

# Professor Hulsey's Interim Report Undercuts NIST WTC 7 Study

Prepared for the September 27, 2017  
9/11 Truth and Other Deep State Crimes Teleconference

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Truth Outreach, Inc.



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# Dr. Hulsey's Presentation

- Dr. Leroy Hulsey, provided his September 2017 progress report on their project
  - Undertaken by the University of Alaska Fairbanks' (UAF's) Institute of Northern Engineering and the College of Mines.
  - Crowdfunding sponsored by AE911Truth
  - Analyzing the collapse of WTC 7
- Presented findings and conclusions



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# UAF Research Team

- UAF researcher Leroy Hulsey was the project manager
- Assisted by two Ph.D. graduate students
  - Feng Xiao (who now has earned his Ph.D.)
  - Zhili Quan.
- Other UAF project information

Video: [https://www.youtube.com/watch?time\\_continue=15&v=jFa5ssSAXZA](https://www.youtube.com/watch?time_continue=15&v=jFa5ssSAXZA)

Entire UAF Presentation: [http://ine.uaf.edu/media/92216/wtc7-structural-reevaluation\\_progress-report\\_2017-9-7.pdf](http://ine.uaf.edu/media/92216/wtc7-structural-reevaluation_progress-report_2017-9-7.pdf)

Article About Presentation: <https://www.911tap.org/557-news-releases/700-professor-hulsey-s-interim-report-undercuts-nist-wtc-7-study>



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# NIST WTC 7 Study

- WTC 7 was a 47-story office building that fell nearly seven hours after the collapse of the World Trade Center's Twin Towers on Sept 11, 2001
- The National Institute of Standards and Technology (NIST) attributed the collapse to office fires in the lower stories of the building (NCSTAR 1A, 2008)

Source: <https://www.nist.gov/publications/final-report-collapse-world-trade-center-building-7-federal-building-and-fire-safety-0>



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# UAF: Slide 07



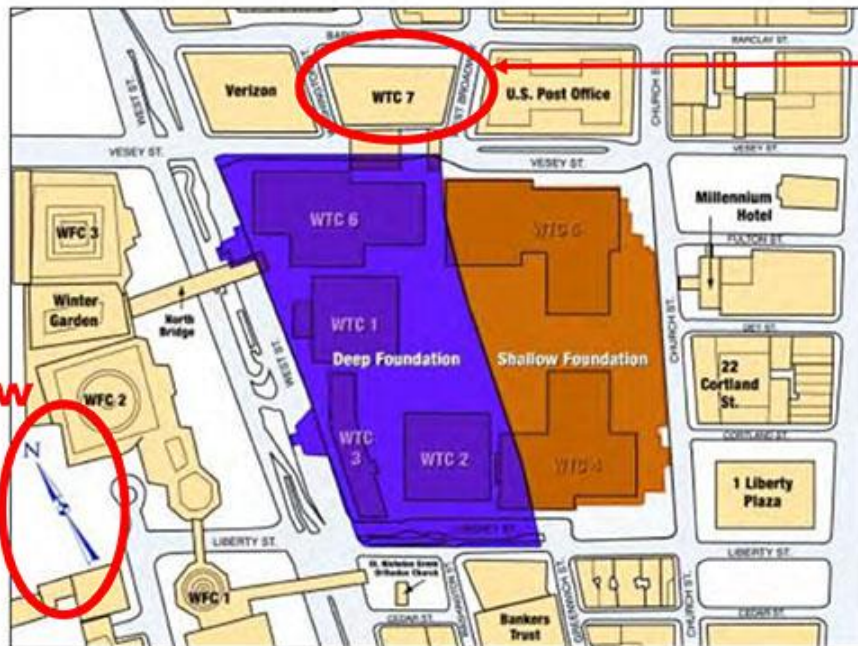
## WTC 7: Sept 11, 2001

This study

**WORLD TRADE CENTER COMPLEX – (Plan) Prior to Sept. 11, 2001.**

**This building was not struck by a plane; yet it collapsed.**

**North Arrow**



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# Hulsey's Presentation Scope

