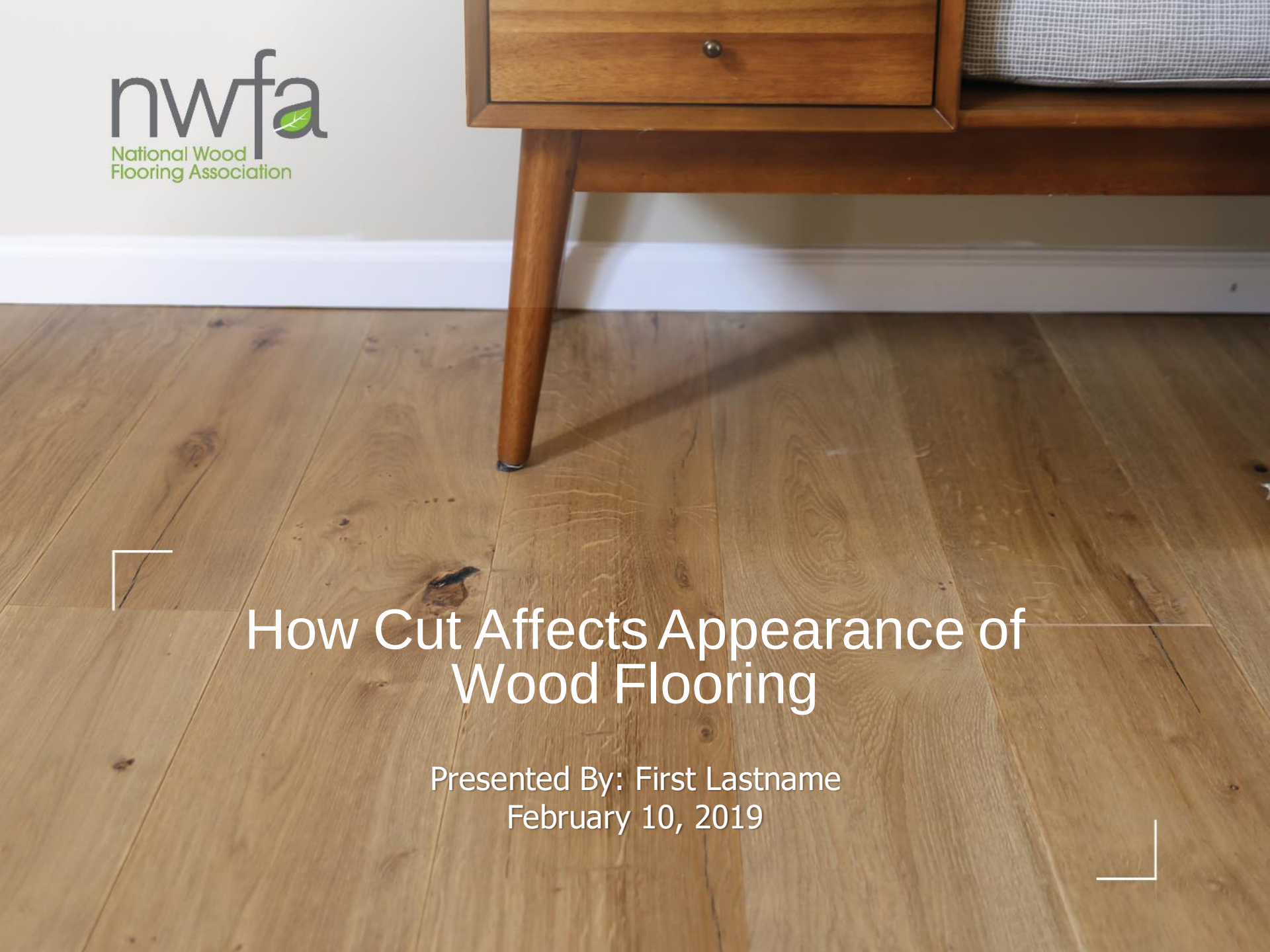

How Cut Affects Appearance of Wood Flooring

Presented By: First Lastname
February 10, 2019

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Course Description

This seminar explores how different saw cuts will affect the appearance of wood flooring. Design professionals will become more familiar with the different sawing methods available in an effort to properly specify the material that will best meet their client expectations.

