A “Lengthy” Discussion of The Steel in the Debris of the WTC

Inspired by the Research of Dr Judy Wood

Andrew Johnson

November 2007

1. Introduction

The research published by Dr Judy Wood on her website www.drjudywood.com graphically documents the paucity of debris following the 10-seconds-per-tower destruction of two quarter-mile buildings on 9/11/01. As an attempt to numerically illustrate the level of destruction, an overall figure of the total length of steel, which should have been present in the debris pile, is here calculated.

1.1 Basic Data about the World Trade Center Towers 1 and 2

A figure of 415 metres was used for the height of the towers. These values

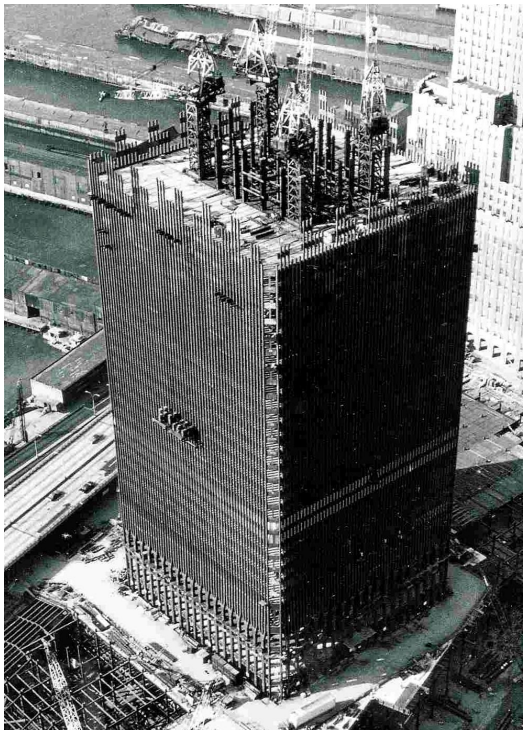
Parameter	Value (m)
building width	63.14
building depth	63.14
core width	41.8
core depth	26.52

Table 1-1 WTC Dimensions

were taken from

http://wtcmodel.wikidot.com/structural-data-wtc-1-2

and were used in the calculations below.



1.2 But this pointless! The Steel Was Quickly Shipped Away!

It seems that various unsubstantiated statements have been made over time to explain the extreme level of absence of debris. One such statement is "The steel was all sold to China and shipped away promptly, before it could be examined." However, we have no evidence that such a large-scale operation was undertaken or completed in the immediate aftermath of 9/11. Did anyone report many fleets of trucks, filled with steel girders, driving down the streets of Manhattan to the Docks. and their loads being transferred onto large container vessels? There are no pictures or video of this supposed operation that are readily available, nor have the details of such a major clean-up exercise ever been discussed.

1.3 Can We "Count" The Debris?

In Part 1 of "The Overwhelming Implausibility of Using Directed Energy Beams to Demolish the World Trade Center Towers",, published online in the *Journal of 9/11 Studies*, Dr Jenkins states:

> *Some proponents of the 'missing debris' hypothesis prefer to "count" the debris from photographs. This is an inherently reckless approach to the problem. Photographs offer no way to directly view all the individual steel beams in debris piles or debris occupying sublevel collapses. For instance, any attempt to "count" the beams or "wall sections" in the debris pile of WTC 7 will fall short of accounting for the total mass of the building for the simple reason that the debris is located in a pile and all photographs only show the surface. That does not mean that the rubble pile does not contain the mass of the building. Even if the debris were spread out somewhat**, the same problem applies when attempting to "count" the debris**.*

In this article, I hope to show that, because of the sheer scale of the WTC buildings, there is considerable value in attempting to calculate other figures which illustrate the very large volume of material which should have been visible in the immediate aftermath of the WTC Towers destruction.

2. Calculating Approximate Total Length of Steel

2.1 Vertical Columns

The towers were 415 metres above ground, though some steel pieces would have been below ground level. There were 236 exterior (perimeter) columns and 47 interior (core) steel columns in each building.