- Professor Hulsey reviewed the NIST analysis and expressed his findings in a presentation that could be understood by both technical and non-technical audiences
- Ultimately, he concludes that fire did not cause the collapse of WTC 7



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# Hulsey's Bold Statement

- Professor Hulsey posits:

*"So did WTC7 collapse from fires? Our study shows the fire is not the cause. I'm not going to tell you about what did it— I'm just going to tell you that it wasn't that. ... This contradicts findings presented by NIST."*



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# Public Educational Materials

- Professor Hulsey's presentation is detailed and technical
  - Contains elements that are easy to communicate to a wider public audience
  - Following observations about the NIST and UAF analyses are useful when doing outreach to technical professionals and even general public and around the issues of WTC 7



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# Hulsey's Initial Thoughts on WTC7

- During his presentation, he muses:

*"The first thing I would have thought about when I got involved here is the columns obviously got really, really hot and then lost strength and we would have ended up losing the building. However, nobody seems to think that ever happened."*



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# NIST's Progressive Collapse Hypothesis

- The collapse of WTC 7 has been ascribed to fires that:
  - Created enormous stresses within the building structure
  - Which then caused bending, buckling of steel members
  - Key girder pushed / rocked out-of-place
  - Led to an eight floor cascade that led to a progressive collapse of the entire structure



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# NIST's Key Assumption

- Key assumption to the NIST analysis
  - The east exterior wall was fixed in space and absolutely immovable
  - e.g. no east exterior wall deformation
  - Thermal expansion of the structure was
    - Forced to move only to the west
    - Where it then jammed into the rest of the structure
- NIST's many omissions and errors have been documented by Hulsey and his team



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# Most Significant Observation

- NIST claimed the collapse of WTC 7 was initiated by expansion and movement of the floor to the west of column 79 (away from the fixed east exterior wall)
- The most interesting observation was that the fire induced thermal expansion and movement of the floor was to the east (not west) of column 79



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# PRESENTATION HIGHLIGHTS



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# NIST Beam Expansion

- Central to NIST's progressive collapse analysis is:
  - Thermal expansion of beams K-3004 to G-3005 caused the lateral displacement of the girder framing into Column 79



