

9/11 – Evidence for Controlled Demolition: a Short List of Observations

Frank Legge (Ph D)
Logical Systems Consulting
Perth, Western Australia.
flegge@iinet.net.au

Abstract

This short paper is intended as an introduction to the events of 9/11. Evidence based on videos, photographs and witness testimonies is presented which indicates that explosives were used in the demolition of the Twin Towers and Building 7 at the World Trade Centre. The conclusion is reached that the official reports are unsatisfactory and that further investigation is required.

On the 11th of September 2001 aircraft were flown into the Twin Towers of the World Trade Centre (WTC). After some time the towers collapsed with much loss of life. The tragic events of that day have become known as 9/11.

There are several lines of evidence that suggest that some element of the US administration was complicit in some of the events of 9/11. These include the failure to intercept the hijacked aircraft, the exclusion of independent observers from the WTC site after the attack and the withholding of information. A particularly significant line of evidence relates to the way in which the buildings collapsed: only by the use of explosives can the manner of collapse be explained.

The US government does not admit the possibility that the towers were brought down with explosives. The government has authorized three investigations,¹ all of which attempt to explain the collapses as due solely to the combined effects of the plane impacts and the resultant fires. None of the reports examines the question of whether controlled demolition might better fit the observations. None of the reports provides a satisfactory explanation for the collapse of building 7, which was not hit by a plane.

This paper deals only with observations which provide evidence that the buildings were brought down by “controlled demolition” using explosives. Its purpose is to provide a clear picture by collecting together the most compelling evidence for demolition, while avoiding those aspects of 9/11 which are still in dispute. A later paper will deal with the inferences which may be drawn from these and other observations.

Also provided in this paper is a new method for evaluating the rate of collapse by studying the initial acceleration rather than the total fall time, estimates of which must necessarily be imprecise due to the entanglement of material and the obscuring dust cloud.

To organize the controlled demolition of these three large buildings would obviously require possession of very substantial resources and remarkable freedom of access. The following had to be achieved before the event: the secret and skilful installation of a network of explosives in three buildings; the establishment of a control centre from which the demolitions could be

initiated and monitored; the provision of the ability to commence demolition prematurely if a building started to topple (this occurred with WTC 2, the south tower); the incapacitation of the normal Air Force interception of wayward aircraft;² and the hijacking of four aircraft without raising suspicions. All this had to be achieved in the face of numerous warnings by field workers in the FBI, and by intelligence agencies of other countries, that a major attack was imminent.³

The clearest video of WTC 7, which has rarely been screened publicly, shows that it collapsed straight down with little dust evident except at its base.⁴ This by itself strongly suggests a controlled demolition. The collapse of the twin towers has a different appearance, but this is to be expected. Normally, in controlled demolitions, buildings are demolished from the bottom up. The weight of the entire building presses down and assists collapse, minimizing the amount of explosive required. The explosives may be set off simultaneously or in a quick sequence from the bottom up.

With the Twin Towers, however, the demolition had to be done from the top down to create the illusion that the collapse was caused by the damage from impact and fires in the top section. To achieve this effect much more explosive was required and it was necessary to set the explosives off in a precise descending sequence. The most immediately obvious evidence for this is the vast amount of dense dust flung out violently, together with pieces of steel, coming from the collapsing region.⁵ Videos and photographs show that the collapse is preceded by a series of horizontal dust puffs, progressing downwards at intervals of several floors.⁶ The total time for the collapse is little longer than would occur in free fall.

The secrecy surrounding the events after 9/11 prevents public investigation through normal channels. It is still possible however to examine the surviving available evidence to see what can be deduced. If it can be readily deduced that explosives brought down the buildings then the official explanation for the collapse, which avoids consideration of explosives, must be re-evaluated in an attempt to discover its purpose.

What surviving evidence is there and what can be deduced from it? In my view the deductions based on videos may be regarded as virtually irrefutable. Deductions based on photographs and statements by observers may be weighed by considering the possibility of forgery and the variability of witness reports.

