WPC Presentation on the Plumbing Trade in Canada

Introduction
- “Plumber”; “Plumbing”
  - Originally designated as a Red Seal Trade in 1958
  - NOC (National Occupational Classification) 7251
  - Now recognized as a Red Seal trade in every Province throughout Canada
  - Apprenticeship Trade

Related Red Seal (Inter-Provincial) Trades:
- Gasfitter A
- Gasfitter B
- Oil Heat System Technician
- Refrigeration and Air Conditioning Mechanic
- Steamfitter/Pipefitter
- Instrumentation and Controls Technician
- Sprinklerfitter
- Welder

Entry Requirements
-Variations by Province (Ellis Chart)

PreEntry Programs to a Plumbing Apprenticeship
- Secondary School Programs
  - Shop Classes
  - Youth Apprenticeship programs
- Pre-Apprenticeships
  - TDAs (Training Delivery Agents) for Full-Time Trade School vs. Private Career Colleges
- Techniques Programs
  - Community Colleges

Apprenticeship Structure (Ellis Chart)
-Variations by Province
  - Total Hours
  - Total Terms
  - Total Levels of Trade School
  - Exemptions
Regulatory Structure
- Government
  - Acts and Regulations
  - Trade Boards and PACs (Provincial Advisory Committees)
- AHJs (Authorities Having Jurisdiction)
  - Educational Requirements
  - Training Centre Accreditation Requirements
  - Licensing
  - Occupational Health and Safety
  - Qualifications Enforcement
- Provincial vs. National Standards and Scope of Practice
- Compulsory vs. Voluntary Status Variations by Province
  - The impacts/differences inherent within the two environments

Trade Structure and Expectations
- National vs. Provincial Variations
  - Scope of Knowledge
  - Competencies/Skills
  - Curriculum
  - Training Materials
  - Training Standards/Reporting Requirements
    (On the Job Training Standards/Record Book)
  - Scope of Practice
- Red Seal Harmonization - ESDC (Employment and Social Development Canada)
  - Purpose/Mandate
    - Harmonization ("to make consistent")
    - Parallel Training in every Province
    - Mobility of Qualified Plumbers and Apprentices
  - Strategies/Implementation and Adoption
  - Products
    - Ellis Document (Detailed comparison tool that provides an interprovincial overview of Canadian Apprenticeship systems.)
    - NOA (National Occupational Analysis) *Previous Version/Structure to be updated
    - RSOS (Red Seal Occupational Standard) *New Version to meet revised requirements
  - Red Seal Interprovincial Exam
- Contractor Requirements
  - Master Licensing
  - Supervision (Competent Person)
  - Health and Safety
  - Insurance
    - Liability
    - Workman’s Compensation
- Sponsorship of Apprentices
- Ratios (Journeyperson to Apprentice)
Codes and Standards
-Vary by System
-National Documents
-Adoption Processes
  -Standard (Best Practice)/Code (Requirement)
-Codes and Standards (note: not a conclusive list)
  -National Codes and Standards:
    -CSA (Canadian Standards Association)
    -NRC (National Research Council Canada)
      -NPC (National Plumbing Code)
      -NBC (National Building Code)
  -Provincial Codes
    -Varies by Province (Some provinces adopt a National Code)
  -International Codes
    -ASME (American Society of Mechanical Engineers)
    -BPVC (Boiler And Pressure Vessel Code)
    -IAPMO (The International Association of Plumbing and Mechanical Officials)
    -ASTM (American Society of Testing Materials) now known as “ASTM Worldwide”
Other National Industry Organizations that Impact on the Work of Plumbers in Canada

- Unions
  - United Association (Over 330,000 members in North America with 57,000 members across Canada)

Typical Apprenticeship Pathway

- Secondary School
- Pre-Entry Program (Optional)
- Sponsorship by Employer
  - Signed Contract by Government, Sponsor (Employer), Apprentice (Option of a 4th party where permitted- Apprentice Representative Union)
- Combination of in-the-field and in-class training
  - Attend all levels of Trade School (in-class training)
  - Complete all hours and levels of training as prescribed Apprenticeship contract
- Complete and Submit all Documentation as per terms of Apprenticeship Contract to AHJ
- Book Exam Date
- Complete Examination(s) as required by AHJ
- Confirm new status as Journeyperson Plumber

Post-Apprenticeship

- Additional Certifications/Accreditations
  - Specialty Training to Knowledge-based
  - Requirements of Local AHJ
  - Code Update Courses

Technology/Trends

- In the field (tools)
  - GPS (Global Positioning Systems)
  - CAD (Computer Aided Drafting)
  - Digital Layout
  - Specialty Tools
- In the field (knowledge)
  - Sustainable Construction Strategies
  - High-Efficiency Systems and Equipment
- In the classroom
  - On-line resources/training and Simulators
  - Virtual and Augmented reality
  - Proficiency with Computers, Smart Devices and various related Software and Applications
**Products and Materials Utilized within the Plumbing Trade**
- Thermoplastics are becoming more prevalent in low-rise residential construction and are expanding market share in hi-rise residential construction installations.
- Traditional materials like Cast Iron, Steel and Copper are used regularly in Industrial, commercial, institutional, hi-rise residential.
- The variations in joining methods range from traditional like soldering, brazing and solvent welding to newer technologies such as press-fit type connections.

**Failures and Consumer Protection**
- Contractors are required to carry liability insurance for failures. Manufacturers offer variations of warranties on their materials, however, the installer/contractor representative is ultimately responsible to show “Due Diligence” in all facets of the execution of their work to avoid liability.
- Codes and Standards are adopted to prescribe the installation and operation of systems.
- The AHJ may have specific requirements and consequents for system installation failure caused by craftsmanship.

**Negatives**
- Miscommunication
- Enforcement of Qualifications
- Variations in Scope of Work/Knowledge and Skill
- Multiple AHJs
- Negative Stigma to the Trades
- Government misdirection

**Positives**
- Red Seal Harmonization Initiatives
- Government Recognizing Shortfalls
- Technology related initiatives can create a “connected” tracking system for training and Apprentices
- Technology can track and publicize qualified Plumbers for consumer protection
- Demand Incentive for Highly Qualified and Skilled Plumbers