



With this document I have simply cut and pasted the NIST Questions, and included each original posed by NIST, then their response, and then following their response, the various responses of members of St911.org. None of the writing is credited to me, I just thought it would be helpful to have a master document that combined the various responses published. - Spencer Morgan - <http://www.utah911truth.com/>

Compendium of ST911 Member's Responses To NIST "QUESTIONS & ANSWERS"

QUESTION 1. If the World Trade Center (WTC) towers were designed to withstand multiple impacts by Boeing 707 aircraft, why did the impact of individual 767s cause so much damage?

NIST: As stated in Section 5.3.2 of NIST NCSTAR 1, a document from the Port Authority of New York and New Jersey (PANYNJ) indicated that the impact of a [single, not multiple] Boeing 707 aircraft was analyzed during the design stage of the WTC towers. However, NIST investigators were unable to locate any documentation of the criteria and method used in the impact analysis and, therefore, were unable to verify the assertion that "... such collision would result in only local damage which could not cause collapse or substantial damage to the building...."

1. The capability to conduct rigorous simulations of the aircraft impact, the growth and spread of the ensuing fires, and the effects of fires on the structure is a recent development. Since the approach to structural modeling was developed for the NIST WTC investigation, the technical capability available to the PANYNJ and its consultants and contractors to perform such analyses in the 1960s would have been quite limited in comparison to the capabilities brought to bear in the NIST investigation.

The damage from the impact of a Boeing 767 aircraft (which is about 20 percent bigger than a Boeing 707) into each tower is well documented in NCSTAR 1-2. The massive damage was caused by the large mass of the aircraft, their high speed and momentum, which severed the relatively light steel of the exterior columns on the impact floors. The results of the NIST impact analyses matched well with observations (from photos and videos and analysis of recovered WTC steel) of exterior damage and of the amount and location of debris exiting from the buildings. This agreement supports the premise that the

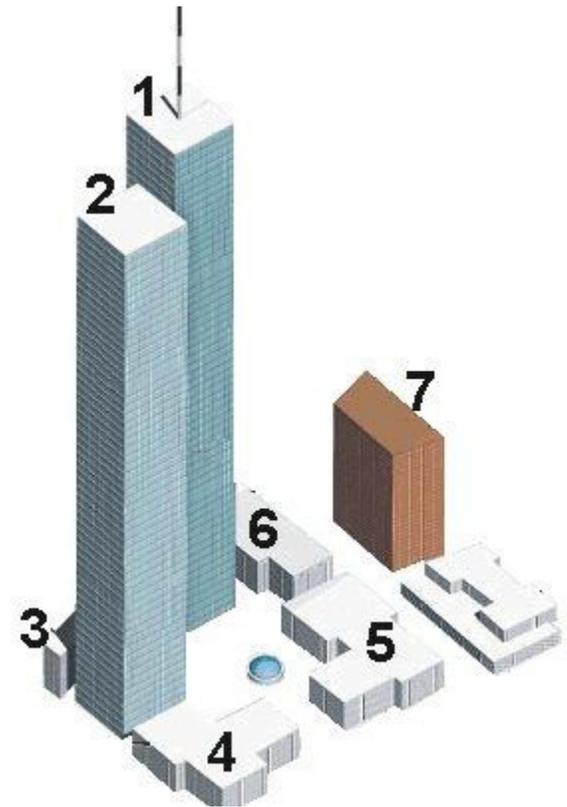


structural damage to the towers was due to the aircraft impact and not to any alternative forces.

James Fetzer: This merely asserts that the impact of the planes did damage. It does not establish that, from a structural point of view, the damage done was other than negligible. Frank DeMartini's characterization--that the intricate lattice design and 47 core columns and their sophisticated load redistribution capability would have accommodated even multiple impacts of Boeing 707s and that the effect would have been analogous to "sticking a pencil through mosquito netting"--is conveniently omitted, even though it was supported by at least three other engineers who worked on the towers. Not being able to locate documentation is not the same thing as establishing that DeMartini and others were mistaken.

Jim Hoffman: If NIST's computer models really do show collapse initiation, why don't they disclose those models? NIST's first answer reeks of propaganda: the "massive damage caused by the large mass" of the plane is contrasted with the "light steel" of the building. In fact, the steel on a single floor of the tower was ten times the weight of a 767.

Kevin Ryan: The real question here is, since the WTC tower's design engineer, John Skilling, said that he took airliner crashes and jet fuel fires in to account and then stated clearly that "the building structure would still be there", why was NIST so sure from the start that fires brought down the buildings? Then, when NIST started to use Mr. Skilling's words in their later presentations, why did they suggest this was only an anonymous view? Finally, in what places did NIST look for Skilling's aircraft impact analysis?



For Mr. Skilling's comments, see Glanz and Lipton, *City in the Sky*, p138

As Professor Fetzer notes, the WTC's Construction manager, Frank DeMartini, was the last person known to have made the comments about the building's potential to withstand multiple impacts and he said the effect would have been similar to "sticking a pencil through mosquito netting". But NIST fails to recognize Mr. Martini's remarks at all. Why? NIST failing to locate the documentation does not prove that the design and construction engineers were mistaken.

QUESTION 2: Why did NIST not consider a "controlled demolition" hypothesis with matching computer modeling and explanation as it did for the "pancake theory" hypothesis? A key critique of NIST's work lies in the complete lack of analysis supporting a "progressive collapse" after the point of collapse initiation and the lack of consideration given to a controlled demolition hypothesis.

NIST NIST conducted an extremely thorough three-year investigation into what caused the WTC towers to collapse, as explained in NIST's dedicated Web site, <http://wtc.nist.gov>. This included

consideration of a number of hypotheses for the collapses of the towers.

