

Jones v. Robertson

A physicist and a structural engineer debate the controlled demolition of the World Trade Center

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Steven Jones, professor of physics, and Leslie Robertson, a structural engineer on the World Trade Center project discuss the 9/11 collapses

On Oct 26th, 2006, KGNU Radio in Denver Colorado hosted a discussion between Steven Jones, then a professor of physics at BYU, and Leslie Robertson, an engineer involved in the original World Trade Center project, regarding the destruction of the World Trade Center towers on 9/11/01. The radio discussion was one part of a successful outreach effort for two 9/11 events that weekend in Denver and Boulder by the Colorado 9/11 Visibility group, including an article in the (Boulder) *Daily Camera* (<http://www.dailycamera.com/news/2006/oct/30/panelists-raise-doubts-over-911/>) and a front page article in the *Denver Post* (http://www.denverpost.com/newsheadlines/ci_4572518).

Annotated by Gregg Roberts, Associate Editor of [911Research](#)

Posted April 7, 2007

Leslie Robertson has been invited via email to respond to this commentary. Any response will be posted on the same page where this commentary is hosted. We have no control over whether others who link to this commentary also link to the response.

http://www.911podcasts.com/files/audio/StevenJones_LeslieRobertson_20061026.mp3

In our age there is no such thing as "keeping out of politics." All issues are political issues, and politics itself is a mass of lies, evasions, folly, hatred, and schizophrenia.

George Orwell, "Politics and the English Language," 1946

HOST: Up next, we look at the collapse of the World Trade Center. Five years after the tragedy of September 11, 2001, a number of people across the country continue to ask a number of questions about what actually happened on that day, in New York and Washington [and] Pennsylvania. There are websites, articles, books, and documentaries that put forward a variety of theories counter to the government account of what happened. Steven Jones has written and spoken out about his view of the collapse of the World Trade Center towers and the nearby Building 7. To him, it looks like the towers' collapse may have been the result of a controlled demolition. Jones is a physicist, a professor of physics, and the group Colorado 9/11 Visibility is bringing Steven Jones to Boulder and to Denver this weekend, along with other speakers who question the official story. Details of those events are on the website <http://Colorado911Visibility.org>.

Leslie Robertson is the founder and head of Leslie Robertson and Associates, a structural engineering firm based in New York, with many decades of experience in structural design for buildings and other structures around the world, including the World Trade Center. Leslie Robertson was the chief engineer on the World Trade Center project—

GR: The last sentence might be incorrect and is certainly misleading, given the lack of any mention of John Skilling, who hired Robertson and is described in media accounts and books as the “lead,” “head,” or “chief” structural engineer on the World Trade Center project.

In a 1993 *Seattle Times* article, Skilling was described as the head structural engineer.¹ Robertson was not mentioned there, nor in an article in the *Engineering News-Record* that discussed the design in 1964.² In *City in the Sky*, Robertson is called the “rising young engineer with Skilling's firm” (p. 159). In *Men of Steel*, Robertson is referred to during the design phase as “one of the up-and-coming engineers on [Skilling's] staff,” Skilling's “young associate,” whom Skilling “assigned... to help him prepare a proposal” to the Port Authority's board. Skilling's firm was named Worthington, Skilling, Helle, and Jackson. Clearly, Skilling was a senior partner at the firm and Robertson was his subordinate. The tallest building his firm had designed before then was 22 stories tall. It hardly seems likely that he sat back and smoked cigars while the 34-year-old Robertson – who at the beginning of the project had a bachelor's only in science and not in engineering – went off and designed the Towers without supervision. The project would clearly have had Skilling's full attention.³

The point is not merely about whether Robertson intentionally allowed the host to inflate his résumé for him, though that would be unethical enough. Skilling made a number of factual claims about the World Trade Center towers' design strengths that disagree with Robertson's. Having died in 1998, Skilling is not alive to defend those claims or the conclusions they support.⁴

The *Seattle Times* quotes Skilling as saying “**Our analysis indicated the biggest problem would be the fact that all the fuel** (from the airplane) would dump into the building. There would be a horrendous fire [but] **the building structure would still be there.**”

By contrast, on the PBS show “Why the Towers Fell,” Robertson stated: “With the 707, to the best of my knowledge, **the fuel load was not considered in the design.** Indeed, I don't know how it **could** have been considered.”

Who would design a building to be impacted by fuel-less aircraft? How would the aircraft *get* there?

Interestingly, one structural engineer, Charles Thornton, agrees with Robertson: “None of us really focused on that kind of a fuel fire.”⁵ Thornton worked on the Oklahoma City bombing investigation, itself widely considered to have been a cover-up of a controlled demolition!⁶

Why do the same five or so individuals turn up in investigations relating to terrorist attack, when, according to the American Society of Civil Engineers (ASCE), there are 1.5 million engineers in the US? The authors of the official report on the Murrah Federal Building – Gene Corley, Charles Thornton, Paul

Mlaker, and Mete Sozen – were all among the initial team of the ASCE WTC investigation. Several of these individuals have strong connections to industries that benefited from the attack, such as armaments makers and oil and gas producers.⁷

HOST: — and we welcome both of you gentlemen to KGNU.

JONES: Thank you.

ROBERTSON: Thank you.

HOST: Glad to have you with us. Leslie Robertson, I'd like to begin with you. The federal research center, the National Institute of Standards and Technology (NIST), did an extensive study of the collapse of the Twin Towers, concluding that the planes hitting the towers essentially caused fire and trauma to the structure that resulted in their collapse. I want to ask if you support the conclusions of the NIST report, and if so, why?

ROBERTSON: Yes, I do. I support the general conclusions of the NIST report. It was prepared, by the way, not just by NIST, but by a series of engineering firms around the country who provided advice and assistance to NIST in their investigations. It was reasonably thorough, amounting, as I recall, to about \$16 million of effort. And our firm participated in a small way in providing information about the basic structure that was in fact constructed. It's a little more complicated than one might suppose, because there were a lot of modifications made to the structure as it was being built. That's rather normal – tenants have individual requirements – and so there was strengthening done for the most part here and there to achieve the needs of the individual tenants.

The project was designed for the impact of a, what we call a low-flying, slow-flying Boeing 707, that was the largest aircraft of its time, actually the intercontinental version. We envisioned it much as was the case for the aircraft that struck the Empire State Building in the Second World War, the same condition, lost in the fog, i.e. an accidental impact of an aircraft into the building. It was not designed for high-speed impact from the jets that actually hit it.

GR: Robertson should know that his statement about the design parameters is not true. According to John Skilling, speaking after the basement bombing in 1993, “The buildings have been investigated and found to be safe in an assumed collision with a large jet airliner (Boeing 707 – DC 8) traveling at **600 miles per hour** [about its maximum speed]. Analysis indicates that such collision would result in only local damage which could not cause collapse or substantial damage to the building and would not endanger the lives and safety of occupants not in the immediate area of impact.... There would be a horrendous fire [but] the building structure would still be there.”⁸

ROBERTSON: In fact those jets were flying well above their rated speed at that altitude.

GR: NIST's estimates of the impact speeds are 443 mph \pm 30 mph for the North Tower and 542 mph \pm 24 mph for the North Tower.⁹ These speeds are far below the cruise speed stated on Boeing's website, although of course cruise speed is not normally reached below 10,000 feet. Regardless, the question here is not whether the planes were flying above their rated speed or maximum safe speed, but whether the planes' mass and speed exceeded *what the buildings were designed for*. Skilling says, and the Port Authority and NIST agreed,¹⁰ that they were designed to survive a 600 mph impact by a 707. Such a plane if fully loaded (as Skilling claimed the design assumed) would have $336,000 / 395,000 = 85\%$ ¹¹ of the mass of a fully loaded 767 (which the impact planes were not, since they were not carrying full loads of fuel).¹² Thus, the North Tower impact would have had less than 87% of the momentum and 64% of the kinetic energy designed for, while the South Tower impact would have had less than 106% of the momentum and 96% of the kinetic energy designed for. Correcting for the estimated fuel load of 10,000 gallons, I get 300,000 pounds for the 767s (close to FEMA's 274,000 figure) and accordingly far lower momentum and kinetic energies than designed for. Thus, the impacts were either close to, or well within, the Towers' capacity to absorb them without collapse. Even Robertson seems to turn around and agree:

ROBERTSON: But still it's not surprising – at least intuitively not surprising – that the buildings were able to withstand that kind of impact and remained standing.

GR: Yet, on the BBC show “The Man Who Built the Twin Towers,” Robertson said that on September 11 he had wondered if the Towers would remain standing: “I mean I just hoped that the buildings would stand; I had no way of knowing that they would or would not.” He admits that it takes him a “real effort” to be rational about the collapses. He also repeats his implied claim above that the planes on 9/11 were traveling much faster than the Towers were designed to handle, and that “the fuel load was not considered.”¹³

To his credit, he does not exaggerate the difference in size between the 707 and the 767, which many defenders of the official story do. He does misspeak, saying that if you triple the velocity you get eight times the energy; three squared is nine, not eight.

ROBERTSON: On the other side of the coin, those of you who have seen photographs of the project must feel that there was considerable structural damage done to the buildings – they were not in anywhere near their original condition. I've not participated in the NIST Report directly, although of course I've read it, as have thousands of other structural engineers and other interested persons.

