The Wonderful World of BAMBOO

Presented by:
Auroville Bamboo Center
Introduction

- All phases from growing to treatment.
- Buildings
- Architecture
- New Use
• How fast does bamboo grow?

• What kind of plant is bamboo?

• How good is bamboo at absorbing CO2?
Planting and growing bamboo
Bamboo plant

- The nodes unfold (telescopic) during 3 weeks (they come out of the earth with final diameter).
- The branches grow from the nodes during 3 weeks.
- The leaves appear during 2/3 months.
Clumping roots (Pachymorph)

Running roots (leptomorph)
- Fastest-growing plants on Earth
- Record: rates of 100 cm (39 in) in 24 hours
- More than 70 genera are divided into about 1,450 species.
- The range of 3–10 cm (1-4 inches) per day during the growing period

**GROWTH**

- Climatic conditions
- Over 30 metres (98 ft)
**Conventional methods**
- Propagation through seeds.
- Propagation through rhizome/off-set planting.

**Non conventional methods**
- Propagation through root cutting.
- Propagation through culm cutting.
- Propagation through branch cutting.
- Propagation through macro-proliferation.
- Propagation through layering and macro-rotting.
- Tissue culture
• Bamboo absorbs carbon dioxide and releases over 30% more oxygen into the atmosphere compared to an equivalent mass of trees.

• China produces about 80% of the world's bamboo - it is estimated that up to 1.5bn people globally rely on bamboo-like plants for their livelihoods

• 250 millions years

• It can also provide energy - a bamboo-chip biomass power plant is working in the Philippines

• Tensile strength of 28,000 psi per square inch (23,000 for steel)
- Density 500 à 800 kg/m³.
- Tension : 1000 à 4000 kg/cm²
- Compression : 250 à 1000 kg/cm²
- Flexion : 700 à 3000 kg/cm²
- Elasticity : 100.000 à 300.000 kg/cm²
- To build a structure with same capacity, bamboo need 8 to 50 times less energy.
- 70 ha = 1000 house/year (wood 600 ha)
Treatment
What is treatment

Processing bamboo to prevent degradation Treatment is absolutely necessary when bamboo is used as a structural member where safety is of major concern.

What treatment does:

Prevent insect attack
Extend durability and prolong useful life.
Arrest and delay degradation.
Preserve dimensional stability and retain strength.
Impart properties like fire resistance, lustre, etc.
Improve aesthetic qualities
Butchery
Bending
Bamboo Bending
Cutting and joinery
Solid Bamboo

Over lap Joint
Solid Bamboo

Fish Mouth Joint
Building with bamboo
Bamboo Architecture
Cathedral Pereira

The Cathedral of Our Lady of Poverty, is religious architectural heritage of the city and the world.
Geodesic Domes
Vo Trong Nghia
New uses
New uses
Conclusion

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