2. Some 200 technical experts—including about 85 career NIST experts and 125 leading experts from the private sector and academia—reviewed tens of thousands of documents, interviewed more than 1,000 people, reviewed 7,000 segments of video footage and 7,000 photographs, analyzed 236 pieces of steel from the wreckage, performed laboratory tests and sophisticated computer simulations of the sequence of events that occurred from the moment the aircraft struck the towers until they began to collapse.

Based on this comprehensive investigation, NIST concluded that the WTC towers collapsed because: (1) the impact of the planes severed and damaged support columns, dislodged fireproofing insulation coating the steel floor trusses and steel columns, and widely dispersed jet fuel over multiple floors; and (2) the subsequent unusually large jet-fuel ignited multi-floor fires (which reached temperatures as high as 1,000 degrees Celsius) significantly weakened the floors and columns with dislodged fireproofing to the point where floors sagged and pulled inward on the perimeter columns. This led to the inward bowing of the perimeter columns and failure of the south face of WTC 1 and the east face of WTC 2, initiating the collapse of each of the towers. Both photographic and video evidence—as well as accounts from the New York Police Department aviation unit during a half-hour period prior to collapse—support this sequence for each tower.

NIST's findings do not support the “pancake theory” of collapse, which is premised on a progressive failure of the floor systems in the WTC towers (the composite floor system—that connected the core columns and the perimeter columns—consisted of a grid of steel “trusses” integrated with a concrete slab; see diagram below). Instead, the NIST investigation showed conclusively that the failure of the inwardly bowed perimeter columns initiated collapse and that the occurrence of this inward bowing required the sagging floors to remain connected to the columns and pull the columns inwards. Thus, the floors did not fail progressively to cause a pancaking phenomenon.

NIST's findings also do not support the “controlled demolition” theory since there is conclusive evidence that: the collapse was initiated in the impact and fire floors of the WTC towers and nowhere else, and; the time it took for the collapse to initiate (56 minutes for WTC 2 and 102 minutes for WTC 1) was dictated by (1) the extent of damage caused by the aircraft impact, and (2) the time it took for the fires to reach critical locations and weaken the structure to the point that the towers could not resist the tremendous energy released by the downward movement of the massive top section of the building at and above the fire and impact floors.

Video evidence also showed unambiguously that the collapse progressed from the top to the bottom, and there was no evidence (collected by NIST, or by the New York Police Department, the Port Authority Police Department or the Fire Department of New York) of any blast or explosions in the region below the impact and fire floors as the top building

sections (including and above the 98th floor in WTC 1 and the 82nd floor in WTC 2) began their downward movement upon collapse initiation.

In summary, NIST found no corroborating evidence for alternative hypotheses suggesting that the WTC towers were brought down by controlled demolition using explosives planted prior to Sept. 11, 2001. NIST also did not find any evidence that missiles were fired at or hit the towers. Instead, photographs and videos from several angles clearly show that the collapse initiated at the fire and impact floors and that the collapse progressed from the initiating floors downward until the dust clouds obscured the view.

Jim Hoffman: In the following, NIST squirms away from the assertion that the 'collapses' of the Twin Towers were [progressive collapses](#). It does this by describing the [floor pancaking model](#) (endorsed by earlier versions of the official story, such as FEMA, [NOVA](#), and [Eagar](#)) as a progressive collapse, thereby implying that NIST's theory is not a progressive collapse theory.

However, regardless of whether one calls the total destruction of the Twin Towers progressive collapse or something else, it remains true that there is no historical or experimental basis for believing that collapse events near the tops of the towers could progress all the way down the towers' vertical axes to produce total collapses. Lacking such a basis, the core assumption of NIST's theory is unscientific.

NIST implies that the top-down order of destruction of the Twin Towers weighs against the controlled demolition theory. However, as part of a psychological operation, the controlled demolition of the Twin Towers would be designed to support a false narrative of events (that the plane crashes caused the collapses) so of course the events were engineered to have the destruction start around the crash zones.

While NIST cherry-picks a feature of the Towers' destructions that differs from conventional, bottom-up demolitions, it conveniently ignores numerous features that are apparently unique to demolitions, including:

Rapid onset, accompanied by sounds of explosions

Radial symmetry about the building's vertical axis

Consistent pulverization of non-metallic materials

Total destruction of the building

NIST's mixing of the idea that "missiles were fired at or hit the towers" into it's rebuttal of controlled demolition is gratuitous and seemingly designed to discredit the demolition thesis by

associating it with [nonsense](#).

Kevin Ryan: NIST did not consider the demolition hypothesis at all. They did insert an eleventh hour disclaimer about having found “no evidence” to support this hypothesis, but if you look through their presentations you see that they never analyzed or tested any aspect of the demolition hypothesis.

NIST provided no scientific support for their primary contention that thousands of shotgun blasts could be created to cause the fireproofing to be widely dislodged, but yet there IS evidence that energy was not available to affect this fireproofing loss.

Additionally, NIST was deceptive and unscientific at every step of their investigation. An excellent example of this is their computer manipulations to prove that perimeter columns could be bowed inward. After having eliminated all the fireproofing, and exaggerated the temperatures and fire duration times, NIST “disconnected” their virtual columns from the floors before applying an inward force. Where does the inward force come from when the floors are disconnected?

(For details, see my essay “What is 9/11 Truth? – The First Steps” at www.journalof911studies.com.)

It is gratifying that NIST finally admits their findings do not support the “Pancake Theory” of collapse. Note that this is in direct contradiction to Shyam Sunder’s comments reported by Popular Mechanics Magazine in March 2005, four months after NIST’s final draft came out (but six months before their final, final draft appeared).

