

# Crane Rental Association of Canada's Annual Conference

Algonquin Resort  
St. Andrews by the-Sea  
New Brunswick  
June 9, 2017



# Workplace Safety

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St. Andrews, NB

June 9, 2017



# Overview

- Crane Operator Labour Shortages and the hiring of Immigrant Crane Operators – what are the safety concerns?
- Crane Operator Evaluations
- Importance of contractor pre-qualifications
- Legal responsibilities of sub-trades on construction sites?
  - What happens when you have an accident involving heavy equipment?
  - Who's responsible?
- Women in the crane industry?
  - Are there program in place to facilitate the participation of women in the trades?



# What is a Crane Operator?

- There are different definitions and classifications of Crane Operators.
- The definition will vary from province to province, and can vary between provincial Acts in the same province.



# Certifications Issued through Apprenticeship Branch

- New Brunswick Apprenticeship and Occupational Certification offers opportunities for training and certification in three different occupations:
- 1. Mobile Hoisting Equipment Operator – mobile equipment, equipped with a winch and boom, capacity between 2 and 25tons.



- 2. Mobile Crane Operator (Hydraulic) – mobile equipment, equipped with a winch and telescoping boom, capacity of 26 tons to unlimited.
- 3. Mobile Crane Operator (Lattice) – mobile equipment, equipped with a winch and fixed lattice boom, capacity of 26 tons to unlimited



# Items to Note

- Under Apprenticeship branch, there is no training or certification available for Tower Crane Operator, or Hoist Operators. These occupations fall within WorkSafeNB legislation.
- New Brunswick's minimum capacity for Mobile Crane Operator (26 tons) is the highest in Canada.



# Crane Operator Labour Shortages and Hiring Immigrant Crane Operators

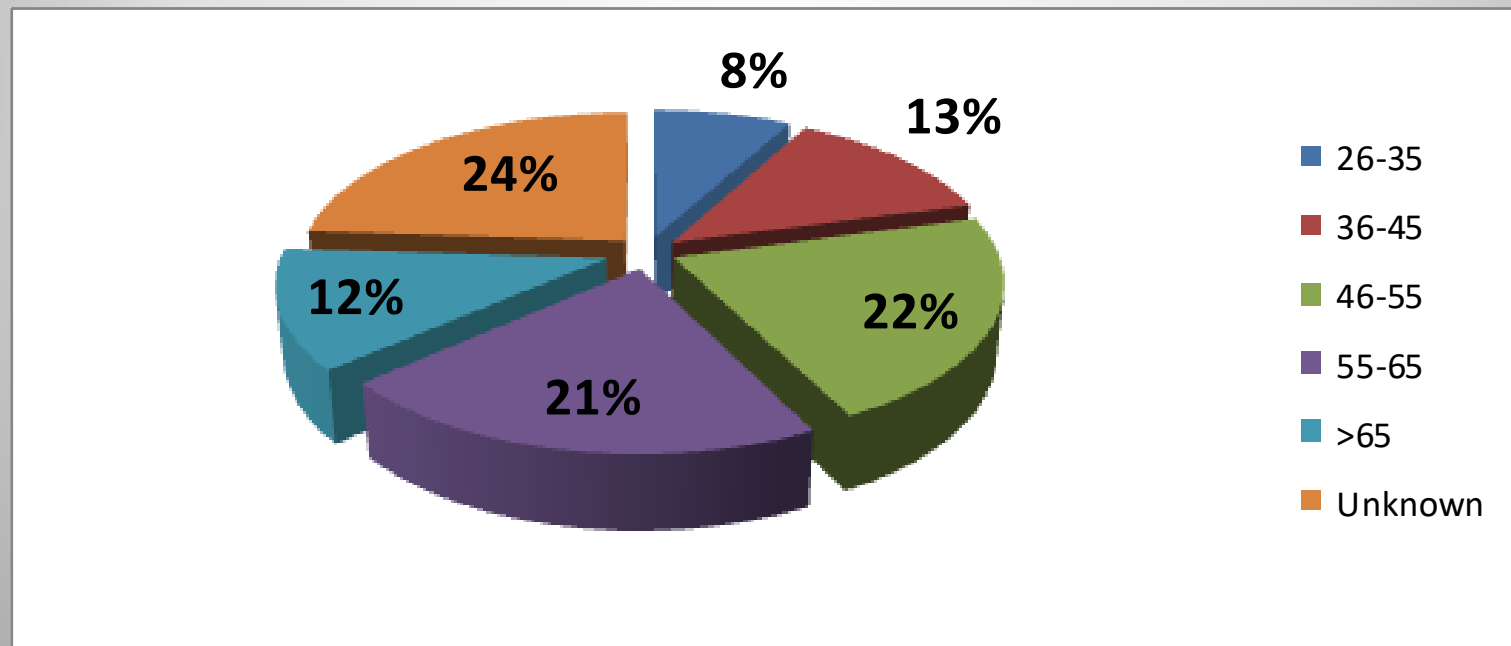
- Mobile Crane Operator became a designated Red Seal Interprovincial trade in October of 1991.
- Crane Operator Certification became available in New Brunswick on March 24<sup>th</sup>, 1995. At that point testing standards for Crane Operators were implemented for the first time.