GR: Robertson offers no evidence to support this claim about how many people have read the NIST report. NIST published about 10,000 pages about the tower collapses.¹⁴ The Summary Report itself took up 248 pages plus 43 pages of front matter. Jim Hoffman's critique of the Report notes that the Summary Report flatly contradicted some of the most important evidence presented deep in the 10,000 pages.¹⁵ Whistleblower Kevin Ryan calls all this the TiNRAT approach: “They'll Never Read All This.”¹⁶

Note the compound category, in which the relative numbers for the two categories of people who have read the Report are not provided. Maybe it's *three* structural engineers and *thousands* of 9/11 skeptics! But as usual throughout the interview, we're supposed to believe this because of *who Robertson is* and because *he speaks confidently*, rather than because of evidence and logic.

He is clearly implying that if only a few engineers have publicly challenged the official story, they are unlikely to be right. The idea of taking a majority vote of experts appeals to Americans' sense of democratic values, but it has absolutely nothing to do with who is more likely to be right.

If we knew nothing about the reasons to doubt the official story and reasons to doubt that many structural engineers have read the Report, his claim might seem to be common sense. However, there is reason to believe that few engineers have read the Report,¹⁷ even fewer have read it with a critical eye, and few of those would have a motivation to come forward that could outweigh the multitude of reasons to keep their mouths shut. My essay "[Where Are the 9/11 Whistleblowers?](#)" explores the mechanisms that silence most people who are in a position to go public with scandalous knowledge – with no need for explicit threats.

ROBERTSON: But the collapse *mechanism* of the Trade Center is as we had anticipated it would be when we first designed it. It was not – please don't misunderstand me – it was not designed to *collapse*. But any prudent engineer looking at the future has to think about, what are the mechanisms that cause collapse, and how to go about strengthening the building so as to minimize that circumstance. So sure, we spent time looking at that kind of event, and that which was observable from the photographs and so forth is reasonably consistent with that which we thought would be the case.

HOST: Why did it fall so *straight down*?

ROBERTSON: Well, that's kind of the nature of that kind of failure.

GR: This statement is reminiscent of the pre-scientific Aristotle: "It's in the nature of things to fall." Throughout this response (continued below) Robertson says "uh" and makes other stuttering sounds and false starts more than in any other statement during the show. He misspeaks, saying that burning a sofa *creates* smoke capacity.

Robertson offers no examples of "that kind of failure" of which he speaks so confidently.

ROBERTSON: The jet fuel set off fires in the building, which were rather larger than then we would expect to be the case for normal fire at a high-rise building.

GR: What we would expect for a "normal fire" is completely beside the point. The point is whether the Towers were designed for the kind of fires that any rational person would expect to ensue after the high-speed impact of an airliner of approximately the size and speed of the ones that hit the Towers. We have just established that the *impacts*

themselves were both well within or perhaps just barely outside those parameters. What about the fires themselves? Stay tuned...

ROBERTSON: There are lots of high-rise buildings that have experienced fires; indeed, the Trade Center had many fires during the course of its life – some of them fairly severe. But, to give you an example – if you were doing a study looking at smoke dispersion, let's say, in the mall of your corner shopping area. The event that's used is, in essence, the smoke created by the burning of one sofa. Now, one sofa, if you burned it, would not cause much problems [*sic*] inside of the inside of the mall. So it's not the burning of the sofa as such, it's the smoke capacity created by the burning of a sofa [*sic*], a controlled burning of a sofa—

GR: What does smoke dispersion have to do with the sudden, rapid, even, explosive, complete structural collapse of three skyscrapers?

ROBERTSON: —so there's a huge difference actually between one's intuitive feeling about what building contents will do in terms of smoke and fire, and what in fact is capable of taking place.

GR: The rest of this response provides no further explanation. Robertson has just spent a minute and a half of a 31-minute show completely avoiding answering a question, except with a hand-waving remark about how unexpected things can happen. This is an engineer speaking? He should be telling us HOW something unexpected DID happen, not mouthing a platitude.

Robertson's response does not begin to explain why the rubble remained so centered about the towers' footprints as it came down – in terms of physics, why the second law of thermodynamics was apparently suspended. Why didn't the unevenness of the damage grow over time, as in all natural processes – as opposed to engineered ones such as controlled demolition?

Like the authors of all the official reports, Robertson does not seem to acknowledge or grasp the fact that eight to ten features of the collapses are seen in controlled demolitions *and nowhere else*. Again, because of the structure imposed by the host, Jones doesn't get to mention but a few of them:

- Sudden Onset
- Straight Down Progress
- Sliced Steel
- Demolition Rings
- Molten Steel
- Pulverization of Concrete and Other Materials / Thick Dust Clouds¹⁸
- Almost Free-Fall Speed
- Total Collapse
- Horizontal Ejections
- Sounds Produced by Explosions



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The nearest that Robertson's response comes to explaining anything is a drive-by hint at the Trash Can Fire Design theory, first presented by Thomas Eagar: "If it had only occurred in one little corner such as a trashcan caught on fire you might have had to repair that corner, but the whole building wouldn't have come crashing down. The problem was it was such a widespread fire, and then you get this domino effect." Apparently neither of these engineers has learned anything from having studied other skyscraper fires, which were much larger than trash-can fires.²⁰



One Meridian Plaza fire, 1991



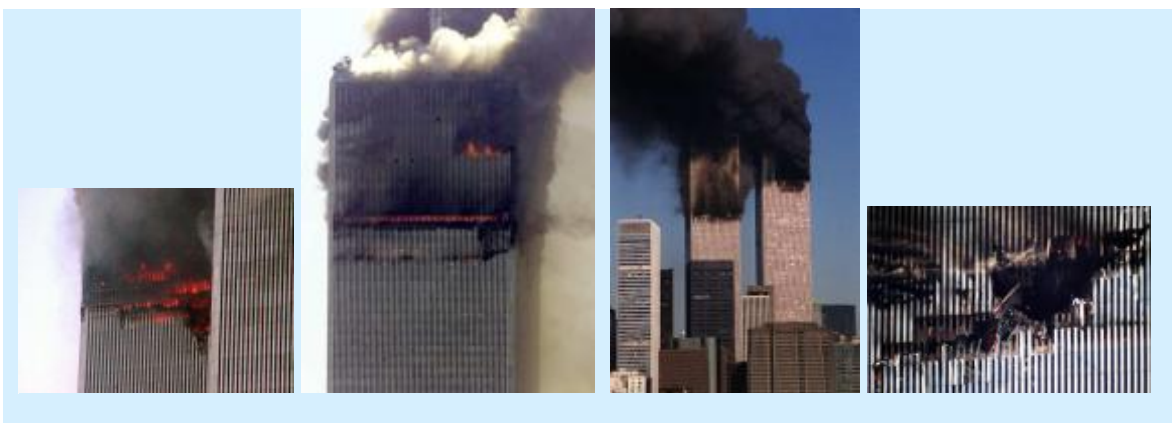
First Interstate Bank fire, 1988



First Interstate Bank fire, close-up

The very suggestion that the Towers were designed to withstand only small fires is absurd, an insult to the listeners' intelligence.

The fires on 9/11²¹ were neither as large nor as long-lasting as those pictured above.



HOST: Let me bring Steven Jones into the conversation and, since we have limited time this morning, I know there are a lot of points of *disagreement* perhaps between Steven Jones and Les Robertson. So Steven Jones, rather than throwing out a lot of points all at once, can you offer perhaps one observation that gives you cause for concern, that makes you think that this might have been the result of explosives planted in the building?

GR: The host acknowledges that there are “many points of disagreement,” yet he asks Jones to mention only one objection to the official theory at a time. As we will see, he invites Robertson to respond to each point in turn, in a debate format, yet certainly without assuring equal time to both sides. Despite Robertson’s stuttering and his lack of commentary about collapse times or WTC 7, he manages to get out about 1,800 words to Jones’ 962 – almost twice as many.

The unusual approach of NOT letting each guest start off with a summary of his position keeps listeners in the dark as to just how **many** credible objections to the official theory have been raised – objections that are based on well-established physics. It also minimizes the persuasive power of each objection, since Robertson has a response for every point.

It would be difficult for listeners who are new to the issue to discern how weak Robertson’s responses really are. Many will surely nod sagely, as if Robertson has answered the skeptics’ questions and everyone can rest assured in the official story. My sense of how strongly the emotional power of Robertson’s performance outstrips its rational basis is the reason I wrote this article.

JONES: Sure. Well, on the towers that Mr. Robertson has talked about I’d like to talk about Building 7 too, if we could, but—

HOST: We’ll try to get there, if we have time but—

ROBERTSON: I’ll tell you right away that I was not the engineer for Building 7, so I’m not really qualified to discuss that.

HOST: Great. Let’s focus on the Towers for now then, please, Steven Jones.

GR: This is *faux* humility on Robertson's part. It functions to create the impression that he is a judicious thinker who does not leap to conclusions, and who restricts himself to statements that he can support with well-informed arguments. Yet, as I show throughout this commentary, this is far from the reality of his presentation in this program (and elsewhere; see note 13).

