Response to NIST on Energy and Momentum

Dr. Crockett Grabbe

University of Iowa & SeaLane Consulting

www.SeaLane.org

www.physics.uiowa.edu/~cgrabbe

ABSTRACT

NIST, in their latest Answers to FAQs, artfully dodges the important issues on the physics of conservation of energy and momentum in the collapse of the World Trade Center Towers and Building 7. These issues and their unmistakable implications are addressed.

NIST's Recent Answer to an Avoidance Question

The National Institute of Standards and Technology (NIST) released a new supplement with Answers to Frequently-Asked Questions on December 14. One of those questions dealt for the first time with the issue of energy and momentum conservation, an issue I have addressed in recent articles and a news interview.[1,2,3,4,5] However, here is the question as they formulated it and the answer they provided to it.

Q: Were the basic principles of conservation of momentum and energy satisfied in NIST's analysis of the structural response of the towers to the aircraft impact and the fires?

A: Yes. The basic principles of conservation of momentum and conservation of energy were satisfied in these analyses. In the case of the aircraft impact analyses, which involved a moving aircraft (velocity) and an initially stationary building, the analysis did, indeed, account for conservation of momentum and energy (kinetic energy, strain energy). After each tower had finished oscillating from the aircraft impact, the subsequent degradation of the structure involved only minute (essentially zero) velocities. Thus, a static analysis of the structural response and collapse initiation was appropriate. Since the velocities were zero and since momentum is equal to mass times velocity, the momentum terms also equaled zero and therefore dropped out of the governing equations. The analyses accounted for conservation of energy.

Analysis

The question was formulated in such a way to totally avoid the issues that have been repeatedly raised on the conservation principles.[1,2,3,4,5,6,7] There was *never* any issue of the energy and momentum the plane impacts had on the towers! Their answer to this avoidance-question in fact *points* to one of the major problems they ignore.

They stated correctly how the energy and momentum transferred to the towers from the planes was soon dissipated. So the natural followup question is: where did the energy and momentum come from that drove sudden squibs [which I define here as the rapid horizontal movement of material away from the towers] and destruction that started the collapse of the towers? NIST's question and answer *show* they clearly could *not* come from the planes, and several analyses of the issues show they could not have been produced by the fires the planes caused.[1,2,6,7,8,9,10] NIST published 43 volumes of material that presumes and concludes the planes and their fires started the collapses, but none of these volumes discusses or even mentions the conservation of momentum or the conservation of energy in the collapses.

In the case of the South Tower all of the sizeable energy arose in the few floors below where the plane had crashed into the tower and caused it to burn and smoke.[2] That energy in its kinetic form had appeared rapidly and suddenly on the floors below the plane collision almost an hour after it happened. It was quickly evident with squibs [rapid horizontal jets of material] smashing through the walls of those floors at large momentum, exhibited with that material moving at high velocities (close to 100 mph). The first set of squibs was followed up with a second set of squibs breaking through the walls with large kinetic energy and momentum. That same source producing the second set of squibs also produced a sizeable quantity of angular and linear momentum in the top 34-floor segment of the tower as a whole (somewhat like twisting a bottlecap), causing it to completely topple in a new direction so that it fell eastward. There was tremendous energy and momentum created there when the collapse was initiated, and they did *not* come from the planes and fires. The only explanation for their creation is conventional explosions inside the building.

In the case of the North Tower the collapse started and occurred rapidly and suddenly in the top segment about 1.5 hours after the plane collision. What provided the sudden source of energy that caused it? Clearly it was not the planes or fires. Gravitation could not have provided anywhere near the energy expended in the collapse, as calculations by Hoffman [11] on the energy used show. The amount expended was much greater than what was available gravitationally, and there is overwhelming evidence explosions supplied part of this energy, as squibs kept bursting through the 4 walls 10 floors ahead of the collapse as the towers fell.[1] Huge, up to 4000 square feet, pieces of the wall of several floors blew away from the building. These clearly could not have been produced by the plane collision, since the plane collision had a much smaller impact area, and since it went inward into the building while such pieces of the wall blasted outward.

In the case of Building 7, there was no plane that hit it, yet it also fell at almost free-fall speed, hitting the ground in less than 7 seconds. A source or sources of energy and momentum started that collapse and took it down at nearly free-fall speed, and no plane was involved. Where did it come from? Again, conventional explosives are the only answer.

NIST's answer fails to address any of the energy and momentum conservation issues in these 3 building collapses, yet NIST insists planes and their fires brought the towers down. These conservation principles show that did not happen.

REFERENCES

[1] Crockett Grabbe, "Collapse of the North Tower of the World Trade Center," submitted to *Journal of 911 Studies*, January, 2008. Posted at http://www.SeaLane.org/writings/NTcollapse.html

[2] Crockett Grabbe, "Collapse of the South Tower of the World Trade Center," submitted to *Journal of 911 Studies*, October, 2007. Posted at http://www.SeaLane.org/writings/STcollapse.html

[3] Crockett Grabbe, "Direct Evidence for Explosions: Flying Projectiles and Widespread Impact Damage," *Journal of 911 Studies* Volume 14, August, 2007. http://www.journalof911studies.com/volume/200704/GrabbeExplosionsEvidence.pdf

[4] Crockett Grabbe and Lenny Charles, "Science in the Bush: When Politics Displaces Physics," released online 9/8/07. http://www.informationclearinghouse.info/article18344.htm

[5] INN Interview with Crockett Grabbe on INN World Report, hosted by Lenny Charles, April 23, 2007 (New York). http://www.innworldreport.net/archives/2007/04/index.html

[6] Steven Jones, "Why Indeed Did the World Trade Center Buildings Completely Collapse?" *Journal of 911 Studies* Volume 3, September, 2006. http://www.Journalof911Studies.com/volume/200609/Why_Indeed_Did_the_WTC_Buildings_Completely_Collapse_Jones_Thermite_World_Trade_Center.pdf

[7] Kenneth Kuttler, "Collapse Time Calculations for WTC 1," *Journal of 911 Studies* Letter (May 9, 2007), posted at http://www.Journalof911Studies.com/letters/ProfKuttlerWTC1CollapseTimeCalculations.pdf

[8] Kevin Ryan, "High Velocity Bursts of Debris from Point-Like Sources in the WTC Towers" *Journal of 911 Studies* Volume 13, July, 2007. http://www.Journalof911Studies.com/volume/2007/Ryan_HVBD.pdf

[9] Frank Legge, "NIST Data Disproves Collapse Theories Based on Fire," *Journal of 911 Studies* Volume 2, August, 2006. http://www.journalof911studies.com/articles/Article_6_Pancake_theory_false_by_NIST_WorldTradeCenter.pdf

[10] Frank Legge and Tony Szamboti, "9/11 and the Twin Towers: Sudden Collapse and Initiation was Impossible," *Journal of 911 Studies* Volume 18, December, 2007. http://www.journalof911studies.com/volume/200703/Sudden_collapse_initiation_impossible.pdf

[11] Jim Hoffman, "The North Tower's Dust Cloud: Analysis of Energy Requirements for the Expansion of the Dust Cloud Following the Collapse of 1 World Trade Center," *911 Research*, October 16, 2003, posted at http://911research.wtc7.net/papers/dustvolume/index.html