

An Engineering Perspective of the Collapse of WTC-I

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Abstract: We report on a simulation study of the performance of the North Tower (WTC-I) of the World Trade Center complex during the impact of American Airline Flight 11, on September 11, 2001. We discuss impact damage the structural core might have sustained and its possible behavior under structural and thermal loading. Our simulations indicate that the worst damage to the core structure was in stories 95 through 97 of the tower. We estimate that a core collapse mechanism could be initiated if the tower core column temperatures were elevated to about 700°C.

CE Database subject headings: Collapse; Computer-aided simulation; Impact loads; Models; Structural analysis; Structural engineering; Structural failure; Thermal analysis.

Introduction

We report our perspective of the failure mechanism of the North Tower of the World Trade Center (WTC-I) on 11 September 2001 resulting from the impact of Flight AA11. Our

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