Observations and deductions from videos

1. WTC 7 collapsed straight down.⁴ This requires that, at the moment of collapse, if caused by fires weakening the supports, not only did the north and south pair of walls have to be of equal strength, but also the east and west pair. Without such symmetry this tall building would inevitably have toppled over. Even if the fires had been intense and widespread this dual symmetry would have only a very low probability of existence. Given the uneven distribution of the small fires at the time of collapse the probability of the required symmetry vanishes, hence fires did not cause the collapse.
2. The acceleration downwards of WTC 7 was 30 feet per second per second. This is so close to the free fall acceleration of 32.2 feet per second per second in a vacuum that

virtually no resistance throughout the fall can have existed. Also the acceleration of WTC 7 was constant right from the start. Steel softens slowly as it is heated and, when just failing, still provides substantial resistance. There was however no sign of the steel giving way gradually as its temperature rose. These two observations, taken together, imply that the support structures were instantly and completely severed.⁷

3. A stream of molten metal, yellow-hot and flashing white-hot, was observed running from WTC 2 near the plane impact region.⁸ Shortly after this the building collapsed. When metal is white hot it is at a temperature of at least 1200° C, and when yellow it is at about 1000° C, far hotter than possible from the burning of aircraft fuel or office materials. The use of an oxidizing chemical reaction, such as occurs with thermite, or something similar, is implied. The thermite reaction achieves a temperature well in excess of 2000° C, and produces molten iron as a by-product, melting point 1540° C. It is used to cut steel, melting point about 1500° C.
4. During the collapse of WTC 1 and WTC 2 vast clouds of dense dust and portions of the steel columns were violently thrown out.⁵ The dust came mainly from the pulverization of the concrete that was in the floors. The dust cloud and steel were evident early in the collapse, before the parts had picked up much speed, so cannot have come from component impacts. For the pulverization of the concrete, and also to rapidly expand the dust cloud against the pressure of the atmosphere, a very substantial additional source of energy is required. The theory that this energy could have come from the potential energy in the building is clearly untenable as virtually all of the potential energy had to be consumed in providing the kinetic energy for the high downward acceleration, so close to free fall.⁹
5. Computer simulations by Lu and Jiang show that, for WTC 1 and WTC 2, collapse in the fire damaged region would have been impossible at the known temperature of the steel supports.¹⁰
6. Calculations by Gordon Ross show that, if a floor near the plane impact site instantly and totally disintegrated, the energy available from the falling of the top portion would not be sufficient to provide the energy needed to sustain the collapse through the undamaged lower portion. Thus, in the absence of explosives, the top would have decelerated and come to rest.¹¹

Deductions from observer statements and photographs

1. Weeks after 9/11 workers were still unearthing extremely hot material. A photograph shows solid yellow-hot metal clamped in the jaws of an excavator.¹² The color shows this to be at least 1000° C. This cannot be aluminium, which melts at 660° C, and therefore must be iron or steel. It is impossible for a fire without a dense supply of fuel and forced draft to achieve such high temperatures, hence another energy source must have been involved.

2. Molten metal was observed in the basement of all three buildings and the high temperatures were confirmed by aerial infra-red imaging.¹³ This observation can be readily explained by the use of thermite which contains a chemical oxidant, so does not depend on an air supply. The by-product of its reaction is molten iron. This would explain not only the high temperatures achieved in a confined space but also the presence of liquid metal, as described more fully in point 3 of the list above.
3. Numerous eye witnesses reported hearing and feeling explosions. Some were injured and some reported being blown off their feet.¹⁴
4. A photograph of WTC 2 shortly after the collapse commenced shows the falling top block distorting, though it was straight just before the fall commenced.¹⁵ As there can be no force acting on the block during free fall, this could not have occurred unless the block had already lost its support structure.

Given the astonishing discrepancy between the official explanation for the collapse of these buildings and the observed facts it is clear that there is an urgent need for an independent investigation. It is abundantly clear that the investigation should address the question of whether the use of explosives would fit the observations better than the official explanation. A discussion of the inferences which can be drawn from these and other observations will appear in a following paper.

As long as an incorrect explanation is accepted government policy will be based on a false premise and many decisions will be made which are not in the best interests of the nation or indeed of the world.

End notes and references

Version 1.2. This version contains improved acceleration graphs obtained through use of better software.

1. Official reports on the events of 9/11.

FEMA report. In particular note: "Although the total diesel fuel on the premises contained massive potential energy, the best hypothesis [fire-damage] has only a low probability of occurrence. Further research, investigation, and analyses are needed to resolve this issue." (FEMA, 2002, chapter 5)

<http://www.fema.gov/library/wtcstudy.shtm>

How fires affect steel buildings.

