

Comparing the nonlinear dynamic behavior of concrete filled tube columns (CFT) under near field and far field earthquakes

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ABSTRACT

Including discussions about the behavior of the seismic behavior of composite columns and more importantly how it is seismic design. Procedures for authentic design of composite columns with different orientations and are sometimes conservative. The investigation into the case of the actual behavior of such structures is of great importance. Columns Composite (composite) to the face the can Or Pipe steel that with Concrete Fill have become Take To Briefly CFT (Concrete Filled Tube) Call. At the end of a near field and far field behavior of columns records Tools CFT under review and compared. Two-dimensional frames of 3, 5 and 8 floors were modeled in ABAQUS software. For each mode, three different types of column sections including square, circle, and rectangular sections were modeled and evaluated. Based on the results of the research, three-stage frames are recommended for use with circular cross-sectional columns. Also, with an increase in the number of floors and based on the most favorable amount in displacement and drafts, as well as the base cutting, rectangular sections in the 5-story and 8-story frames were the preferred technical option. Based on results drift maximum floors At Buildings of five and eight Floor Under Earthquake Area far way The least Amounts drift At buildings With Sections Rectangular column And in Building Three Floor The least Amounts Dirty To the face Approximate To Model With Cross section column circular On Data Is. Also under earthquake areas close to buildings of three, five and eight floors the best performance and the lowest drift for the column is rectangular. Columns Mry also had a poor performance. Finally, it is observed that the column section is circular with the lowest cost compared to other sections have been examined in this study. Despite this, according to technical controls, the best performance for a rectangular column is observed.

Keywords: steel frame, compound column, earthquake,

1. INTRODUCTION

Steel and concrete structures are made mainly in two ways, each of these methods has advantages and disadvantages include the possibility of local buckling of steel beams in high-rise structures, steel and corrosion resistance as well as its low point in front of the fire. On the other hand, also has disadvantages such as the use of formatting concrete columns, concrete tensile strength is low. In recent years the use of composite columns in structures with different height, this problem is solved. In fact, composite columns with concrete and steel together enjoying the benefits, disadvantages on them to a minimum and as a structural element of efficient acts.

Issue The principle of At These Research of BC Review Behavior Seismic types of Columns Composite At the frame At state of That non Reaction of Under Bar (D) the name of one of Is. so At These Research From Three Of the c column Composite Use Develops That These Columns To Frames The building With different classes They are designed. To Review Behavior The seismic Variants From How many Acceleration Mapped Earthquake Strong Use Will Became And Analyzed Variants With Method Analysis of the (D) the name of one of That non Line of By ABAQUS finite element software Done Will Was. Modeling of earthquake records for both near field and far field and compare the results of the action will be carried out.