The statement “NIST found no corroborating evidence for ...controlled demolition using explosives” is blatantly false. As any attorney can tell you, eyewitness testimony is evidence, and there are numerous eyewitness testimonies to the presence of explosives on 9/11/01.

Additionally, as the national fire investigation standard (NFPA 921) states, [Sulfur] residue on the steel could indicate the use of thermite or other pyrotechnic materials.

James Fetzer: How can the NIST completely ignore the 47 core columns, which were the distinctive engineering feature of the Twin Towers and would have made the kind of

collapse they describe here impossible unless all of the support columns on a floor had simultaneously failed? Otherwise, even if the temperature of the fire had been as great as 1,000 degrees C, which it was not, the collapse would have involved gradual and asymmetrical sagging and buckling, not the complete, total and abrupt destruction (from the top down) that was actually observed. This response also ignores the seismic records of events prior to "collapse", which is related to question 5. The order of the questions seems to be being used to obfuscate the importance of evidence in relation to the time sequence. To assert that NIST "found no corroborating evidence" for alternative accounts, such as controlled demolition, would be significant only if NIST had actually looked for evidence that might support alternative accounts. In fact, it has found sulfur residue on remnants of the steel, which provides "corroborating evidence" of the use of thermate (thermite and sulfur) to cut the steel as a partial explanation of how the buildings may have been destroyed as a result of controlled demolitions, which means that what the NIST is saying here is false.

QUESTION 3. How could the WTC towers have collapsed without a controlled demolition since no steel-frame, high-rise buildings have ever before or since been brought down due to fires? Temperatures due to fire don't get hot enough for buildings to collapse.

NIST: The collapse of the WTC towers was not caused either by a conventional building fire or even solely by the concurrent multi-floor fires that day. Instead, NIST concluded that the WTC towers collapsed because: (1) the impact of the planes severed and damaged support columns, dislodged fireproofing insulation coating the steel floor trusses and steel columns, and widely dispersed jet fuel over multiple floors; and (2) the subsequent unusually large, jet-fuel ignited multi-floor fires weakened the now susceptible structural steel. No building in the United States has ever been subjected to the massive structural damage and concurrent multi-floor fires that the towers experienced on Sept. 11, 2001.

Kevin Ryan: A better question is - What is the probability that three buildings could have suffered this fate on one day, and in three different scenarios? Has a maximum likelihood calculation, or any other probability calculation, been performed? Additionally, Dr. Fetzer points out that the February 1975 fire on the 11th floor of the North Tower burned hotter and longer (for more than three hours), yet none of the steel had to be replaced.

Jim Hoffman: But steel-framed high-rise buildings have been felled by severe earthquakes, and in [those cases](#), the buildings were not pulverized and shredded, as the World Trade Center was, but were toppled.

The exact combination of impact-induced structural damage and fire damage was unprecedented, but in some of the [examples of fires in steel-framed high-rise buildings](#) the fires were much stronger and long-lasting than in the three WTC towers, and yet didn't

even produce serious structural damage in the buildings. Since NIST's theory of the demise of the Twin Towers is essentially a fire theory, the lack of a single example of fire-induced total collapse of a steel-framed building presents a problem for that theory.

James Fetzer: This simply ignores (a) most of the fuel was consumed in those massive fireballs upon impact, (b) the fires were oxygen-starved, as the billowing black clouds indicated, (c) they were burning far below 1,000 degrees C, probably on the average closer to 250 degrees C, which was (d) far too low to have caused the steel to weaken, much less melt. Indeed, (e) even if the fires had been as hot as 1,000 degrees C, they did not last long enough to bring about effects of that kind. Compare the 13 February 1975 fire on the 11th floor of the North Tower, which burned hotter (around 1,000 degrees C) and longer (more than three hours), enveloping the core and destroying 65% of the floor, yet none of the steel—in particular, the trusses—had to be replaced. That is as close to a crucial experiment (confirming controlled demolition while refuting the official account) as could be arranged insofar as the buildings are no longer standing.

QUESTION 4. Weren't the puffs of smoke that were seen, as the collapse of each WTC tower starts, evidence of controlled demolition explosions?

NIST: No. As stated in Section 6.14.4 of NIST NCSTAR 1, the falling mass of the building compressed the air ahead of it—much like the action of a piston—forcing smoke and debris out the windows as the stories below failed sequentially.

Kevin Ryan: By what mechanism was the air compressed if pancaking did not occur? How were the puffs or squibs ejected in highly directed jets or bursts, far below the collapse front, without pancaking floors? These certainly don't look like "puffs of gas". They look like jets of smoke and debris.

James Fetzer: This might have been true if the floors had actually collapsed as the government maintains, but they were blown up from the top down. Judy Wood, a mechanical engineer, has compared them to two gigantic trees that are turning to sawdust from the top down. The massive energy required to pulverize concrete flooring, turn office furniture into tiny particles, and disintegrate living things has no source on the official account. Steel beams are being blown outward and even upward while this massive cloud of toxic dust envelopes the structures. Yet, in some footage, such as seen in "9/11 Revisited", you can see some of the floors being blown apart before the dust cloud obscures the blast.

Jim Hoffman: The piston theory that NIST advances here implies acceptance of the floor pancaking scenario, since the dust jets emerge from parts of the tower whose perimeter walls are still intact. Thus NIST contradicts its own theory, which explicitly rejects the floor pancaking scenario.