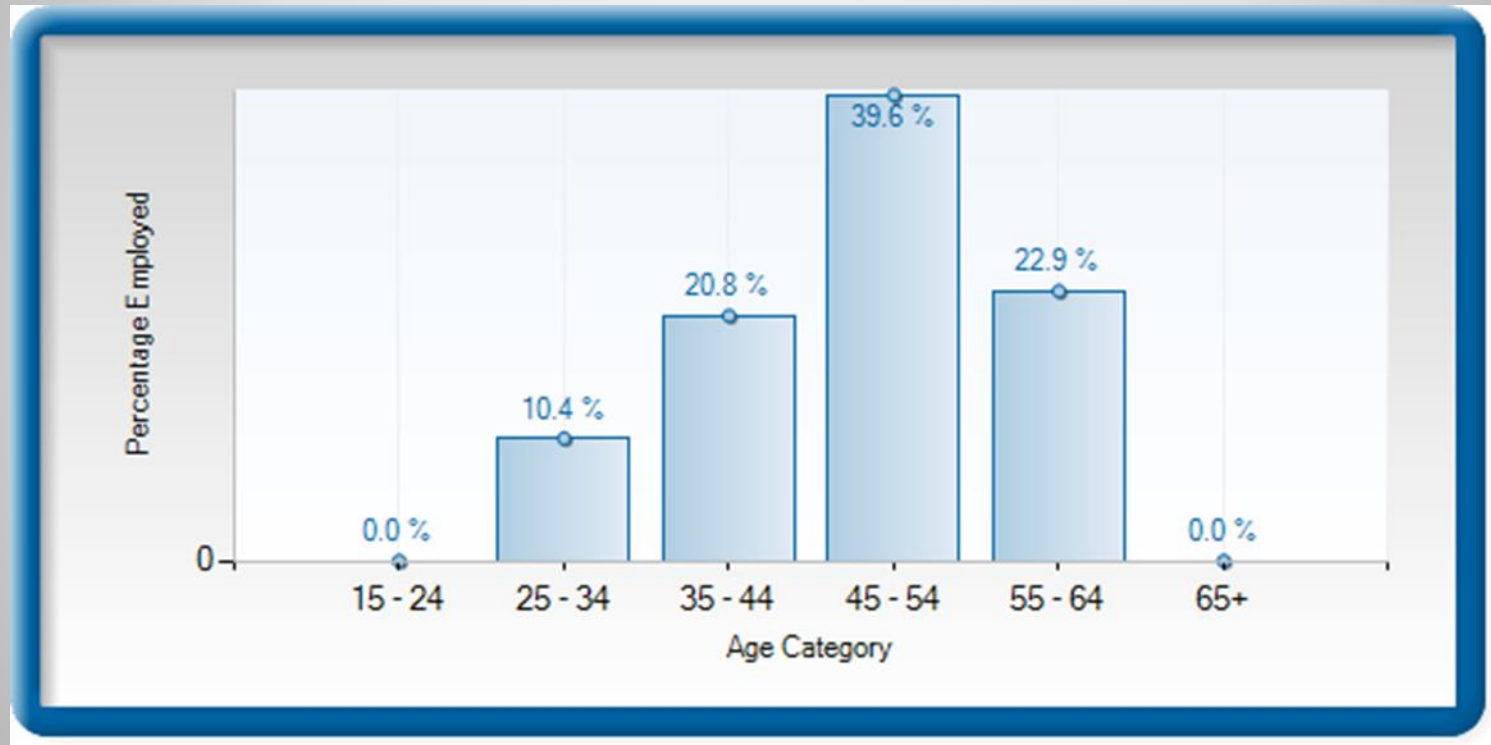
# Crane Operator Labour Shortages

- Age of Certified Mobile Crane Operators in New Brunswick (n = 313)



# Employment by Age (n = 240)

<http://www1.gnb.ca/0105/op-pp/opP.aspx?n=7371>



# National Crane Operator Statistics

- Average age for a construction worker in Canada is 41. <http://www.buildforce.ca/en/media/facts>
- Average age for a Crane Operator in Canada is 43. <https://www.jobbank.gc.ca>
- Projected job openings to 2024 = 6000 jobs
- Projected job seekers to 2024 = 5600
  - This includes 500 immigrant workers. ([www.jobbank.gc.ca](http://www.jobbank.gc.ca))



# Compulsory Status

- Crane Operator is considered a Compulsory Occupation under the Apprenticeship and Occupational Certification Act in New Brunswick.
  - only a Journeyperson, or an Apprentice working under the supervision of a Journeyperson can legally perform the tasks of the trade



- Crane Operator is compulsory in most provinces.
  - Saskatchewan, P.E.I., and Northwest Territories list it as a voluntary certification.
  - Nova Scotia has certification and enforcement through Public Safety, not through Apprenticeship branch.
- [Apprenticeship Training Program - Ellis Chart](#)
  - [Crane Operators | novascotia.ca](#)



# Requirements for Certification

- The duration of Apprenticeship varies from province to province, but ranges between approximately 4000 hours to 6000 hours of experience and training.
- Written certification exams are required, and practical ability has to be proven through on the job documentation, and in some cases a practical exam as well.