<http://911research.wtc7.net/wtc/analysis/fires/steel.html>

NIST Report. Note that their conclusion that fire weakened the steel and brought down the towers is contradicted by their own findings on the temperature the steel experienced, stated in the body of their report, where they say that they found little steel had exceeded 250 degrees C.

It is important to note that the modeling done by NIST was suspect because parameter adjustment was carried out after initial runs had failed to produce a tendency for the top portion to collapse. The modeling then fails altogether when it is perceived that it was taken only to the point where it was “poised for collapse”. No doubt their early modeling showed that it was impossible for the damaged top section to plough through the unheated lower section so they were forced to remain silent about this essential part of the collapse.

<http://wtc.nist.gov/pubs/>

Kevin Ryan: Rebuttal to the NIST Report.

<http://portland.indymedia.org/en/2004/11/303154.shtml>

9/11 Commission Report

<http://www.gpoaccess.gov/911/>

Criticism of the 9/11 Commission Report

<http://www.911truth.org/article.php?story=20050523112738404>

2. Was NORAD stood down?

<http://www.prisonplanet.com/911/norad.htm>

http://www.911truthmovement.org/video/hamilton_win.wmv

3. Warnings. “On July 10, an FBI field agent in Phoenix, AZ, named Kenneth Williams reported suspicions of a hijacking plot. He recommended that the FBI investigate the possibility that al Qaeda operatives were training at U.S. flight schools, suggesting that Osama bin Laden’s followers may have been securing jobs as security guards, pilots and other personnel.”

http://911research.wtc7.net/cache/planes/analysis/nypress_missingpieces.html

“Britain’s spy chiefs warned the Prime Minister less than two months before September 11 that Osama bin Laden’s al-Qaeda group was in “the final stages” of preparing a terrorist attack in the West.”

<http://globalresearch.ca/articles/EVA206B.html>

“Britain gave President Bush a categorical warning to expect multiple airline hijackings by the al-Qaeda network a month before the September 11 attacks.”

<http://www.sundayherald.com/24822>

4. Collapse of WTC 7. Straight-down collapse requires symmetry. If symmetry is not achieved the wall which softens first will start to settle and this will cause the tall building to tilt toward that side. As this happens the centre of gravity will shift towards the weaker wall. This will increase the force on the weaker wall and at the same time reduce the force on the stronger wall. It can therefore be concluded that once a small tilt has appeared the rotation can only accelerate so it is inevitable that the building will topple over. If this does not occur it is evidence that the building did not fall due to softening of the supports.

http://www.911research.com/wtc/evidence/videos/docs/wtc7_collapse2.mpg

5. Violent projection of dust and steel early in collapse. Of particular interest is the fact that not only does the dust fly out fast very early but also it very quickly falls, showing that it is no ordinary cloud but extremely dense. It is dense because of the very high concentration of concrete in it. Note how the streams of projected dust arch downwards, almost keeping up with the steel. Little concrete was found in the rubble pile. It is not only the pulverization of the concrete which appears to be contrary to normal expectations; one would expect concrete to fracture on impact into large blocks and similarly one would expect the human remains to be substantial. Instead the remains were so severely fragmented that only 12 bodies could be identified visually, 200 samples were found by DNA to have come from one person and 1000 people have not been identified at all.