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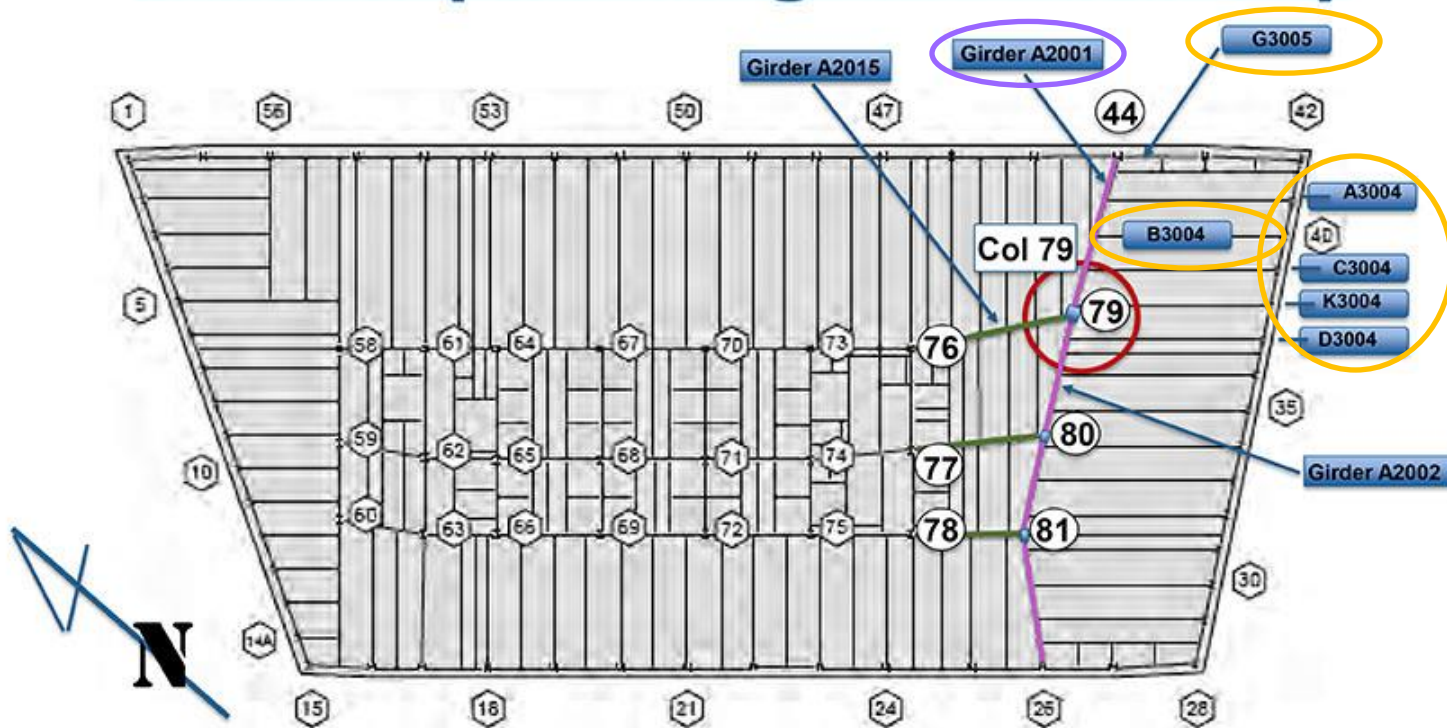
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# UAF: Slide 09



## WTC 7 (Framing for floor 13)



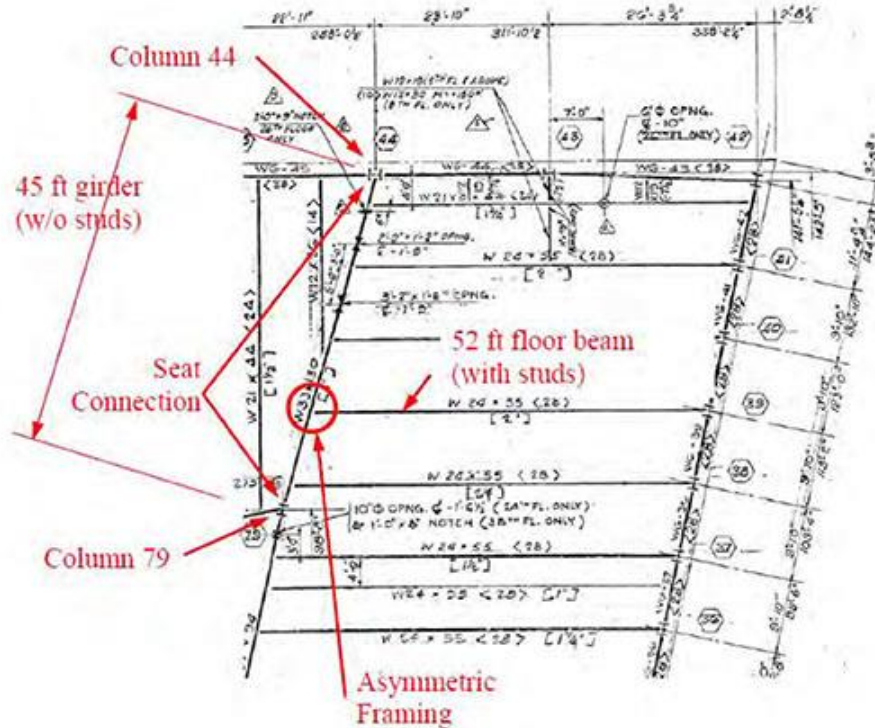
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# UAF: Slide 14