This is highly misleading. The pre-collapse puffs, such as those seen at the top of WTC 1 following [Flight 11](#)'s impact, are all very minor, and don't look anything like the [energetic jets of dust and debris](#) that accompany the explosions of the Towers.

QUESTION 5. Why were two distinct spikes—one for each tower—seen in seismic records before the towers collapsed? Isn't this indicative of an explosion occurring in each tower?

NIST: The seismic spikes for the collapse of the WTC Towers are the result of debris from the collapsing towers impacting the ground. The spikes began approximately 10 seconds after the times for the start of each building's collapse and continued for approximately 15 seconds. There were no seismic signals that occurred prior to the initiation of the collapse of either tower. The seismic record contains no evidence that would indicate explosions occurring prior to the collapse of the towers.

Jim Hoffman: This is most likely true. The question is based on a long-ago-debunked [theory](#).

James Fetzer: This is false. There were seismic recordings of .7 and .9 on the Richter scale that, according to a new study that appears on st911.org ("Seismic Proof: 9/11 was an Inside Job"), actually preceded the impact of the aircraft by 14 and 17 seconds, which resulted from massive explosions in the subbasements that were observed by custodians in the buildings, including William Rodriguez, who was in the North Tower and saw a fellow custodian with most of the skin blown off his body as well as other effects of these explosions, which appear to have had the purpose of dislodging the 47 core columns from the bedrock. This would appear to be conclusive evidence that the structures were not destroyed by the combined interaction of jet-plane-impact/jet-fuel-fires/and pancake collapse.

Kevin Ryan: there were reports of massive explosions in the sub-basements from custodians in the buildings, including William Rodriguez, who was in the North Tower. Mr. Rodriguez contends that the NIST team ignored his testimony.

QUESTION 6. How could the WTC towers collapse in only 11 seconds (WTC 1) and 9 seconds (WTC 2)—speeds that approximate that of a ball dropped from similar height in a vacuum (with no air resistance)?

NIST: NIST estimated the elapsed times for the first exterior panels to strike the ground after the collapse initiated in each of the towers to be approximately 11 seconds for WTC 1 and approximately 9 seconds for WTC 2. These elapsed times were based on: (1) precise timing of the initiation of collapse from video evidence, and (2) ground motion (seismic) signals recorded at Palisades, N.Y., that also were precisely time-calibrated for wave transmission times from lower Manhattan (see NCSTAR 1-5A).

3. As documented in Section 6.14.4 of NIST NCSTAR 1, these collapse times show that:

“... the structure below the level of collapse initiation offered minimal resistance to the falling building mass at and above the impact zone. The potential energy released by the downward movement of the large building mass far exceeded the capacity of the intact structure below to absorb that energy through energy of deformation.

Since the stories below the level of collapse initiation provided little resistance to the tremendous energy released by the falling building mass, the building section above came down essentially in free fall, as seen in videos. As the stories below sequentially failed, the falling mass increased, further increasing the demand on the floors below, which were unable to arrest the moving mass.”

In other words, the momentum (which equals mass times velocity) of the 12 to 28 stories (WTC 1 and WTC 2, respectively) falling on the supporting structure below (which was designed to support only the static weight of the floors above and not any dynamic effects due to the downward momentum) so greatly exceeded the strength capacity of the structure below that it (the structure below) was unable to stop or even to slow the falling mass. The downward momentum felt by each successive lower floor was even larger due to the increasing mass.

James Fetzer: The laws of physics cannot be violated by buildings or other structures. They were not falling in a vacuum. The rate of free fall for an object dropped from the top of a 110 story building encountering only air resistance on the way down would have been equal to or greater than 12 seconds. The buildings cannot have "collapsed" at a speed faster than free fall in the air even if there was no resistance at all provided by the 110 floors because explosives were used to remove lower floors before higher floors impacted with them. The only way for this effect to be attained if is the floors were being destroyed faster than the building would have collapsed under the force of gravity alone. The speed of the buildings' "collapse" provides conclusive proof of controlled demolition.

Jim Hoffman: NIST's assertion that the Tower's intact structure was "unable to stop or even to slow the falling mass" is absurd. It:

Requires us to believe that the massive steel frames of the towers provided no more resistance to falling rubble than air.

Ignores the fact that the majority of rubble fell outside the towers' footprints, and hence could not contribute to crushing.

Is unsupported by any calculation or logical argument.

To the contrary, video records, such as [this record of the North Tower's fall](#) clearly establish upper boundaries on the times that it took for the vast majority of each tower to

be destroyed.

Kevin Ryan: What was the potential energy NIST refers to, and how did the release of such energy develop? What recommendations has NIST made for architects and engineers to help avoid the wrong combination of potential energy and potential for aircraft impacts so that this cannot happen again? On NIST's poorly defined statement "global collapse ensued", see Ross, Journal of 911 Studies, vol 1.

QUESTION 7a. How could the steel have melted if the fires in the WTC towers weren't hot enough to do so? OR

QUESTION 7b. Since the melting point of steel is about 2,700 degrees Fahrenheit, the temperature of jet fuel fires does not exceed 1,800 degrees Fahrenheit and Underwriters Laboratories (UL) certified the steel in the WTC towers to 2,000 degrees Fahrenheit for six hours, how could fires have impacted the steel enough to bring down the WTC towers?

NIST: In no instance did NIST report that steel in the WTC towers melted due to the fires. The melting point of steel is about 1,500 degrees Celsius (2,800 degrees Fahrenheit). Normal building fires and hydrocarbon (e.g., jet fuel) fires generate temperatures up to about 1,100 degrees Celsius (2,000 degrees Fahrenheit). NIST reported maximum upper layer air temperatures of about 1,000 degrees Celsius (1,800 degrees Fahrenheit) in the WTC towers (for example, see NCSTAR 1, Figure 6-36).