Building 7 is often a *verboten* topic in media coverage, on those rare occasions when 9/11 skeptics are mentioned at all. MSNBC infamously refused to play video of WTC 7's collapse on the Tucker Carlson show when Jones requested it, although the producers had invited him to send them a clip to play. Did the show's producers and team really fail to try to play the clip before air time? Were they really unable to get a working version of the footage, if there was something wrong with the file that Jones gave them?²²

Why should Jones' points about WTC 7 be silenced just because the other guest doesn't want to talk about it? What happened to Building 7 is among the strongest evidence for controlled demolition, but because the official-story representative doesn't want to talk about it, the host excludes it from the discussion. WTC 7 is critical to the issue because no controlled demolition could have been planned and executed in such a tall building in the hours between the attack on the Twin Towers and the collapse of WTC 7 at 5:20 pm on 9/11. The completion of the preparations shows that people with full access to the infrastructure of WTC 7 and specialized engineering knowledge – neither of which is possessed by al Qaeda – had advance knowledge of the attack. If one Manhattan skyscraper occupied by security-minded government tenants could be rigged for demolition without the many innocent government and private-sector employees noticing and saying anything, then so could the Twin Towers. We will revisit this issue later, when Robertson challenges the feasibility of such an operation.

One interesting question is, *why* is Robertson unwilling to discuss Building 7? Is it really just because he lacks the in-depth personal knowledge that he would have gained by having designed *that building*? He's a structural engineer who has been involved in the design of *dozens* of tall buildings. He's been interviewed many times about the collapses of the Towers. Surely he has heard the questions about WTC 7. Is he not confident that he can answer any reasonable question on the topic – especially if it's coming from a mere physicist?

Note also how his statement, if accepted as valid, *would disqualify almost everyone on the planet from discussing the collapse of Building 7*. It is truly an ingenious rhetorical maneuver.

JONES: With regard to the Towers – I'm quoting from the NIST Report now, page 140 – "NIST contracted with Underwriters Laboratories, Inc., to conduct tests to obtain information on the fire endurance of trusses like those in the WTC towers. All four test specimens sustained the maximum design load for approximately two hours without

collapsing.” So, and that, of course, was the end of the test, and both towers collapsed that less than two hours. So—

ROBERTSON: That shouldn't be *surprising*, in fact, less than two hours is the industry standard for the fire testing of floor construction; that would be considered both the structural *integrity* of the floor construction, and also heat transmission through the floor, as we envision a fire in one area creating a further fire in the floor above. So two hours is a sort of normal fire test for the assembly, but the assembly that was tested of course had in it that which it was designed to have, i.e., a fully insulated fire assembly, floor assembly.

GR: The WTC towers were originally designed to comply with the 1968 NYC code rating 1A. This requires 4 hours of fire resistance for columns, and 3 hours for floor assemblies. The buildings finally received a rating of 1B (3 hours and 2 hours respectively, because of the lack of a sprinkler system). References to the evolving NYC code, pointing out these requirements, are in the NIST presentations.

Now, if you look at a good example would be perhaps surrounding buildings where debris from the Trade Center struck the building and if you went to those areas, you found that the impact of the debris had shaken off the fire protection materials. It wasn't scraped off, it was taken off by the impact I feel, probably the vibration of the structure due to the impact of the, of the aircraft.

GR: He “*feels*.” He’s trying to head off the push for a serious scientific investigation, which scientists, engineers, and millions of citizens agree have never been done, because of his *feelings*. He says he read the NIST report, but it doesn’t sound as though he remembers NIST’s inability to establish fireproofing loss by forces of vibration.

That inability led NIST to make an absurd attempt (a “shotgun approach,” if you will) to prove that the impacts must have dislodged large amounts of fireproofing material *directly*. According to Kevin Ryan, fired whistleblower from Underwriters Laboratories:

The shotgun test not only failed to support NIST's pre-determined conclusions, as was the case for all of their other physical tests, but it actually proved that the fireproofing could not have been sheared off because too much energy would be needed. This did not deter NIST, as they simply proceeded by filling their computer model with vague, sweeping assumptions like suggesting that the fireproofing was completely removed wherever the office furnishings were damaged (i.e. if a cube wall fell or a pencil was broken, thousands of square meters of fireproofing must have been sheared off too).²³

...there is no evidence that a Boeing 767 could transform into any number of shotgun blasts. Nearly 100,000 blasts would be needed based on NIST’s own damage estimates, and these would have to be directed in a very symmetrical fashion to strip the columns and floors from all sides. However, it is much more likely that the aircraft debris was a distribution of sizes from very large chunks to

a few smaller ones, and that it was directed asymmetrically. Also, there is no indication that fireproofing was stripped from beneath the aluminum cladding on the exterior columns, but in subsequent steps of their story, NIST depends on this....

To put NIST's pivotal claim to rest, there was simply no energy available to cause fireproofing loss. Previous calculations by engineers at MIT had shown that all the kinetic energy from the aircraft was consumed in breaking columns, crushing the floors and destroying the aircraft itself. But NIST's tests indicate that 1 MJ of energy was needed per square meter of surface area to shear the fireproofing off. For the areas in question, more than 6,000 square meters of column, floor deck and floor joist surface, **the extra energy needed would be several times more than the entire amount of kinetic energy available to begin with.**²⁴ [emphasis added]

ROBERTSON: Now in the case of the towers, you had a whole series of events that took place. First of all, you had a giant airplane with a wingspan almost that of the size of the building.

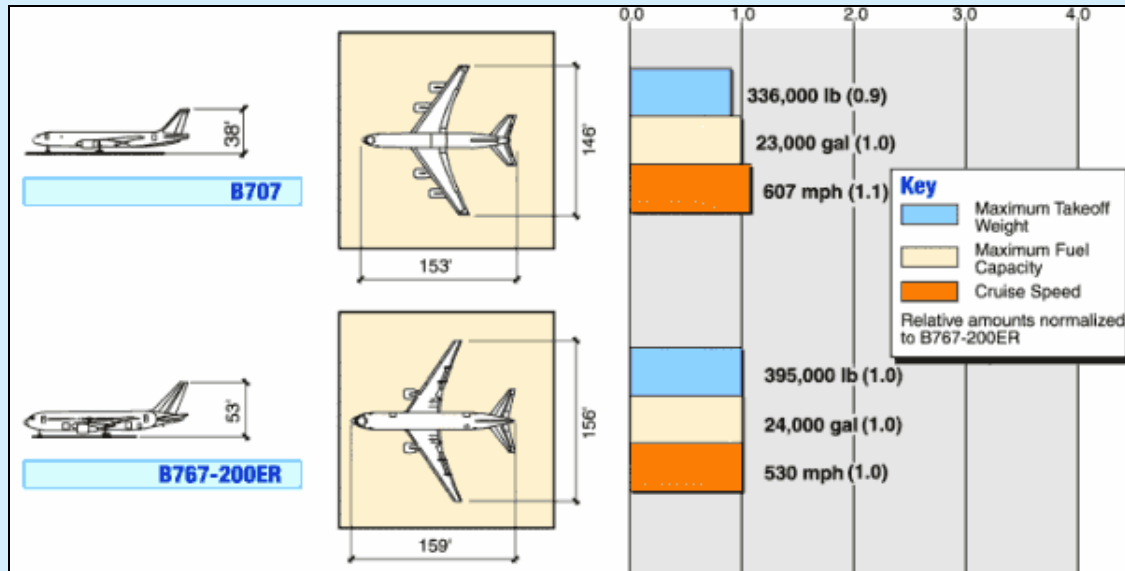
GR: For an engineer, Robertson is surprisingly fond of dramatic adjectives and hand-waving comparisons that exaggerate differences.

"The size of the building" would be easy to take as referring to the height of each of the Towers, since that is what they were famous for. But obviously their height is almost completely irrelevant to whether they should have been able to handle the impacts. Their width is the specifically relevant dimension.

As we saw above, the buildings were designed to handle an impact by a fully loaded 707, which had 85% of the mass of a fully loaded 767. The wingspan of the international version 707 (by which the Towers were designed to survive being hit) was 146 feet compared to the 767's 156 feet. Each tower's face was 209 feet wide. So a 707's wingspan is 70% of a tower width and a 767's is 75%— only seven percent greater. Both airplanes were turning when they hit, thus one wing was higher than the other, resulting in fewer columns being severed than would be the case for a level hit.

Finally, the buildings were so overbuilt that "according to the calculations of engineers who worked on the Towers' design, **all the columns on one side of a Tower could be cut, as well as the two corners and some of the columns on each adjacent side, and the building would still be strong enough to withstand 100-mile-per-hour winds.**" [emphasis added] John Skilling is cited by the *Engineering News Record* for the claim that "live loads on these [perimeter] columns can be increased more than 2000% before failure occurs."²⁵

FEMA's graphic below shows the two plane models superimposed over a tower for comparison.²⁶ The differences are negligible. Absent a compellingly clear explanation, they cannot account for any collapse at all, much less collapses that exhibit most of the features of controlled demolition.



