Timber Decay
Causes, effects, diagnosis and solutions for commercial properties.

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to the RICS CPD Foundation
London 2018

Development Of Timber Use In Buildings
Hardwood In Use

Predominant timber from the earliest earth-fast buildings, through to the 17th century.

Hardwoods

Oak, Elm, Poplar, Sweet Chestnut, Fruitwood, etc

Oak
• Durable
• Extremely resistant to preservatives (Sapwood - permeable)

Elm
• Non-durable
• Moderately resistant to preservative (Sapwood permeable)
Softwoods In Use

Window Lintel - 30ft

Softwoods

Firs, Pines
Softwoods (Gymnosperm)

Hardwoods (Angiosperms)

Wood Formation

Cross section of the trunk of a tree

Structure

bark

 cambium

 sapwood

 heartwood

pith

Photosynthesis

Carbon dioxide + Water

Sugars (Carbohydrates)

Complex Processes

Cellulose

Hemicellulose

Lignin
Agents Of Decay

Fungi & Insects

Hardwood Specialists
Fungi - Donkioporia
Insect - Deathwatch Beetle

Softwood Specialists
Fungi - Dry Rot
Insect - House Longhorn Beetle

Identifying Species

Knowing characteristics & weaknesses

Informing solutions

Identification Of Wood-Decaying Organisms
White Rots
Cellulose
Hemicellulose
& Lignin

Dry Rot and Wet Rots

Brown Rots
Cellulose
Hemicellulose

Identification Of Wood-Boring Beetles
Diagnosis
Impacts

- Safety
- Down time
- Loss of revenue
- Inconvenience (stakeholders inc public)

‘Solutions’

- Nothing
- Interventions
- Environmental Controls
- Treatments
- ‘Systems’
- Traditional repairs v new technologies
To Treat, or not to treat?

“Although the wood worm is old, it has been treated - just in case!”

Monitor...
Cause(S) & Effects

Causes

Lead causes, and secondary causes...
CAUSES

Interventions

Can we improve moisture management?
Challenges...