Learning Objectives

- Identify different saw cuts for wood flooring
- Understand how each cut affects performance of flooring
- Recognize how lumber is dried, how the process differs depending on saw cut
- Describe how moisture affects wood flooring performance

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How Cut Affects Appearance

Wood Flooring Cuts

- Plainsawn
- Quartersawn
- Riftsawn
- Livesawn

Style Changes

1970s

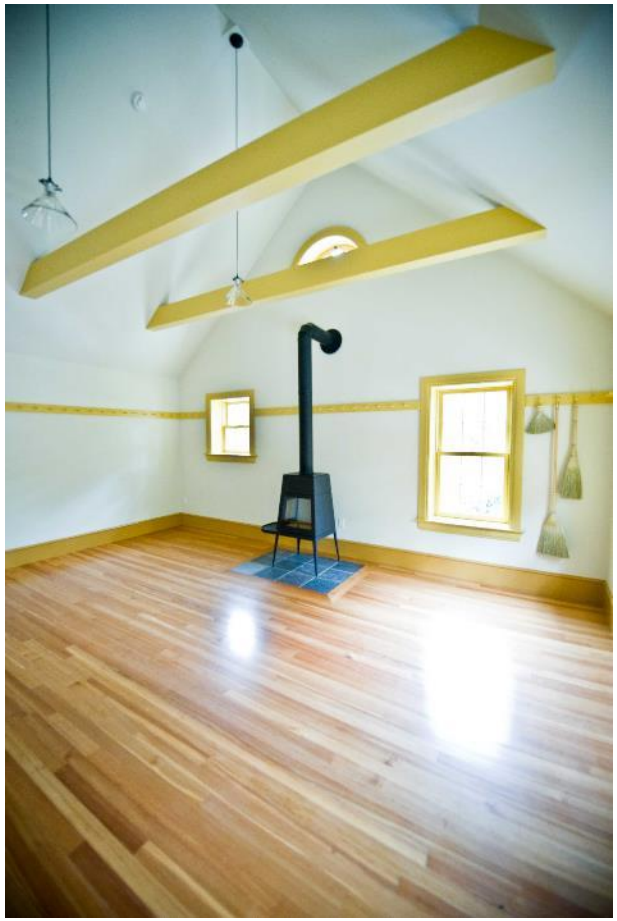
2010s

Style Changes

1970s

2010s

History of Cut



- Pre 1900s = quartersawn
  - Fashion
  - Function
  - Wasteful
- Today = plainsawn
  - More efficient
  - Less waste

History of Cut

- Rift, quartered
  - More efficient today
  - Minimal waste
  - Longer production
  - Adds to expense
- Cut dictates appearance

Plainsawn

- Traditional choice
- 2”-3” boards
- Red oak most common
- Homes built early to mid 1900s

Plainsawn

- Series of parallel cuts
- Remaining cuts perpendicular to first set
- Produces wider boards than rift, quartered
- Board length varies

Plainsawn

- Board face has “cathedral” grain
- Contains flat-grain, some vertical-grain
- Contains more variation within, among boards than other cuts
- End grain growth rings between 0-45º

Quartersawn

- Vibrant flecks
- Tight, wavy grain
- Flecks caused by medullary rays
- Medullary rays are trees' life veins
  - Transport sap from pith to outer parts of tree
  - Perpendicular to growth rings
  - Parallel to board surface
  - Pronounced in white oak

Medullary Rays

- Medullary rays perpendicular to growth rings
- Annual growth rings appear as circles
- Medullary rays appear as vertical white lines from roots to leaves

Medullary Rays

- Several cuts possible
- Quartersawn annual rings grow perpendicular to surface, medullary rays grow parallel to surface
- Medullary rays create fleck effect
- Pronounced in white oak

Quartersawn

- Quarter the log
- Remaining cuts perpendicular to growth rings
- Produces narrow boards
- Vertical grain
- More waste

Quartersawn

- Board face has fleck pattern
- Contains tight, wavy grain
- End grain annual growth rings 45-90º to surface

Riftsawn

- Similar to quartersawn
- Accentuated, vertical grain
- Minimal fleck
- Saw angle adjusted for fewer cuts parallel to medullary rays
- Produces more waste

Riftsawn

- Quarter the log
- Remaining cuts from center face, work out
- Boards 30-60º to growth rings
- Comes from smaller part of wedge, produces more waste
- Hard to produce only wide-width rift

Riftsawn

- Board face has vertical grain
- Contains minimal fleck
- End grain annual growth rings 30-60º to surface

Livesawn

- Combination of plainsawn, quartersawn, riftsawn

Livesawn

- First cut straight through log's center
- Remaining cuts parallel to first
- Yields extremely wide boards
- Produces very little waste

Livesawn

- Board face growth rings work from parallel in center to perpendicular at edges
- End grain annual growth rings 0-90º to surface

Livesawn

- Allows more fleck effect
- Wider planks show more knots holes, natural characteristics
- Saw blade marks show
- Rustic look increasingly popular

Livesawn

- Wider boards
- Random widths
- More fleck
- More knot holes, character marks
- Saw blade marks
- Natural beauty shows through

Performance

- Wood is hygroscopic
- Absorbs, loses moisture depending on environment
- Swells = moisture gain
- Shrinks = moisture loss
- Direction of movement based on growth rings