ROBERTSON: It went through, and when it did so, certainly the fire protective materials were not designed to exist in that kind of circumstance—

GR: Unless, as Skilling says, the buildings were designed to handle a 707 hitting them at 600 mph, and that design was professionally and competently performed and implemented. It is possible that mistakes were made in either design or implementation, but Robertson gives the false impression that no attention was given to this risk at all.

ROBERTSON: So, while I've not seen them myself, nor has anyone else, it's very difficult to believe they would remain in place. Therefore the fire tests on the two-hour assemblies, that's what you would expect to take place, but it's not what existed in the buildings at the time of the impacts.

GR: Robertson confidently says he would be surprised if floor assemblies in fires such as those in the Twin Towers would last two hours without fireproofing, and he claims that the aircraft impacts would shake off the fire protection materials, but he does not say *why* he thinks so. Yet again, this is just his intuition. For him to make such claims so confidently is a rhetorical technique, a way to imply that the critics are wrong without actually providing an argument or defending against the criticisms that have been made.

Skeptics, on the other hand, have presented evidence and argument that the assemblies should have withstood the fires:

1. The testing by Underwriters Laboratories that Jones cites above, which did not use completely fireproofed assemblies in all tests, and which still failed to make any floor assembly collapse (see note 29).
2. Corus Construction's tests on unprotected parking garage structures, in which the unprotected steel never reached above 360 degrees C. and never underwent even a partial collapse.²⁷
3. NIST's own data which shows no structural steel having reached above 300-400 C and most of it not even that high:

Of the more than 170 areas examined on 16 perimeter column panels, only three columns had evidence that the steel reached temperatures above 250 °C ... Only two core column specimens had sufficient paint remaining to make such an analysis, and their temperatures did not reach 250 °C. NIST did not generalize these results, since the examined columns represented only 3 percent of the perimeter columns and 1 percent of the core columns from the fire floors.

Why was so little steel examined by NIST? Because *most of the steel was recycled during the 24x7 "cleanup,"* without giving the legally powerless FEMA investigators a chance to preserve, examine, or even (as far as we are aware) mark the location of most of the steel!

...Using metallographic analysis, NIST determined that there was no evidence that any of the samples had reached temperatures above 600 °C.²⁸

See also my comment above, starting with "there was simply no energy available to cause fireproofing loss."

HOST: Steven Jones?

JONES: Thank you. I would like to say something about that. There are two papers, published peer-reviewed papers, on this topic. It's actually not clear that these tests had fully protected floor trusses, but these were actual tests that were conducted and they did not fail. That's discussed in a paper by Kevin Ryan in the Journal of 911studies.com.²⁹ The other paper I'd like to refer to regarding the Towers is a paper by Gordon Ross,³⁰ a mechanical engineer out of the United Kingdom. His point is that even if we allow that the towers could begin to collapse, that is the upper floors – for instance in the North Tower, that would be the upper 15 floors – if they begin to collapse, that does not mean that they would continue a complete collapse in ten seconds. Instead, the remaining structure below the upper block would halt or significantly slow down the collapse and the motion of the upper floors.

Furthermore, the NIST report only takes the analysis to the point where the buildings are poised to collapse – and this is a quote from the NIST report – where they’re “poised to collapse.” So the behavior of the buildings during collapse is not analyzed in the NIST report, but is analyzed by Gordon Ross and others in the *Journal of 9/11 Studies*.

HOST: Let me just remind listeners, we’re talking with Leslie Robertson, structural engineer and the chief engineer on the World Trade Center project, and Steven Jones, professor of physics, who has put forth a theory that the Towers were brought down by explosives. This is listener-supported KGNU.

Leslie Robertson, were you about to respond to Steven Jones?

ROBERTSON: I go back again to the fire tests. Now, I did not observe those fire tests myself, so I cannot give you first-hand observations. But as I understand it, the intent of the test was to ascertain whether the floors as constructed and designed would perform properly under the experience of a two-hour fire, and the intent of that report was to demonstrate that [*sic*] they would or wouldn’t, and in fact the test demonstrated that they would. Now, if that same floor assembly had been tested without fireproofing material in place, I cannot say with total certainty but I would be absolutely astonished that they would last even close to two hours.

GR: See my comment above, starting with “Robertson confidently says...”

ROBERTSON: It’s just not the nature—

GR: More Aristotelian nonsense.

ROBERTSON: —This is a very robust floor system, rather different from that portrayed in the British press, but in any event—the other issue having to do with the failure mechanism, again, I’ve not performed an in-depth study on the matter, but I carried the event far enough along so that I became convinced that if you dropped the floors above onto the floors below, i.e., caused a collapse in the middle of the building some place, that without question, the collapse would continue, right down to the foundations. There’s no way that the structure below would be able to carry, let us say 14 floors. Not possible, not even *close* to being possible.

And it would not be a slow failure either; drop 14 floors on any one floor of that building and it would collapse *instantly*. Well, no, not “instantly”; that’s a bad term. It would collapse ins—*instantly* as far as you or I would be able to perceive it.

GR: The lower parts of the building did, in fact, “carry” the floors above for more than 30 years.

Yes, when there’s an impact, there’s a so-called “impulse force” that can be much larger than simply setting down one object onto another. To drive a nail, you have to hit it with a hammer, not just set the hammer gently down on it. The results of hitting something can

be very different than just setting something down. This is well understood.

Nonetheless, Robertson's response suffers, first of all, from the fallacy of false intuition. I have identified a total of six problems with his response.

1. He fails to show his work, to confirm his intuition.

Suppose we lived in a world where no one knew about hammers and nails. One day, someone came up with a rough idea for them, out of the blue, before attempting to construct any prototype. This pioneering inventor would have to ask, *How hard would you have to hit a given size nail, with how big a hammer, to drive it into wood? How big should the hammer and the nails be so that you can get work done in an economically productive way, without wearing yourself out? This is not obvious – it takes either experience or detailed calculations.*

Likewise, we have *no experience* with dropping 14-story pieces of a building onto the rest of the building. For Robertson to say he “carried the event far enough to become convinced” is **hand-waving – more argument from authority**: “Trust me, I’m a structural engineer. Yes, this is a very robust floor system, and I haven’t performed an in-depth study in the matter, but I’m convinced.” It’s absurd for him to just **say** this, and expect scientists, engineers, or anyone engaging their critical thinking to accept it – especially on a matter as crucial to humanity as this. He is not taking the issue seriously.

2. His analogy to the collapse initiations is false or misleading in several respects.

- a) Fourteen floors were not “dropped” onto the rest of the structure – at least, ironically, not on Robertson’s theory! The falling upper blocks in each Tower crushed **mostly intact columns**. Many cool, fully intact, large box columns in the core and the exterior **were still helping support the upper blocks** when the collapses started. When a structure is just starting to collapse because it is overloaded, the upper part doesn’t fall as fast as if it has been “dropped.” If Robertson could replicate what is seen in the video record with a model that corresponds roughly to reality, then he might at least be in the ballpark. His statement falls short of even an unsupported claim to have such a model. At least – not if the structure is collapsing because it is overloaded, rather than because of demolition. Kevin Ryan again:

“We can take [NIST’s] word for it that approximately 15% of the columns were severed in each building by aircraft impact. Note that this is quite low compared to original design claims reported in the mid-sixties by the *Engineering News-Record* that suggested the towers could lose more than 25% of their columns without having any problems. As for the second step, NIST says the loads actually decreased on some columns and increased slightly for others. Again, no problem here considering similar design claims that the exterior columns could withstand 2000% increases in live load.”³¹

Of course, if most of the cool, intact columns were severed by thermite or explosives,

it becomes quite easy to imagine the upper block falling as if “dropped,” and at least starting the collapse at close to free-fall speed.

- b) Not only would the intact columns slow the collapse, they would slow it *unevenly*, with any falling portion that fell tending to fall into the gaps left by the impact and whatever fire-weakened columns there were. Yet the antenna mast on top of the North Tower leaned—the opposite direction from the impact hole.³² News footage and hundreds of photographs show that the falling clouds of rubble remained roughly centered over the towers’ footprints, showing no leaning toward the impact holes where dozens of exterior columns were cut.³³

Uneven damage should have led to an increasingly uneven result, as in most natural processes. The only exceptions occur where *templates* exist, as in crystal formation and DNA replication. The only conceivable “template” in the case of the tower collapses was the exterior columns. Other critics of the demolition hypothesis have theorized that the exterior columns kept the collapses “channeled.” I admit having trouble understanding how a *visually explosive* collapse, in which heavy steel assemblies are being ripped apart and ejected at high speed, could by any stretch of the imagination be thought of as “channeling” anything. It’s like saying a water main that explodes from excess pressure would still keep the water flowing symmetrically around the original centerline, by metal that isn’t there anymore.