- Provinces have avenues for people to challenge for certification based on prior experience. (Trade Qualifier)
- Hour requirements for challengers are typically higher than for apprentices.
- In NB, Crane Operator is a 5400 Apprenticeable trade.



- Challengers require 7200 hours of documented experience.
- Challengers must pass both a practical (operating) exam and a written exam.





# Can a new immigrant legally work in the occupation?

- In NB, a new immigrant could legally work in the occupation if they submitted an application to challenge, and were issued an Improver Card.
- An Improver Card allows the holder 90 days to work and gain experience in the occupation before taking a certification exam.
- An Improver must still be supervised on the job by a certified operator.

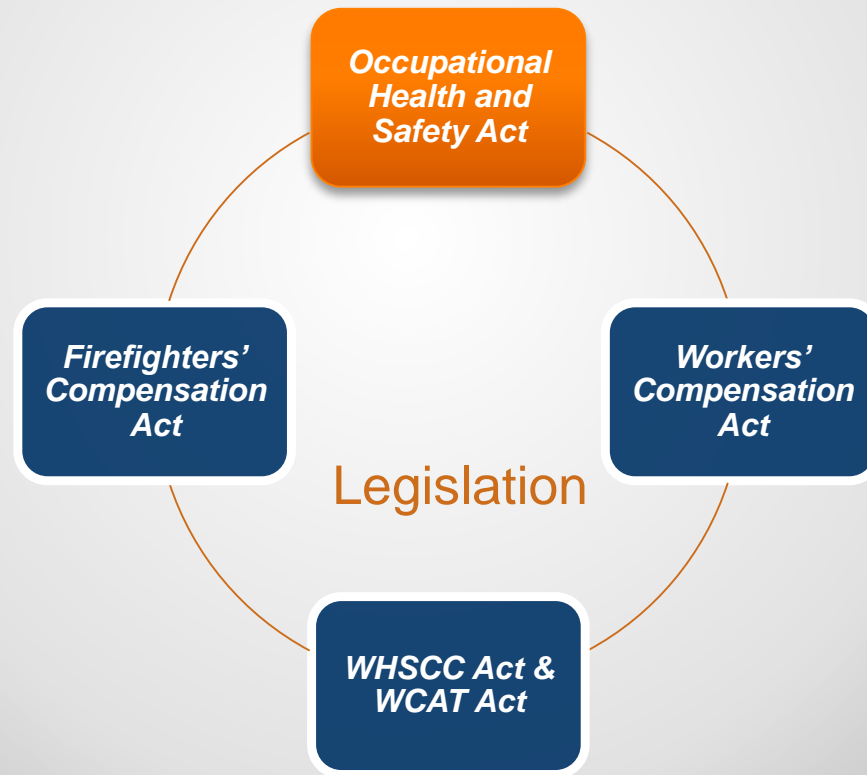


# Questions?



# Who is WorkSafeNB

WorkSafeNB is mandated and empowered by four pieces of legislation.



# The hiring of Immigrant Crane Operators

## - What are the safety concerns?

- The requirements for immigrant workers are the same as all other workers;
- The employers need to ensure employees are competent;
- Inform employees about occupational health and safety (OHS) requirements;
  - If the worker is not aware of OHS, the employer must provide information;
- This can be challenging due to language barriers, literacy issues and differing work practices in other countries.



# The hiring of Immigrant Crane Operators - What are the safety concerns?

- All operators need to be competent in the tasks required
  - Competent = knowledge/training/experience to operate a crane + knowledge of the legislation + knowledge of the hazards of the work
- WorkSafeNB has developed guidelines for determining competency



# Crane Operator Evaluations

- If the crane operator participates in a recognised certification program, the agency delivering the program will conduct the evaluation.
- For cranes outside the scope of the certification program, the employer is responsible to ensure the evaluation is completed.
  - WorkSafeNB Competency Guideline for Mobile and Tower Cranes can be used as an evaluation guide.



# Crane Operator Evaluations

## 1. Knowledge requirements include:

- safe hoisting practices
  - the limitation of raising loads obliquely only under controlled conditions,
  - good rigging practices,
  - load charts of crane in use,
  - the proper procedure for crane set up,
  - ground conditions required for crane set up,
- raising and lowering loads smoothly and precisely,
- operating controls,
- daily inspection points
  - the recognition of a damaged boom, boom components and other hoisting components
- internationally recognized hand signals



# Crane Operator Evaluations

## 2. Training requirements includes:

- Completion of a recognized crane operator's course as offered by:
  - NB Department of Post-secondary Education, Training and Labour (PETL),
  - Operating engineers,
  - Other Provincial or Federal agency or
  - Other recognized training program (possibly from another country or training provided by a competent operator)

