

(54) Title of the invention : A concrete-filled quadruple steel tubular (CFQST) column for enhanced strength and ductility in seismic condition and the process of construction

(51) International classification :E04C0003340000, E04B0001300000, E04C0003360000, A61B0017000000, G01N0033380000 (86) International Application No :NA Filing Date :NA (87) International Publication No : NA (61) Patent of Addition to Application Number :NA Filing Date :NA (62) Divisional to Application Number :NA Filing Date :NA		(71)Name of Applicant : 1)INDIAN INSTITUTE OF TECHNOLOGY (INDIAN SCHOOL OF MINES), DHANBAD Address of Applicant :Dhanbad - 826004, Jharkhand, India Dhanbad ----- ----- Name of Applicant : NA Address of Applicant : NA (72)Name of Inventor : 1)Dr. Sekhar Chandra Dutta Address of Applicant :Department of Civil Engineering, Indian Institute of Technology (Indian School of Mines), Dhanbad, Dhanbad - 826004, Jharkhand, India Dhanbad ----- 2)Dr. Ishan Jha Address of Applicant :Department of Civil Engineering, Indian Institute of Technology (Indian School of Mines), Dhanbad, Dhanbad - 826004, Jharkhand, India Dhanbad ----- 3)Mr. Vikash Kumar Address of Applicant :Department of Civil Engineering, Indian Institute of Technology (Indian School of Mines), Dhanbad, Dhanbad - 826004, Jharkhand, India Dhanbad ----- 4)Mr. Subrat Kumar Sahu Address of Applicant :Department of Civil Engineering, Indian Institute of Technology (Indian School of Mines), Dhanbad, Dhanbad - 826004, Jharkhand, India Dhanbad -----
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(57) Abstract :
The invention relates to a concrete to a concrete filled quadruple steel tubular design (CFQST) column, where for internal steel tubes are strategically embedded within a concrete core and confined by an external steel tube to provide superior confinement for the concrete. The CFQST column is constructed by preparing a layout and placing small steel or wooden stubs on the markings. The external tube with predetermined length, is then positioned over the layout. Four inner steel tubes of same length as that of outer tubes are placed inside the external tubes snugly fitted into the stubs. Concrete is then poured inside the column and thoroughly vibrated a needle vibrator. To extend the columns upwards, the inner steel tubes of predetermined length are placed and welded to the top of the already placed inner tubes. The external tube then of same length of inner tubes are placed over the already placed outer tubes and welded. Concrete is then poured and vibrated. The process is repeated until the desired column height is achieved. Fig 2

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