A simple thought experiment will help clarify the difficulties entailed by the official position on this point. Before 9/11, if anyone had proposed that the Towers could be brought *symmetrically straight down* by ramming decommissioned airliners into them under remote control, what would have been the response from the engineering community? Disregard any concerns about the planes missing the Towers and hitting something else, and focus only on the prediction that the Towers would pulverize themselves all the way to the ground, with the rubble remaining centered about the Towers’ centerline (after less than two hours of fire, by the way). ***Would anyone have expected such a plan to work?***

- c) Robertson’s response ignores the elasticity of the columns that connected both the floors of the falling section and the floors of the intact section. This was the central point of the paper by Gordon Ross, cited by Jones just before this response from Robertson (see note 30).
- d) Jim Hoffman created a collapse model in which it was assumed that breaking the connections between each intact floor and its support columns took ZERO time. This model found that the collapses would have taken 16.5 seconds for the South Tower and 18.3 seconds for the North Tower.³⁴ Videos show that the collapses took between approximately 14 and 18 seconds (a central question, but one that Robertson admits below that he has not studied). Adding an average of just 1/20 of a second for each floor’s connections to be broken adds about four seconds to these totals, taking us well above the observed times. Several other assumptions of the model are conservative, i.e. they favor short collapse times. They ignore the energy required

(taken from the falling mass) to break up and eject the columns themselves, to pulverize a large fraction of the concrete, and to heat the resulting dust cloud sufficiently to account for its observed expansion speed. The burden of proof is on Robertson to explain where the energy came from to do all the work that was done in the time it was done, absent thermite and/or explosives.

As Robertson says, “one’s intuitive feeling about what building contents will do ... and what in fact is capable of taking place” can be different. But on matters where thousands of lives have been lost and many others are at stake, we have a right to expect explanations that **acknowledge all the relevant facts and examine all reasonable hypotheses**, and then actually go on to adopt **the explanation that best accounts for all the relevant facts**. The obvious, undeniable features of the WTC collapses that are highly reminiscent of demolition—and not of any natural collapses ever seen in history—make the controlled demolition hypothesis reasonable and require that it be seriously explored.

However, *controlled demolition was not even mentioned as a possibility* by any official body investigating the attacks for about four years. After ignoring years of calls for consideration of the hypothesis, NIST in 2005 finally devoted a note to it, “NIST has seen no evidence that the collapse of WTC 7 was caused by bombs, missiles, or controlled demolition.”³⁵

Such a blanket denial of the mass of clear evidence – documented, for example, at <http://www.wtc7.net>, a web site that is entirely devoted to this evidence, and comprising 2,300 web pages – hardly constitutes “consideration.”

Note the attempt to discredit the demolition hypothesis irrationally, by associating it with the absurd idea that a missile destroyed WTC 7 – a claim that I have never seen made *anywhere*, despite thousands of hours of research and discussion with scores of 9/11 skeptics. This is, if anything, a strawman argument.

NIST mentioned controlled demolition several times in 2005 and 2006. A Google search run on March 17, 2007 for “controlled demolition” on the NIST web site reveals about 15 links, including one to its “Answers to Frequently Asked Questions” document,³⁶ which claims to address and dispose of the idea of controlled demolition. It is difficult to believe that this document was taken seriously even by its own authors. Anyone with advanced education in scientific reasoning can see that it avoids many of the key issues and is fraught with leaps of illogic.³⁷

The paper by Ross cited above takes concrete pulverization into account and concludes that the collapses would have stopped long before they reached the ground. Robertson seems unaware of the body of work on these issues. If he isn’t, he’s being dishonest by pretending to be unaware of it. If he truly *is* unaware of it, he did not prepare for this debate to the level that would be expected for a professional person on an issue of this importance. The Journal of 9/11 Studies (<http://www.journalof911studies.com>) is not difficult to find via a web search. It is strongly affiliated with Professor Jones. There are

hundreds of other 9/11-skeptical websites, and dozens of books and DVDs that mention the demolition arguments. Was Robertson overconfident in not preparing for this interview, or was he perhaps afraid to see that the skeptics have solid points that are not as easy to dispose of as he would hope?

HOST: Well, this is another of Steven Jones points, I believe, saying the *rapid* collapse and fall of the building is somehow—makes you question that theory—Steven Jones?

JONES: Sure, thank you. I actually—

GR: One can hear Robertson protesting in the background, even though he has just taken a turn at speaking, and a very long turn at that.

HOST: Yeah, let's let Leslie Robertson finish his point.

ROBERTSON: Let me finish here, before—

HOST: Sure.

ROBERTSON: And that is, the NIST report carried the study to the point where the structures were “poised to collapse.” Now, that was in fact their mission. It was their mission, as I understood it from the day that NIST first went to the Congress seeking funds—

GR: Which, at \$20,000,000, amounted to less than one-fourth what was spent investigating the far less complex issues of the Clintons' investment deals and President Clinton's statements about having had sex with an intern. It also amounted to perhaps as little as *1/500 of one percent* of what has been spent on the War on Terror, the series of events triggered by the identification of al Qaeda as the party responsible for 9/11.

ROBERTSON: —they were not—the purpose of this study was not to arrive at collapse mechanisms for the buildings, but rather to look at the two buildings—or three or actually four buildings, I guess you would say—

GR: What fourth building could Robertson possibly have in mind? Is he suggesting that NIST looked at the partial collapse at the Pentagon? It clearly did not. The word appears once, in the Dedication. Is he thinking of the other buildings in the WTC complex that were severely damaged by falling debris from the Towers? Four buildings besides 1, 2, and 7 fit that description.

ROBERTSON: —If the events as they envisioned them would take place, would in fact the buildings collapse?

GR: In other words, most of the evidence for controlled demolition was explicitly declared irrelevant and off-limits for discussion. We're not supposed to fault them for *not looking* at the most important evidence relating to what happened, since they admitted

that they had no intention of doing so.

ROBERTSON: There's no question that they *would* collapse. It would have been outside of their charge, as I understand it, at least, to have continued on.

GR: This follows in the footsteps of the Nuremberg defense: *They were only following orders*. The main difference is that Robertson implies that he is perfectly satisfied with the orders!

Note how he covers for those who impeded an honest investigation by relegating the most critical scientific question of the century to a mere *bureaucratic/funding decision*. The responsibility for so limiting the investigation rests with persons unknown, who made the decision they made for reasons unknown.

The reason cannot be that "There's no question that [the towers] would collapse." I present evidence throughout this paper that the Towers should have remained standing—evidence that was certainly available to NIST team members, in fact much of which was reported *by* them—as well as the obvious features of controlled demolition that the collapses themselves exhibited, as noted by emergency personnel on the scene, observers in the corporate media, and experts in relevant fields:

It's reminiscent of those pictures we've all seen [when] a building was deliberately destroyed by well-placed dynamite to knock it down. [Dan Rather, referring to WTC 7]³⁸

Anyone who has ever watched a building being demolished on purpose knows that if you're going to do this you have to get at the under-infrastructure [*sic*] of the building to bring it down.³⁹ [Peter Jennings, referring to one of the Towers]

There's going to be a debate about whether the World Trade Center towers should have collapsed in the way that they did.... Professor Wilem Frischmann ... said the twin towers should not have collapsed so quickly. "Prior to 11 September, I scarcely believed that this icon was vulnerable," he said.

He added that the impact of the Boeings, puncturing the outer steel shell of the towers would not in itself have caused the towers to fall. "My current analysis of the collapse sequence [suggests that] damage caused to the outside would not have triggered collapse."

Although the explosion caused by the fuel-laden aircraft would have been intense, the lack of available oxygen inside the towers would, according to Professor Frischmann, have limited the fireball's temperature to less than 1,000 Celsius. This was within the design limits that the towers were supposed to withstand.⁴⁰

New Mexico demolitions expert Van Romero said on the day of the attack that he believed the building collapses were "too methodical" to have been a result of the

collisions, and that he thought "there were some explosive devices inside the buildings that caused the towers to collapse." His remarks were published in the *Albuquerque Journal*... Ten days later the same newspaper printed a retraction, in which Romero is quoted as saying "Certainly the fire is what caused the building to fail." His assertion of the official line in the second article is not backed up by any explanation or analysis.⁴¹

Given all this, only the most incurious or deeply frightened person would be able to defend the decision not to pursue the question of what brought the Towers down beyond the point in time where they actually started to come down. I doubt that a person with a history of accomplishments such as Robertson's is incurious.

ROBERTSON: —and I don't see what possible use it would have been to structural engineers in the future, to pursue that question.

HOST: Thanks. Steven Jones, your response?

JONES: Thank you. Yeah, actually, other structural engineers have looked at this, the collapse[s] of these buildings, and what happens after the collapse commences, is—has direct bearing on what is involved in the collapses. The fact that NIST did not carry on [past the point where the collapses started] doesn't mean that we can *assume* that collapse will be complete after the point of initiation. And in particular, Gordon Ross in his study, in his paper, which is now published—and I had a response from a civil engineer just yesterday who said that he agrees—that when you consider conservation of momentum and conservation of energy in the collapse[s] of these buildings, that the time required, then, for the collapse is much larger than free-fall time. Whereas, the buildings collapsed in about ten seconds, according to the 9/11 Commission. You can look at the seismic data as well.

HOST: OK, I'm getting in over my head, perhaps, mathematically, but momentum is mass and velocity, right?

JONES: Yes, mass times velocity, and energy must also be conserved. These are fundamental laws of physics, and when you fold these into the picture, then you find that the collapse will be significantly slowed down. I mean obviously, if you drop a block without anything below it, it will fall in free-fall time. Now if you have these enormous structures below—the 47 core columns, for example, 240 perimeter columns in the way—plus all the concrete, hundreds of thousands of tons—then that will slow the progress significantly.

