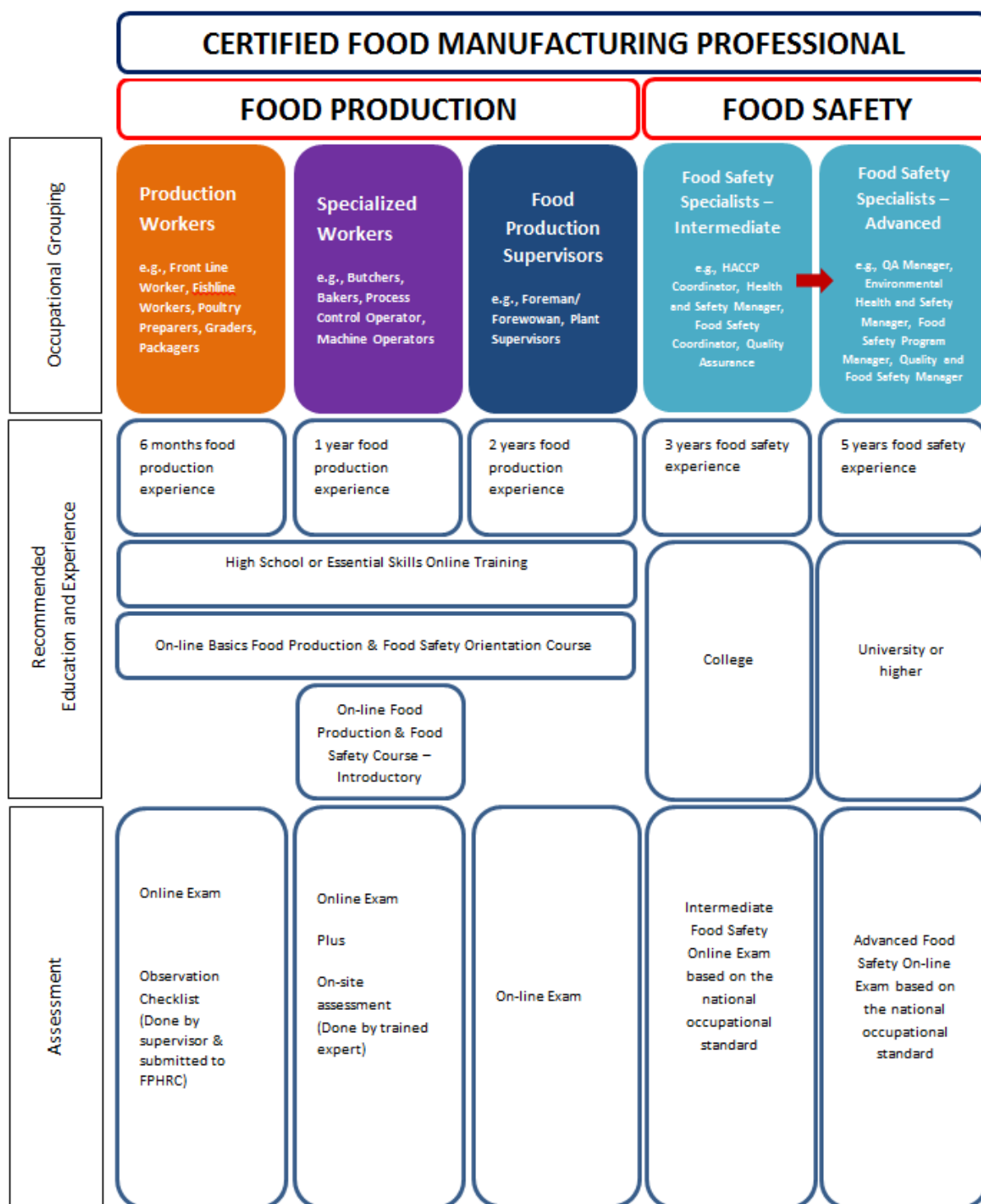
Discount will be offered based on volume of applicants for Production Workers and Specialized Workers.

**Table 8: Bulk Discounts for Production Workers and Specialized Workers**

	Assessment Type	Fee p.p. (per person)	Bulk Discount No. of employees
<b>Food Production Level 1: Production Workers</b>	Supervisor Observation	\$50 p.p.	Less than 25
		\$40 p.p.	25 – 50
		\$30 p.p.	51 – 100
		\$25 p.p.	Greater than 100
<b>Food Production Level 2: Specialized Workers</b>	Workplace Assessment	\$750 p.p.	2 - 5
		\$500 p.p.	6 – 10
		\$250 p.p.	11 – 15
		TBD	Greater than 15

The figure 3 below details the entire certification framework.

