

# Species Combinations and Species Mix

Presentation to the QFIC Wood Drying Workshops April 28, 2021

### **Presentation Layout**

- 1. Introduction to NLGA's mandates
- 2. Summary of development and monitoring of structural lumber design values for Canadian species and species combinations
- 3. S-P-F design values
- 4. Importance of maintaining the species mix
- 5. Questions?



## Introduction - NLGA's Mandate

 Establish, maintain, publish and interpret Grading Rules and Standards for Canadian lumber.

 Establish and monitor structural lumber design values of Canadian species and species combinations.



## **Lumber Grading Rules**



Visual grading rules applicable to listed **Canadian-grown** species and species combinations are published in the NLGA **Standard Grading Rules.** These rules are approved by CLSAB in Canada and by ALSC in the U.S.



#### **Special Product Standards**



**Special Product Standards** for machine grading and fingerioining applicable to listed Canadian-grown species and species combinations are published and maintained by NLGA. These are approved by CLSAB in Canada and by ALSC in the U.S.



## **Canadian Lumber Grading Manual**



NLGA also publishes a lumber grading manual which provides the user with general knowledge of manufacturing, moisture & growth characteristics, and how they are applied to lumber grading.



## **Establish Lumber Design Values**

- NLGA is the organization that establishes structural lumber design values for new Canadian species.
- Sampling and testing for the development of the existing major species design values was carried out during the North American In-grade Program.
- Design values are approved by the CSA O86 Technical Committee on Engineering Design in Wood for use in Canada and by the ALSC Board of Review for use in the U.S.



## **Monitor Lumber Design Values**

- NLGA monitors the structural lumber design values of the three main Canadian species combinations of S-P-F, D Fir-L (N) and Hem-Fir (N) following the ASTM D1990 standard.
- The D1990 standard requires the periodic (5-year) ongoing monitoring of properties of at least one representative size/grade cell per species combination.
- NLGA monitors the bending properties of nominal 2x4 / NO. 2 grade dimension lumber.



# Monitoring Program – Analysis

- The monitoring study results are used to assess if there is statistical evidence to support currently published design values for each species combination.
- Differences of statistical significance require further studies as specified in ASTM D1990 and, if the significant difference is confirmed, reassessment of a full matrix of 2 grades and 3 sizes must be conducted.



# S-P-F Lumber Design Values – Development

- S-P-F design values were developed in the late 1980's and early 1990's following sampling across 15 subregions within the Canadian growing region.
- Samples were drawn from production which reflected the species mix from that sub-region.
- Specimens were selected in 3 sizes and 2 grades; 2x4, 2x8 and 2x10 in NO. 2 and Select Structural.
- Test results were pooled and reference design values were approved and published.



# S-P-F Lumber Design Values – Monitoring

- S-P-F design values are monitored every 5 years.
- Sampling is carried out on NO. 2 grade 2x4 on the same sample design as the NA In-grade Project.
- Monitoring test data is compared to the In-grade test data to assess whether a statistically significant change has occurred.



### S-P-F Lumber Species Mix

- The NLGA Grade Rule, Paragraph 7a, outlines what to expect in units of lumber produced and labelled as a species combination. "A species combination reflects the mix of certain species that grow together and are jointly harvested, manufactured and marketed..."
- The customer's expectation is that species combination shipments of a lumber from a sawmill will reflect the S-P-F species mix that was harvested from the surrounding region.



#### S-P-F Lumber Species Mix - Continued

- As noted previously, the ongoing verification of published S-P-F design values also relies on sampled production which reflects the resource species mix harvested from the surrounding area.
- This ensures that the comparison with the North American In-grade design values is carried out on the same basis.



# Best Practice for Maintaining Species Mix

- There are sound operational reasons for sorting species / moisture content during the harvesting, sawmilling or drying stages of lumber manufacture.
- Best practice dictates that reasonable efforts be made to ensure the final combination mix matches the harvested timber species mix.



## **Questions?**

- NLGA Grade Rules in English and French are available for free download at <u>www.nlga.org</u>
- At this time, Special Product Standards are available in English only; French translation of the latest English versions is ongoing.
- Paper copies of the English and French Grade Rules and Canadian Lumber Grading Manual can also be ordered through the NLGA website.