**(NIST: Ref- NCSTAR 1-9 Page 343, 2008)**



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# NIST Beam Expansion

- NIST analysis claims:
  - When heated up, beams expand
  - Effect of thermal expansion of beams
    - Because the outer wall was fixed and immovable
    - Floor and beams move to the left (e.g. west)
  - Caused lateral displacement of the girder framing into Column 79 (A-2001)
- E.g. girder A-2001 was pushed and bowed



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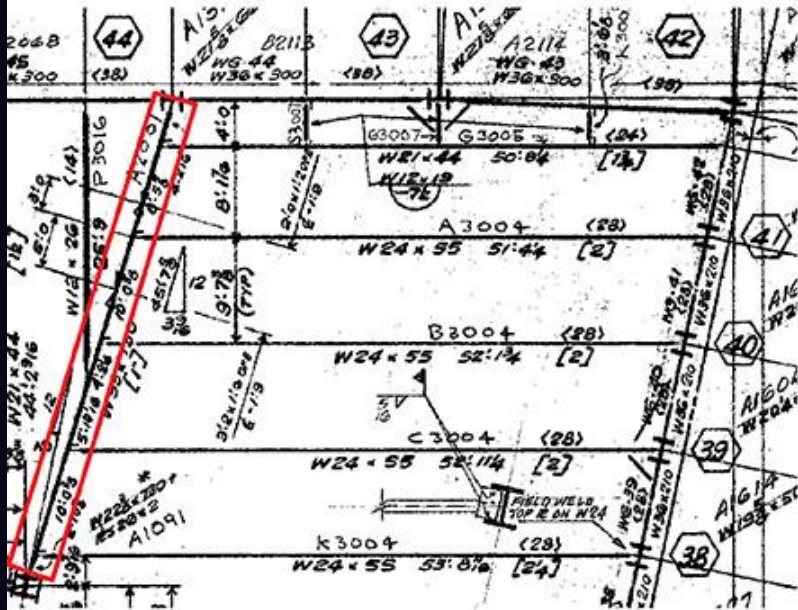
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# UAF: Slide 15



## NIST: (Broken shear studs on beams & absence of girder shear studs)



Plan View: Steel Framing



Plan View: NIST argues this is the horizontal thermal deformation.



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# Connecting Floors to the Steel

- Concrete floor can reduce / impede thermal expansion of the steel
- “Composite” Floor Structure

*"That concrete floor is supposed to be fastened to those steel beams and steel frames using what they call shear connectors – those are round bolts that are actually welded to the top flange and then when you pour the concrete all becomes one."*



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# Composite and non-Composite Floor Structure

- There are many questions concerning the structure of the floor system:
  - Composite – slab cannot slide on the steel
  - Non-Composite – slab can slide over the steel
  - Partially composite – partially slide over the steel.
- UAF looked at all those possibilities
- Ultimately, determined that it didn't matter



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# NIST's Falling Girder Analysis

- Professor Hulsey reviews
  - The impact of the falling girder (A-2001) onto the floor below.
  - Critical part of the NIST collapse hypothesis -- that the falling girder destroys the floors below and leaves column 79 unsupported for 8 floors