Total Length of Vertical Steel = 566 x 415
= **234890m**

2.2 Spandrels and "Weatchex"

The spandrel steel belts on the exterior walls were approximately 1.32m wide, and when joined, they spanned the width of one side of the building. Therefore

Approximate total length of Spandrel Steel per floor = 63.14 x 4 = 252.56
Total Length of Spandrel Steel = 252.56 x 2 x 110
= **55563.2m**

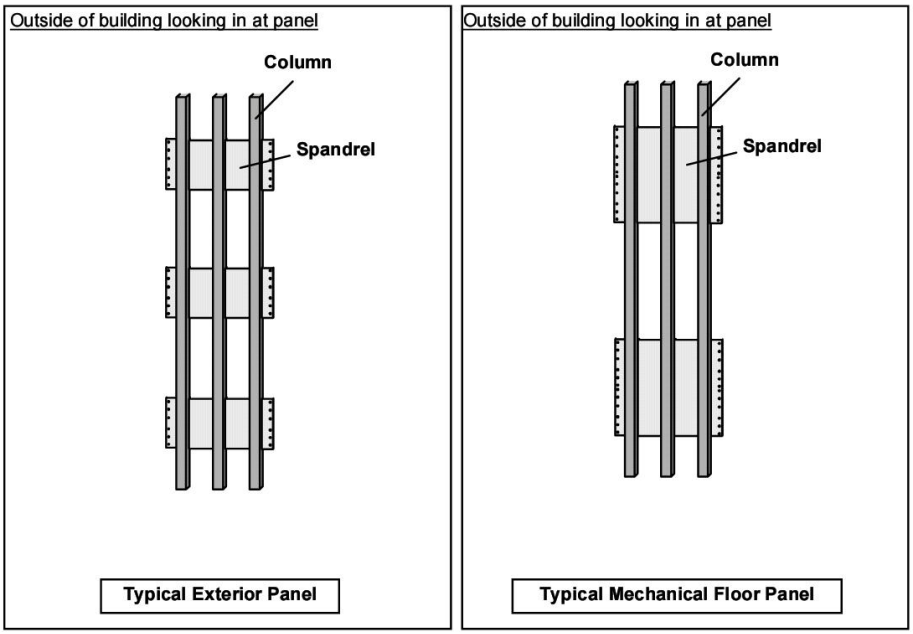


Figure 2-1 Spandrels – "Wheatchex" - Page 27 of NCSTAR1-3B

Looking at this another way, there would have been:

Number of Exterior Columns x No of Buildings x Height / Group of 3 9.1 metre lengths
= 236*2*415/(3*9.1)
= **7175** "Wheatchex" (approx)

How many of these can we see in the debris piles?