Performance

Plainsawn

- Expands and contracts through width
- Less dimensionally stable

Quartersawn

- Expands and contracts through thickness
- More dimensionally stable

Riftsawn

- Expands and contracts through thickness
- More dimensionally stable

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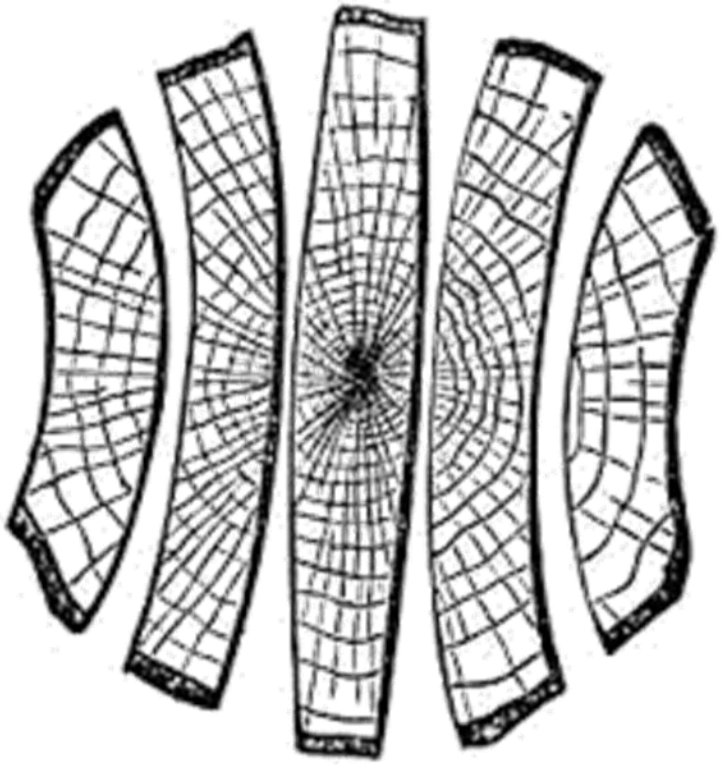
Drying Lumber

Moisture

- Moisture moves out of lumber through medullary rays
- Plainsawn medullary rays perpendicular to surface
- Moisture moves out through thickness
- 4/4” lumber, moisture moves ½”
- 4/4x6” lumber, moisture moves 3”
- Takes longer to dry

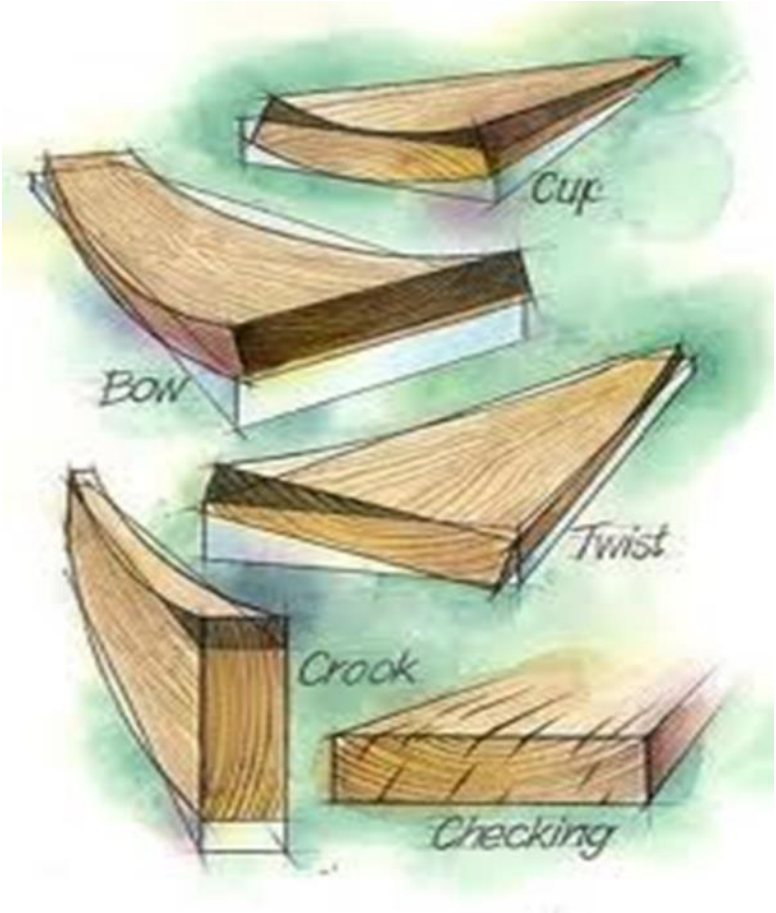
Moisture

- Not all sawmills set up to run both rift, quartered lumber
- If plainsawn, rift, quartered dried together, boards will not dry equally, correctly
- Results in different moisture contents
- Impacts performance, can cause wood to become distorted