Figure 3: Certification Framework



## 5.3 Development of Assessment Tools

Once the assessment method(s) are selected, assessment tools must follow a rigorous development process in order to ensure that they are:

- Valid (assess against the standards-based competencies),
- Reliable (assess in a consistent fashion),
- Fair (do not disadvantage applicants for factors not related to job performance such as gender, language, ethnic origin, etc.), and
- Defensible (stands up to scrutiny and challenges)

To ensure that the content is structured properly to assess the competencies, an external consultant should work closely with subject matter experts (SMEs) during each step of this process. The figure 4 below describes the steps for developing an assessment tool.

**Figure 4: Steps for Developing an Assessment Tool**



### 5.3.1 Implementation of Assessment Tools

The implementation of assessment tools is a significant consideration in light of feasibility and accessibility considerations.

#### **Supervisor Observations**

We recommend offering a series of webinars to train supervisors in conducting on-the-job observations. For larger operations, FPHRC may offer in-house training to supervisors. In addition, FPHRC can offer on-line courses and step-by-step instructions in conducting worker observations in a reliable and consistent fashion. Furthermore, supervisors will be asked to sign/submit an affidavit for every employee they assess stating that they were truthful and objective. Observation checklists can be made available on-line or in a pencil and paper format.

#### **Workplace Assessments**

Assessment of Specialized Workers will include the selection and training of experts in assessing work against the standards for a particular occupation (e.g., Butchers). FPHRC needs to develop criteria for recruitment and selection of SMEs. SMEs will also need to sign a conflict of interest form ensuring that the objective applicant assessment.

#### **On-line MCQ Exams**

Security is a significant consideration for implementing multiple choice exams. For Supervisor level and Food Safety professional intermediate and advanced levels, we recommend a virtually proctored on-line exam administration. Virtually proctored exams provide the flexibility of allowing applicants to schedule to take the exam any time and any place. It is also very secure as virtual proctors can view the applicant through a web-cam and can monitor their actions.

## 5.4 Certification Renewal

Once an individual is certified, a certifying body needs to be able to verify that the individual continues to maintain their level of competence in an occupation, which is assessed through a certification renewal program. A certification renewal program may include a continuing education or professional development component designed to:

- Promote continuing competence and continuing quality improvement among the certificants,
- Address changes in the occupation and incorporate standards of practice,
- Professional advancements,
- Changes to laws, regulations and policies and
- Other relevant issues at the discretion of the certifying body.

The renewal requirement is met by accumulating the required number of continuing education or professional development hours/credits. Renewal activities normally consist of a certificant submitting a continuing education log (documenting activities attended) to the council on a periodic basis.

### 5.4.1 Renewal Requirements

The renewal requirements for each certification class will vary. For Production Workers, stakeholder consultation indicated that completing a yearly checklist or questionnaire would be sufficient to maintain certification. The checklist can be part of their on-line membership profile, which they can maintain through the FPHRC portal. The checklist would be mapped to specific competencies can serve as a type of self-assessment. For additional validation, a supervisor could sign off or vouch for the worker.

For all other certification classes, members would be required to obtain 15 credits of professional development activities for every three year cycle. A credit can be equivalent to an hour (i.e., attending a 1 hour on-line workshop can be equated to 1 credit) or it can be used to assign value to an activity. For example, attending a conference or a course can be equated to 5 credits each. There is no requirement to obtain a certain number of hours each year but certified members are strongly encouraged to design a professional development plan that outlines an annual schedule. Requirements will be based on the same occupational standards set for the initial certification.

Certified members are expected to choose professional development (PD) activities that will best meet their own professional development needs. By accumulating credits through a combination of various activities, certified members reinforce their existing skills and build new skills, and are exposed to up-to-date information relevant to the occupation.

There are two ways to manage adherence to PD: having all certified members submit materials to FPHRC (usually through an on-line portal), or having certified members keep their professional development activities on file, which they need to produce if they are selected for an audit. Option 1 is more common; however, option 2 is more cost effective and requires fewer resources. Records of PD activities can be kept thorough a PD Log.

For option 1, certified members are expected to submit on-line renewal applications that include information on their continuing education and professional development activities as part of renewal requirements. FPHRC, or a dedicated third-party, would manage this process including collecting fees, reviewing submissions and recording applicant status. Failure to renew certification may result in its suspension after a period of three years. After four years an individual's status is changed to "inactive" and applicants who wish to be renew their certification will be required to re-apply and be re-assessed.