4. However, when bare steel reaches temperatures of 1,000 degrees Celsius, it softens and its strength reduces to roughly 10 percent of its room temperature value. Steel that is unprotected (e.g., if the fireproofing is dislodged) can reach the air temperature within the time period that the fires burned within the towers. Thus, yielding and buckling of the steel members (floor trusses, beams, and both core and exterior columns) with missing fireproofing were expected under the fire intensity and duration determined by NIST for the WTC towers.

UL did not certify any steel as suggested. In fact, in U.S. practice, steel is not certified at all; rather structural assemblies are tested for their fire resistance rating in accordance with a standard procedure such as ASTM E 119 (see NCSTAR 1-6B). That the steel was "certified ... to 2000 degrees Fahrenheit for six hours" is simply not true.

James Fetzer: This response trades upon an equivocation. If UL certified "assemblies" whose principal components are steel, then the claim that UL had certified the steel is justified. The temperatures only averaged about 500 degrees F, far, far below those specified as required for the steel to even weaken. Steel is an excellent thermal conductor, which means that it would have

required raising the temperature of major portions of the whole structure to initiate any effects of the alleged heat. Moreover, most of the jet fuel was consumed in the massive fireballs that occurred upon impact. That means it was no longer available to sustain the fires alleged. The UL had certified the steel in accordance with standards that required it to be capable of sustaining temperatures up to 2,000 degrees F for three to four hours before it would even significantly weaken. (I have in the past used the figure of six hours; Kevin Ryan has corrected me.) Denying the NIST had alleged the steel had melted becomes extremely interesting insofar as massive pools of molten metal were discovered in the subbasements three, four, and five weeks after 9/11. That phenomenon is inexplicable on the government's account, but would be an expectable effect of the use of powerful explosives. This "answer" offers an example of linguistic deceit and deception.

Kevin Ryan: A number of people calling themselves experts, just after 9/11, claimed that the jet fuel fires melted the steel as they were trying to justify the official explanation. Those who sought more logical explanations pointed out that this was impossible, and NIST now agrees. But why did NIST use contractors who had previously stated that the jet fuel fire melted the steel? One notable example is Eduardo Kausel, as reported by Scientific American.

NIST's WTC report often confuses computer results with physical testing results, and gas temperatures with steel temperatures. We might assume they confused these details because, in every case, the physical tests they performed failed to support their pre-determined conclusions.

For example, NIST's testing of the few steel samples saved showed that steel temperatures were only about 250 C. This matches with thermodynamic calculations considering the available amounts of fuel, and the masses and specific heats of materials in the failure zones.

NIST's workstation burn tests to establish gas temperatures were "over-ventilated" and this, among other reasons, shows they were not representative of fires in the WTC. Nonetheless, these tests did result in gas temperatures of ~ 800 C for a few seconds. Added to NIST's computer, these results mysteriously climbed to 1000 C, and then were used in other analyses where they were applied for 90 minutes or more. This is deceptive to say the least. But are these gas temperatures what NIST is referring to when they suggest the steel reached 1000 C for long periods of time over a vast area of the building?

NIST has misrepresented my comments, and the continued use of the "steel vs. steel components" diversion is shameful. According to UL's CEO, Loring Knoblauch, UL did test steel components used in the construction of the WTC buildings.* We realize that since that time, the documents have "come up missing", but has Mr. Knoblauch been interviewed? Why is it that neither NIST nor UL can simply say that "UL was in no way involved in testing materials related to the construction of the World Trade Center"?

*See "Propping Up the War on Terror: Lies About the WTC by NIST and Underwriters Laboratories," to be published in *9/11 & American Empire: Intellectuals Speak Out*, ed. David Ray Griffin and Peter Dale Scott (Northampton: Interlink Books, 2006) (http://www.911review.com/articles/ryan/lies_about_wtc.html)

Professor Fetzner notes that steel is an excellent thermal conductor, which means that the steel temperature increases needed would have required raising the temperature of major portions of the whole structure.

Jim Hoffman: Confusion about whether the official story depends on the melting of structural steel is a product of [pronouncements from a number of experts](#) that the fires in the Twin Towers caused their collapses by melting steel. Subsequently, attackers of challenges to the official story used the argument that the fires couldn't have melted steel as a [straw man argument](#).

QUESTION 8. We know that the sprinkler systems were activated because survivors reported water in the stairwells. If the sprinklers were working, how could there be a 'raging inferno' in the WTC towers?

NIST: Both the NIST calculations and interviews with survivors and firefighters indicated that the aircraft impacts severed the water pipes that carried the water to the sprinkler systems. The sprinklers were not operating on the principal fire floors.

5. However, there were ample sources of the water in the stairwells. The water pipes ran vertically within the stairwells. Moreover, there would have been copious water from the broken restroom supply lines and from the water tanks that supplied the initial water for the sprinklers. Thus, it is not surprising that evacuating occupants encountered a lot of water.

Even if the automatic sprinklers had been operational, the sprinkler systems—which were installed in accordance with the prevailing fire safety code—were designed to suppress a fire that covered as much as 1,500 square feet on a given floor. This amount of coverage is capable of controlling almost all fires that are likely to occur in an office building. On Sept. 11, 2001, the jet-fuel ignited fires quickly spread over most of the 40,000 square feet on several floors in each tower. This created infernos that could not have been suppressed even by an undamaged sprinkler system, much less one that had been appreciably degraded.

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It's true that the sprinkler system may have had little effect on controlling the fires. Regardless, fires in the South Tower remained limited to a few floors and one side of the building -- a fact documented by numerous [photographs](#) of the attack.