<http://911research.wtc7.net/wtc/evidence/bodies.html>



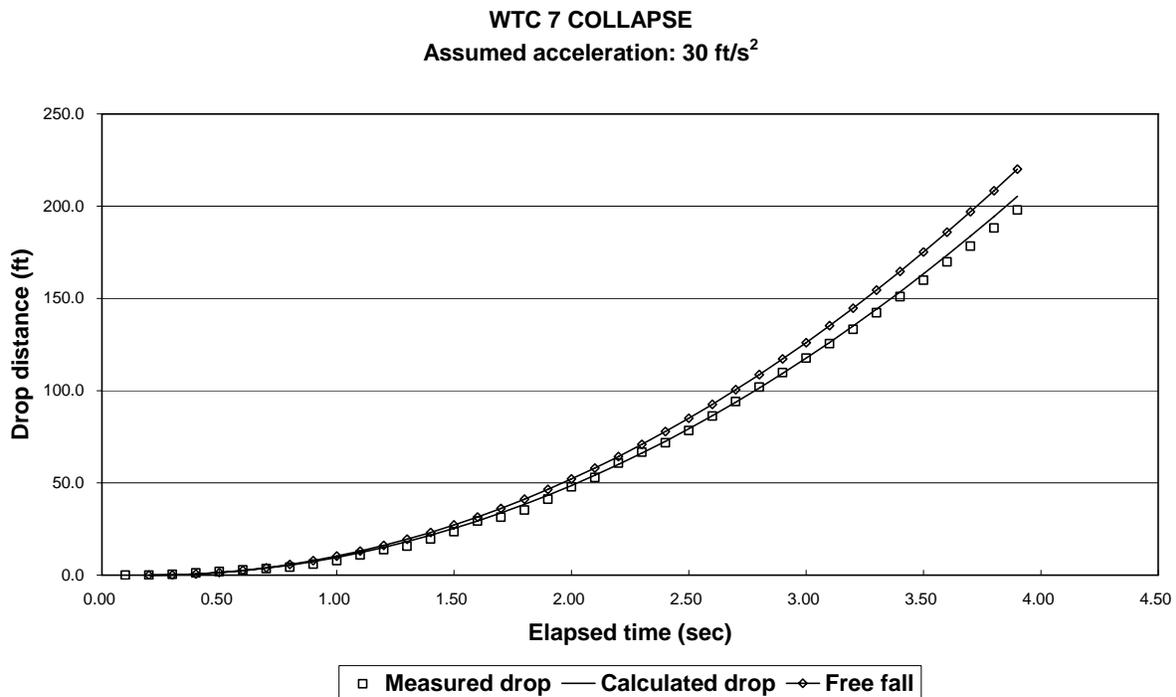
Notice also that most of the steel flung out appears to be straight. If the building had been destroyed by gravity one would expect much of the steel to be buckled.

The bulk of the steel is below the collapsing region, as would be expected given that the collapse rate is a little slower than free fall, but a piece of steel can be seen about ten floors higher than the collapse region. This requires substantial energy input.

6. Collapse of WTC 1 and WTC 2.

http://www.911research.com/wtc/evidence/videos/docs/south_tower_collapse.mpeg
http://www.911research.com/wtc/evidence/videos/docs/north_tower_collapse.mpeg

7. Acceleration graph for WTC 7.



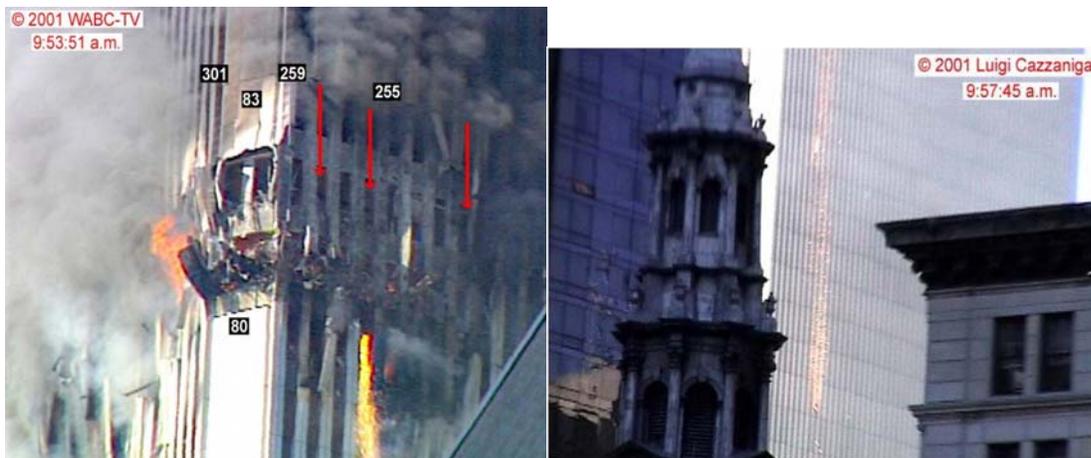
It is important to note that when a tall steel column fails under compression it passes through three stages. First it compresses elastically, then plastically, then as the load is increased, or as the temperature is increased, it eventually buckles. Once a buckle has developed the ability to support a load drops but there will still be significant support as the buckle progresses. In the case of a column being heated there will thus be a period, the plastic compressive stage, during which the column nearly supports the gravitational load and movement may not be detectable from a distance. Then, during the buckling phase, there will be an acceleration which will be sufficiently less than free fall for the difference to be easily recognized. If the collapse continued at the rate shown above the total fall time would be 6.2 seconds. Free fall would take 6 seconds.

