Our most solid evidence for the use of explosives in the destruction of the World Trade Center

By David Chandler

The evidence shows that the three World Trade Center towers (North Tower, South Tower, and Building 7) were not caused to fall because of airplane impacts, jet fuel, and fires. Rather there is strong evidence that they were destroyed by large quantities of explosives and/or incendiaries placed in advance of 9/11. There are obvious implications for insider participation and coordination with the larger events of 9/11, but we will not go into those implications here. What can be established by scientific means is that explosives were used.

Some of the clearest lines of evidence for explosive demolition are:

- **The dynamics of the falling buildings are inconsistent with gravitational collapse** prompted by fires and localized failures. In particular, Building 7 fell uniformly at absolute freefall for well over 2 seconds. The North Tower fell at about 2/3 of freefall. The fact that it continued to accelerate at all is inconsistent with the idea that it was crushing the building below it.
- **Fires due to jet fuel (kerosene) and office furnishings are not hot enough** to melt steel or cause steel frame buildings to collapse. They miss the melting point of steel by 1000ºF. There is in fact evidence that they were actually rather low temperature fires.
- **On the other hand, there is strong evidence that extremely high temperatures,** well above the melting point of iron, were experienced in the World Trade Center during the building collapses. Since the jet fuel and office fires could not produce these effects, some other source of the high temperatures must have been present.
- **Analysis of the dust provides direct evidence of nanothermite**, a relatively new, military-grade material fabricated with high tech equipment in national laboratories. Unreacted chips of this material, together with large quantities of the expected byproducts of the reaction were found in all of the samples of the World Trade Center dust that were studied, including samples taken immediately after the collapses and before cleanup operations began.

****

A Few More Details

- World Trade Center Building 7, (WTC7) which was not hit by a plane, came down at absolute freefall for over two seconds and over 100 feet
  - This implies that there was no resistance from the underlying structure, whatsoever, over a span of about 8 stories
    - A body in freefall can do no "work"; all of its energy is going into kinetic energy (the energy of motion) leaving none available to do anything else. Therefore any destruction happening during the interval of freefall *must have been done by something else*.
    - In demolitions that are driven by gravity alone (after supports are removed), the building decelerates as soon as the falling section engages with the lower section. Large amounts of energy are dissipated into demolishing the structure resulting in easily observable deceleration.
    - Once the falling section of WTC7 actually engages with the underlying structure it decelerates as expected. This confirms that the underlying structure is *capable* of slowing the fall, but for 8 stories it did not do so
  - The building fell with a level roofline, indicating that all vertical support over the entire width of the building (which would nearly cover a football field) had to have been removed suddenly and simultaneously.
    - There was a partial collapse toward the east end of the building, under the east penthouse, a few seconds before the final collapse. This required the removal of at least 1, probably 3 columns. This partial collapse was accompanied by window breakage in the collapsing region.
    - There is no more window breakage or other deformation of the exterior of the building until just before the final collapse, indicating a quiescent period.
    - The rigidity of the building is suddenly lost about a second and a half prior to collapse. One consequence of this event is a lateral bowing of the visible north face of the building, frequently mistaken for a dip in the roofline. However video footage level with the roofline show there was no dip.
    - The interior columns continued providing support, as indicated by the persistence of the rooftop air conditioning units and west penthouse, until about a half second before the final simultaneous collapse of the building.
  - The only way to achieve such a global collapse, with uniform and sudden onset, is though demolition using some combination of incendiaries and synchronized explosives
    - Failures due to fire followed by progressive collapse (the official explanation) would not only be unprecedented, but would not explain what is observed: uniform, global collapse with sudden onset.

- Implications of WTC7: Preparation of a building for demolition takes extensive planning and physical preparation. Therefore those involved in planning and carrying out the demolition of WTC7 had to have coordinated with the hijackings and other elements of what happened on 9/11.
    - The physical preparation required extensive access to the infrastructure of the building, probably over weeks or months.

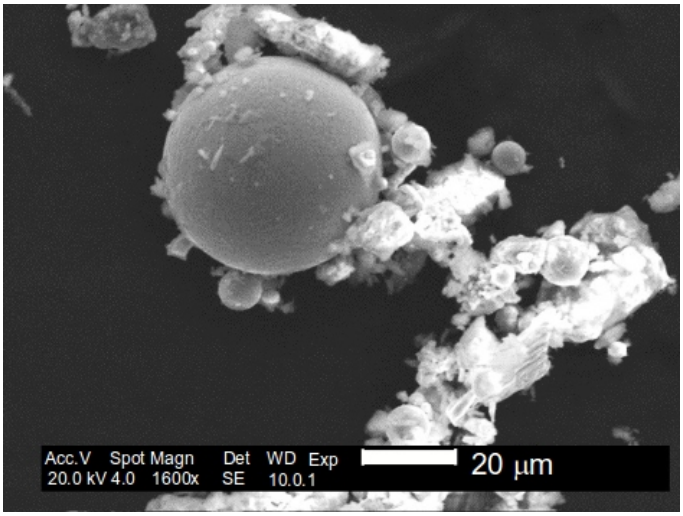
        - WTC7 was a very secure location, given the tenant list. It is therefore reasonable to surmise that the kind of access needed to perform the preparations required insider collaboration.
        - The idea that the building was rigged for demolition on the day of 9/11 as a response to a safety hazard is not feasible, given the complexity of the task and the ongoing fires in the building.