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# UAF: Slide 18

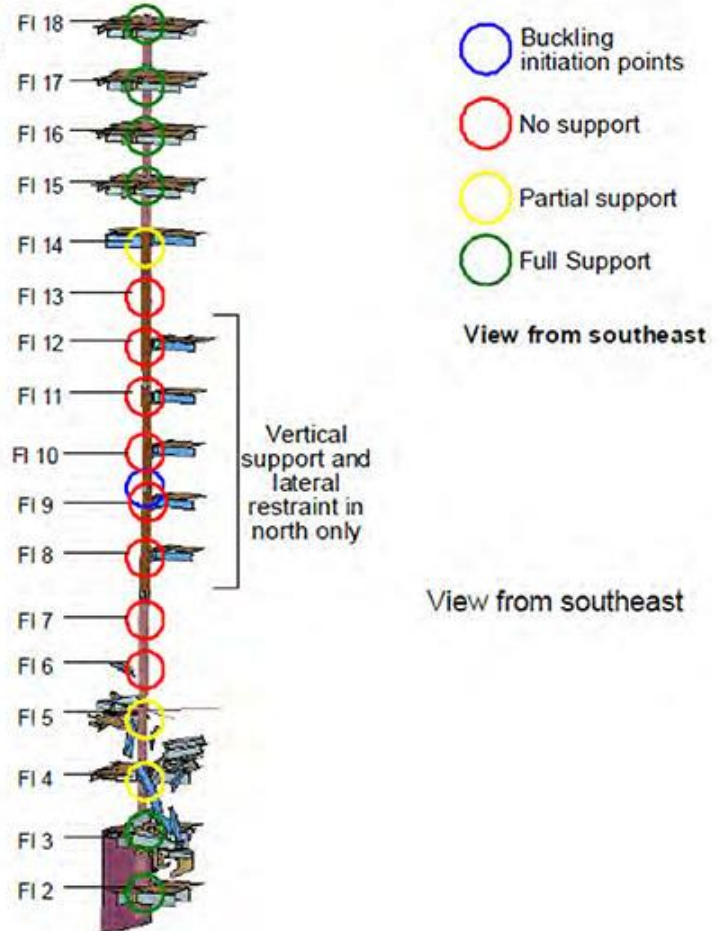


**NIST**  
**(Ref: NCSTAR 1-9)**

## **Column 79:**

Loss of lateral support for 9 stories (Floors 6 to 13) caused buckling to initiate.

Column 79  
at  
-1.3 (14.7) s



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# Impact of Falling Girder

- Using a modal analysis with a 0.52 Hz frequency mode:

*“[The ] impact force is only 34% of the 632,000 lb. force required [to break the connections on the lower floor(s)] and thus insufficient to shear the girder bearing seat supporting welds [on the lower floors].”*



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# NIST's Modeling of 'Connections'

- Professor Hulse reviewed the NIST modeling in the area of column 79 where they used detailed representations to model the 'connections'
- The 'connections,' described on the erection drawings, instruct the construction team how they are to build the connection



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# NIST's Modeling of 'Connections'

- Hulsey shows
  - Details used by NIST to model the connections in the northeast corner of floors 8 to 14
  - In the rest of the structure, that level of modeling detail wasn't done
- Outside the selected area, connections were not modeled in detail and NIST used fixed (e.g. pin) connections



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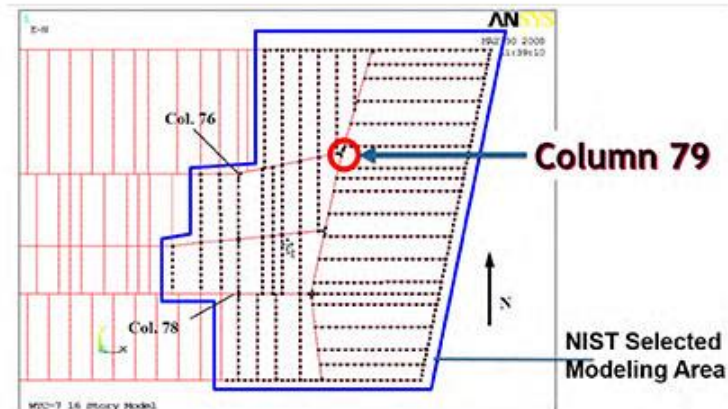
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# UAF: Slide 20



## NIST MODEL; Ref (NIST, 2004)

1. Outside the selected area, connection failures were not modeled (NIST used fixed or pinned connections).
2. Connections were not modeled for the exterior moment frame.