The line in the graph above is calculated with an equation which assumes constant acceleration, very close to free fall. The measured data points fit this line closely right from the start. There is clearly no sign of a period of lower acceleration corresponding with the buckling phase which would be expected with any theory based on heating of the steel. This implies that something other than heating caused the collapse.

Furthermore this building collapsed from the bottom up. Given that heat rises it is unlikely that the lowest floors could have been the hottest. Had there been evidence of severe fires near the ground one can be sure that the many photographers present on that day would have recorded the fact.

8. Hot metal pours from WTC 2. Also note the shape of the aperture below tag 83. It is symmetrical and the edges are curled outward which indicates an explosion has taken place behind the corner. The clarity of this photograph is damaged in the preparation of the pdf file. For a better view locate it in a web site, for example in the paper by Prof Steven Jones, “Why Indeed Did the WTC Buildings Collapse?”, linked here:

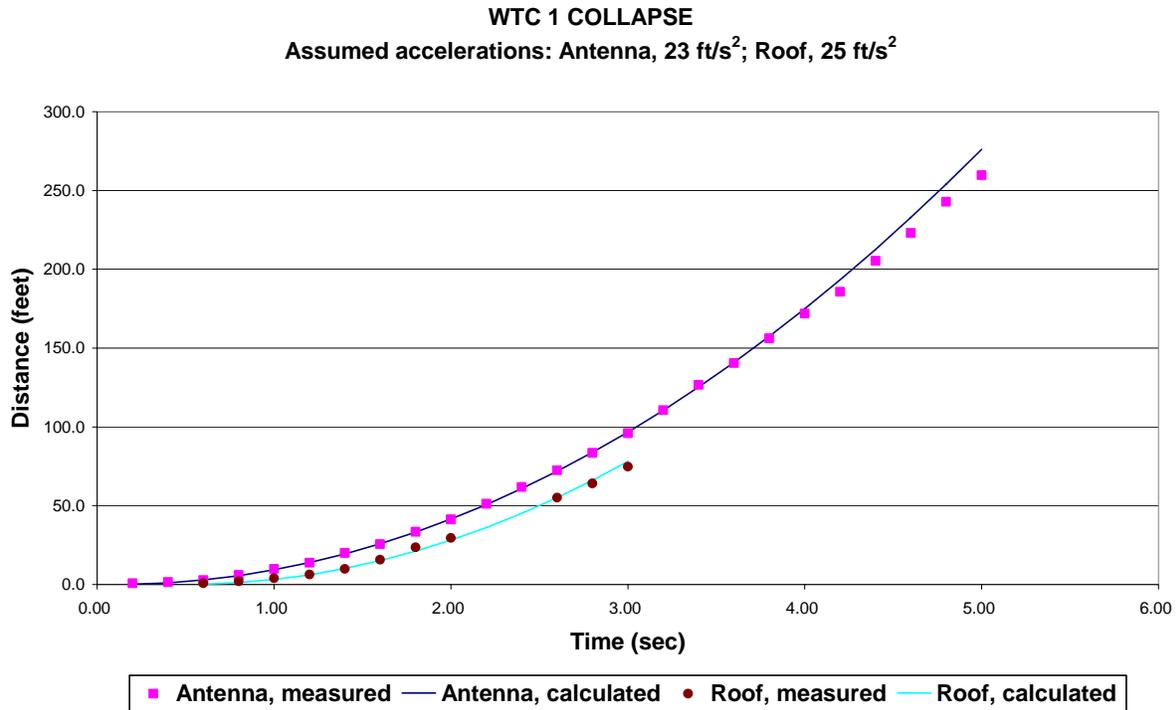
<http://www.physics.byu.edu/research/energy/htm7.html>



Demonstration of thermite and comparison with WTC 2

<http://www.checktheevidence.com/911/Thermite2.htm>

9. Acceleration graph for WTC 1. Note the extremely good fit for the first four seconds to the constant acceleration graph.