- The Twin Towers (North Tower = WTC1; South Tower = WTC2)
    - Both towers were impacted by Boeing 767s
        - One set of questions (which I will not pursue here) arises from the fact that multiple hijacks could arrive at their targets without interception. As summarized by Jim Hoffman at http://911research.wtc7.net, the flight 175 impact of the South Tower "was 43 minutes after Flight 11 first went off course, 21 minutes after Flight 175 went off course, and 17 minutes after the North Tower impact, yet the jet was not intercepted."
        - The damage done by the airplanes consisted of partial destruction of the impacted wall, damage to and/or severing of a small number of core columns, and relatively small exit holes on the opposite face. In the South Tower there was some damage to the eastern wall and the NE corner column structure.
        - It is significant that both buildings continued to stand and support the sections above the impact points for about an hour or more.
        - Besides the impact damage, the planes dumped their fuel into the buildings. Jet fuel is essentially kerosene. A large fraction of the jet fuel burned up immediately in dramatic fireballs, much of the energy being released outside the buildings. These low pressure fireballs should not be confused with explosions, which involve high pressure shock waves.
            - The primary effect of the fuel is that it started fires. Essentially all of the fuel would have burned off in the first few minutes. Note that the boiling point of jet fuel is 349ºF, so any liquid fuel present in the fires would quickly vaporize and be rapidly consumed.
    - The fires in the towers were not burning at maximum temperature, as can be seen from the amount of black smoke, which indicates incomplete combustion. Jim Hoffman has computed that even under idealized assumptions, the air temperature increase due to burning jet fuel burning could not have been more than 495ºF.
        - People survived in the vicinity of the fires, which is also evidence that the fires were not unusually hot
        - Air temperature is not the same thing as steel temperature. Steel wicks away the heat, so prolonged heating (usually several hours) is necessary to bring it up to the air temperature.
        - The temperatures achievable from the jet fuel and office fires was not sufficient to melt the steel or even come close to 1100ºF at which steel loses half its strength.
        - The Cardington fire tests in the mid 1990s created intense fires in a simulated 8-storey steel frame building in which the steel temperatures reached 1500º-1700ºF, well above the critical half strength point, yet none of the structural members collapsed.
        - The melting point of structural steel is typically about 2750ºF. Even the artificially hot Cardington fire test missed this temperature by over 1000ºF. There is no mechanism for office fires and jet fuel burning in air to melt steel. To melt steel a fire must be fed with pure oxygen, as in a blast furnace.

- The fires were confined to only a few floors at and above the impact zone. Both buildings below the impact zones were full strength and undamaged by fire.

- On the other hand there is abundant evidence of extremely high temperatures during the destruction of the World Trade Center (See http://www.journalof911studies.com/articles/WTCHighTemp2.pdf).

  - The dust from the World Trade Center destruction contained high concentrations of iron-rich spheres (previously molten droplets). A few spheres are found in ordinary dust, due to micrometeorites that melt but do not burn up upon entry into the atmosphere. However the RJ Lee company, in an independent study, found 150 times the concentration of iron spheres in WTC dust compared to normal expectations. Iron melts at about 2800ºF.

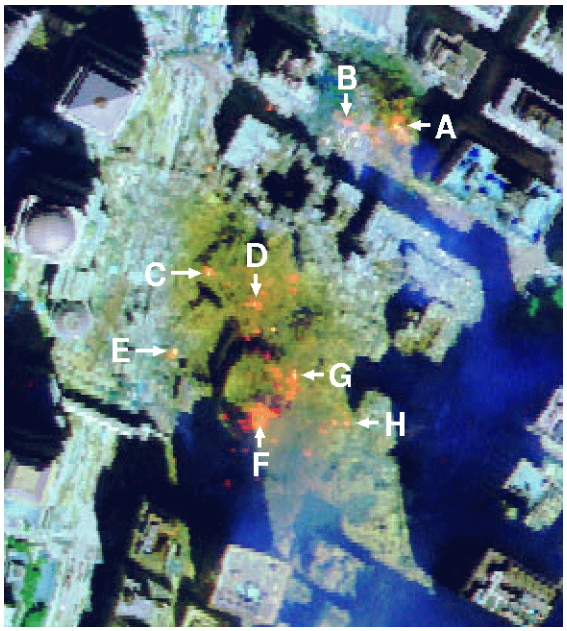


  - RJ Lee also found evidence for the evaporation of lead, requiring a temperature of 3164ºF.
  - A USGS study found a molybdenum-rich spherule. Melting would require a temperature of 4753ºF.
  - These temperatures require the presence of other processes besides jet fuel and office furnishings.