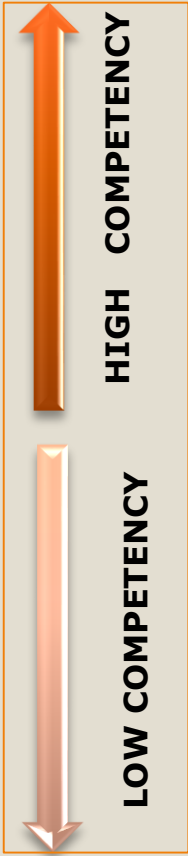


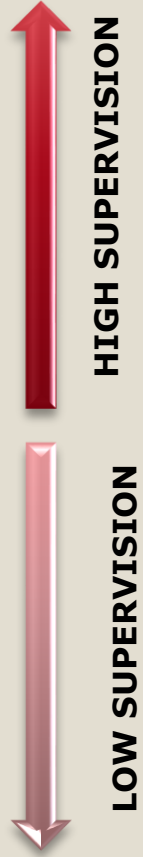
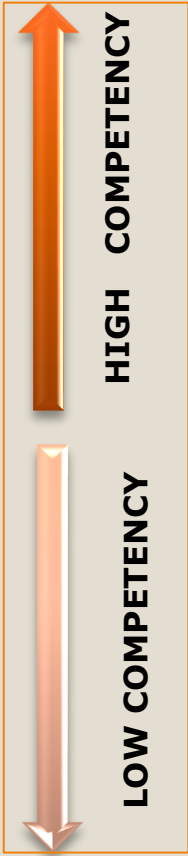


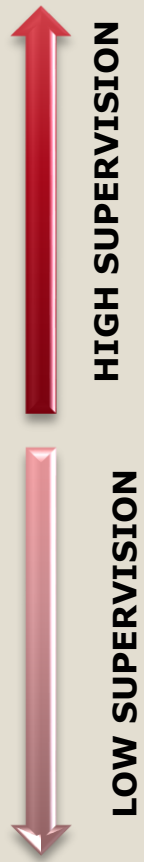
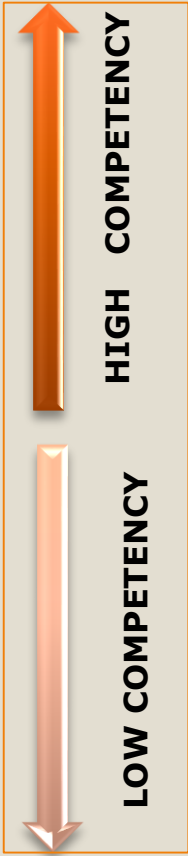
# Crane Operator Evaluations

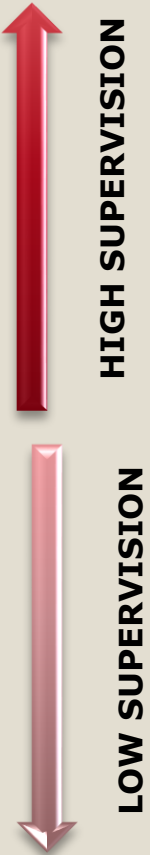
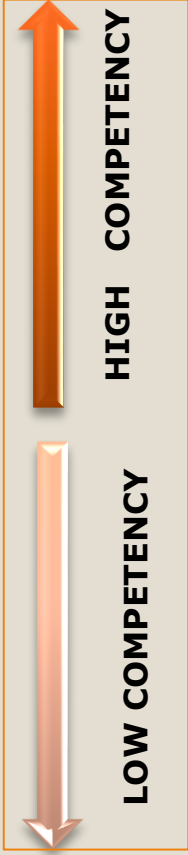
3. Experience can be gained by:
- A minimum of 500 operating hours or a minimum of 3-5 years of crane operations (for a compulsory occupation), or
  - An apprentice or inexperienced operator who may operate under the direct supervision of a competent supervisor.











# Crane Operator Evaluations

## Knowledge of the legislation

- The **competent operator** (or the supervisor) needs to know about:
  - Sections 207(1) to 215 of *Regulation 91-191*, in particular with:
    - **For mobile cranes:** 213
    - **For tower cranes:** 210
  - CSA Z150, Safety Code on Mobile Cranes
  - CSA Z248, Code for Tower Cranes



# Crane Operator Evaluations

Knowledge of the hazards of the work

- possible consequences of improper crane set up;
- carrying loads over workers;
- dangers of working in proximity to overhead lines and the limits of approach;
- safe procedures to follow if crane or load contacts energized utility line;
- dangers of lifting improperly rigged loads;
- danger of lifting outside limits of load charts.



