

September 2009

## **Evidence for the Explosive Demolition of World Trade Center Building 7 on 9/11**

### **Introduction**

Architects & Engineers for 9/11 Truth (AE911Truth) is a non-partisan, non-profit organization now numbering over 700 technical professionals and thousands of other supporters dedicated to revealing factual evidence about the violent destruction (often mistakenly called “collapses”) of all three World Trade Center (WTC) high-rises on 9/11.

We are calling for a new independent investigation with subpoena power. We present here well-documented facts that support the conclusion that WTC Building 7 was destroyed by explosive controlled demolition. We ask that you set aside any pre-judgment, bias, or fear that might keep you from evaluating these facts objectively, and let the chips fall where they may. Most building professionals who review this evidence agree with our conclusions and sign our petition which is available on our website, [AE911Truth.org](http://AE911Truth.org).

Their concerns are most quickly and easily understood through a review of the evidence surrounding the third-worst structural failure in modern history—World Trade Center Building 7—

and how that evidence was mishandled by the National Institute of Standards and Technology (NIST), the federal agency last tasked with explaining the unprecedented destruction of the World Trade Center.

### **World Trade Center Building 7**

WTC 7 was a 47-story steel-framed fire-protected high-rise that was a football field’s length from the WTC North Tower and was the third high-rise to be destroyed on 9/11.

It was not hit by an airplane, yet it collapsed anyway at 5:20pm in the afternoon, rapidly, evenly, and completely. The official story, according to NIST, is that WTC 7 collapsed



due to “normal office fires” which created a “new phenomenon” in high-rise catastrophes: destruction due to thermal expansion of the



beams leading to the progressive collapse of 9 floors. This ultimately caused the failure of column #79 – the first one to fail – followed by all the rest.

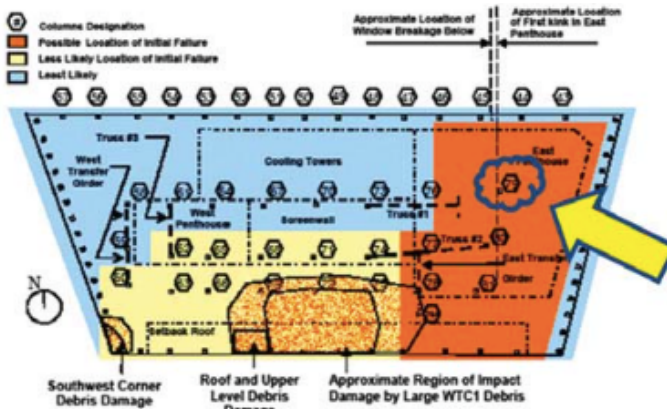


Figure L-29. Plan view of regions for collapse initiation.

Figure 1: 24 columns removed within a fraction of a second - by fire?

Some had speculated that stores of diesel fuel in the building might have produced exceptionally intense fires leading to collapse, but NIST has officially acknowledged that diesel fuel was not involved. NIST also concluded that the impact of debris from the North Tower was not a significant contribution to the collapse of WTC 7 (other than starting the fires). What NIST’s top engineers fail to explain in their Final Report, or in some cases to even acknowledge, is the many features of the destruction that are seen only in controlled demolitions.

### WTC 7’s “Collapse” Displayed Features Never Seen Outside of Controlled Demolition

In every respect for which we have evidence one way or the other, the destruction of WTC7 was indistinguishable from a classic controlled demolition.

### • Speed of Collapse

WTC 7 descended at free-fall acceleration over 2 seconds for a distance of over 100 feet – at least eight stories. NIST initially denied the fact of free-fall in its final draft report released in August 2008. In the technical briefing that followed, NIST’s lead investigator, Shyam Sunder explained, “A free-fall time would be an object that has no structural components below it.” He claimed that WTC7 took 40% longer than “free-fall time” to collapse, “and that is not at all unusual because there was structural resistance that was provided in this particular case. And you had a sequence of structural failures that had to take place and everything was not instantaneous.”

However, physics instructor and AE911Truth associate David Chandler had used network television videos to carefully measure the acceleration of the building during its fall and shown conclusively that a significant period of free-fall was an indisputable fact. He publicly challenged NIST’s claims at the technical briefing. Along with several others, he filed formal requests for corrections during the public response period.