HOST: Well, what Leslie—I'm sorry, go ahead.

JONES: The only way, then, to achieve this rapid and *complete* fall—and symmetrical as well, is through the use of explosives, to move the mass out of the way.

HOST: And Leslie Robertson, I believe you're saying that the downward momentum is so intense here that [the lower floors] just were collapsing rapidly because of what was coming down on top of them?

ROBERTSON: Well, actually, I have not studied the question of the time required for the roof to have arrived at the plaza level. I've not studied that—

GR: Note first the circumlocution Robertson uses for “collapse times” – 17 syllables instead of three. As George Orwell noted, “When there is a gap between one's real and one's declared aims, one turns ... instinctively to long words.” Robertson's overly precise description implies that the question is just a detail, and a strange thing for anyone to be interested in – and he admits that he hasn't been interested in it enough to prepare for this interview by thinking about it. The question is easy to find on the many websites that discuss the possibility that the WTC was demolished.

ROBERTSON: —What I can assure you is that once the upper floors of the building started to fall, there was nothing that could have saved those towers. They would then have collapsed, and in my view symmetrically, or more or less symmetrically, down to the f-, not to the foundation but at least down to the, plaza level and partly into the foundations.

GR: Mr. Robertson's analysis would be invaluable to the scientific community and to the world as a whole. Why is he keeping this from us, especially since he has accomplished what the entire NIST team could not?

HOST: And you believe they would have collapsed at that *speed*, without any—

ROBERTSON: I can't speak to that. I've not studied that—

GR: If there's an argument here at all, it is an argument from authority. Robertson does not bother to present an argument for the rapid collapse speed **or** the symmetry, and he blithely claims he is unable to because he hasn't studied it. Talk about not having done your homework!

JONES: You know this is ... Yeah, I appreciate that, Mr. Robertson, and it *has* been studied by a professor of mathematics, Ken Kuttler, as well, and he also comes to the conclusion⁴²—agreeing with mechanical engineer Gordon Ross—that the time will be much larger than ten seconds. He gets numbers around 36, 36 seconds—

GR: Ross gets an infinite collapse time. See note 30.

ROBERTSON: OK, then, if we accept that to be the case, then I still don't understand that some kind of controlled demolition could then have hastened the fall.

GR: As if that isn't obvious! Asking the question falsely implies that it isn't obvious and hasn't been answered by practically every formal statement on the topic, including

dozens of books and DVDs and hundreds of websites. Controlled demolition best explains the 8 to 10 features of the WTC destruction that are never seen outside of controlled demolition, and that are almost always seen with it.

ROBERTSON: We're not—are we really saying every floor, every other, every third floor would have had to have had some kind of *explosives in it*? That's absolute nonsense.

GR: Robertson's tone of incredulity is disingenuous. This is five years after the event, and he's acting like this is the first he's heard of the idea. His tone implies that the possibility is absurd, even though all the evidence is consistent with it and numerous experts have taken it seriously or even endorsed it as the most likely hypothesis.

What's absolute nonsense is that al Qaeda could have destroyed the Twin Towers in the way they were seen to be destroyed, merely by flying airliners into them.

JONES: That would be required, to move the mass out of the way, yes, in order for the upper floors to proceed so rapidly to the ground.

ROBERTSON: So the premise that you're putting forward on the table here I gather, Steven, is that, many, many floors of the building had in them explosives designed to bring down the building.

JONES: Completely and rapidly.

ROBERTSON: In order to bring down the [inaudible], I'm sorry, you're right, because the building's gonna collapse, there's no question about that.

GR: What shameless sophistry! Robertson is trying to isolate the case for demolition to the rapidity alone, as if he has succeeded in upholding his case that the collapses would have begun, regardless of whether explosives had been present. That has certainly not been granted by Jones. Robertson has not even provided an argument for it. Yet, with his tone of voice, and by twisting Jones' current focus on the speed of the collapses, he implies that the collapses' inevitability has been established by what Jones has said, even though he has not directly admitted it.

ROBERTSON: Now what would be the *motive*, or even how would you achieve it? How would you physically go about it? I'm working in an office building; I'm sitting right now on the 47th floor of an office building. I don't know how it would be *possible* to go in and put in a demolition [*sic*].

GR: These are very different questions from "How does demolition help explain rapid collapse?" Robertson's tone and rapid-fire delivery implies that they are all components of the same objection, and makes it more difficult for Jones to respond to all the questions. Maybe he realizes, after asking the question about motive, that he really didn't want to go there and give Jones a chance to talk about that.

Again, the likely answers to *why* should be obvious, and if they weren't, they could have been easily have been located with a minimum of time and effort.

The purpose of the demolition charges, on the theory of those who accept demolition as the explanation, was to make the Twin Towers collapse, and to do so *dramatically* (not necessarily rapidly – that was a side effect – but that's probably the only way a demolition can work). The explosive destruction of a national symbol, in turn, enhanced the “shock and awe” effect, the suspension of disbelief and of rational, critical thinking, making most people more ready to accept the government and media's version of events, so that they would fear future attacks and want protection from them – even at the price of their civil liberties and trillions of their tax dollars.⁴³

I deal with *how* below.

ROBERTSON: And understand the extent that it would have to be. Look at the damage that the plane did to the north side of the North Tower. That's the most publicized view, I suppose. A *huge* number of columns were taken out and the building remained standing.

JONES: About 15%, actually. I've heard, in the NIST Report, it's about 15%.

ROBERTSON: Of the columns around the, around the—

JONES: That includes both.

ROBERTSON: But on that face of the—

JONES: Of the core *and* the perimeter columns, you just count 'em up, and divide by...

ROBERTSON: To be honest— a *huge* hole was put in the building, and it managed to stand there.

GR: This is exactly one of the skeptics' points. The buildings were massively overbuilt and extremely strong. It would have taken much more than the admitted damage to them to make the entire tower collapse straight down, through the path of greatest resistance, at perhaps 50% slower than free-fall speed in a vacuum, after smaller and short-lived fires than others that have been survived by other skyscrapers before and since 9/11. No matter how difficult the logistics of the task of placing such explosives, Robertson has just admitted a key reason why explosives are the only plausible explanation for what actually happened to the World Trade Center towers. The fact that he should be trying to explain is not just that the towers collapsed, but that their collapses exhibited so many features that are seen in controlled demolitions *and are never seen anywhere else*.

ROBERTSON: Now, in order to put [*sic*] controlled demolition on every floor, every second floor, every third floor, whatever you think it would take to create that speed of demolition, that would require an absolutely monumental effort.

JONES: Actually—

ROBERTSON: *Monumental* effort, which would have to get by security police and office workers—

GR: Another point made by 9/11 skeptics years ago: The company in charge of security at the World Trade Center on 9/11 (Stratesec, formerly Securacom) had for one of its principals (until 2000) one Marvin P. Bush, brother of George W. Bush. Securacom provided electronic security not only for the World Trade Center, but also for Dulles International Airport and United Airlines, right up to the day the twin towers fell.⁴⁴ Patrols with bomb-sniffing dogs at the World Trade Center were stopped the week before 9/11.⁴⁵ There is abundant other evidence that there was sufficient opportunity for the preparations to be made.⁴⁶

See below for further points on this, as the discussion continues.

ROBERTSON: You can't just walk into someone's office and put explosives on the columns, I mean *forget* it. Before or after 9/11, we all controlled our own space. So, it's not *practical*, to consider [that] demolition explosives could have been put into many, many floors of the building, in order to increase the speed of fall. And why would anyone *do it* for that matter? I mean, once it's going to fall, it's going to fall. What's the point of trying to *speed* it, its departure? I don't understand that at all.

GR: Here Robertson goes even further than before when he claimed that a collapse, once started, would inevitably continue all the way to the ground. Now he's claiming that the initiation of collapse itself was inevitable given the airliner impacts and fires. This was not the belief of many engineers at the time, nor of the 9/11 skeptics whose arguments he is acting like he has not even heard until now.

Again, see above: "The purpose of the demolition charges..."

The 911 Research FAQ on Controlled Demolition explains:

How could charges have been pre-positioned in the Towers in such a way that the plane crashes and fires wouldn't have set them off?

There are several possible answers to this. First, some charges may indeed have been set off by the crashes but masked by the huge fireballs created by the combustion of aerosolized jet fuel. Second, the charges could have been arranged so as to avoid the regions that the attack planners expected to take direct hits from the aircraft. Assuming that the jetliners were being flown by autopilot at the times of their impacts, the GPS navigation systems could have kept the targeting error margin to within a few feet. Third, explosives can be engineered so that heat alone will not detonate them. The plastic explosive C4, for example, requires the

simultaneous delivery of high heat and pressure to induce detonation. Fourth, it is relatively easy to design casings for explosives that would allow them to survive even the most violent assaults. Consider that the black boxes that store aircrafts' voice and data recorders protect their contents from impact accelerations of 3,400 Gs and from temperatures of 2,000 F for up to 30 minutes.