# Importance of contractor pre-qualifications

- There are no requirements in the NB *OHS Act* for pre-qualifications of contractors.
- (Large) employers and government procurement programs may set pre-qualification criteria.
- With respect to safety, this could include Certificate of Recognition (COR) from Construction Safety Associations/Health and Safety Programs





# Legal responsibilities of sub-trades on construction sites?

- “sub-contractor” means a person who by contract undertakes part of the work at a project site
- “project site” means any building, structure, premises, water or land where construction is carried on



# Legal responsibilities of sub-trades on construction sites?

- “construction” includes building, erection, alteration, repair, dismantling, demolition, structural maintenance, painting, moving, land clearing, earth moving, grading, excavating, street and highway building, concreting, equipment installation and alteration and the structural installation of construction components and materials in any form or for any purpose, and any work in connection therewith.



# Legal responsibilities of sub-trades on construction sites?

- “employer” means
  - (a) a person who employs one or more employees,
  - (b) a manager, superintendent, supervisor, overseer or any person having authority over an employee, or
  - (c) an agent of any person referred to in paragraph (a) or (b)



# What happens when you have an accident involving heavy equipment?

43(1) The employer shall notify the Commission immediately if an employee suffers an injury resulting in

- (a) a loss of consciousness,
- (b) an amputation,
- (c) a fracture other than a fracture to fingers or toes,
- (d) a burn that requires medical attention,
- (e) a loss of vision in one or both eyes,
- (f) a deep laceration,
- (g) admission to a hospital facility as an in-patient, or
- (h) death.



# What happens when you have an accident involving heavy equipment?

43(4) The employer shall notify the Commission immediately if

(a) an accidental explosion or an accidental exposure to a biological, chemical or physical agent occurs at a place of employment, whether or not a person is injured, or

(b) a catastrophic event or a catastrophic equipment failure occurs at a place of employment that results, or could have resulted, in an injury.