  - Molten iron/steel poured from the north face of the South Tower in the minutes leading up to its collapse. Attempts to characterize this as molten aluminum are not credible because aluminum is silvery in daylight at its melting temperature. This flow of molten metal is yellow-orange, characteristic of molten iron. There appears to be an ongoing reaction in the flow because it flares up a number of times as it falls.

  - There is abundant eyewitness testimony of molten iron in the rubble pile by first responders and others. Some firemen described it like being in a foundry.

- There is strong evidence of ongoing chemical reactions in the rubble pile keeping it burning for weeks after 9/11 despite rain and massive amounts of water sprayed onto the pile.



- Evidence of thermitic reactions during the WTC destruction
  - The iron spheres found in the dust are not consistent with droplets of molten structural steel. They lack the other elements found in steel. They are, however, typical of byproducts of thermitic reactions.
  - Ordinary thermite burns at about 4500ºF, limited by the boiling point of aluminum. There are other variants of thermite including thermate (with the addition of sulfur) and "superthermite" or "nano-thermite" which involves much finer association of sub-micron size particles of aluminum and iron oxide. Nanothermite is a military grade material produced at the national laboratories, not available on the open market.
  - The fact that molten iron was produced during the WTC destruction requires temperatures out of reach of ordinary fires, but explainable by the presence of thermite.
  - Iron spheres are a normal byproduct of the thermitic reaction, the iron coming from the iron component of thermite itself. The reaction proceeds violently and sprays iron droplets which condense before hitting the ground, producing spheres. The composition of the spheres from the WTC dust is consistent with this source, and there is no other reasonable source.
  - The dust contains red-grey chips (a red layer backed by a grey layer). The red layer has been tested and identified as an unreacted highly energetic thermitic nanocomposite (or nanothermite).
    - Typical thermite consists of powdered iron oxide in close association with powdered aluminum. At the ignition temperature, the oxygen is liberated from the iron oxide and captured by the aluminum in a stronly exothermic reaction producing very high temperatures. The primary byproducts are molten (typically splattered) iron droplets and aluminum oxide which is seen as white smoke.
      - Smaller grain size exposes greater surface area and allows the reaction to go faster. Nanothermite refers to the extremely small size of the reactant particles: 1000 nanometers (nm) = 1 micron. A micron is a millionth of a meter. A nanometer is a billionth of a meter.
    - The red-grey chips are a composite material that contains metalic aluminum in the form of platelets about 40 nanometers thick and iron oxide grains about 100

nanometers across intimately mixed and embedded in an organic polymer matrix.

- Ordinary thermite is considered an incendiary, something which produces extremely high temperatures. Nanothermite releases its energy much more quickly due to the size of the particles. However, to become an explosive it needs a rapidly expanding gas that can create a shock wave. The red polymer could have this effect.
- The red-grey chips undergo a highly exothermic reaction at a lower trigger temperature than ordinary thermite and gives off energy comparable to published data for known nanothermite.
- They are observed to produce iron spheres as a byproduct, proving that it achieves a temperature high enough to melt iron.
- The assertion that these are merely paint chips does not take the highly energetic behavior of the material into account.
- The assertion that thermitic behavior in the rubble pile was due to the presence of aluminum from the plane and rust from the building components is a frivolous and disingenuous suggestion. It is precisely the small scale of the components that gives thermite its characteristics, and which motivates the design of nanothermite to further enhance the reaction. Furthermore, the accidental coming together of aluminum and iron oxide cannot account for the presence of highly engineered red-grey chips in the dust.

- The presence of energetic material is displayed during the actual destruction of the Twin Towers in the behavior of the streams of material that are thrown out.
  - Projectiles can be observed fragmenting midair
  - Many of the surfaces of the ejected beams trail voluminous white smoke consistent with aluminum oxide, a byproduct of thermitic reactions.
  - Some of these projectiles change direction or accelerate mid air, and the smoke trails take sharp turns following them, confirming that the smoke is being emitted from the projectiles rather than simply being entrained in its wake.