As this building was brought down by explosives it would be the timing of the sequence that would determine the rate of collapse and there is no reason why it should necessarily have come down at a speed approaching free fall. The fall was however close to free fall and very uniform at least for the first four seconds. The acceleration apparently declined slightly in the last second before the top of the antenna disappeared into the dust cloud. If the collapse continued at the rate shown for the roof it would be complete in 10.5 seconds, not much longer than free fall, which would take 9.2 seconds.

Allowing all possible approximations in favour of collapse by the official “pancake” model, and allowing all the steel to be in its weakest possible configuration, namely buckled, at 20% of its original strength, and allowing no energy was consumed in pulverizing the concrete or expanding the dust cloud, the fall time comes to 16.3 seconds, substantially longer than the observed rate. This proves the pancake theory is false as it shows each floor had to start moving before it was hit by the one above. This can be explained only by the use of explosives.

10. Lu X.Z., Jiang J.J., “Dynamic Finite Element Simulation for the Collapse of World Trade Center”, *China Civil Engineering Journal*. 34(6), (2001).

This paper by Lu and Jiang reports a computer modeling experiment in which the parameter for strength of the steel was adjusted to 1/20th of the original strength due to the raised temperature. They found that a reduction in fracture strain to 0.5% was required for the model to show sustained collapse. Because the buildings in fact did collapse they apparently assumed these

conditions had been met. As we know that the steel did not reach anywhere near the required temperature for this loss in strength, and as the ductility of the steel would have been sufficient to provide a fracture strain close to 3%, the model actually shows that the towers could not have collapsed due to heat alone. The wording of their paper reveals that this is not the outcome they were expecting to convey!

http://www.luxinzheng.net/publications/english_WTC.htm

11. Gordon Ross, “Momentum Transfer Analysis of the Collapse of the Upper Storeys of WTC 1”, *Journal of 9/11 Studies*, (June, 2006).

12. Red-yellow hot steel. Photo by Frank Silecchia, taken weeks after the collapse.



See also the following site which includes observations of high temperatures in the debris. “In mid-October, in the evening,” said Thomas A. Cahill, a retired professor of physics and atmospheric science, University of California, “when they would pull out a steel beam, the lower part would be glowing dull red, which indicates a temperature on the order of 500 to 600°C.”

Many photographs taken during this period, including the one above, show water being played on the rubble; this produced large clouds of steam. It appears great difficulty was experienced getting the temperature down low enough to enable site clearance to proceed.

<http://pubs.acs.org/cen/NCW/8142aerosols.html>

13. Molten metal. “Professor Allison Geyh (2001) of Johns Hopkins, who was part of a team of public health investigators who visited the site shortly after 9/11, wrote: "In some pockets now being uncovered they are finding molten steel".”

<http://stopthelie.com/references.html>

Remote sensing shows hot spots.

<http://pubs.usgs.gov/of/2001/ofr-01-0405/ofr-01-0405.html>

14. Reports of explosions.

<http://www.whatreallyhappened.com/eyewitness.html>

One report located an explosion on about the 60th floor of WTC 2. “...a tornado of hot air and smoke and ceiling tiles and bits of drywall came flying up the stairwell.”

<http://www.csmonitor.com/2001/0917/p1s1-usgn.html>

Updraft at floor 2 of WTC 1 indicates explosives in basement.

http://www.greaterthings.com/News/daily/2006/03/30/6600920_WTC_survivor_wind/

15. This photo by Gulnara Samoiloova contains much important information. Videos show that the top of WTC 2 leans then, within a second, it starts to fall. As it falls it bends, showing that the supports, even high in the building where there is little weight, have already been severed. This photo shows the bend and also catches two rows of horizontal white puffs suggesting demolition charges. The whiteness of the dust being projected suggests the use of thermite as, in addition to molten iron, this produces aluminium oxide, a white powder.

There is also a faint orange glow from material which must be heavy and very hot falling through the dust near the closest corner. This glow will be coming from the intermittent stream of molten metal shown in another photo and video cited earlier.⁸

Many short, straight lengths of steel are already evident at this early stage of the collapse.

The possibility that this photograph has been manipulated to deceive is very remote. It matches the video appearance and there are at least two other photographs from a similar angle showing the distortion in the top.