#### Membership Fees

Stakeholders did not feel that certificants should be required to pay a yearly membership fee, although FPHRC may want to institute membership fees for advanced certification classes such as Supervisors and Food Safety Professionals. A membership fee of \$50 a year, for example, would allow FPHRC to fund the administrative costs involved with managing the Renewal process. It would also support the development of courses and workshops offered by the council. If this is the case, then certified members should be provided with additional "certified member only" activities, such as discounts on: special networking events, conferences, specialized courses and/or workshops, certified members only job board, etc.

### 5.4.2 Renewal Governance

The Council body must have a process in place to ensure adherence to the renewal program and a mechanism for appeal. The following section describes the Renewal committees/panels involved and the Renewal process.

#### Governance Committee

Similar to the certification process, the governance committee would provide oversight to the entire certification and Renewal framework. The committee needs to be independent and impartial in relation to applicants and certified persons. It needs to be comprised of a representative constituency of interested stakeholders.

The governance committee is responsible for:

- Renewal program evaluation and quality assurance;
- Formulation and implementation of policies related to development, administration and maintenance of the renewal program, and with regard to continued certification of persons;
- Decisions on certification (including decisions on possible appeals related to renewal requirements) – Renewal Panel;
- Finances of the renewal activities; and
- Delegation of authority to any committee or individuals to undertake defined activities on its behalf.

#### Renewal Panel

The Renewal Panel (RP) should consist of Subject Matter Experts (SMEs) who have extensive experience working in food production and/or food safety. The Renewal Panel should consist of a minimum of six certified members in good standing and can also include public members (i.e., members not involved with the food profession) to provide additional oversight and impartiality.

#### Auditors

A certified member may apply or re-apply to FPHRC to become an Auditor by submitting their professional portfolio and a cover letter outlining the reason(s) they are interested in being appointed or re-appointed as an Auditor.

#### Renewal and Audit Process

The Governance Committee will appoint a Renewal Panel who will be responsible for ensuring that the renewal process is carried out and that members are meeting their PD requirements. Normally, the RP should meet several times a year to review applications and/or select application members requiring an audit. FPHRC would be responsible for conducting an annual audit<sup>52</sup> of all renewal applications through which evidence of information reported by applicants would be requested.

In order to manage resources, an administrator can review renewal submissions against set criteria, such as meeting the required number of credits and submitting a list of preapproved PD activities. Audits can be conducted remotely through a teleconference or through an in-person visit. Submissions that do not meet the minimum requirements can be reviewed by the RP and a decision can be taken as to the next steps, such as

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<sup>52</sup> 5 – 10% is common practice although this number may be adjusted based on resources available (i.e., auditors).

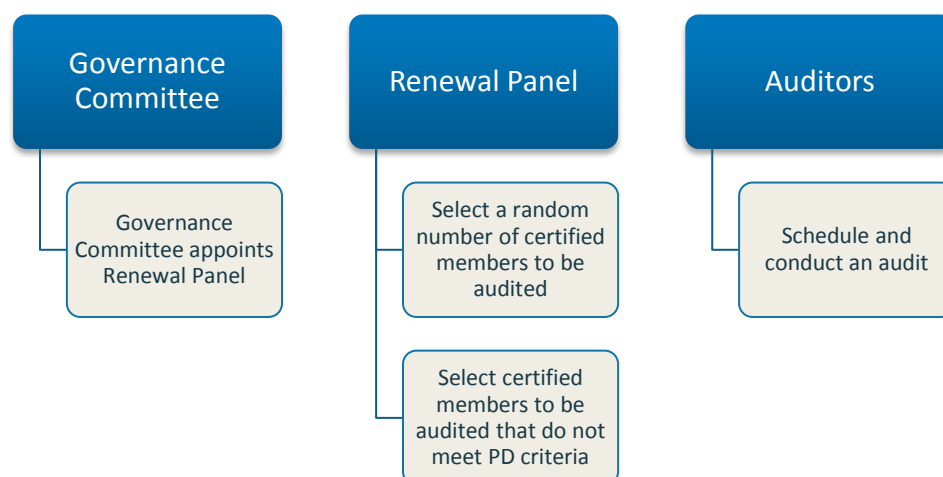


requesting that the member is audited or contacting the member to provide additional information. Applicants need to be informed that their submission may be subject to an audit. Additional audit requirements may include certificants who:

- Have not been randomly selected for an audit within the past ten (10) years;
- Have been asked by the RP to provide information and records detailing PD compliance and, in response, provide insufficient information or the records do not demonstrate that the certified member has engaged in adequate PD activity;
- Are referred for a RP by the Governance Committee.