# NIST's Modeling of 'Connections'

- He then posed two questions regarding the NIST analysis,

*"Do they have the same stiffness as what you were modeling here more accurately [on the east side]"*

and

*"Does it have an influence, does it change how the system is going to respond?"*



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# Describing NIST's Visualizations

- Professor Hulsey explains:
  - Why the visualization of NIST's incomplete finite-element analysis of the building
  - Results in the collapse looking so lopsided
- This explanation of the visualization helps interested persons to be more fluent about the numerous errors and omissions in the NIST report



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# Effect of Connection Model

- He then reviews the NIST animated visualizations of their progressive collapse
  - Describes how the difference in the modeling of the connections (detailed vs. fixed pin) results in one side of the building behaving so differently than the other side
  - Asks the questions,
    - *“Why is it so different on one side than the other?”*
    - *“Is that the same thing?”*



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# UAF: Slide 23



Video vs. NIST WTC7 collapse animation comparison

No exterior column deformation is evident in the actual collapse. Deformation is seen in the NIST model.



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# Construction of Column 79

- NIST claims the failure originated at Column 79
  - Describes the construction of column 79
    - An “H” beam with side plates welded onto it
    - He notes the dimensions of the side plates were larger than the width of the beam
    - This created a lip on either side of the beam
    - Girder bearing seat would have been inset between the lips



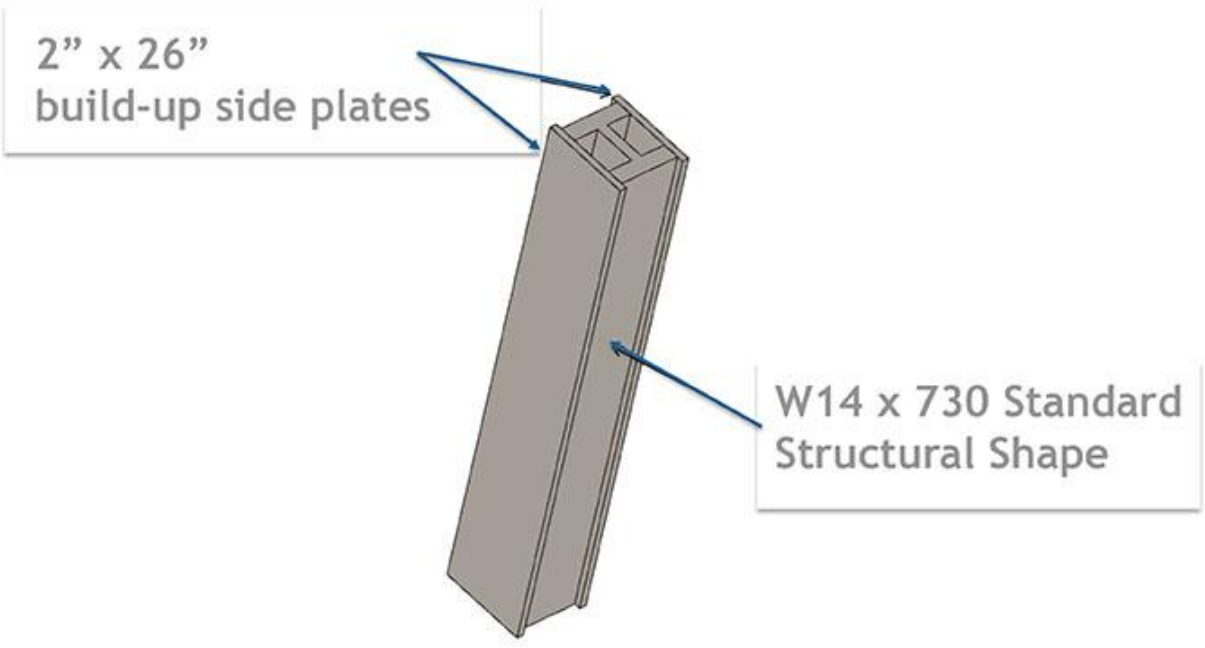
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# UAF: Slide 30