James Fetzer: The massive fire in the North Tower on 13 February 1975 had led to the installation of more sophisticated sprinkler systems and other measures that enhanced the buildings' capacity to withstand fires. Not only were persons in the buildings looking out the impact holes but the windows on the buildings remained intact. If the fires had been as hot as NIST maintains, then those windows could not have remained intact. The NIST account cannot be correct.

QUESTION 9. If thick black smoke is characteristic of an oxygen-starved, lower temperature, less intense fire, why was thick black smoke exiting the WTC towers when the fires inside were supposed to be extremely hot?

NIST: Nearly all indoor large fires, including those of the principal combustibles in the WTC towers, produce large quantities of optically thick, dark smoke. This is because, at the locations where the actual burning is taking place, the oxygen is severely depleted and the combustibles are not completely oxidized to colorless carbon dioxide and water.

6. The visible part of fire smoke consists of small soot particles whose formation is favored by the incomplete combustion associated with oxygen-depleted burning. Once formed, the soot from the tower fires was rapidly pushed away from the fires into less hot regions of the building or directly to broken windows and breaks in the building exterior. At these lower temperatures, the soot could no longer burn away. Thus, people saw the thick dark smoke characteristic of burning under oxygen-depleted conditions.

James Fetzer: This is a nice example of conceding a point while denying that you have conceded it. The billowing black clouds of smoke were indicative of oxygen deprived fires, which were burning at temperatures way below those that could be attained under ideal conditions in the presence of pure oxygen. This undercuts the whole NIST account, since if the fires were burning at temperatures far, far below those required to even weaken, much less melt, steel, then it cannot be the case that the steel weakened, much less melted, as an effect of those fires. This is another case of shifting the location of the question to separate it from the issues to which it is directly related, such as questions 7a

and 7b.

Jim Hoffman: NIST's answer to this question hides several essential facts:

Fires in other skyscrapers have produced bright emergent orange flames, and these buildings escaped serious structural damage

Minutes before its collapse the South Tower showed no visible flames, only dark smoke.

Kevin Ryan: It appears that, with this response, NIST is admitting that the fires were not very hot. If this is not the case, what thermodynamic calculations did NIST perform to estimate the temperatures that the steel and other materials within the WTC buildings could have realistically experienced? Can we see these please?

These black, low heat fires must have consumed a portion of the available fuel. How much fuel remained for the presumably much hotter, and much longer-lasting fires in the failure zones?

QUESTION 10. Why were people seen in the gaps left by the plane impacts if the heat from the fires behind them was so excessive?

NIST: NIST believes that the persons seen were away from any strong heat source and most likely in an area that at the time was a point where the air for combustion was being drawn into the building to support the fires. Note that people were observed only in the openings in WTC 1.

7. According to the International Standard ISO/TS 13571, people will be in severe pain within seconds if they are near the radiant heat level generated by a large fire. Thus, it is not surprising that none of the photographs show a person standing in those gaps where there also was a sizable fire.

The fire behavior following the aircraft impacts is described in NIST NCSTAR 1-5A. In general, there was little sustained fire near the area where the aircraft hit the towers. Immediately upon impact of the aircraft, large fireballs from the atomized jet fuel consumed all the local oxygen. (This in itself would have made those locations rapidly unlivable.) The fireballs receded quickly and were followed by fires that grew inside the tower where there was a combination of combustible material, air and an ignition source. Little combustible material remained near the aircraft entry gashes since the aircraft "bulldozed" much of it toward the interior of the building. Also, some of the contents fell through the breaks in the floor to the stories below.

Therefore, the people observed in these openings must have survived the aircraft impact

and moved—once the fireballs had dissipated—to the openings where the temperatures were cooler and the air was clearer than in the building interior.

James Fetzer: The fires were not even hot enough to destroy the windows, much less weaken the steel to the point of initiating a "pancake collapse". Indeed, a structural engineer, Charles N. Pegelow, has recently observed (during an interview on "Non-Random Thoughts", rbnlive.com (24 August 2006) that these are not the kinds of buildings that are susceptible to "pancake collapse", where the only way it could occur with a building of this kind is if all of the support columns on a floor had failed simultaneously. Since the fires were modest in temperature and brief in duration, there is no possible way for that to occur.

Kevin Ryan: NIST has told us that the times required for fires to migrate around the core of the buildings to the points of failure (east wall in WTC2 and south wall in WTC1) would allow for, in each case, only about 45 minutes of fire in the failure zones. Why then were NIST's tests designed to expose floor assemblies and virtual reality column segments to 90 or 120 minutes of fire?

QUESTION 11. Why do some photographs show a yellow stream of molten metal pouring down the side of WTC2 that NIST claims was aluminum from the crashed plane although aluminum burns with a white glow ?

NIST: NIST reported (NCSTAR 1-5A) that just before 9:52 a.m., a bright spot appeared at the top of a window on the 80th floor of WTC 2, four windows removed from the east edge on the north face, followed by the flow of a glowing liquid. This flow lasted approximately four seconds before subsiding. Many such liquid flows were observed from near this location in the seven minutes leading up to the collapse of this tower. There is no evidence of similar molten liquid pouring out from another location in WTC 2 or from anywhere within WTC 1.

8. Photographs, and NIST simulations of the aircraft impact, show large piles of debris in the 80th and 81st floors of WTC 2 near the site where the glowing liquid eventually appeared. Much of this debris came from the aircraft itself and from the office furnishings that the aircraft pushed forward as it tunneled to this far end of the building. Large fires developed on these piles shortly after the aircraft impact and continued to burn in the area until the tower collapsed.