<http://911research.wtc7.net/faq/demolition.html#positioning>

JONES: Could I provide some answers then, some enlightenment here, because you've asked some questions? We address this – there's several, but in a short time – I point out the molten metal below both towers and Building 7 after their collapses. This indicates a very large source of chemical energy, and consistent with the use of large quantities of explosives. However, extrapolating from, for instance, the Landmark Tower controlled demolition, it would only require approximately a *thousand pounds* of high-energy explosives in each Tower to bring them down in that way. So we're not talking about an enormous amount of explosives. But the presence of this molten metal, which I discuss in my paper – again it's at <http://Journalof911Studies.com>.⁴⁷

But you'll see that this metal is primarily iron, not aluminum, since we've analyzed that. It also contains traces – as does the dust – of unusual trace metal, unusual quantities anyway, such as barium, and iron, of course, but barium, manganese, and zinc, are the primary trace components that we've observed in large quantities. And so these are consistent with chemical reaction on a large scale. And—in other words, one can't just look at a *part* of the data up to the point where a tower is poised to collapse, we have to look at the *time* of the fall, and the fact that there was molten metal, observed flowing out of the South Tower, and observed in pools beneath both towers and Building 7 after the collapses.

HOST: I want to give Leslie Robertson a chance to make a final comment, and we are gonna have to wrap this up, gentlemen.

ROBERTSON: First of all, with respect to the amount of explosives required to bring down a given building, clearly it does not take tons of explosives to do that. But to do it in a kind of floor-by-floor basis, which is your premise—

GR: As if the centered, rapid, complete demolition of a skyscraper could be done other than with charges planted at least every few floors. Robertson makes it sound as though some unusually difficult demolition setup has been suggested by Jones that is less feasible than some other setup.

Once Robertson grants that it would not take tons (plural) of explosives, he really should just stop and take a breath and let that fact in.

ROBERTSON: —in terms of the speed of fall, ah, you would have to have that same amount of explosives—and by the way the World Trade Center was a substantially larger

building than the one you're discussing—you'd have to have that on *many floors* of the building.

GR: Which is why Osama bin Laden and his assistants could not have done it. We understand that the operation would have to have been technically sophisticated.

ROBERTSON: —Not—and the perimeter of the building, and the core of the building, so it would be a *monumental* undertaking, it would be outside the realm of *reality* of what's permitted, in terms of strangers appearing in office spaces.

GR: The *collapses* were outside the realm of reality of what's permitted (by physics) — unless they were engineered. “We are operating well beyond realistic experience,” according to architect Bob Halvorson.⁴⁸

There were always a number of unoccupied tenant spaces throughout the Towers, which would not be unexpected after the 1993 bombing and the asbestos hazard was acknowledged: “During most periods, office space at the World Trade Center is about 85% occupied and 15% unoccupied.” (*Twin Towers: The Life of New York City's World Trade Center*, <http://www.amazon.com/Twin-Towers-Citys-World-Center/dp/product-description/0813527422>). If the empty spaces were made to “roll” from floor to floor in such a way as to assure complete coverage over a period of time, 200 five-pound charges could have been planted in a five months at the rate of 10 per week, less than 30 minutes per charge – a pace that would allow them to fulfill the duties of a “cover” job. Three people working for 35 hours could have done the job in one easy week, working only at night under cover of being security guards or even anti-terror specialists “checking on bomb threats.”

Also, the charges could have been planted under cover of asbestos abatement. Strangers in uniform carrying toolbags are typically ignored by professionals in office buildings, especially if they act like they belong there.⁴⁹

Finally, if very powerful charges were used – possibly including dispersed hydrogen (which would leave no “tell-tale” chemical trace, only water vapor) – fewer charges would have been needed to account for the observed demolition features.⁵⁰

JONES: [inaudible] molten metal. I don't agree with that—

ROBERTSON: You don't agree with what?

JONES: Well, that it couldn't be accomplished, because—

ROBERTSON: OK, well, you can accomplish anything if you have the resources to do it—

GR: Note how Robertson doesn't give Jones a chance to say why he disagrees. Instead, he pulls back a little, like an attorney who withdraws a question as soon as there is an objection, without letting his opponent say what's wrong with the approach he just took.

And yet his point is made.

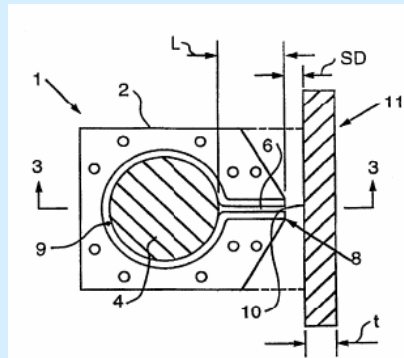
Moreover, *top US officials obviously had the resources to do it*. More than *two trillion dollars* was reported unaccounted for in military budgets – on September 10, 2001.⁵¹ The US military possesses the most advanced explosives in the world, and has developed several scenarios for battlefield demolition.⁵²

JONES: —Right—

ROBERTSON: —but I *defy* you to go into an office building and, and, with your rucksack and your thermite explosives, and stick it on a column and expect it to stay there. That's *preposterous*.



Above: two men install a conventional cutter charge to steel column, preparing for a controlled demolition of the building. Notice the narrow width/size of the explosive cutter charge. From The History Channel program *Modern Marvels* “Wrecking Ball” [episode] and thanks to Robert Moore and <http://piratenews.org/911con.html>.⁵³



ROBERTSON: The next thing is, we talk about the molten metal, now, I, we, have not done any chemical analysis of what was there—

GR: FEMA did analyze two structural members that exhibited “unusual erosion patterns,” indicating “a severe high temperature corrosion attack on the steel, including oxidation and sulfidation with subsequent intragranular melting.”⁵⁵ That is a pretty good description of what sulfur-enhanced thermite (thermate) would do to steel that was too far from the thermite to actually cut all the way through it.

To its credit, the *New York Times* reported this finding as “perhaps the greatest mystery yet uncovered in the investigation.”⁵⁶

To its discredit, NIST’s FAQ called molten steel “irrelevant to the investigation.”

ROBERTSON: We had many engineers on the site of the project following their failure. We and other engineering firms, and yes, there was a red-hot metal, seen by engineers. But molten, molten means flowing. I’ve never run across anyone who said they had in fact seen molten metal, or by the way if they had seen it, that they had performed some sort of analysis to determine what that metal was.

GR: This is not the first time Robertson implies that he cannot respond with confidence to a question because he lacks personal knowledge. He also used that dodge with the specific conditions of the NIST truss fire tests, and with the entire body of evidence in the public record concerning WTC 7. If he or his team didn’t do the research, it must not have been done, and he can’t be bothered to deal with anything claimed by anyone else. Yet, Robertson also suggests that his knowledge of demolition shows that the hypothesis is unrealistic. What knowledge of demolition does he have to make those statements?

Since when do engineers or scientists require *personal* knowledge, *personal* experience, in order to claim any knowledge about an issue? One of the hallmarks of civilization itself—of science all the more so—is the ability to learn from the experiences of others, to analyze what’s been written, to apply principles for casting out bogus work, and then eventually accepting valid work done by others. Robertson’s apparent cautiousness is mere trickery designed to undermine the listener’s confidence in the experiments performed by Jones and the studies done by others *without actually dealing with that evidence*.

Chemical analysis is not necessary to show that materials in the Ground Zero rubble were heated to extremely high temperatures – unexplainable by office or jet fuel fires, even by NIST’s own data – and that it persisted at such temperatures for weeks. A bright orange glow of any solid or gaseous material is strong evidence of such temperatures, understood as blackbody radiation in the case of solid material and spectral emission in the case of

flames. Several authorities at the time referred to “molten steel” and “flowing” or “running steel.”⁵⁷

JONES: Well, I've, we've *done* the analysis, mostly, and Dr. Keith Eaton— you know him?

ROBERTSON: Of course.

JONES: Dr. Keith Eaton, he toured Ground Zero, and in *The Structural Engineer*, in 2002, it's reported that, he talks about molten metal which was still red-hot—

ROBERTSON: I saw that. Molten metal is always red-hot. You're now quoting a person in a sense out of context—

JONES: No, no—

ROBERTSON: I think he was on the site, you must understand, there were many engineers, from many, many engineering companies, in New York area, and outside of New York but mostly from the New York area, who were on that site. You're talking about one person, who arrived, had a quick tour, and left.

GR: Here is what Eaton actually said:

“They showed us many fascinating slides” he continued, “ranging from molten metal which was still red hot weeks after the event, to 4-inch thick steel plates sheared and bent in the disaster.” Once one knows this, the irrelevance of the duration of Eaton’s visit becomes clearly apparent – as does Robertson’s desperation in trying to deny the existence of many such reports.

Moreover, it was not merely Eaton’s own judgment that there was molten metal. That was apparently also the judgment of the presenter of the “slides” – someone with evident engineering expertise:

“Our hosts, under the firm’s principal engineer George Tamaro (F), had been constantly involved at Ground Zero for several months. They had been called in as foundation engineers within a week of 11 September, and had spent several months examining the stability of the debris and the diaphragm wall all around the site, commonly known as the “bathtub” They had been key individuals in advising on the excavation of the site, with a great deal of care being needed before debris could be removed in order to maintain the stability of the original slurry walls.”

