9/11 Physics

Part 1 –Plane Impact

2012-09-09

Abstract

The impact of a plane into the WTC Twin Towers is investigated. The strength of the WTC steel lattice façade is calculated. The corresponding retardation of a plane is calculated. The calculations show that the 9/11 event is a fairy tale.

A Single Beam

A steel beam attached at (a,b) is supported at two points (c,d), the distance between the two supports is **L** (Fig. 1). At the middle we apply a force **F**. The beam will deflect a distance **s** when a force of **F** is applied.

The configuration is a model of a perimeter column of a WTC Tower, where the force **F** is due to a plane, that crash into the Tower. The supports (a,b) reflects that the perimeter columns are attached (fixed) to the tower above and below the impact point. The supports (c,d) are concrete floors above and below the force **F**, that comes from the Plane.

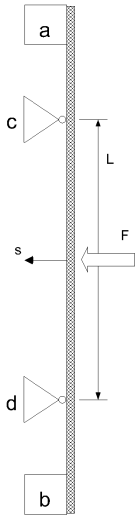


Fig.1

During a crash with a high force **F**, the deflection **s** will be large. The steel perimeter column will undergo a plastic deformation, and a dent in the Tower will be formed. It can clearly be seen that the length of the perimeter column, from (a) to (b) has increased. The column is subject to strong tensile forces, that have stretched the column so it has become longer.

We now wish to calculate the tensile forces in the perimeter column. Since we are interested in the forces at large deformations **s**, we see that the entire cross section of the perimeter column is subject to tensile forces; the steel undergo a plastic deformation.

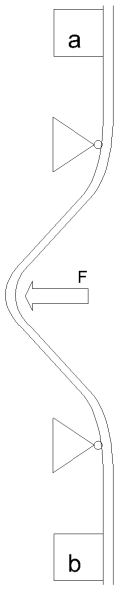
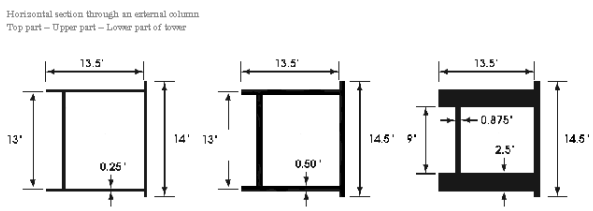


Fig.2



Dimensions of perimeter beams (NIST).

In Fig. 3 a cross section of a perimeter column given with dimensions. The steel was much thicker at the bottom of the Tower, compared to the thickness higher up. Fig. 3 reflects the thickness at the level where the "Plane" is thought to have impacted.

The cross section area is 12.7 mm * * 1371.6mm = 17,400 mm2.

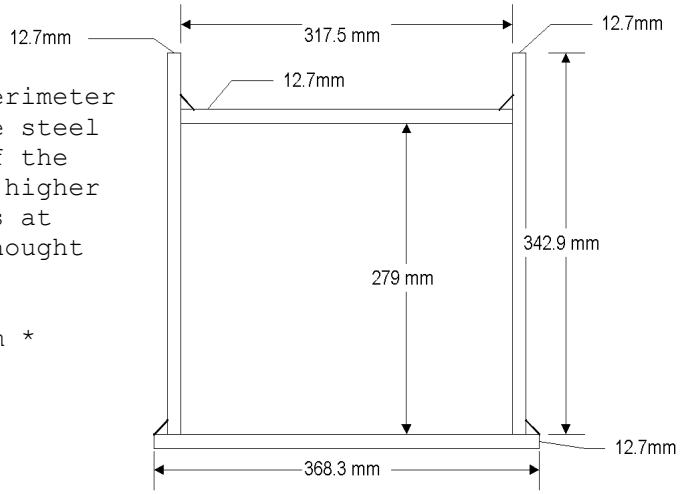


Fig. 3

This is a graph of the tension force as function of the strain of the perimeter column, typical for construction steel.

The WTC Towers used pre fabricated perimeter column elements, and the steel grade was varying; possibly to reduce risk due to some material property. The exact steel grades and blueprints has not been released.