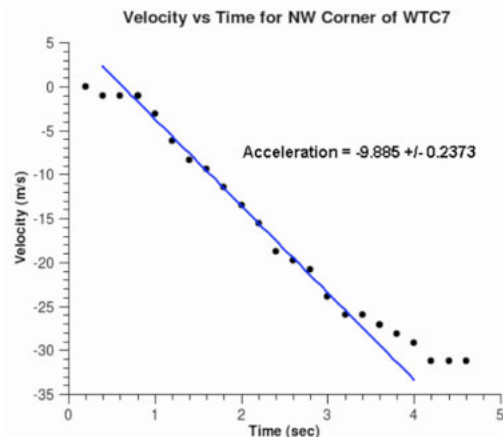


Figure 2: WTC 7 in free-fall for 8 stories



In its final report NIST reversed itself on its denial of free-fall, but it couched its revised statement in deceptive language and failed to address how free-fall could be compatible with its fire-induced progressive collapse analysis. For the observed straight-down collapse, a thick network of heavy steel columns and beams, had to be forcibly removed and more than 400 structural steel connections had to fail per second, evenly all across each of the eight floors involved. These failures had to occur *ahead* of the collapsing section – NOT caused by it – because a free-falling object cannot exert force on anything in its path without slowing its own fall.

Yet NIST’s admission of the fact of free-fall, together with Shyam Sunder’s acknowledgment of the simple meaning of that fact, led to no reconsideration of its fire-induced, single-column-initiated, progressive collapse hypothesis. Moreover, in what looks like an attempt to bury the discussion, its change of stance on the question of free-fall was omitted from the list of changes in its final report.

- **Symmetry**

The overall building mass fell uniformly and with almost perfect symmetry through what should have been the path of greatest resistance – 40,000 tons of structural steel. This requires a precisely timed patterned removal of critical columns – which office fires, a gradual organic process, is not capable of. Only a carefully engineered implosion could cause this 47-story building to collapse in on itself – and land mostly within its own footprint. After all, demolition companies are paid large sums to accomplish this feat, and only a few can do it with tall buildings. Also, the destruction was complete. The building had been built especially strong so

that alternate floors could be removed in case a tenant needed an extra tall space. Yet its forty-seven stories were



reduced, in less than seven seconds, to about four stories of debris – like a house of cards – with the virtually complete dismemberment of the steel skeleton, including both braced and welded moment-resisting (bend-resistant) frames.

Figure 3: Total dismemberment of WTC 7's steel structure.

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## **Did the Dog Eat Their Homework? NIST Withheld Crucial Evidence**

Had officials taken *all* the relevant evidence into account and provided a superficially coherent explanation, it would at least make sense to *entertain* the idea that, 1) fire might have acted in ways that it had never acted before, 2) modern structural steel might have acted in ways that it had never acted before, and 3) that this all just happened to occur on a day when terrorists did something they had never done before. Yet, officials have *not* taken all the relevant evidence into account and they have *not* provided even a superficially coherent explanation.

- **“A High Temperature Corrosion Attack” and Molten Iron/Steel: Undeniable Evidence of Thermite Incendiaries**

Prior to the NIST investigation, FEMA, the Federal Emergency Management Agency, had conducted a preliminary, cursory, underfunded investigation and produced a Building Performance Assessment Report. In Appendix C of that report, FEMA described steel samples from Building 7 that had undergone a “high temperature corrosion attack” that had turned a heavy steel flange “into Swiss cheese.” They found “evidence of a severe high temperature corrosion attack on the steel, including rapid oxidation and sulfidation with subsequent intergranular melting....”

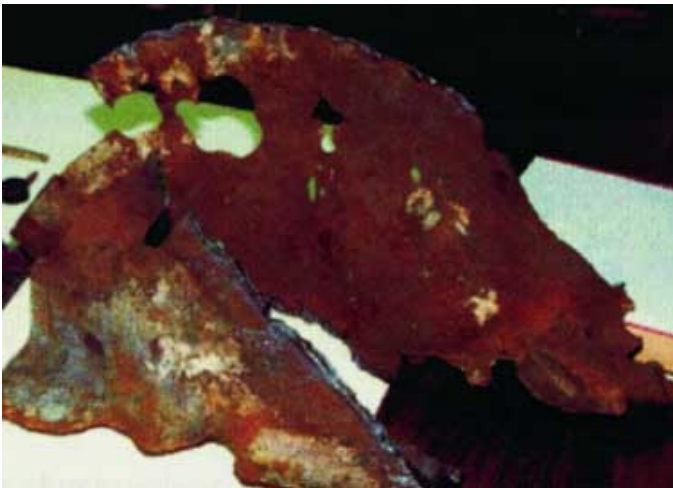


Figure 4: Office fires don't do this to steel.

