

NIST's World Trade Center FAQ

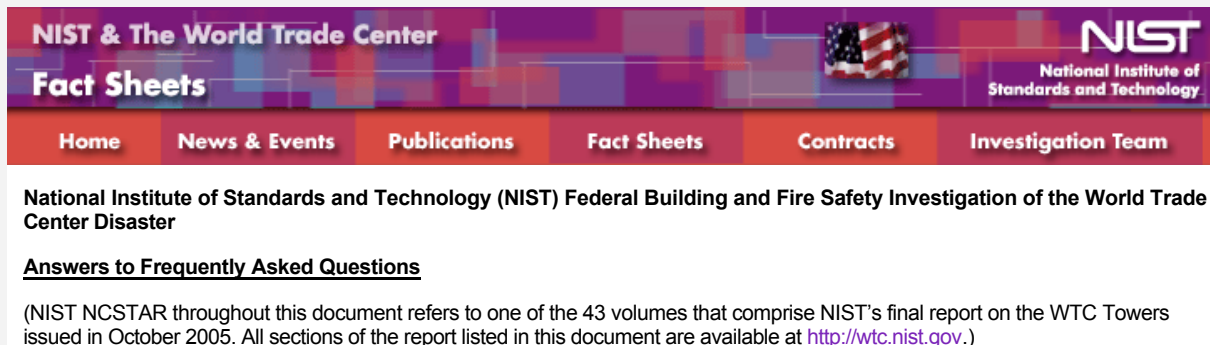
A Reply to the National Institute for Standards and Technology's Answers to Frequently Asked Questions

by Jim Hoffman

Introduction

On August 30, 2006, the National Institute for Standards and Technology (NIST) posted on their website a list of fourteen frequently asked questions (FAQ) and answers to them. NIST should be commended for at least addressing a number of the serious questions that have been raised with regard to its investigation. However, NIST's new FAQ avoids answering the central charges of its most visible critique, [Building a Better Mirage](#):

- That NIST fails to support its key assertion that "collapse initiation" automatically leads to "global collapse".
- That NIST uses the diversionary tactic of describing some events -- such as the airliner crashes -- [in great detail](#), while almost completely avoiding the core question of what brought the Towers down.
- That NIST's report is internally inconsistent, supposing that steel columns were heated to temperatures [hundreds of degrees in excess](#) of the maximum temperatures indicated by its steel samples.
- That NIST [fails to substantiate its implied claim](#) that its computer models predicted "collapse initiation".
- That NIST fails to even address most of the features of the Towers' destruction that are apparently unique to controlled demolitions.



Questions Index

Although NIST poses several serious questions, it also highlights a number of questions that have little or nothing to do with the case that controlled demolition was the cause of the collapse of the Twin Towers. In order to clarify how NIST's questions relate to the case for controlled demolition, I have color-coded the questions in the following index of questions.

- Questions pertaining to the controlled demolition thesis
- Questions based on fallacies
- Questions that are peripheral to the controlled demolition thesis
- Questions about NIST's investigation

NIST's FAQ contains the following 14 questions:

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?

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.

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.

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

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?

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)?

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

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?

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?

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?

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

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?

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."

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

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?

The 14 Questions

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?

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...."

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.

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.

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.

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.

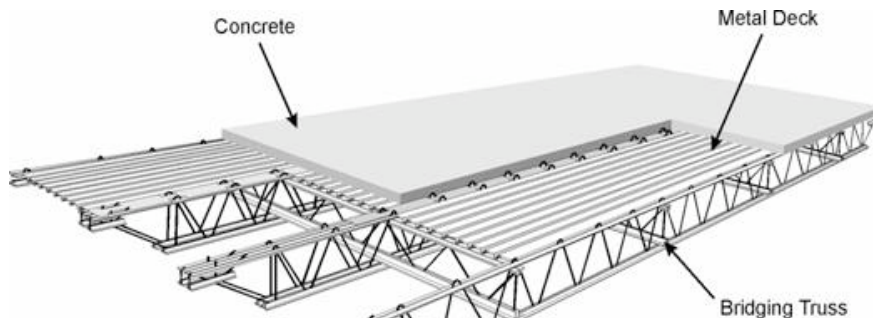
However, regardless of whether one calls the total destruction of the Twin Towers progressive collapse or something else, it remains true that there is no historical or experimental basis for believing that collapse events near the tops of the towers could progress all the way down the towers' vertical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

NIST 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.

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.



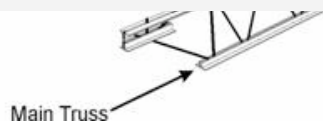


Diagram of Composite WTC Floor System

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.

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

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.

NIST's mixing of the idea that "missiles were fired at or hit the towers" into its rebuttal of controlled demolition is gratuitous and seemingly designed to discredit the demolition thesis by associating it with [nonsense](#).

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.

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.

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.

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

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.

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.

These puffs were observed at many locations as the towers collapsed. In all cases, they had the appearance of jets of gas being pushed from the building through windows or between columns on the mechanical floors. Such jets are expected since the air inside the building is compressed as the tower falls and must flow somewhere as the pressure builds. It is significant that similar "puffs" were observed numerous times on the fire floors in both towers prior to their collapses, perhaps due to falling walls or portions of a floor. Puffs from WTC 1 were even observed when WTC 2 was struck by the aircraft. These observations confirm that even minor overpressures were transmitted through the towers and forced smoke and debris from the building.

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.

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?

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.

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

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 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).

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.

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.

From video evidence, significant portions of the cores of both buildings (roughly 60 stories of WTC 1 and 40 stories of WTC 2) are known to have stood 15 to 25 seconds after collapse initiation before they, too, began to collapse. Neither the duration of the seismic records nor video evidence (due to obstruction of view caused by debris clouds) are reliable indicators of the total time it took for each building to collapse completely.

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.

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

OR

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?

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).

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.

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](#).

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?

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.

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.

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.

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?

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.

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.

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.

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 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.

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.

This is most likely true. [This page](#) debunks the notion that the people standing in the impact holes invalidates the notion that intense fires burned in the North Tower.

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 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.

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.

NIST's explanation for the orange color of the spout is dubious given that the various materials to whose combustion it attributes the orange glow would have been extremely unlikely to have remained mixed with molten aluminum to the degree needed to produce the homogeneous color seen in the videos.

Professor Steven Jones has performed a number of experiments mixing various combustibles into molten aluminum. In all cases the aluminum exhibited its normal silvery color, while the added combustibles separated.

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

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.

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 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.

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.

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.

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?

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.

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:

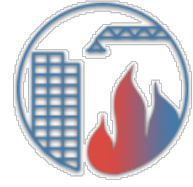
- An initial local failure occurred at the lower floors (below floor 13) of the building due to fire and/or debris-induced structural damage of a critical column (the initiating event) which supported a large-span floor bay with an area of about 2,000 square feet;
- Vertical progression of the initial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

For additional information, go to: [WTC Contacts](#) | [Building and Fire Research Laboratory](#) | [NIST](#)

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NIST's working collapse hypothesis for WTC 7 is similar to its explanation of the Twin Towers' collapse: there is no historical, evidentiary, or experimental basis for its elaborate scenario in which the 47-story steel-framed skyscraper self-destructs like a house of cards.

Conclusion

NIST's World Trade Center FAQ provides the appearance of answering some of the main questions posed by critics of its investigation. However, it avoids more questions than it lists, and provides misleading and evasive answers to the few serious questions in its FAQ.

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