

## Effect of using high concrete grade at beam-column junction: A Review

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### Abstract

A joint or junction is basically the portion of the beam into the column and is the zone of complex stress concentrations and is prone to failure via crushing of concrete. It is not necessary that failure would only occur because of crushing of concrete at joint but there may also be other structural failures related to reinforcement design and detailing. In this project an attempt has been made to study the behavior of beam-column junction with respect to the behavior of concrete at joint and an attempt has been made to improve the efficiency of joint by adopting measures to prevent crushing of concrete at joint.

**Keyword:** Beam column, concrete,

### Introduction

A beam-column joint is a very critical zone in reinforced concrete framed structure where the elements intersect in all three directions. Joints ensure continuity of a structure and transfer forces that are present at the ends of the members. In reinforced concrete structures, failure in a beam often occurs at the beam-column joint making the joint one of the most critical sections of the structure. Sudden change in geometry and complexity of stress distribution at joint are the reasons for their critical behavior. In early days, the design of joints in reinforced concrete structures was generally limited to satisfying anchorage requirements. In succeeding years, the behavior of joints was found to be dependent on a number of factors related with their geometry; amount and detailing of reinforcement, concrete strength and loading pattern.

In developing countries, the increasing reliance of employment on economic and social considerations is one of the reasons that lead to increasing rural-to-urban migration which in turn lead to increased demand on land use in large cities like Addis Ababa. Following this, more high rise structures are being constructed now than in the past. On the other hand, for the developed countries, the engineering challenge where by the two targets of boasting the longest bridge and the highest building have become serious considerations in the conceptual design of landmark

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