FEMA’s metallographic analysis showed that the steel had not only melted but some of it had even “evaporated”. “A liquid eutectic mixture containing primarily iron, oxygen, and sulfur formed during this hot corrosion attack on the steel.”... “No clear explanation for the source of the sulfur has been identified.” The *New York Times* called this “perhaps the deepest mystery uncovered in the investigation.” What did NIST say about this mystery described by FEMA? They did not mention it.

Neither jet fuel nor office fires can reach anywhere close to steel’s melting point, much less its boiling point, even if those critical temperatures had been lowered by the presence of free sulfur. So what could have caused this “high temperature corrosion attack”?

*Thermite* is a mixture of powdered iron oxide and elemental aluminum which, when ignited, reacts violently at 4000-4500° F. – well above iron’s melting point of 2800° F, producing aluminum oxide and molten iron in a very dangerous, volcanic eruption-like display. When free sulfur is added to the mixture, the iron melts at a lower temperature. Thermite with sulfur added is called *thermate*. Structural steel in contact with ignited *thermate* also melts at a lower temperature. Contrary to what NIST and others have claimed, the sulfur could not have come from gypsum wallboard in which it is an inert, chemically “locked” ingredient. (FEMA metallurgists would have proposed that explanation themselves if it were within the realm of possibility.)

Still, additional evidence of molten iron and/or steel abounds – for all three high-rises. Photos and numerous credible witnesses (including first responders and structural engineers) confirm the existence of several tons of molten metal under the debris pile – described by some fire fighters as “flowing like lava.”

Photos clearly reveal molten

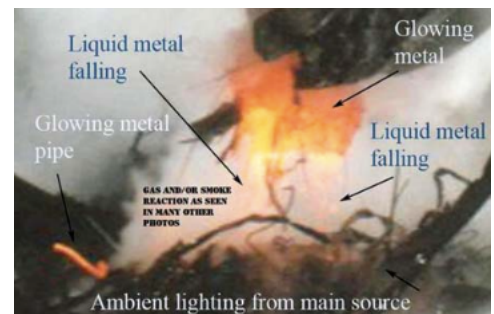


Figure 5: Office fires are not hot enough to create the molten metal seen by dozens of witnesses.

metal dripping out of the material held in the jaws of “crabclaw” excavators.

Video taken of the South Tower shortly before it came down shows a spout of molten metal spewing from near the impact hole, brightly glowing orange-yellow in daylight, unlike molten aluminum, which appears silvery under these conditions. It could only be molten iron or steel.



Figure 6: Jet fuel and office fires can't create molten metal

John Gross, lead engineer for NIST, publicly denied the existence of molten metal despite the abundant evidence. Shyam Sunder of NIST later acknowledged it but could not offer a rational explanation for it. NIST's afterthought Answers to Frequently Asked Questions (FAQ) webpage attributes the spout's color to mixing of office contents with the aluminum – a hypothetical phenomenon that physicist Steven Jones and independently a NASA engineer have been unable to reproduce in two laboratory experiments. Given the stakes, one might expect NIST to have used some of the 20 million dollars allocated to the WTC study to show us – not just

speculate – that this miraculous mixing of light, fluffy office materials with heavier aluminum makes a poured stream of impure aluminum appear, in bright sunlight, like the orange molten metal seen in the South Tower videos.

• **Hot Spots with Extreme Temperatures Measured by USGS/NASA**

USGS used NASA thermal imaging of the surface of the WTC rubble pile to document hot spots with extreme temperatures of almost 1,400°F. These temperatures, too, are hotter than most office fires produce. And there were no fires on the surface of the WTC 7 pile following the collapses.

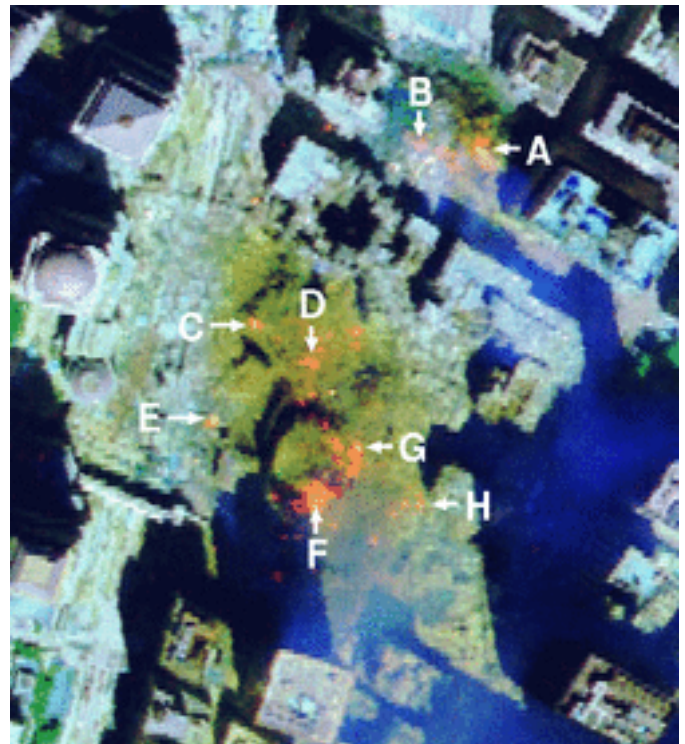


Figure 7: Impossible temperatures on the surface of Ground Zero a week after the collapses.