Such person would be in a position to know what he was talking about, and was confident enough about the matter to show one or more slides with that description to an audience of structural engineers.⁵⁸

JONES: Well, there were others as well, I mean—

HOST: Gentlemen, I'm gonna have to wrap it up. I know we had a commitment of time to the top of the hour, and I'd like to give you each just a chance to make a final comment that helps our listeners understand this discussion [inaudible], if you want to refer them to additional information you can do that. Leslie Robertson, let me begin with you, and thank you for your time this morning.

ROBERTSON: Well, I'd just like to say one other thing, and that is that I've been in the unfortunate situation of having to deal with the relatives of those who perished at the WTC, and I must tell you that they are all looking for closure. And most, the vast majority, have found it. And I believe that this discussion about controlled demolition is [an] irresponsible act, and it's hurting, hurting a lot of those people unnecessarily, and I think we should put this to bed and move on to more constructive ways of life.

GR: Here Robertson truly turns to the dark side, with the absurd, insulting implication that questioning whether the real 9/11 murderers have been identified dishonors their victims and the victims' families.

It is important for all of us to begin making the point that there are many more 9/11 families than those created on 9/11/01. All the victims of the 9/11 Wars are now represented by 9/11 families. In fact, it is possible that we will all be 9/11 families before this is done.⁵⁹

HOST: Leslie Robertson is a structural engineer who has designed the structural engineering component of hundreds of buildings and structures around the world. He was chief engineer on the World Trade Center project.

Steven Jones, professor of physics, will be presenting in Boulder and Denver this weekend. His view of how the Trade Centers collapsed—a final comment from you, Steven Jones.

JONES: Well, I like to stick with the science, but since Leslie raised the issue of the people involved—Ellen Mariani is one who comes to mind. Her husband perished on 9/11. She is seeking closure, yes, but with the full understanding that she wants to see the *truth* come out. She feels that 9/11 was *not* simply caused by Muslim hijackers but there were others involved, and the science, particularly the molten metal, and the *speed* of the collapse of the Towers *and* Bldg 7 – which we've hardly touched on, but which people can read about in the Journal of 9/11 Studies. All of these data point to the need for further investigation which gets at the science. We've analyzed the metal now, and the dust, and it does point to the use of explosives.

Unfortunately – I'm not saying it's a pleasant thing, but Patrick Henry pointed out in his day – he was facing a regime that, was, well, King George, at the time. He pointed out that he would rather be willing to face the unpleasant, the *painful* truth as he knows it, and to know it *now*. Now as a scientist and as a citizen who loves my country, and the

people who are involved, I agree with Patrick Henry. We—I want to know the truth even if it is painful, and I want to know it as soon as possible, and I'm working with Scholars for 9/11 Truth [now he is with [Scholars for 9/11 Truth and Justice](#)], a group of approximately 400 [350], now, who are researching, and pursuing – and that includes 90 academics, plus or minus – who are researching, and pursuing this question until we get to the bottom of this, until we find out what really happened. And we're not going to sweep under the rug the molten metal, just because NIST hasn't analyzed this, *we are analyzing it*.

HOST: All right, well, thank you, Steven Jones, and—our guests Steven Jones, professor of physics, Leslie Robertson, structural engineer, thank you both for your time this morning.

JONES: Thank you.

ROBERTSON: A pleasure.

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- ⁸*City in the Sky*, p. 131 and 138.
- ⁹NIST, NCS NCSTAR1, *Final Report on the Collapse of the World Trade Center Towers*, September 2005, p. 182, <http://wtc.nist.gov/NISTNCSTAR1CollapseofTowers.pdf>.
- ¹⁰NIST, NCS NCSTAR1, p. 6: "An additional load, stated by the Port Authority to have been considered in the design of the Towers, was the impact of a Boeing 707, the largest commercial airliner when the Towers were designed, hitting the building at its full speed of 600 mph."
- ¹¹<http://www.boeing.com/commercial/707family/product.html>;
<http://www.boeing.com/commercial/767family/specs.html>
- ¹²FEMA's report (*WTC Building Performance Study*, mirrored at http://911research.wtc7.net/mirrors/fema_wtc/fema403_ch1.pdf, p. 1-17) uses the figures of 263,000 pounds for the 707 in the design and 274,000 pounds for the 767s on 9/11. It calls this four percent difference "significantly higher." It also echoes Robertson's claim, providing the specific figure of 180 mph for the designed 707 impact speed and 470 to 590 for the 767 impact speeds. However, it cites no sources for any of these figures. Perhaps Robertson is the source, in which case, of course, these statements by FEMA do not corroborate Robertson's claim since they are not independent.
- ¹³"The Man Who Built the Twin Towers," BBC, http://www.bbc.co.uk/sn/tvradio/programmes/horizon/broadband/archive/leslie_robertson/
- ¹⁴"NIST Urges Implementation of Recommendations from World Trade Center Investigation: Final Towers Report Released Today at Congressional Hearing," October 26, 2005, http://www.nist.gov/public_affairs/releases/final_towers_rpt102605.htm.
- ¹⁵Jim Hoffman, "Building a Better Mirage: NIST's 3-Year \$20,000,000 Cover-Up of the Crime of the Century," December 8, 2005, <http://911research.wtc7.net/essays/nist/index.html>.
- ¹⁶Kevin Ryan, quoted in Jim Hoffman, "Review of 'A New Standard For Deception: The NIST WTC Report', A Presentation by Kevin Ryan." See note 7.

¹⁷Jim Hoffman has spoken with three structural engineers, none of whom had more than superficial knowledge of the Report. Personal email, March 25, 2007. See also the informal poll reported at <http://forum.physorg.com/index.php?showtopic=3108&st=11130&#entry85072>, which found that “6 out of 6 Ph.D. civil engineers that I have talked to have neither read [even] the NIST summary report, nor have they read Professor Jones' paper. An obvious caveat is that 6 Ph.D. Civil Engineers is an awfully small sample.”

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²⁵Jim Hoffman, “Towers' Design Parameters: Twin Towers' Designers Anticipated Jet Impacts Like September 11th's,” February 11, 2007 version, <http://911research.wtc7.net/wtc/analysis/design.html> , citing *City in the Sky*, p. 133. See also <http://www.boeing.com>.

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²⁷Corus Construction, “Fire Resistance of Steel Framed Car Parks,” originally at <http://www.corusconstruction.com/carparks/cp006.htm>, mirrored at <http://www.911review.com/articles/jm/cache/cp006.htm>.

²⁸NIST, NCS NCSTAR1 (*Final Report*), p. 90.

²⁹Kevin Ryan, unpublished paper reviewed by Steven Jones.

³⁰Gordon Ross, “Momentum Transfer Analysis of the Collapse of the Upper Storeys of WTC 1,” *Journal of 9/11 Studies*, June 2006, http://www.journalof911studies.com/articles/Journal_5_PTransferRoss.pdf.

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³²Jim Hoffman, “North Tower Collapse Video Frames,” http://911research.wtc7.net/wtc/evidence/videos/nt_east.html.

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⁴⁴Linda Milazzo, “Kennedys, Bushes and Oil: Public Interest vs. Self Interest,” *The Smirking Chimp*, December 10, 2006, <http://www.smirkingchimp.com/thread/3815>; <http://www.commondreams.org/views/03/0204-06.htm>. Griffin notes on Web site “9.11 Truth” President Bush’s brother Marvin and his cousin Wirt Walker III “were both principals in the company in charge of security for WTC.”

“Marvin Bush is one of the Board of Directors of the Stratesec Company. Formerly Securecom [*sic*], Stratesec provided security at the World Trade Center, Washington D.C.’s Dulles International Airport and United Airlines between 1995 and 2001 and was backed by a private Kuwaiti-American investment firm. The Kuwam Corporation (“Kuw” = Kuwait; “am” = America). Stratesec’s revenues recently went up by 60%, due to what the company describes as “new customers”. Prominent people at Stratesec also include former Reagan operatives including Barry McDaniel and Air Force General James A. Abrahamson (who was involved in the Reagan “Star Wars” project). White House responses to 9/11 have not publicly disclosed the company’s part in providing security to any of the named facilities. Yet instead of being investigated, the company and companies involved with it have benefited from legislation pushed by the Bush White House and rubber-stamped by Congressional Republicans.” Elly Clark, “Deliberately Ignored,” *Poynter Online*, February 25, 2004, http://www.poynter.org/article_feedback/article_feedback_list.asp?user=&id=14489&DGPCrPg=1&DGPCRt=9A, citing <http://www.scoop.co.nz/mason/stories/HL0301/S00032.htm> and <http://www.informationclearinghouse.info/article3255.htm>.

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The severe corrosion and subsequent erosion of Samples 1 and 2 are a very unusual event. No clear explanation for the source of the sulfur has been identified. The rate of corrosion is also unknown. It is possible that this is the result of long-term heating in the ground following the collapse of the buildings. It is also possible that the phenomenon started prior to collapse and accelerated the weakening of the steel structure. A detailed study into the mechanisms of this phenomenon is needed to determine what risk, if any, is presented to existing steel structures exposed to severe and long-burning fires.

http://911research.wtc7.net/wtc/evidence/metallurgy/WTC_apndxC.htm

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⁵⁹Kevin Ryan, personal correspondence, March 24, 2007.