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WOOD & MOISTURE

SAVING WOOD FROM MOISTURE: TIPS AND TECHNIQUES

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NATURE OF WOOD

- Wood is a hygroscopic material which absorbs and releases moisture depending upon the Relative Humidity (RH %) of the surrounding.

- Moisture affects wood in the following way:

✓ Reducing strength properties.

✓ Causing dimensional instability.

✓ Damage to the coating layers

✓ Corrosion of fasteners.

✓ Prolonged wetting of wood causes fungal and insect attack on wood.

FUNGAL ATTACK

- Prolonged moisture exposure can lead to fungal attack, rotting, and significant structural damage in timber especially if timber is not treated and coated.

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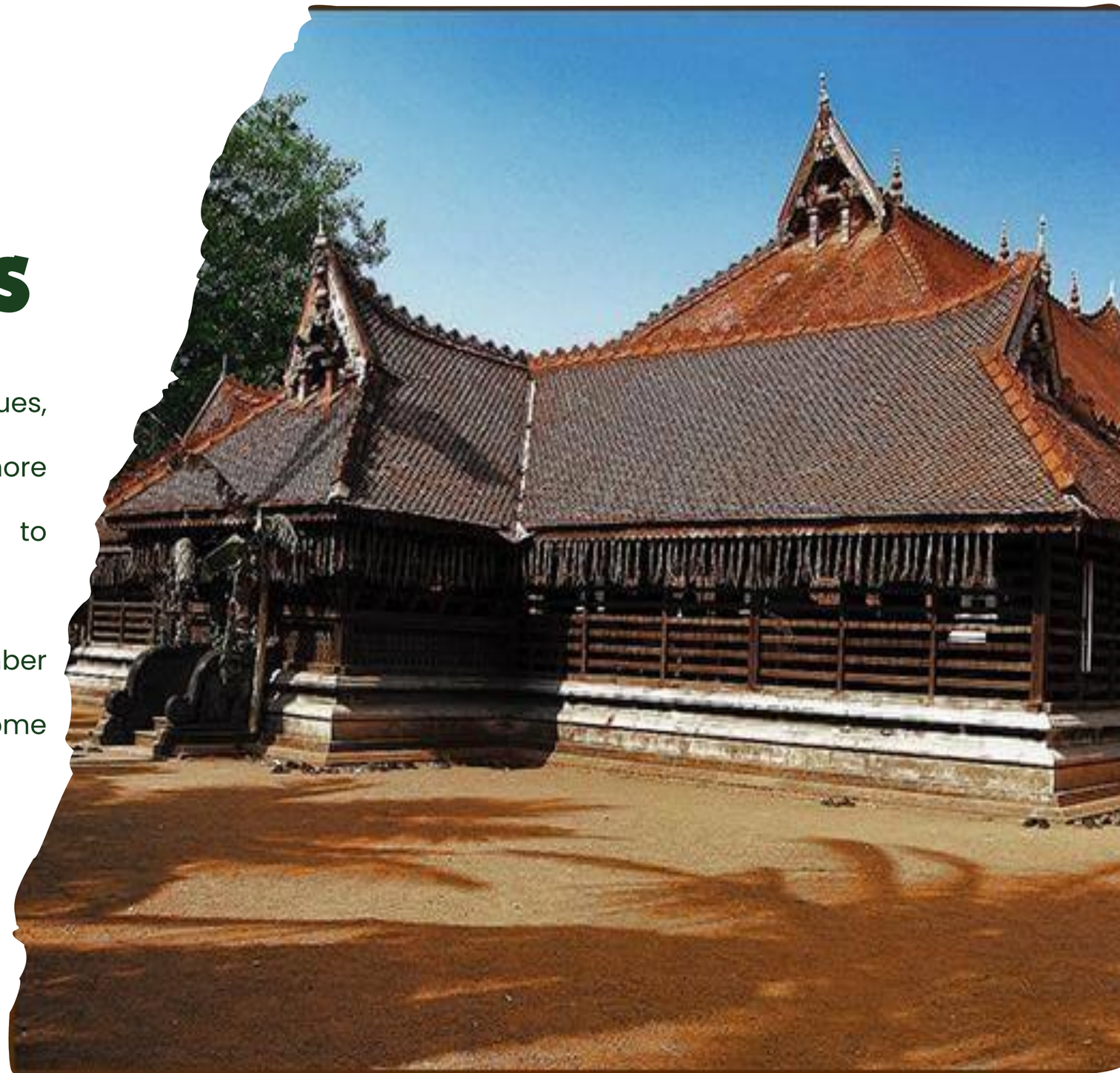
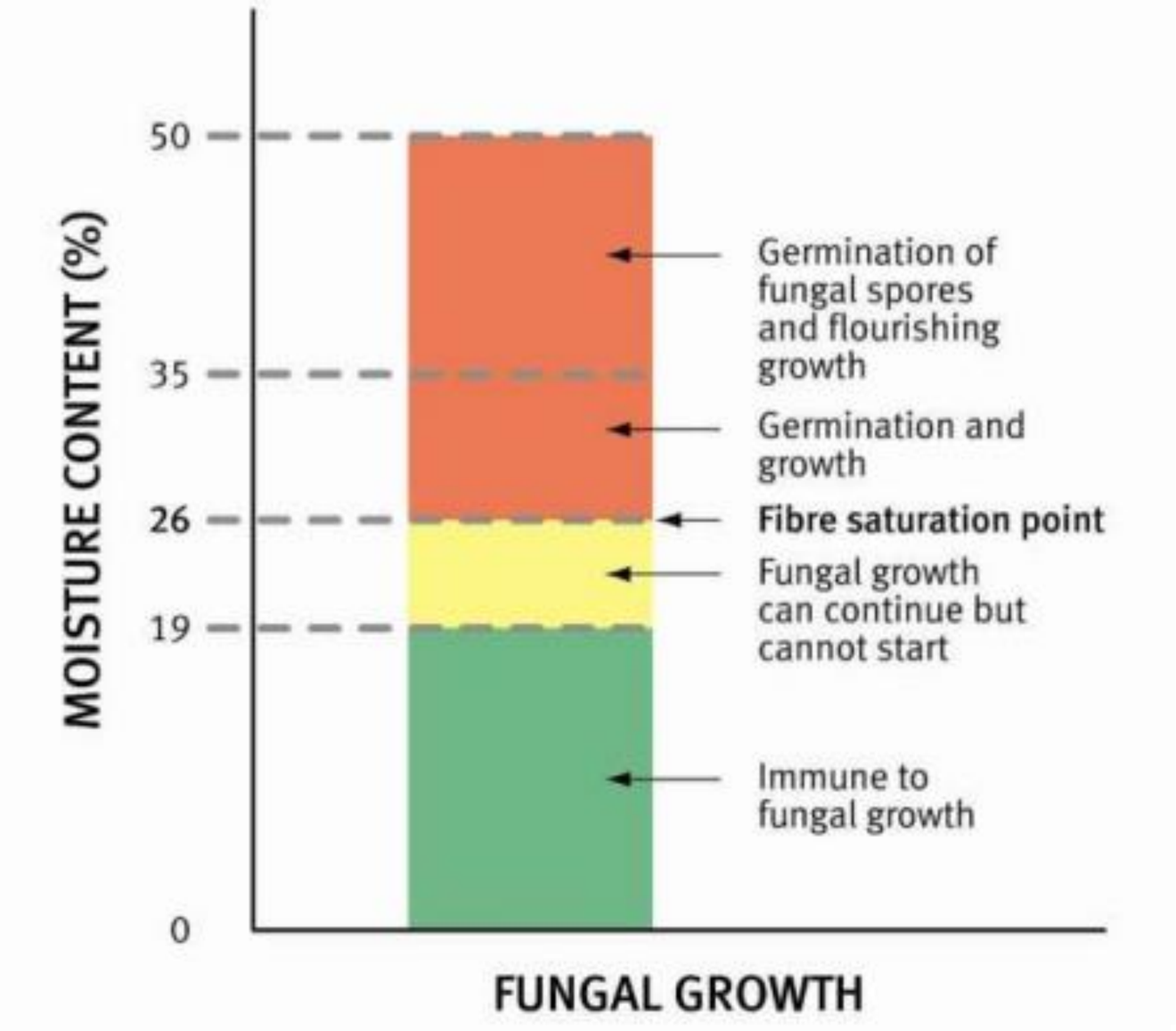
DURABILITY OF TIMBER STRUCTURES

