

CONSERVATION BRIEFS



CONSERVING TIMBER STRUCTURES IN INDIA

Benny Kuriakose

INTACH

CONTENTS

Preface	7
CHAPTER 1	
Introduction	9
1.1 Advantage of Using Timber	9
1.2 Heartwood and Sapwood	10
1.3 Hardwood and Softwood	10
1.4 Strength Properties of Timber	10
1.5 Defects in Timber	10
1.6 Selection of Timber	11
1.7 Seasoning	12
1.7.1 Why is Seasoning Required before Timber is used in Buildings?	12
1.7.2 Natural Dry Seasoning	13
1.7.3 Artificial or Kiln Seasoning	13
1.7.4 Immersing Timber in Water	13
1.8 Conversion of Wood into Timber	13
1.8.1 Piling or Stacking of Timber	14
1.9 Fire Resistance of Timber	15
1.9.1 Types of Flame Retardant Treatment	15
CHAPTER 2	
Timber Treatment	17
2.1 Tar Oil Preservatives	17
2.2 Water-Borne Preservatives	17
2.3 Organic Solvent Type Preservatives	18
2.4 Application of Preservatives	18
2.5 Brushing and Spraying	18
2.6 Open-Tank Method	19
2.7 Pressure Treatment	19



CHAPTER ONE

INTRODUCTION

The word timber denotes wood which has been felled.

In India, many tropical hardwoods such as teak, walnut, rosewood, deodar etc. are available. Timber is used for structural work, because of its many advantages as a building material.

1.1 ADVANTAGES OF USING TIMBER

1. Many varieties of timber have beautiful surface pattern, with infinite variations in grain, texture and colour.
2. Timber is a lightweight material that is easy to cut, shape and join with nails, screws, bolts etc. which requires the simplest kinds of tools. The traditional knowledge produces strong joints. Timber also can be fastened with adhesives.
3. Timber has favourable weight to strength and weight to modulus of elasticity ratio, which makes it usable as a structural material.
4. Dimensional changes that may take place as a result of rise in temperature are less significant in timber construction than they are in construction utilizing metal structural members. When heated, timber expands across the grain as much as metals or more, but only little in the longitudinal direction, which is of the utmost importance in construction.
5. Timber burns only at temperatures of about 350°C and chars, the charred faces of the wood protecting the un-burnt inner wood for periods adequate for escape during fires, in most buildings. The resistance of timber to damage by fire varies enormously and depends on the size of timber and the sort of wood from which it was cut.
6. Timber is surprisingly durable when used under conditions, which are unfavourable to wood destroying insects and fungi. If properly used, it will last indefinitely. In case of the possibility of an attack, timber can be made to last by applying fungicides and insecticides.
7. Timber is a renewable material.



View of one of the timber palaces in the Padmanabhapuram Palace complex.