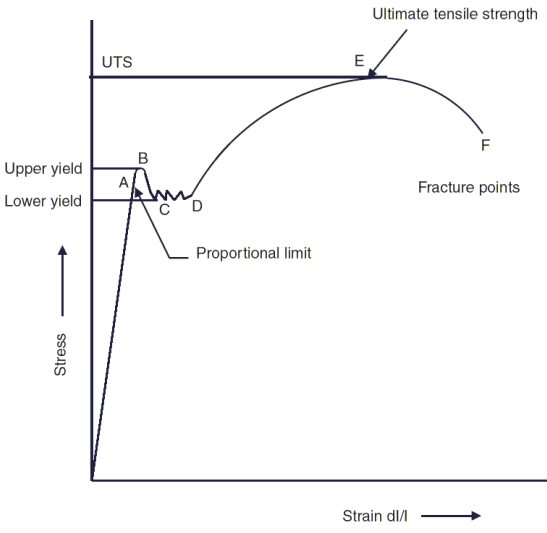


Fig. 1.6. A typical stress-strain curve for mild steel

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Our perimeter column will bend elastically to the point "A", when a plastic deformation will begin, that possibly end in the point "F" where the column is torn apart.

The force at ultimate tensile strength "E" is typically 440N/m2 for construction steel (minimum).

In Fig. 4 we split the tensile force, of the perimeter column (thick arrows) into components, where we are mostly interested in the component that is directed against the "Plane".
This component will be small for small deflection angles. The steel can strain 12%-15% before it breaks. Due to this a deep dent can be formed, with sufficient angles to produce a significant resistance against the force, before the column breaks. We ignore resistance due to elastic tension in this calculation.

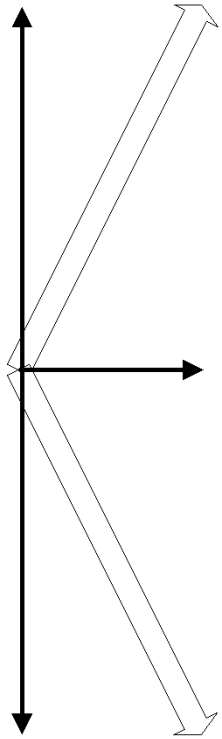

Fig. 4

In Fig. 4 an approximate angle of 26° is selected as an example, producing 11% strain of the column. This produce a force vector, against the Plane, of 44% of the tensile force, and note that the same force is counted for each of the force vectors, producing a total of 88%.

The interesting part is the total estimated force. It is obtained by multiplying the cross section area with the tension force, and correcting for the geometry.

F = 17400mm2*440N/mm2*0.88=6.7MN.
Converting the unit, this is 680 tons, that is directed against the fuselage/wing of the Plane. Look at Fig. 3. The "Plane" is coming in from the top, hitting the two "spikes" that is provided by the design. The width of the column is approx 340mm. No part of a any plane can withstand this kind of force; the column will slice right though the wing/fuselage.

Concrete Floor Model

The Concrete Floors of the WTC Towers is an element that is magically edited out of most "Documentaries" on the construction of the WTC Towers. The floors was 100mm thick and cast on site. The steel lattice trusses, under the concrete, was designed so that the steel lattice was partially inside the concrete. The steel lattice can thus not fail independently.

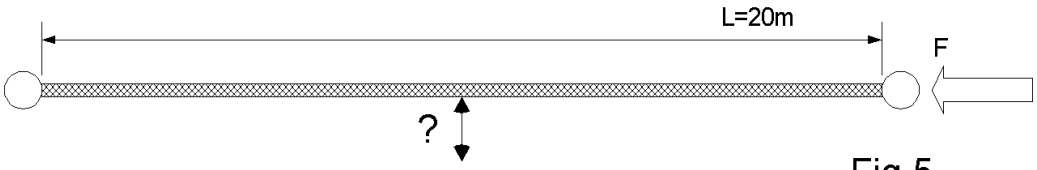

Fig.5

In Fig. 5 we see a floor, from the side, with an applied force **F** applied from the side. From this view, we suspect that the floor could easily crack, and bend in the middle. This is not the case, as we see if we flip the picture, and look from above:

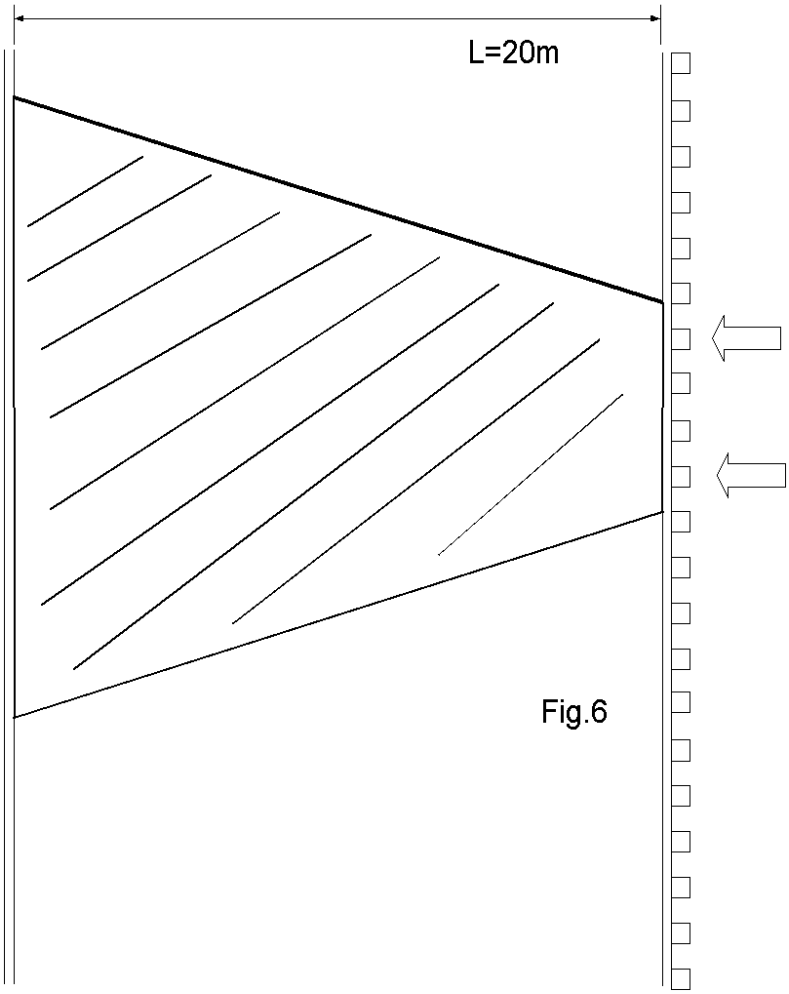

Fig.6

The floors was heavy, approx 200kg/m2. They cannot accelerate in a vertical direction, quickly enough, to produce a crack where the floor can be bent. The floor must thus be demolished at the wall. Concrete can withstand enormous compression forces. The resistance can be estimated to 50MPa=5.0MN/m.

The concrete floors connect to the wall behind a spandrel plate, like a steel belt, that run around the Tower. With its 1.32 m height, the plate provide a robust connection between the perimeter columns and the concrete, even if there would be some structural damage. If the concrete floors become damaged, the floors will be kept behind the spandrel plates, the steel perimeter columns will bend inwards, the spandrel plates and core columns will be bent and stretch, and energy will be absorbed. This structure imply that any incoming object will crash into a very strong and heavy structure, that will provide significant resistance.

Perimeter Column Model

We now illustrate what will happen if a Plane would impact the Tower. The fuselage of the plane (Boeing 767-200ER) is 5m in diameter. On a principle drawing of the perimeter columns, a 5m circle has been inserted (Fig. 7). The perimeter columns used a 40 inch grid, that converts to 1m or 1016mm. Of this 1m, as seen above, 0.34m was used by the perimeter column. The remaining width was insulation, fitting for a window, and the window itself. A drawback of the design of the Towers was the narrow windows.

