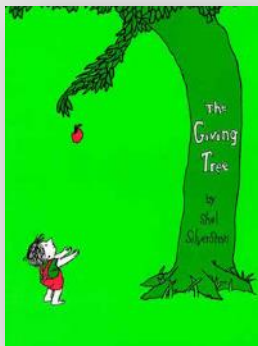


The Giving Tree – Building Tall with Wood

A New Perspective on Building
High-Rises with Mass Timber...



Using Wood Wisely



Examples of Tall Wood Buildings

Tall Wood Buildings Aren't New...



Japan – 7th Century

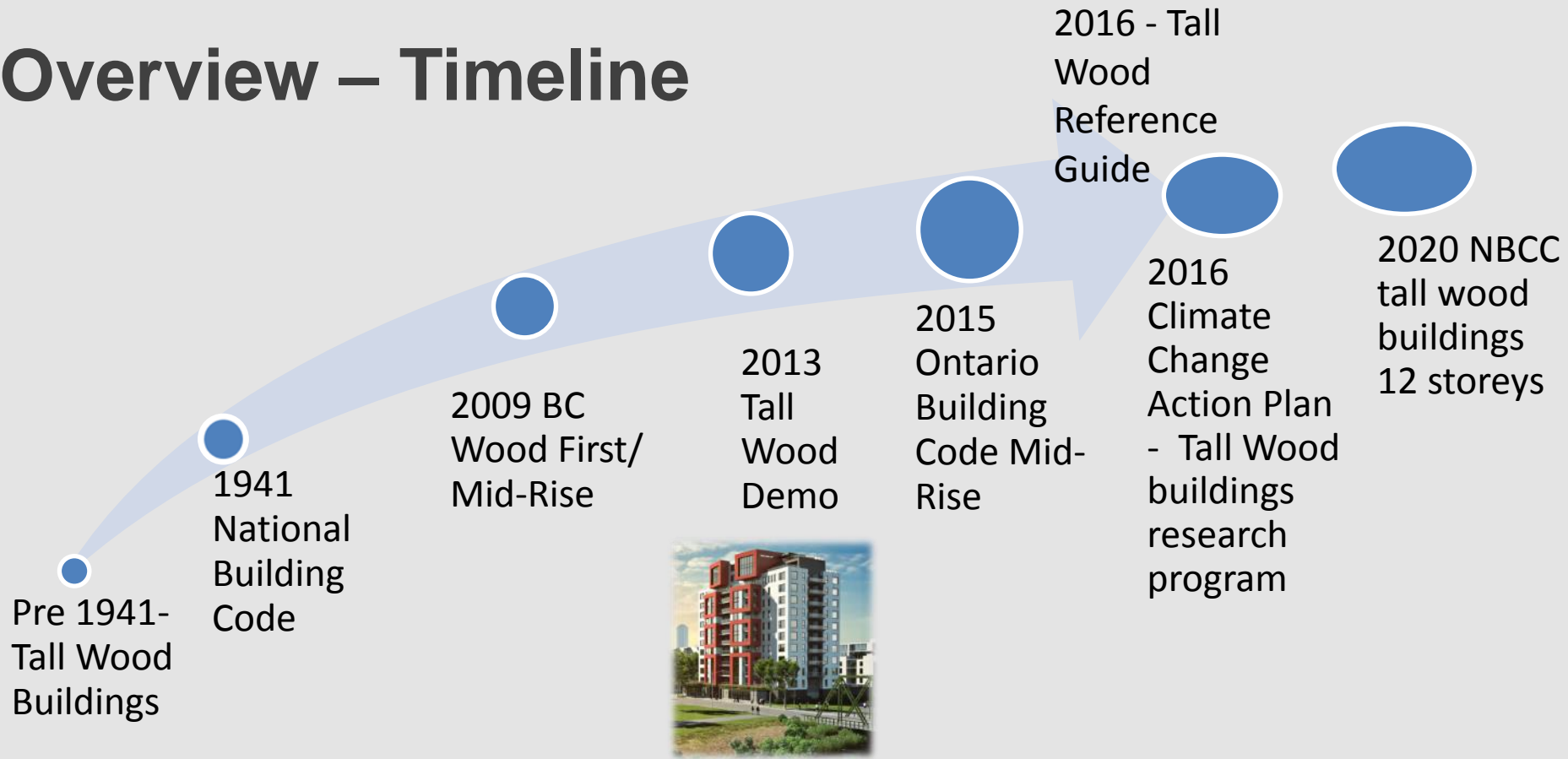


China – 8th Century



Norway – 16th Century

Overview – Timeline



Tall Wood Buildings in Ontario – pre 1941

2012 FPInnovations Survey:

- ❖ 125 mid & high rise timber buildings in Toronto – built prior to the 1941 building code
- ❖ 37 of these buildings are 5-8 storeys
- ❖ The National Building Code placed a limit on building height for wood construction

Why Wood

Why Now

- Strong, lightweight, versatile
- Sustainable, natural, renewable, recyclable
- Carbon efficient
- Cost effective, local sourced
- Reliable – seismic, wind and other loading conditions
- Energy efficient,
- Warm, visually appealing

Why Wood

Why Now



Wood is Good Again

manufacturing
46
bags
of cement



a year's
trash
from **1** household



raising
a cow
for **6**
months



extracting **15**
barrels
of oil




in Canada,
1 TONNE of
Greenhouse Gases
comes from:

7 months
powering
a home



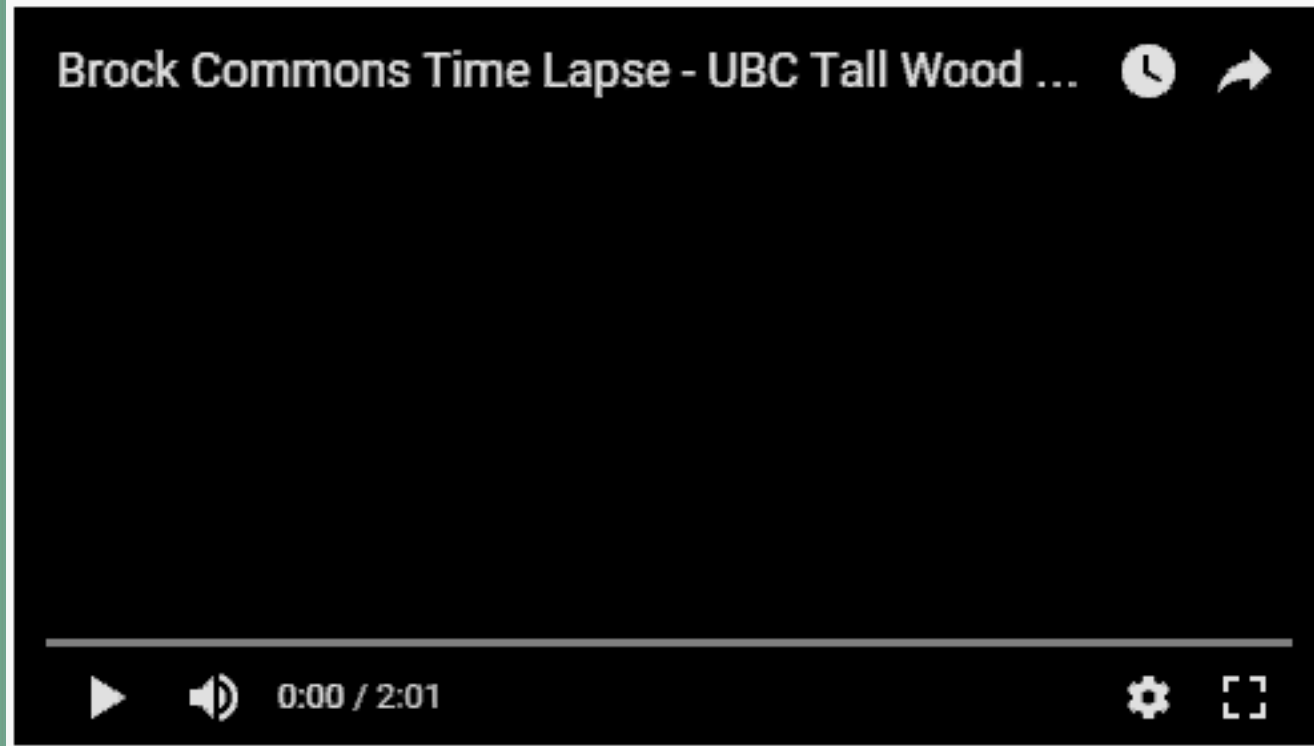
driving
4500
km



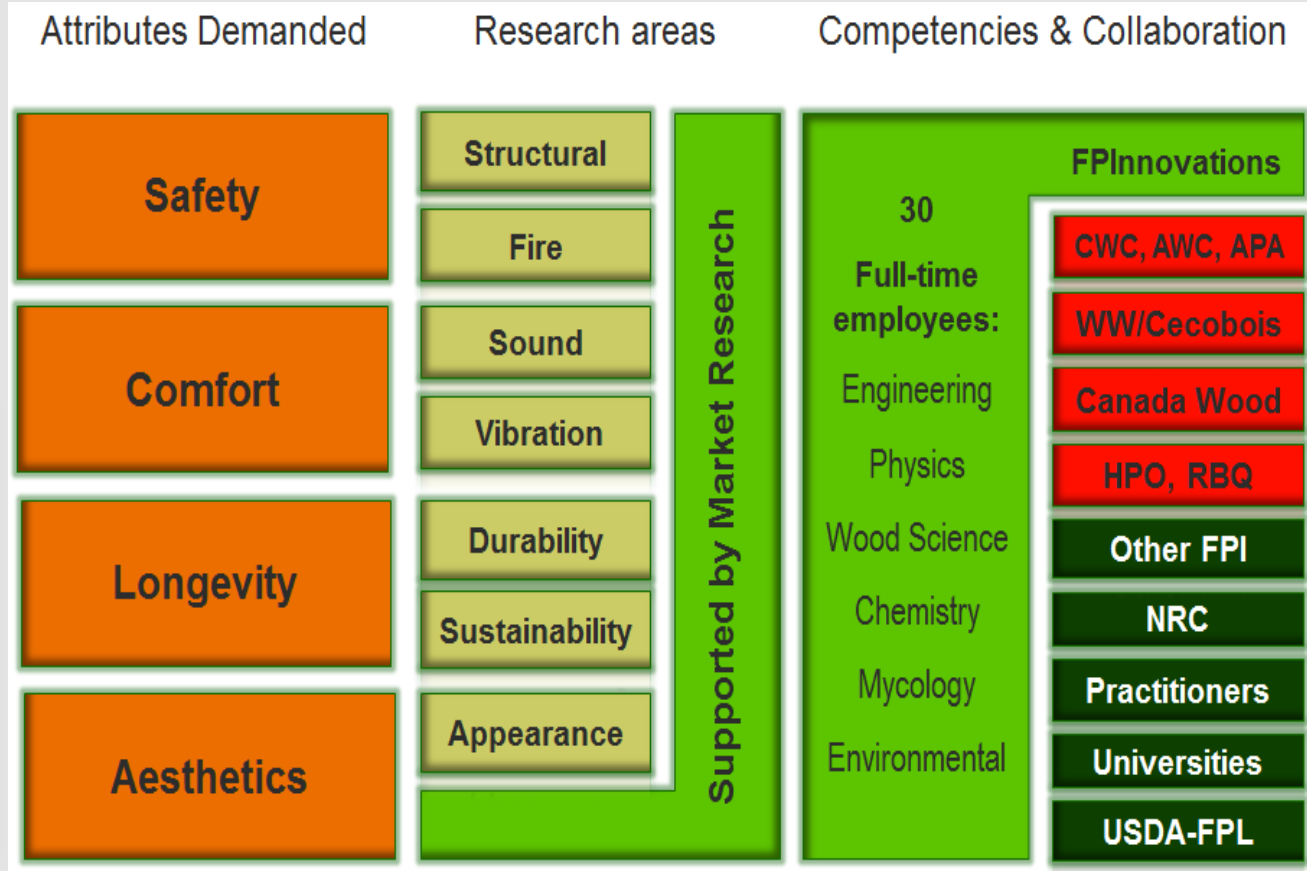
heating
a home
4
months



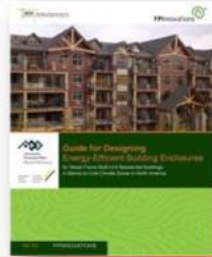
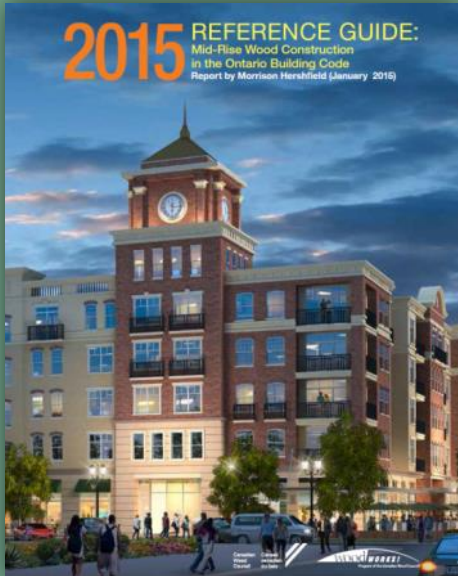
UBC - Brock Commons



Advanced Building Systems ...



Technical Information and Guides



Energy Guides
 “For more energy efficient wood buildings”



WFC Handbook & RBQ Midrise Guide
 “To facilitate Midrise construction”



US & CDN CLT Handbooks
 “To facilitate the implementation of CLT”



Tall Wood Building Guide
 “To cautiously go where no one has gone before”



Tall Wood Reference Guide

Request for
Consulting
Services

- Facilitate the construction of mass timber buildings (> 6 storeys) in Ontario through alternative solutions
- Information on the use of mass timber in high rise design, construction, and on-going operations
- Modeled on Quebec's and FPInnovations' guides
- Anticipated publication date - May 31, 2017

Climate Change Action Plan

Greenhouse Gas Reduction Account