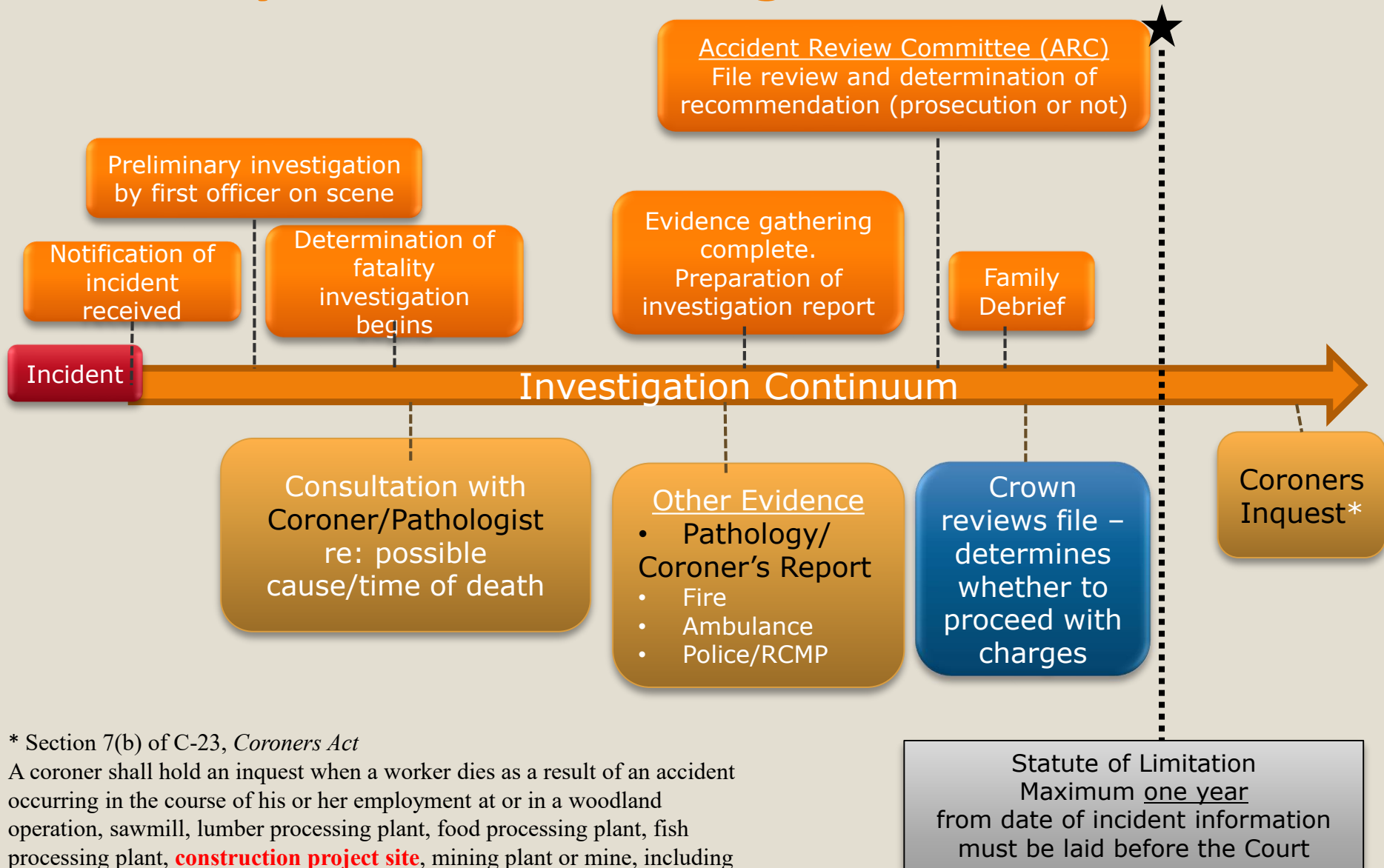


# What happens when you have an accident involving heavy equipment?

- WorkSafeNB could initiate an investigation
- Equipment could be seized for analysis
- If there are violations to legislation that could result in prosecution
  - 47(1) Every person who violates or fails to comply with any provision of this Act or the regulations.... commits an offence and is liable on conviction of:
    - (a) to a fine of not more than \$250,000, or
    - (b) to a term of imprisonment not exceeding six months, or to both.
- If there is a fatality, this will result in a Coroner's Inquest



# Fatality Incident Investigation Continuum



\* Section 7(b) of C-23, *Coroners Act*

A coroner shall hold an inquest when a worker dies as a result of an accident occurring in the course of his or her employment at or in a woodland operation, sawmill, lumber processing plant, food processing plant, fish processing plant, **construction project site**, mining plant or mine, including a pit or quarry.

# Who's responsible?

- 10 Every contractor and sub-contractor shall
- (a) comply with this Act, the regulations and any order made in accordance with this Act or the regulations; and
  - (b) for every project site for which he is responsible take every reasonable precaution to ensure the health and safety of any person having access to such project site.





# Who's responsible?

9(1) Every employer shall

(a) take every reasonable precaution...;

(b) comply with this Act...; and

(c) ensure that his employees comply with the Act.



# Who's responsible?

12 Every employee shall

(a) comply with this Act.....;

(b) conduct himself to ensure his own health and safety and that of other persons.....;

(c) report to the employer the existence of any hazard.....;

(d) wear or use such protective equipment as is required by regulation;

(e) consult and co-operate with the committee....; and

(f) co-operate with... a occupational health and safety officer...



# Questions?



# MCAF-PETL Introduction to Bricklaying Program

Lori Leach, PhD.

Strategic Initiatives Manager

Apprenticeship and Occupational Certification Branch PETL





**Safety – Trade- Refugees**

## Pilot Project



## Research Questions:

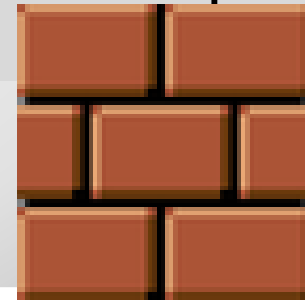
- Can we prepare immigrants and refugees who have past experience with masonry work but limited E/F language capabilities with enough skills to succeed on the job and within the Apprenticeship Program?
- Instead of CLB 5 can we train people successfully who begin at a 3 when language training is incorporated?
- Can language ability increase on-the-job?

## What did we know?

- MCAF clients were eager to work
- Industry requires bricklayers
- Skilled Trades is "hands-on work"
- AOC has pre-apprenticeship program
- Language benchmarks in Post-secondary institutes requires language assessment score of "5"

## Pre-Apprenticeship

- AOC "pre apprentice" ID card
- Progress record book
- Work under certified journeyperson
- Can credit hours towards apprenticeship



**How did it start?**



## Who Were Involved?



### Funders:

Population Growth  
Division PETL

WES

Employment Division

TSD

### Training Providers:

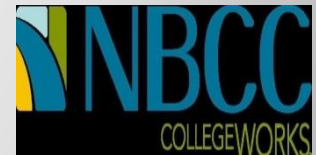
WHMIS (AOC)

NBCC

WES

Program

Applicant: MCAF





# Language Assessments

CLB Assessment	Listening	Speaking	Reading
AA	Benchmark 6	Benchmark 3	Benchmark 3
VK	Benchmark 8	Benchmark 6	Benchmark 6
AH	Benchmark 2	Benchmark 2	Benchmark 2
LL	Benchmark 3	Benchmark 2	Benchmark 2
JS	Benchmark 4	Benchmark 3	Benchmark 2
AS	Benchmark 4	Benchmark 1	Benchmark 1
MA	Benchmark 2	Benchmark 2	Benchmark 2



## Phase 1: 13 weeks

- PLAR (prior to 13 wks)
- NBCSA Safety – 2 weeks
- + WES
- NBCC Intro to Bricklaying
- + Language of the trade
- Demonstration of safety
- + WES
- + Field trips



# Program Design



- First field trip: Marks Work Warehouse (NBCC)
- Safety Training (AOC): Safety Orientation, WHMIS and Fall Protection.
- 3 days' worth per course instead of ½ -1 day per course (over 2 weeks)
- Hands-on and Visual Aids: Scaffolding/ Fall arrest gear/ You tube videos / Translation
- Did not do confined space for three reasons
  - industry is saying they do not need it
  - it is not a requirement for the job site unless they are entering a confined space and they should not be doing this at this stage
  - the terminology is far too advanced for this group. If we certified them without assurance of a good knowledge of confined space we would be concerned about liability issues.