The RP will appoint an Auditor for the selected certified member. The Auditor will be asked to declare any conflicts of interest.

**Figure 5: Audit Process**



## 5.5 Summary of Certification and Renewal Framework

The proposed certification framework is a result of market research and industry consultation. Careful attention has been paid to present a certification model that follows best practices according to industry standards, but is feasible in terms of industry adoption. In particular, careful attention needs to be paid to develop a certification program that offers a training component, is easy to administer and maintain, and targets occupations that are of greatest industry need, such as Production Workers and Specialized Workers. In addition, the proposed framework offers a career path allowing individuals to see the food and beverage industry as a professional career where they can grow their skills and levels of responsibility.

## 6 Conclusion

The certification and Renewal framework proposed is based on the research conducted and stakeholder feedback on the need for a certification framework in the food and beverage processing industry. The greatest need identified was at the level of Production Workers, followed by Specialized Workers such as Butchers, and Process Control Operators. As a result, the proposed certification framework addresses the need to develop a certification program at several different levels of professional starting from entry level geared towards Production Workers and progressing towards specialists in the food production and food safety areas.

Since the food and beverage processing industry is extremely large and diverse, the proposed certification framework is a sector-wide model rather than an occupation specific model. This approach allows for greater flexibility in applying standards that can be reused across a number of occupations across the industry. It is also a very flexible approach allowing for easier updating of standards across the industry as health and safety regulations change and evolve.

An additional benefit of the proposed framework is the addition of courses that can be used as prerequisites to meeting the required standards. Many industry representatives have stated a need for standardised training as well as assessment. Courses that complement or supplement education and experience would further assist the industry in ensuring that their workers have the right skills and experience to do the jobs.

Finally, the certification framework illustrates food processing as a career – offering a career progression from Production Worker to Specialized Worker to Supervisor. While one does not have to progress linearly, workers can clearly see what they need to achieve and work towards in order to grow as a professional in the food processing sector.

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# Appendix

## Stakeholder Consultation

Name	Title	Organization	Sub-Sector	Location
<b>Antonio Martinez</b>	VP Butcher Experience	Sunterra Meats	Meat Product Manufacturing	Trochu, AB
<b>Carlos Bulhao</b>	Supervisor	Conestoga Meat Packers	Meat Product Manufacturing	Woolwich, ON
<b>Heather Manuel</b>	Director, Centre for Aquaculture and Seafood Development	Marine Institute	Seafood	St. John's, NL
<b>Helen Tiritidis</b>	Human Resources Manager & Special Projects	Expresco Foods	Other	Montreal, QC
<b>Jessica Martens</b>	Immigration Case Manager and HR Specialist	Hylife	Meat Product Manufacturing	La Broquerie, MB
<b>Jodi Haggith</b>	Human Resources Coordinator	Bonduelle	Fruit and Vegetable	Strathroy, ON
<b>Jonathan Morgan</b>	Executive Director of the Learning Division	Canadian Food Inspection Agency	Other: Food Inspection	Ottawa, ON
<b>Kim Lesser</b>	Director Human Resources Prairies	Saputo	Dairy Product	Calgary, AB
<b>Lee Hodgins</b>	Vice President of Human Resources	Champion Pet Foods LP	Animal Food Manufacturing	Edmonton, AB
<b>Linda Hutchison</b>	Director of Human Resources	Clearwater Seafoods LP	Seafood	Bedford, NS
<b>Pauline Zwiers</b>	Senior Manager	Conestoga Meat Packers	Meat Product Manufacturing	Woolwich, ON
<b>Tom Vandenberg</b>	Lead Hand	Conestoga Meat Packers	Meat Product Manufacturing	Woolwich, ON
<b>Wayne Morgan</b>	Human Resources and Compliance Manager	Great Western Brewing Company	Beverage	Saskatoon, SK
<b>William Lachowsky</b>	Food Safety Education Coordinator	Department of Food Science University of Guelph	Other: Education	Guelph, ON





## About the Food Processing Human Resources Council (FPHRC)

The FPHRC is a well-integrated member of Canada's food processing community, working in conjunction with government, provincial associations, community colleges, workplace programs and industry specialists. Our mandate is to educate and support the overall growth of this sector through various food safety and human resources initiatives. Our not-for-profit council works with companies across Canada to develop national skill standards, relevant course content, labour market research, on-site training programs and worker certification programs. From start to finish, our work is driven-by and further validated for authenticity by food and beverage manufacturers' themselves.

For more information, please visit [www.fphrc.ca](http://www.fphrc.ca).