2.3 Trusses

The trusses spanned the interior of each floor of the building, as shown below

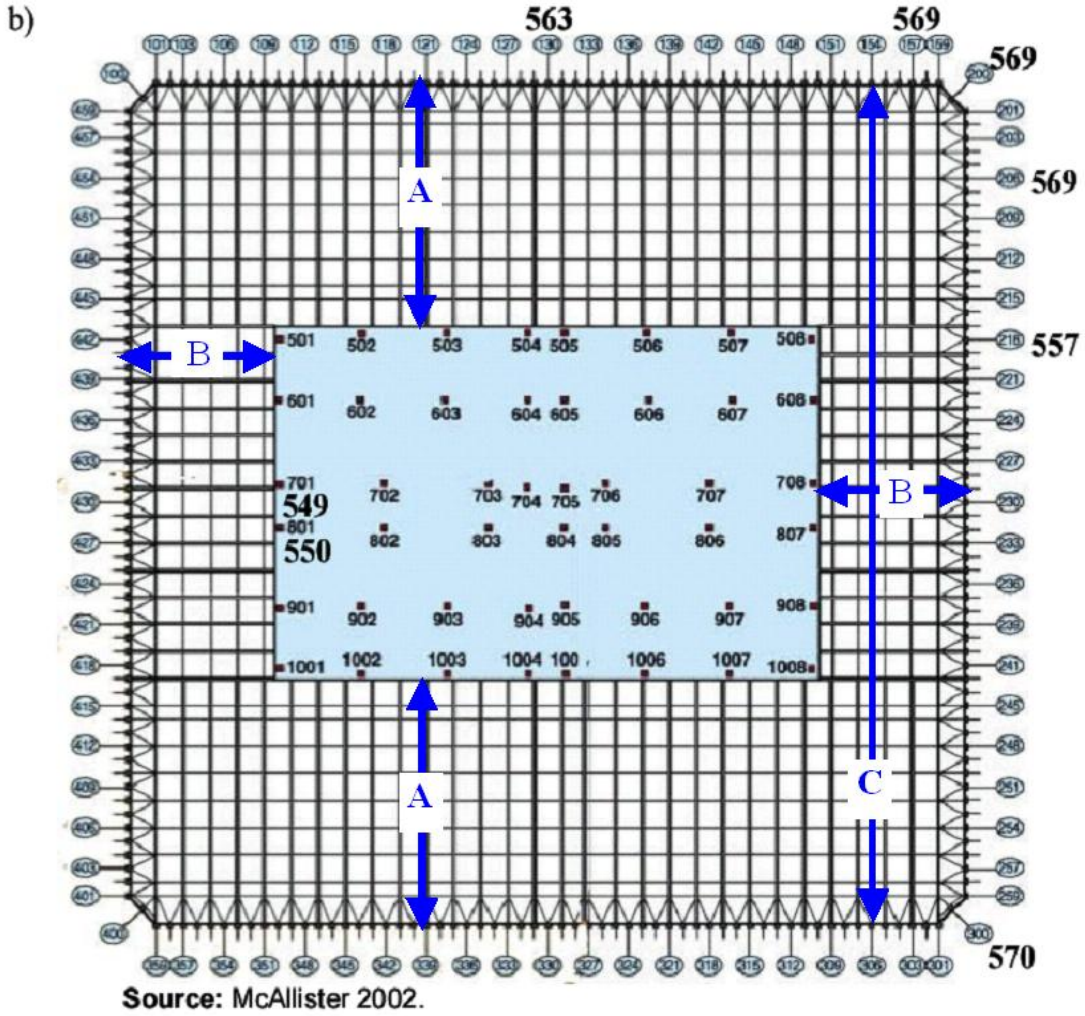


Figure 2-2 Diagram Illustrating Total Lengths of Truss Steel (Page 16 of NCSTAR1-3B)

Looking at the diagram,

- We have 20 pieces of Length A, top and bottom = 40 pieces of Length A
- We have 14 pieces of Length B, left and right = 28 pieces of length B
- We have 10 pieces of Length C running Top to Bottom
- We have 18 pieces of Length C running Left to Right

The actual pieces may have been arranged in a more complicated grid than that assumed using lengths A, B and C – but these would have been good approximations to the total length

Length A is given by (63.14 – 26.52)/2	= 18.31
Length B is given by (63.14 – 41.8)/2	= 10.67
Length C is 63.14 metres	
Total Length of “A” pieces would be: 18.31 x 20	= 366.2
Total Length of “B” pieces would be: 10.67 x 28	= 298.76
Total Length of “C” pieces would be: 63.14 x 18	= 1136.52
Total Length of Steel Pieces in 1 floor	= 1801.48
Total Length of Steel Pieces in the 2 towers	= 1801.48 x 2 x 110
	= **396326m**

2.4 Floorpans

Outside of the core, steel floor pans were used and these were filled with concrete. The floor area in sq metres would be:

Total Floor area=63.14 x 63.14 – (26.52 x 41.8) = **2878.12** sq m

It is understood that the floor pans were approximately 3 x 20 metres, but I have not been able to find an exact figure for this. This would mean there would likely be 48 of them per floor (if they were all the same size, which is just an approximation)

So, if we were to consider these as *lengths* of steel, we would have 48 lengths of 20 metres of steel per floor

Total Length of Steel in Floor Pans	= 48 x 20 = 960m per floor
Total Length of Steel in Floor Pans	= 960 x 2 x 110 = **211200m**

3. Totals

3.1 Exclusions

The total given in the next section is probably rather conservative, as there are at least 2 elements omitted from the calculation – the cross-bracing in the core and, for example, the panelling around the elevator shafts – some of which should have survived.