**Safety is #1**

- 100% subsidized wages @ \$11/hr for 40 hrs/week
- Mandatory employer sensitivity training
- Weekly visits to job site meeting participants & employers
- Language assessment at completion

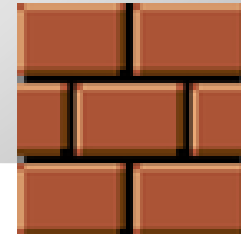
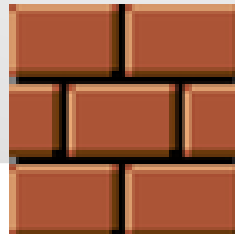
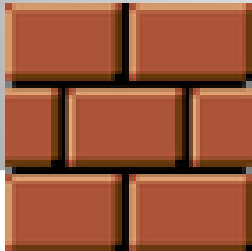
## Phase 2: 4 months on the job



## Phase 3: Customized Plan

- ❑ Customized prep for block one (Oct – April)
- Or
- ❑ Maintain employment
- Or
- ❑ Challenge Certification
- Or
- ❑ Leave Program

- Participants: 3 Syria, 2 Bhutan, 1 Russia, 1 Columbia
- 1 FHS grad, speaks 4 languages (translator for group)
- 2 brothers – left UNB cleaning job to gain career (grew up in refugee camp in Nepal)
- 1 expertize in masonry skills (TQ?)



# Questions?



# New Boots: Progressing Women in Skilled Trades





# About NB-MAP

- Non for profit organization, founded in 2013
- Adult-learning specialists
- Full suite training curriculums and customized HR services for employers
- Creating learning cultures for employers
- Diversity champion – New Boots





# The Demographic Shift

Are you ready?



# Baby Boomers are retiring



- Decades of experience
- Possess the majority of skill supply
- Already retiring
- **In less than 15 years**, the youngest Boomer will be over 65

51%



# The Reality of our Workforce



- Women represent about a bit more than **10%** of the trades workforce for all industries in Canada (2015).
- Women represent only **6.4%** of the workers in transportation, construction and trades in Canada (2009).





## The Reality of our NB Workforce

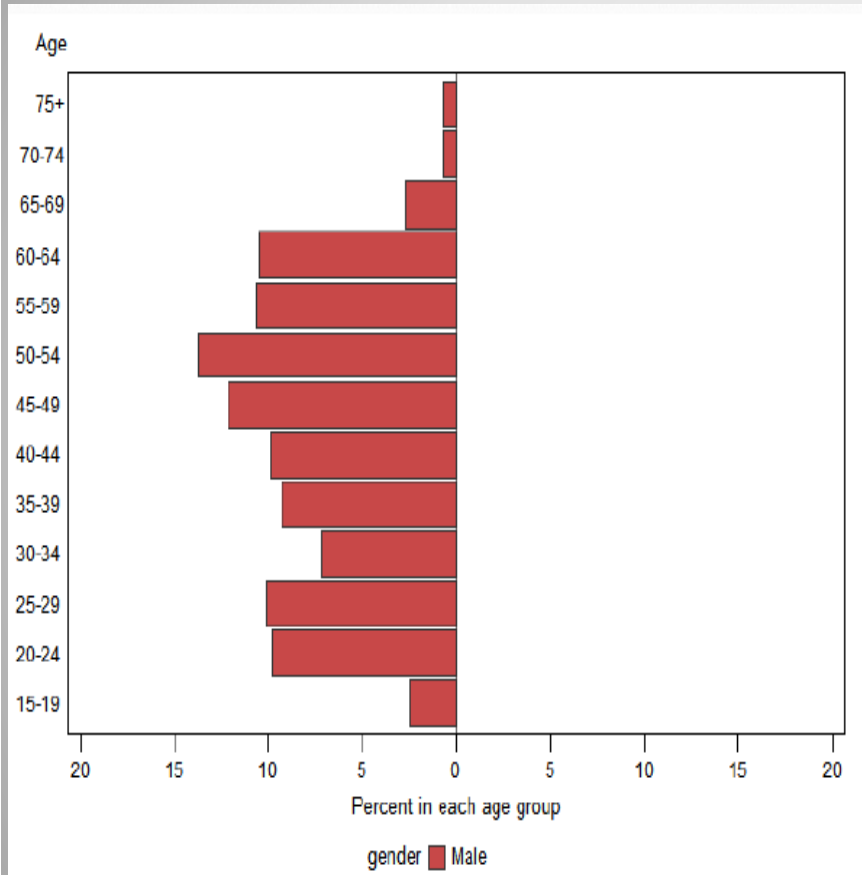
In New Brunswick:

- Less than **4%** of the trades workforce are women (all trades)
- Only **1.5%** of the building trades workforce are female apprentices
- We are ranked **12th** just before Nunavut!

## Population of men vs. women in the NB Construction Trades

Women's numbers in construction are so small they can't be represented in population graphics.