The detected surface temperatures indicate much higher temperatures deep in the pile, which persisted for several weeks despite the

continuous spraying of millions of gallons of water onto Ground Zero – so much water that one worker described the result as “a giant lake.” Thermite contains its own source of oxygen and burns just as well under water.

• ***Molten Iron Droplets in the WTC Dust***

Chemical and micrographic analysis of the dust that blanketed Lower Manhattan after the destruction of each of the Twin Towers revealed the presence of iron-rich “microspheres.” These microspheres were found in separately collected samples of the dust both near and far from Ground Zero, some of it collected before cleanup operations had begun. Their shape indicates that they were previously molten fragments that were

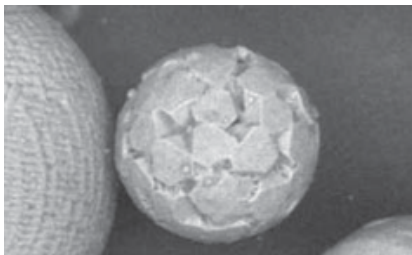


Figure 9: Billions of previously molten iron spheres found in all WTC dust samples.

pulled into spherical form by surface tension into droplets, which solidified before hitting the ground. They are direct evidence

that temperatures exceeding the melting point of iron were present during the buildings’ destruction. These microspheres could not have been produced by friction or any other known process during the Towers’ collapses. Furthermore, they lack the chromium present in structural steel and contain manganese, an ingredient of potassium permanganate, a common thermite additive.

• ***Aluminothermic Nanocomposites – Unignited Nanothermite in the WTC Dust***

An even more definitive discovery arose during a scientific examination of the dust: red-gray chips. An international team of chemists, physicists, and

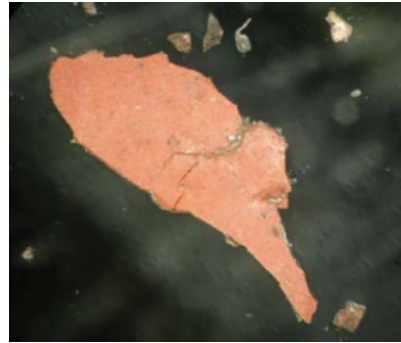


Figure 8: Hundreds of red/gray chips of "unignited nanothermite" in every WTC dust sample.

others confirmed that the chemical makeup of the red layer of these chips, their granular structure, and their thermal behavior, were all consistent with those of advanced thermite explosives.

Particle sizes of less than a tenth of a micron in the red layer classify this material as nanothermite. The significance of the extremely small particle sizes is that the surface area is much greater for a given volume of the components, so chemical reactions are greatly accelerated.

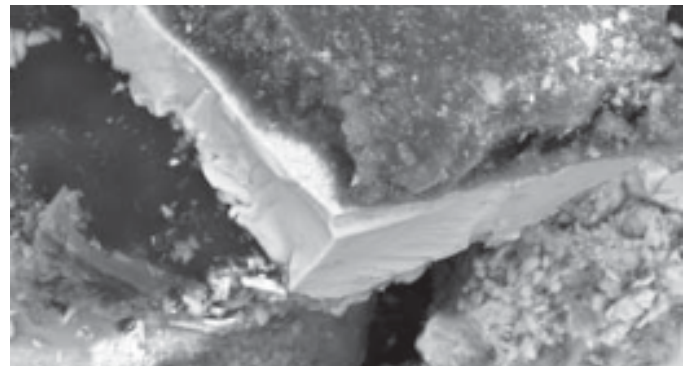


Figure 10: Nanothermite particle sizes are 1,000 times smaller than a human hair. This material is not made in a cave in Afghanistan.

The team published its findings in The Open Chemical Physics Journal in April 2009. Members of the team had earlier asked that NIST test the dust for evidence of explosives. NIST repeatedly refused to do so, even though such testing is

called for by NFPA 921, the National Fire Protection Association guideline for fire and explosion investigations throughout the United States.