- Ontario is committed to limiting greenhouse gas pollution, rewarding innovative companies, generating opportunities for investment and creating jobs while moving to a low-carbon economy
- MNRF is seeking approval from Treasury Board for GGRA for development of a research program for tall wood
- This initiative mitigates the effects of climate change and demonstrates wood's potential as an advanced and sustainable building material
- MNRF's efforts are designed to compliment MMA's work on the 2020 National Building Code for Canada and future version of the OBC

Large Woodframe Research & Demo Program

- The program will help achieve the following intended objectives:
 - ❖ Demonstrate the commercial viability and build critical mass in innovative wood building solutions in high-rise (> six storey) construction
 - ❖ Provide the financial and technical support (through R&D) to encourage the design and construction of mass timber buildings in Ontario
 - ❖ Provide specialized training on mass wood construction through updated university and college programs targeted at architects, engineers, designers and builders.
- Offset incremental costs associated with building mass wood buildings
- Linked to key government priorities: investing in people; investing in modern infrastructure; and supporting a dynamic and innovative business climate

Next Steps

Related activities - MNRF involvement in Climate Change Action Plan

- Greenhouse Gas Calculator – Partnership with Quebec
- Growing the workforce / low-carbon building sector
- Lead by example – deliver healthier buildings, clean tech
- Forest Carbon Policy Framework
- Training, education, innovation
- Community energy planning

Next Steps

Carbon Summary

Results



Volume of wood products used (m³):

6836 m³ (241406 ft³) of lumber and sheathing



U.S. and Canadians forests grow this much wood in:

19 minutes



Carbon stored in the wood:

5791 metric tons of CO₂



Avoided greenhouse gas emissions:

3114 metric tons of CO₂



Total potential carbon benefit:

8905 metric tons of CO₂

Equivalent to:



1883 cars off the road for a year



Energy to operate **940 homes** for a year