- By implementing effective management techniques, timber structures can be protected and made more durable, ensuring their longevity and resistance to damage.
- Proper techniques have allowed ancient timber structures to stand the test of time, with some remaining intact for centuries.



THRESHOLDS FOR WOOD DECAY



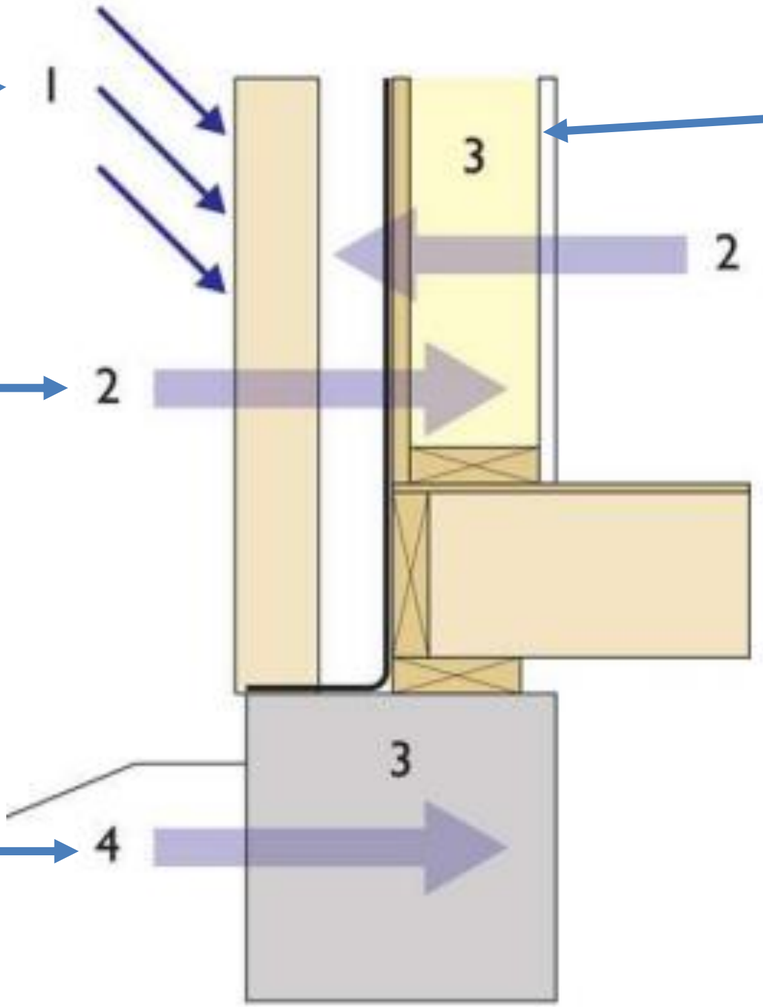
- Wood decay starts when becomes wet for prolonged duration.
- The fungal growth starts above 26 % moisture content (MC).
- Fungal growth is not possible below 19 % MC.