NIST concluded that the source of the molten material was aluminum alloys from the aircraft, since these are known to melt between 475 degrees Celsius and 640 degrees Celsius (depending on the particular alloy), well below the expected temperatures (about 1,000 degrees Celsius) in the vicinity of the fires. Aluminum is not expected to ignite at normal fire temperatures and there is no visual indication that the material flowing from the

tower was burning.

Pure liquid aluminum would be expected to appear silvery. However, the molten metal was very likely mixed with large amounts of hot, partially burned, solid organic materials (e.g., furniture, carpets, partitions and computers) which can display an orange glow, much like logs burning in a fireplace. The apparent color also would have been affected by slag formation on the surface.

James Fetzer: NIST should consult with Professor Steven Jones of BYU, who has been conducting experiments with molten aluminum and molten iron relevant to this question and the adequacy of the NIST response, which I do not address here.

Kevin Ryan: Despite the fact that NIST has no evidence for the temperatures required to melt Aluminum, their response describes a counterintuitive result. If organic material mixed with molten Aluminum, it would likely burn, darken, and distribute in spots, not appear to dissolve within, and change the color of, the molten metal. Why did the Aluminum melt and pour out in such a symmetric fashion, when both the damage and fires were clearly asymmetric?

Does NIST have analyses that show the aircraft debris distributed and then reassembled in a symmetric way to form localized pools of molten Aluminum? If so, did all this occur before or after the debris turned into 0.3 inch pellets arranged as thousands of shotgun blasts, shearing off all the fireproofing in every direction around several floors within and outside of the building?

Has NIST melted Aluminum and then added the expected organic materials to form streams of falling, uniformly yellow solution?

See tests performed by Steven Jones, et. al., with results that contradict NIST's contention on this subject.

QUESTION 12. Did the NIST investigation look for evidence of the WTC towers being brought down by controlled demolition? Was the steel tested for explosives or thermite residues? The combination of thermite and sulfur (called thermate) "slices through steel like a hot knife through butter."

NIST: NIST did not test for the residue of these compounds in the steel.

9. The responses to questions number 2, 4, 5 and 11 demonstrate why NIST concluded that there were no explosives or controlled demolition involved in the collapses of the WTC towers.

Furthermore, a very large quantity of thermite (a mixture of powdered or granular aluminum metal and powdered iron oxide that burns at extremely high temperatures when ignited) or another incendiary compound would have had to be placed on at least the number of columns damaged by the aircraft impact and weakened by the subsequent fires to bring down a tower. Thermite burns slowly relative to explosive materials and can require several minutes in contact with a massive steel section to heat it to a temperature that would result in substantial weakening. Separate from the WTC towers investigation, NIST researchers estimated that at least 0.13 pounds of thermite would be required to heat each pound of a steel section to approximately 700 degrees Celsius (the temperature at which steel weakens substantially). Therefore, while a thermite reaction can cut through large steel columns, many thousands of pounds of thermite would need to have been placed inconspicuously ahead of time, remotely ignited, and somehow held in direct contact with the surface of hundreds of massive structural components to weaken the building. This makes it an unlikely substance for achieving a controlled demolition.

Analysis of the WTC steel for the elements in thermite/thermate would not necessarily have been conclusive. The metal compounds also would have been present in the construction materials making up the WTC towers, and sulfur is present in the gypsum wallboard that was prevalent in the interior partitions.

James Fetzer: NIST should be citing and discussing the work of Steven Jones of BYU, who has conducted the most extensive research related to termite and thermate. Professor Jones would be an appropriate expert to address this NIST response.

Kevin Ryan: Again, as NFPA standard 921 states, residue on the steel suggests the use of thermite or other pyrotechnic materials. Why would the National Institute of Standards not follow the national standard for fire investigation?

Can we see the documents where “NIST researchers estimated that at least 0.13 pounds of thermite would be required to heat each pound of a steel section to approximately 700 degrees Celsius”? This does not sound like the superthermite that Dr. Jones suggests.

Dr. Jones has noted that NIST’s discussion on the amount of thermite needed to bring down a Tower ignores his and other’s research on explosive superthermite, a form using ultra-fine aluminum and metal-oxide powders. Superthermite is explosive so that much less of this form of thermite would be needed to bring the buildings down.

Researchers including Dr. Jones are testing for the residue of thermite-reaction compounds (aluminothermics) both in the toxic WTC dust and in the solidified metal. They

are finding an abundance of Fluorine, Zinc and other elements commonly used in aluminothermics, but not in building materials in the concentrations found. They are investigating the possibility of thermite-based arson and demolition.

Dr. Jones has noted that the presence of aluminothermic-reaction residues in the WTC rubble and dust indicates that some persons brought these compounds into the buildings prior to their collapses. The “fingerprint” of abundant fluorine and zinc in these residues, along with 1,3 diphenylpropane and other unusual compounds, may very well allow us to trace who purchased the chemicals used and in what quantities. We are therefore calling for an independent, in-depth investigation.

Jim Hoffman: NIST's argument against [thermite having been used in demolition](#) supposes that thermite was the only method used. Since Steven Jones and others suggesting thermite use do not endorse pure-thermite theories, NIST's is essentially a straw-man argument.

13. Why did the NIST investigation not consider reports of molten steel in the wreckage from the WTC towers?

NIST: NIST investigators and experts from the American Society of Civil Engineers (ASCE) and the Structural Engineers Association of New York (SEONY)—who inspected the WTC steel at the WTC site and the salvage yards—found no evidence that would support the melting of steel in a jet-fuel ignited fire in the towers prior to collapse. The condition of the steel in the wreckage of the WTC towers (i.e., whether it was in a molten state or not) was irrelevant to the investigation of the collapse since it does not provide any conclusive information on the condition of the steel when the WTC towers were standing.