NIST did not see fit to even discuss the issue of thermite or explosives in its formal reports. In its FAQ, referring narrowly to tests for ordinary thermite and thermate, they explained that “such tests would not necessarily have been conclusive” because “The metal compounds also would have been present in the construction materials making up the WTC towers...” This is technically correct, and NFPA 921 does emphasize the need to make inferences cautiously: “Presence of remains from the oxidizers does not in itself constitute an intentionally set fire.” (section 22.2.4, 2008 edition). However, NFPA 921 does not provide any justification for *not performing* tests, especially when there is evidence of “high temperature accelerants (HTAs),” such as “melted steel” (22.4.1) The guidelines refer to thermite specifically: “Thermite mixtures also produce exceedingly hot fires. Such accelerants generally leave residues that may be visually or chemically identifiable.”

Moreover, the team of scientists who *did* look at the dust found an exotic, highly engineered form of thermite, known as nanothermite, or superthermite. It doesn't just melt steel; it *explodes*. It can be chemically tuned to do so with less noise than conventional explosives. And it cannot be confused – even by overworked government engineers – with structural steel, rust, primer paint, aluminum cladding, or other “construction materials.”

It contains ultra fine grain particles of aluminum and iron oxide, 1,000 times smaller than a

human hair, “intimately intermixed” and embedded in a matrix of organic material. When it is heated slowly to about 430° C it “goes off ” thermally, producing molten iron in spheroids reminiscent of those found in the dust. Clearly the reaction, triggered at only 430° C, releases enough energy to raise the temperature beyond the melting point of iron (1538° C.).

## Looks Who's Here

Nanothermite could not have been made in a cave in Afghanistan. It was developed in the 1990's in US national laboratories, and is produced by only a few defense contractors. Some of those same contractors contributed personnel to the NIST investigation of the destruction of the World Trade Center. Very highly placed personnel, in fact, in positions of leadership at NIST:

Arden Bement, the metallurgist and expert on fuels and materials who was nominated as director of NIST by President George W. Bush in October 2001, was former deputy secretary of defense, former director of DARPA's office of materials science, and former executive at TRW.

Of course, DOD and DARPA are both leaders in the production and use of nanothermites.... And military and aerospace contractor TRW has had a long collaboration with NASA laboratories in the development of energetic materials that are components of advanced propellants, like nano-gelled explosive materials.... TRW Aeronautics also made fireproof composites and high performance elastomer formulations, and worked with NASA to make energetic aerogels...

Forman Williams, the lead engineer on NIST's advisory committee, and the most prominent



engineering expert for *Popular Mechanics*, is an expert on the deflagration of energetic materials and the “ignition of porous energetic materials....” Nanothermites are porous energetic materials. Additionally, Williams’ research partner, Stephen Margolis, has presented at conferences where nano-energetics are the focus.... Some of Williams’ other colleagues at the University of California San Diego, like David J. Benson, are also experts on nanothermite materials. (Kevin Ryan, “The Top Ten Connections Between NIST and Nano Thermites”, July 2, 2008, *Journal of 9/11 Studies*.)

How did people with such expertise miss all the features of controlled demolition, and the nanothermite in the dust? For them to avoid even discussing the possibility in their 11,500 pages of “final” reports, and to wave it away with a few sentences on their website, is an outrage to science, at a minimum.

### What About the Twin Towers?

The collapses of the WTC Twin Towers represent the worst structural failures in modern history.



Figure 11: South Tower - A very explosive event.

The official story suggests that the jetliner impacts and resulting fires weakened the structure, resulting in a gravitational collapse. The evidence, most of which was omitted from the NIST report, supports a different

conclusion – one that points squarely to a unique

type of controlled demolition. This evidence includes:

1. Rapid onset of destruction
2. Sounds of explosions and flashes of light heard and seen by over a hundred first responders before “collapse”
3. Continuous acceleration of the building mass straight down through the path of what was greatest resistance
4. Multi-ton steel sections ejected laterally 600 feet at 50 mph
5. Mid-air pulverization of 90,000 tons of concrete
6. Massive volume of expanding pyroclastic-like clouds
7. 1,200-foot diameter of improbably equal debris distribution
8. Isolated explosive ejections 20-60 stories below demolition waves
9. Total building destruction: dismemberment of steel frame
10. No stack of floors found at the base of either tower

If powerful insiders had the foreknowledge and technology to rig Building 7 long in advance of the jetliner impacts, the same is true for the Twin Towers. Every American must face his own conscience squarely when confronted with the gruesome evidence of the destruction of these high-rises on 9/11 – especially considering the resulting death of over a million people in the wars that followed, and the loss of many of our precious freedoms through quickly passed legislation.