SOURCES OF MOISTURE

1. Precipitation (Rainfall)

2. Vapour / Air movements

4. Ground water



3. Construction moisture

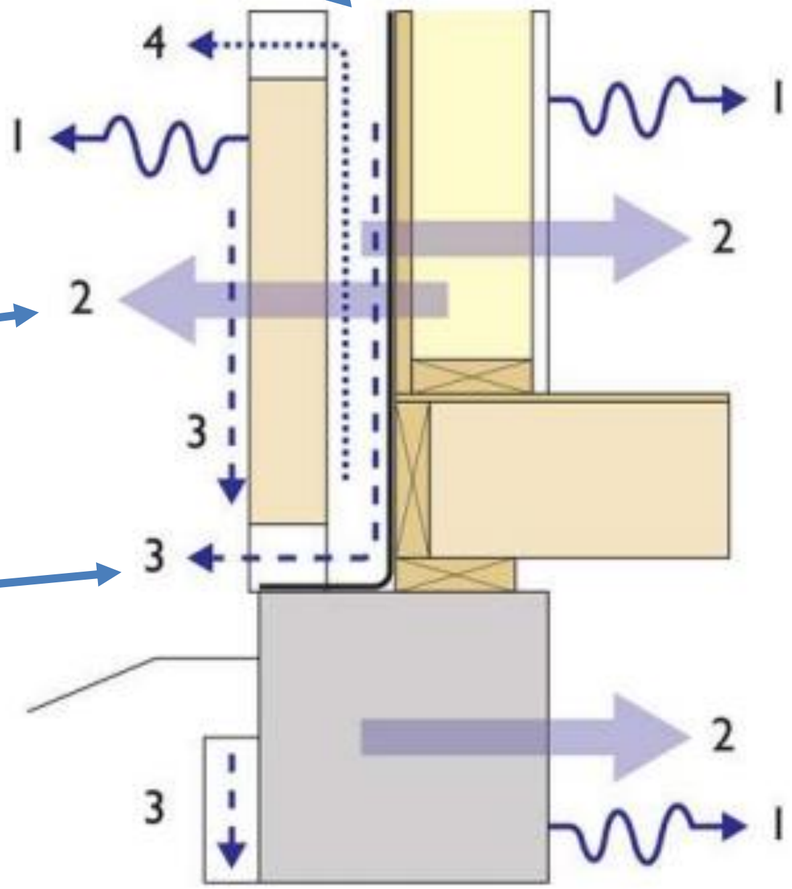
DRYING MECHANISM

4. Ventilation drying

1. Evaporation

2. Vapour / Air movements

3. Drainage



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WOOD COATINGS

A variety of oil- and water-based coatings are applied to wood surfaces to create a waterproof barrier, effectively preventing moisture from penetrating the wood and protecting it from damage.

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WATERPROOF MEMBRANES

Applying a waterproof membrane to wood surfaces exposed to exterior conditions is a highly effective method for protecting them from moisture damage. This membrane type also provides excellent protection against various forms of precipitation, ensuring the wood surface remains safe and durable.

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STAGING ABOVE SOIL

Elevating staging structures above soil level enhances their durability by protecting them from ground moisture, which can cause damage and deterioration.

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USING OVERHANGS

Incorporating overhangs in timber structures provides protection from water runoff, keeping the timber dry and durable. By extending the roof or eaves, overhangs prevent water from seeping into the structure.

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PLANNING

- A well-planned construction schedule enables timely installation of wood elements, reducing storage time and minimizing exposure to moisture.
- Planning MEP (Mechanical, Electrical & Plumbing) openings helps minimize wood exposure to moisture, reducing the risk of water damage.
- No internal gutters means less moisture damage risk.