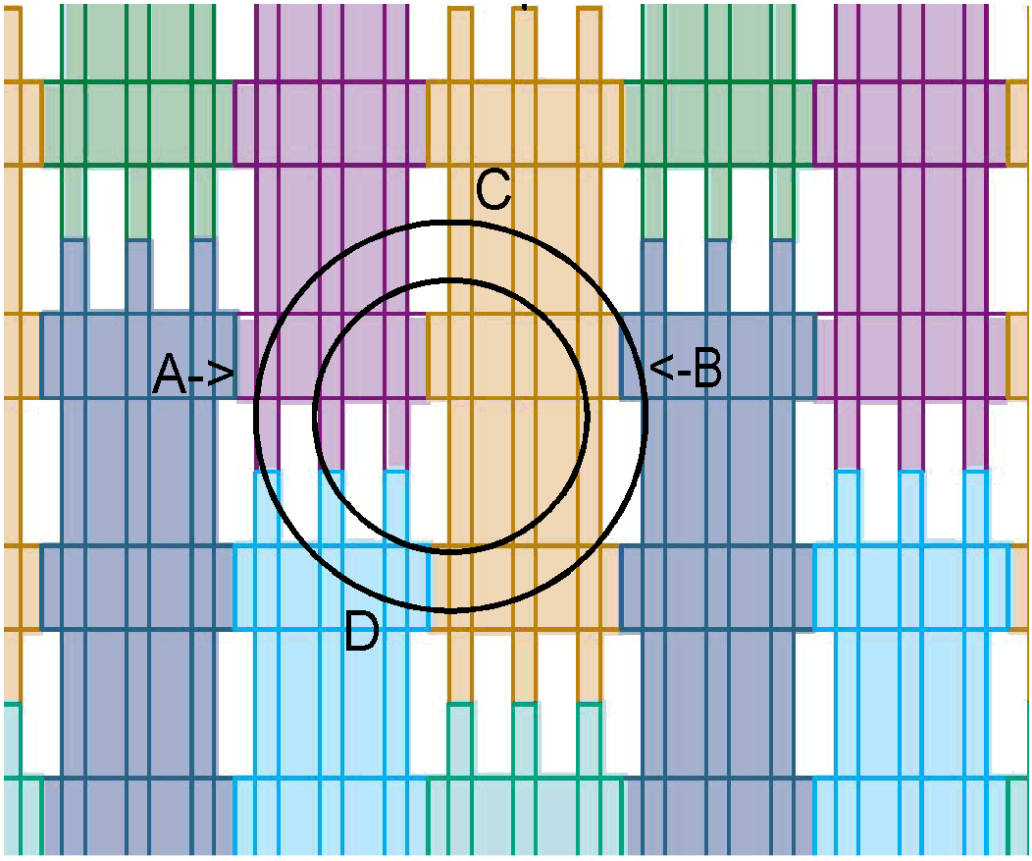

Fig. 7

For a perimeter column, that bend between two intact floors, like at "C" in Fig 7, we have L=12'=3.66m (L is in Fig 1). We estimate a typical force to 5MN, when the column is bent in. For columns in position "A" and "B", when L= two floors or 24', we set F=2.5MN, as the angle will be smaller, producing half the vector against the plane. A 5MN force will be produced only if these beams is bent further inwards. To bend and stretch a spandrel plate, that has a cross section area of 1.32m*25.4mm, we set F=10MN. The thickness of the spandrel plate is supported by documentary film and archive photos. For the concrete floors we have 5.0MN/m. This adds up like this:

At (pos A) 2 columns bending at a floor (L=24')(F=2*2.5MN)+
+1 spandrel plate (F=10MN) + 2.5m concrete (F=2.5m*5.0MN/m);

(Pos B) 2 columns bending at a floor (L=24')(F=2*2.5MN)+
+1 spandrel plate (F=10MN) + 2.5m concrete (F=2.5m*5.0MN/m);

(pos C) 3 columns bending in the middle (L=12')(F=3*5MN);

(pos D) possibly 3 columns bending at a floor (L=24')
(F=3*2.5MN) + 4m concrete (F=4m*5.0MN/m)

-> sum is 97MN.

The central problem of the 9/11 Lie, is that this is 10,000 tons of force, directed against the "Plane". The mass of the "Plane" could be estimated to 140 tons. The retardation would then be (F=ma), a=70g, (g=9.81m/s2). That this is ABSURD can be seen by a comparison with a car crash: 70g corresponds to the retardation of a test dummy, in a medium size car, when the car slam in 90km/h directly into a concrete block.

The fuel of the "Plane" cannot take part in the crash, and should not be considered a load on the wall. The wing tanks of the Plane will be cracked immediately, and the fuel will spray out and ignite instantly. Thus, the "Fire Ball" shall, and must, be on the same side as the impact. The 9/11 fake videos, where the fuel spray out on the adjacent side, are simply crude fakes.

The windows of the Tower, are open holes where the demolished plane pass though. The window openings take up about $1.514m^2/3.72m^2$=40.7% of the wall. This means that 41% of the incoming energy of the plane will pass through the windows, and should not be included when a load on the perimeter columns is considered.

Core Columns

Inside the Tower we find 47 core columns. They cannot be destroyed by any plane impact. To a part, because these columns are much thicker and heavier, compared to the perimeter columns. They are also separated from each other; only the fraction of plane that hit a column can inflict a force. Most of a plane would simply miss. A plane must also grind itself through the perimeter column mesh, before reaching the core columns.

Video Evidence of a Plane Crash

- Most of the videos are self-contradictive.
- Most of the videos have serious problems with various law of physics.
- Most of the videos are proven fakes.
- Some of the videos contain subliminal threat-pictures of animals, of teeth and screaming faces.
- Almost all still pictures of the rubble pile are proven fakes.
- The "dead" are also fake.
- A set of "conspiracy" theories was prepared; designed for those who understood that something was wrong. These theories (and "documentary" films) are a part of the lies.

Conclusions

The 9/11 is simply a fairy tale. It cannot be implemented in the real world. The video and still pictures are fake. The Witnesses are fake. The Dead are fake. The entire thing is simply a Hoax.

Tufa video
2012