

THE STUDY-ON THE BEHAVIOUR OF THE CONCRETE SLEEPER

A PROJECT REPORT SUBMITTED TO THE SCHOOL OF ENGINEERING
IN PARTIAL FULFILLMENT OF REQUIREMENTS
FOR THE AWARD
OF AN
ADVANCED DIPLOMA IN CIVIL ENGINEERING

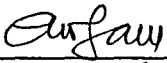
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1.0 INTRODUCTION

1.1 Concrete Sleeper

During the past 40 years, concrete, especially prestressed concrete, has to a great extent replaced wood as the preferred material for railway sleepers. Increased requirement on stability of high speed rail tracks and the durability of concrete account for this, and in some countries relative cost changes have led to a greater cost-effectiveness of concrete sleeper track. Development of concrete sleeper track in the past has been characterised by various approaches to production, design, rail fastening and track-laying procedures. (after K. G. Bernander, 1986)

There are variations in the pressure distribution between the ballast and the sleeper, due to the nature of dynamic loading. There also have two different design systems, caused by the concrete sleeper may be subjected to a wide range of bending moments, both positive and negative the systems are :-

1) Twin - block

In this system, there is one rigid concrete block under each rail and a flexible (e.g steel) central piece between them. The rail loads will be transmitted down to the bedding support in a well-defined way. Bending moments in the sleeper will be small even if the bedding is not quite uniform (See figure 1.1 a).