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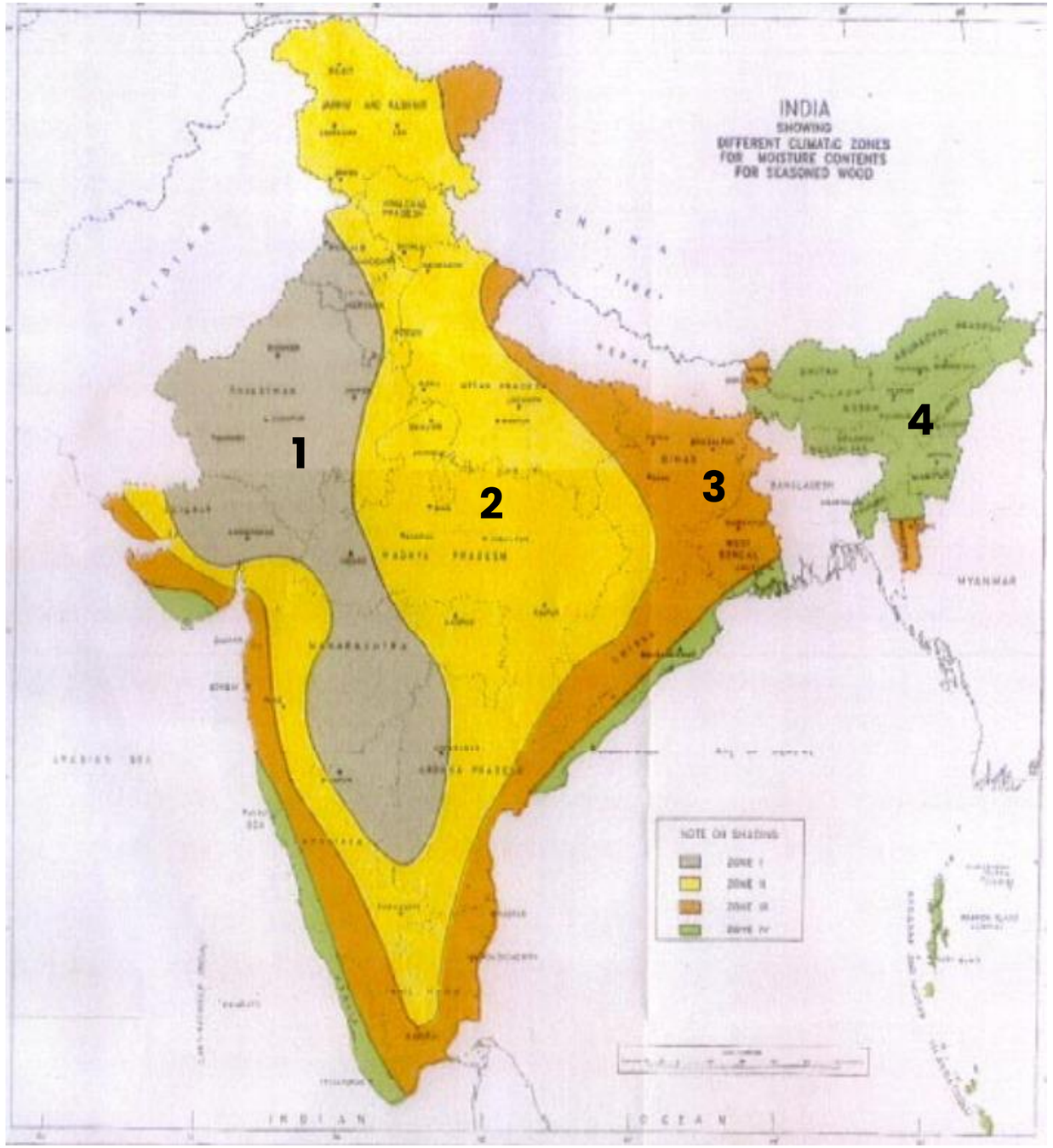
HUMIDITY IN INDIA

- India is divided into four Relative Humidity (RH) zones, which guides timber construction planning.
- The site-specific conditions are carefully considered to ensure durability and optimize performance. Such as selecting suitable timber species and treatments with designing appropriate structural elements.

Indian Zones	RH (%)
1	< 40
2	40 - 50
3	50 - 67
4	> 67



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Corporate Office: 74 Technopark, 74/11, C Cross Road, Opp. Gate No. 2, MIDC, SEEPZ, Andheri Kurla Road, Andheri East, Mumbai 400 093, Maharashtra, India

Email : info@jackhammer.in