10. NIST considered the damage to the steel structure and its fireproofing caused by the aircraft impact and the subsequent fires when the buildings were still standing since that damage was responsible for initiating the collapse of the WTC towers.

Under certain circumstances it is conceivable for some of the steel in the wreckage to have melted after the buildings collapsed. Any molten steel in the wreckage was more likely due to the high temperature resulting from long exposure to combustion within the pile than to short exposure to fires or explosions while the buildings were standing.

Jim Hoffman: This is a clever evasion to the still [unexplained phenomenon](#) of thick steel members corroded away by sulfidation and intragranular melting. NIST simply calls the observations "irrelevant" since they don't necessarily pertain to the condition of the steel before the collapses.

Kevin Ryan: As explained by Dr. Fetzer, the presence of molten metal weeks later cannot

be "irrelevant" to the NIST explanation of the collapse, since it was an effect of that event. If the NIST cannot explain it, then the NIST's account is incomplete and fails to satisfy a fundamental requirement of scientific reasoning, known as the requirement of total evidence, which states scientific reasoning must be based upon all of the available relevant evidence. Evidence is relevant when its presence or absence, truth or falsity, makes a difference to (affects the support for) the truth or falsity of a conclusion. NIST is evading the issue. It cannot account for important, relevant evidence.

James Fetzer: The presence of molten metal in the subbasements three, four, and five weeks later cannot be "irrelevant" to the NIST explanation of the "collapse", since it was an effect of that event. If the NIST cannot explain it, then the NIST's account is incomplete and fails to satisfy a fundamental requirement of scientific reasoning, known as the requirement of total evidence, which states scientific reasoning must be base upon all of the available relevant evidence. Evidence is relevant when its presence or absence, truth or falsity, makes a difference to (affects the support for) the truth or falsity of a conclusion. NIST is evading the issue. It cannot account for important, relevant evidence.

QUESTION 14. Why is the NIST investigation of the collapse of WTC 7 (the 47-story office building that collapsed on Sept. 11, 2001, hours after the towers) taking so long to complete? Is a controlled demolition hypothesis being considered to explain the collapse?

NIST: When NIST initiated the WTC investigation, it made a decision not to hire new staff to support the investigation. After the June 2004 progress report on the WTC investigation was issued, the NIST investigation team stopped working on WTC 7 and was assigned full-time through the fall of 2005 to complete the investigation of the WTC towers. With the release and dissemination of the report on the WTC towers in October 2005, the investigation of the WTC 7 collapse resumed. Considerable progress has been made since that time, including the review of nearly 80 boxes of new documents related to WTC 7, the development of detailed technical approaches for modeling and analyzing various collapse hypotheses, and the selection of a contractor to assist NIST staff in carrying out the analyses. It is anticipated that a draft report will be released by early 2007.

11. The current NIST working collapse hypothesis for WTC 7 is described in the June 2004 Progress Report on the Federal Building and Fire Safety Investigation of the World Trade Center Disaster (Volume 1, page 17, as well as Appendix L), as follows:

An initial local failure occurred at the lower floors (below floor 13) of the building due to fire and/or debris-induced structural damage of a critical column (the initiating event) which supported a large-span floor bay with an area of about 2,000 square feet;

Vertical progression of the initial local failure occurred up to the east penthouse, and as the large floor bays became unable to redistribute the loads, it brought down the interior structure below the east penthouse; and

Triggered by damage due to the vertical failure, horizontal progression of the failure across the lower floors (in the region of floors 5 and 7 that were much thicker and more heavily reinforced than the rest of the floors) resulted in a disproportionate collapse of the entire structure.

This hypothesis may be supported or modified, or new hypotheses may be developed, through the course of the continuing investigation. NIST also is considering whether hypothetical blast events could have played a role in initiating the collapse. While NIST has found no evidence of a blast or controlled demolition event, NIST would like to determine the magnitude of hypothetical blast scenarios that could have led to the structural failure of one or more critical elements.

James Fetzer: WTC-7 came down in a classic controlled demolition at 5:20 PM/ET after Larry Silverstein suggested the best thing to do might be to "pull it". NIST would like to bury it because it displayed all the characteristics of classic controlled demolitions, including complete, abrupt, and total collapse into its own footprint, where the floors are all falling at the same time, at about the speed of free fall (6.6 seconds compared to 6.0), an event so embarrassing to the official account it is not even mentioned in THE 9/11 COMMISSION REPORT. If NIST is doing more, that is because its original studies are clearly inadequate as, indeed, has been demonstrated by the comments made here about its "answers".

Kevin Ryan: Since "NIST also is considering whether hypothetical blast events could have played a role in initiating the collapse", why did NIST not consider this with the WTC towers?

Does NIST plan to challenge the clear statement from the beginning of FEMA's BPAT report (Chapter 5) that says "The performance of WTC 7 is of significant interest because it appears the collapse was due primarily to fire, rather than any impact damage from the collapsing towers."

Jim Hoffman: This hypothesis may be supported or modified, or new hypotheses may be developed, through the course of the continuing investigation. NIST also is considering whether hypothetical blast events could have played a role in initiating the collapse. While NIST has found no evidence of a blast or controlled demolition event, NIST would like to determine the magnitude of hypothetical blast scenarios that could have led to the structural failure of one or more critical elements.

Spencer Morgan
Salt Lake City, UT.

Swmorgan77@yahoo.com
<http://profile.myspace.com/swmorgan77>

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