

DESIGN AND CONSTRUCT A POST-TENSIONED BEAM

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ABSTRACT

This project is to design and construct a post-tensioned beam. Post-tensioned beam is a prestressed concrete beam which is constructed by employing post-tensioning method that stretching the steel bars, also called tendons, after the concrete has hardened.

This report is begun with the introduction. It touches on the definition and overview of a post-tensioned beam. Construction of such beam also included in this project.

Then, it is followed by the design principle of a post-tensioned beam. Two principles with diagrams are discussed in this section. Understanding these two principles will give you an overall idea on how a prestressed concrete works.

After that will be the physical component of post-tensioned beam. Only two topics are discussed; bonded and non-bonded tendon and type of tendon profile. It is good to know them in order to have a better understanding.

Design consideration is the main point in the designing stage in the project. There are quite a number of considerations one needs to know and understand before doing any designing task. Great care has to be taken when studying them.

It is continued with the comparison between reinforced concrete and prestressed concrete. This topic will show us why there is a need in post-tensioned beam since RC is considered as the most widely used material in the world.