3.2 Totalling

Totalling the figures calculated in Section 2:

Table 3-1 Length Totals

	Metres	Kilometres	Miles
Vertical Columns	234890	235	147
Spandrels	55563	56	35
Trusses	396326	396	248
Floorpans	211200	211	132
Total	**897979**	**898**	**561**

So, as a rough approximation:

There should have been a total length, laid end to end of over **550 miles** of steel pieces.

Allowing a 10% margin of error in these calculations would bring the figure down to over 500 miles length of steel in the debris. Needless to say, the considerations made in this article do not consider lengths of concrete, or for example, the hundreds of miles of cabling and ducting which the towers would also have contained – little, if any, of which were seen in the debris piles.

4. Where Did 500 miles length of Steel Go?

The photos in this section are from www.drjudywood.com.

4.1 Did the WTC Steel End up in the basements?

There have been attempts to reduce the significance of the findings of Dr Wood. One such attempt, authored by Dr Greg Jenkins is called "The Overwhelming Implausibility of Using Directed Energy Beams to Demolish the World Trade Center Towers", and published online in the *Journal of 9/11 Studies*

Part 1 of this paper is entitled "What Missing Debris?" and Dr Jenkins writes:

> *If all the building debris **were compacted** into the damaged sublevels, then this would yield a volumetric compression ratio of 10.2%. This is within the error of the compression ratio for WTC 7, 11.5 ± 1.6% . This means that, within error, all of the debris in the WTC complex can be accounted for within the sublevel collapses.*

It can be suggested that there are at least 2 problems with this supposition. As the WTC towers came down, we see that there is little or no compaction going on – rather, the towers are turning to dust, so there is no physical process which would compress the debris to fit in the basements. We can categorically state that, whilst there was *some* debris in the basements, that debris was not especially compacted, nor did it fill the basements.

4.2 The Debris Was Not in The Basements

Photographs (and other evidence) that Dr Wood has presented illustrate that only a small or even tiny proportion of the total debris was in the WTC Basement Levels.

See: http://www.drjudywood.com/articles/DEW/StarWarsBeam6.html

Figure 4-1 - GZ workers descend into the subbasements below WTC2. While there is extensive damage, there is little building debris at the bottom of the hole. There is no sign of molten metal. A worker in the distance walks along a massive core column. (photo filed 9/18/01) *Source*

Figure 4-2 This photo was taken inside the mall. The store sign "innovation" is visible on the left. (photo filed 9/19/01) *Source*

4.3 Was the Debris Laid out Above the Basements?

This picture would seem indicate there were very few long lengths of steel in the vicinity of WTC during the afternoon of 9/11.

Figure 4-3 - On the afternoon of 9/11/01 the "rubble pile" left from WTC1 is essentially non-existent. WTC7 can be seen in the distance, revealing the photo was taken before 5:20 PM that day.

There only seem to be a few “Wheatchex” or long lengths of steel in all of the picture below. A conservative guess would perhaps be 100 “Wheatchex”, in total, in all the pictures below:

Figure 4-4 here again we see the "rubble pile" from WTC1 is essentially non-existent. The ambulance is parked at ground level in front of WTC1. WTC6, which had been an eight-story building, towers over the remains of WTC1.

Figure 4-5 - The north wing of WTC4, as viewed from Church Street, looking west, appears surgically removed from the main body of WTC4, which has essentially disappeared. If WTC2 fell on it and squashed the main building, where is the part of WTC2 that did this?

Figure 4-6 One of Bill Biggart's last pictures, perhaps his next to last picture.