Moisture

- Board core dries at different rate than outside
- Drying plainsawn, rift, quartered together results in different drying rates
- Boards could warp, cup, twist, bow
- Must constantly monitor, test drying process



Understanding Flooring Saw Cuts

- Four saw cuts
- Drying
- Moisture
- Appearance
- Performance

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Summary

Summary

- Saw cuts for wood flooring are plainsawn, quartersawn, riftsawn, livesawn
- Prior to the 1900s, quartersawn wood most popular
- Today, plainsawn wood is most popular because it produces less waste
- Livesawn wood is a combination of plainsawn, quartersawn, riftsawn wood
- Wood expands, contracts based on moisture in environment
- Saw cut affects how wood expands, contracts
- Drying lumber differs for each saw cut
- Not drying lumber according to its saw cut can cause it to fail as flooring

Thank You

This concludes this course for:

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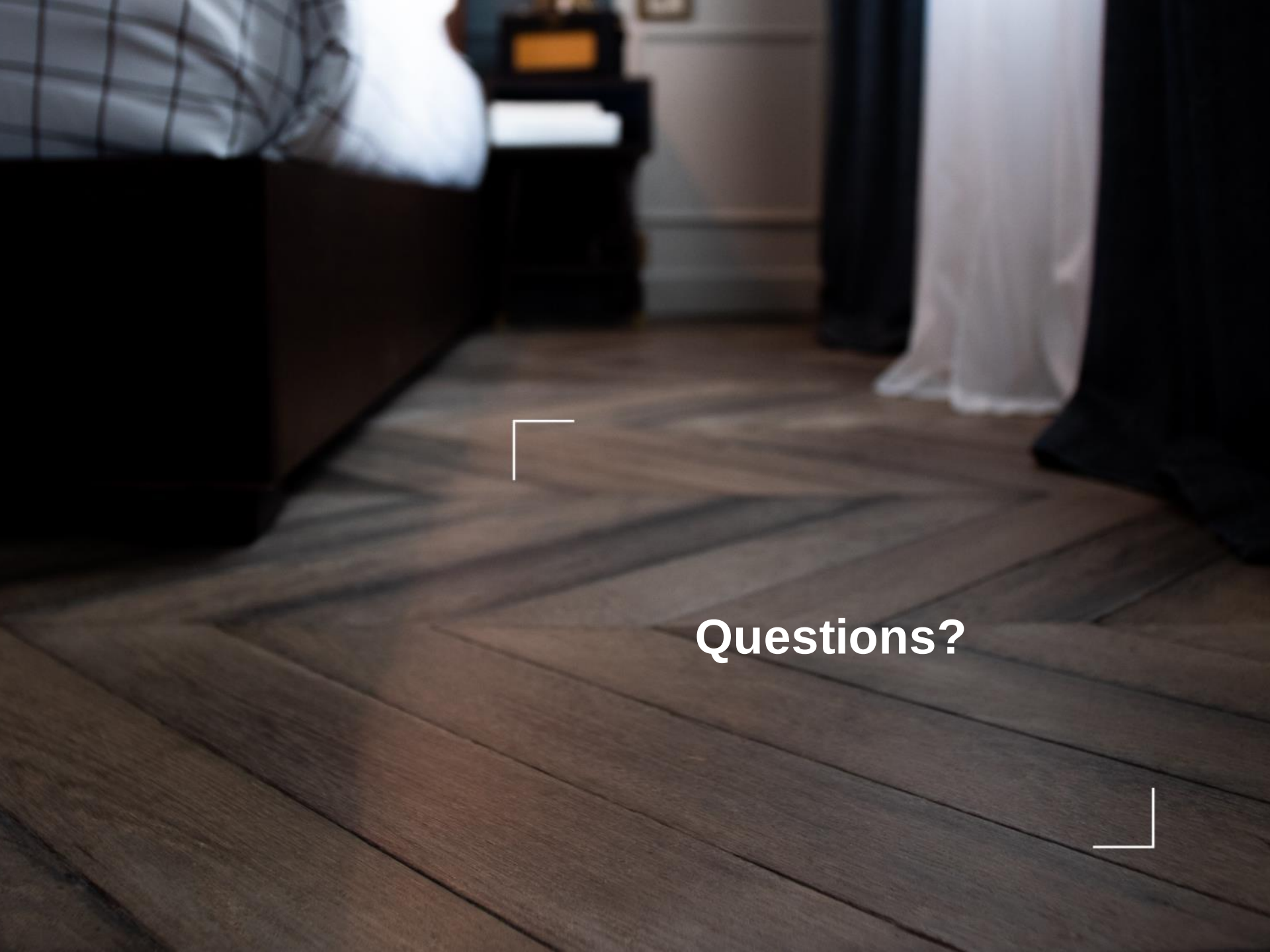
Questions?