Source: Dr. Michael Haan, UNB – Demographic Specialist



# The History of Women in Construction



Women entered the construction trades in large numbers during WWI & WWII

# The assets that women bring to the industry

According to researchers and employer comments, women are important because they have...

- higher communication skills
- more collaborative work ethic
- better attention to details and instructions
- better dexterity for small jobs
- better dexterity for longer periods of time
- better at finish work

When they are on the worksite or in the shop...

- Productivity goes up
- Tools are in better shape with less wear and tear
- Cleaner work environment



# Barriers for women in the trades

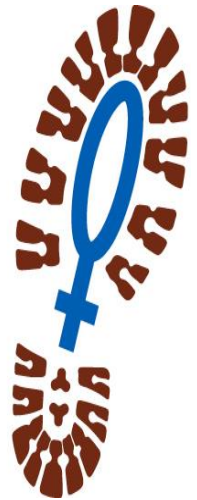
- Lack of career awareness
- Girls are not encouraged to take math or science as much as boys
- Lack of awareness and participation in pre-apprenticeship programs
- Difficulty finding an employer sponsor
- Balancing work and family obligations
- Lack of facilities
- Lack of mentors
- Unwelcoming workplaces



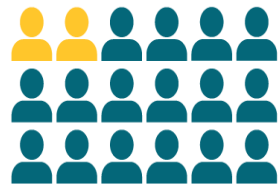
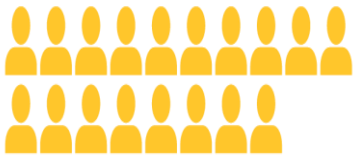
# New Brunswick Solution

## NEW BOOTS

Progressing women in trades



18 females ranging in age from 18-50



2 are French and 16 are English, with some being bilingual

# Objectives for New Boots - Pilot

28 block 1 female apprentice participants in 9 different skilled trades

- Bilingual group matched everywhere in the province
- A diverse group with different life context: young, "wise", single, family mom, single parent, university graduates/or studies, direct to trade, etc.



Their hourly rates range from

**\$11.50 - \$21**



11 are single or in a relationship with no children



3 are single mothers with one child



4 are in relationships and have two or more children

# Objectives for New Boots

- A three year research initiative
  - Surveys, on site visit, networking activities, group discussions, etc.
- Increase the number of female Block 1 apprentices completing Block 3 or 4 training among construction trades in New Brunswick
- To increase the number of women registered in non-traditional trade apprenticeships
- To hopefully change the culture in trades so that more women enroll in trades program
- To create a stable program to help all women in skilled trades for NB







# Objectives for New Boots

- Offer support, problem solving and resources to participants
- Better understand the reality for these women to be able to offer recommendations to the industry and AOC
- Create a network for women in skilled trades in NB

# New Boots Observations

- The number of females registered in skilled trades pre-employment programs is on the rise
- The employer or/and management can make the difference for the female apprentice
- Wage subsidies is an effective way to attract employers who have never hired a woman in their workforce before
- The New Boots initiative is making a difference to program participants – support network & contact person to support them

# New Boots Observations

- Getting hired is still the #1 barrier for women in skilled trades
- There seems to be a discrepancies when it comes to the average length of an apprenticeship period
- All participants have experienced one form of harassment, discrimination, negative comment in their workplace at one point

# Female vs. Male Construction Apprentice Completion Rate

## Comparison of Male and Female Cancellations in Apprenticeship

Year	Cancellations		
	Female	Male	Total
2013	28 (23%)	457 (12%)	485
2012	16 (13%)	360 (9%)	376
2011	24 (20%)	411 (10%)	435
2010	15 (13%)	462 (12%)	477
2009	14 (12%)	475 (12%)	489
2008	20 (17%)	420 (11%)	440
2007	15 (13%)	426 (11%)	441
2006	20 (17%)	453 (12%)	473
2005	14 (12%)	482 (12%)	496
2004	17 (14%)	480 (12%)	497

Note: Includes Transfer of Trade

Source: AOC ACIS database

**Males  
10.3%  
over 10  
yrs**

**Females  
17%  
over  
same  
period**





# New Boots Results

As of March 1st, 2017:

- 7 participants completed their Block 2 and 2 more are scheduled to attend their second block.
- 5 participants will have completed Block 3 and 1 of these participants can challenge her Red Seal.
- **11 participants in total have advanced in their apprenticeship in 18 months.**

# New Boots Results

As of March 1st, 2017:

- By the end of 2017, we are forecasting that 9 New Boots participants will be in Block 3.
- By the end of 2018, 4 New Boots participants will have completed Block 4 and will be able to challenge their Red Seal.
- The project to date has an **82% retention rate** as only 3 participants left their employers and have put their apprenticeship on hold.

# Summary

- There is a significant demographic shift occurring in the Canadian workforce
- Non-traditional labour pools are a viable option for employers due to declining population and urbanization
- Women represent a significant opportunity for employers
- Women face systemic construction industry barriers





It's 2017...

- We have great employers out there that support diversity
- The numbers for women in trades is on the rise
- There is much more work to be done!

# NEXT STEPS & QUESTIONS?

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