Section of Column 79 (showing side plates)



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# Column 79 Bearing Seat

- With this construction
  - Bearing seat that would have restrained the motion of the girder (A-2001)
    - NIST said girder was pushed off of its seat
    - Thus initiating the progressive collapse
  - NIST did not represent lip in their model and misrepresented the width of the bearing seat
  - *Hulsey: “It is not possible to move the girder web beyond the seat as claimed by NIST.”*



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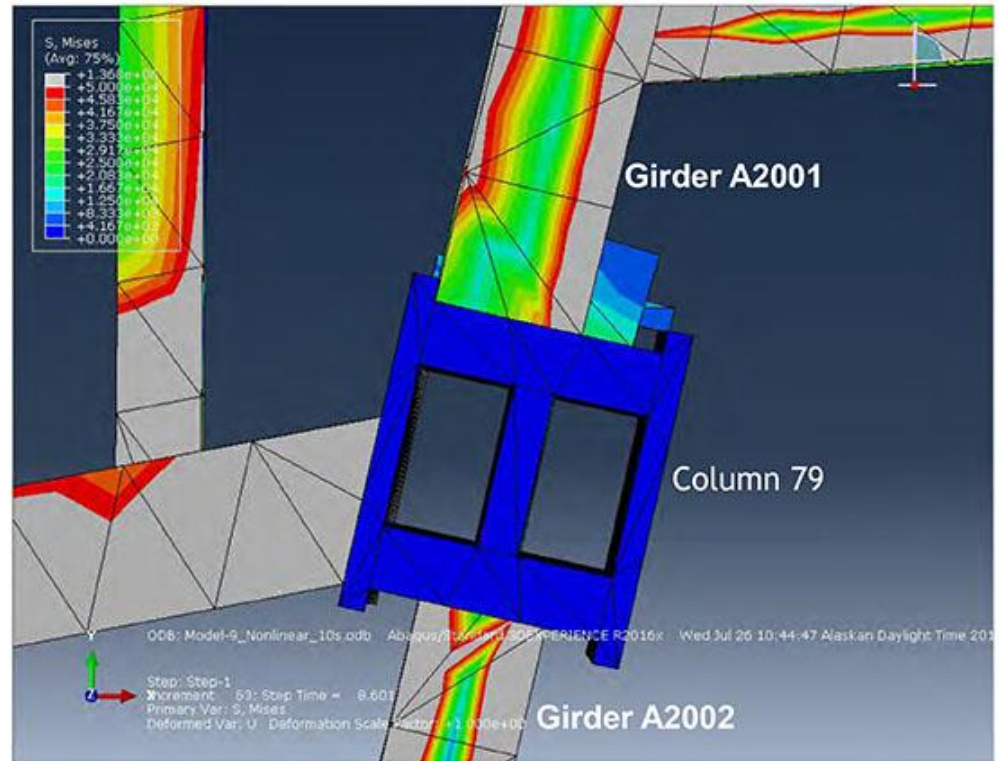
# UAF: Slide 32



Plan View of girder A2001 moving across its bearing seat at column 79 due to thermal expansion of the beams framing into the girder from the east.

Note: This picture illustrates that A2001 is trapped by the column side plate and it is not possible for it to move the girder web beyond the seat as claimed by NIST.

It appears that NIST did not examine the side plate influence on the restriction of movement by the girder.



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# NIST's Missing Bracing Beams

- NIST did not include three steel members in their analysis that provided lateral support to a critical beam (G-3005)
- The NIST collapse initiation hypothesis requires that these three members be ignored
- Hulseley, *"[Our analysis] shows that the girder does not buckle when you have them in."*



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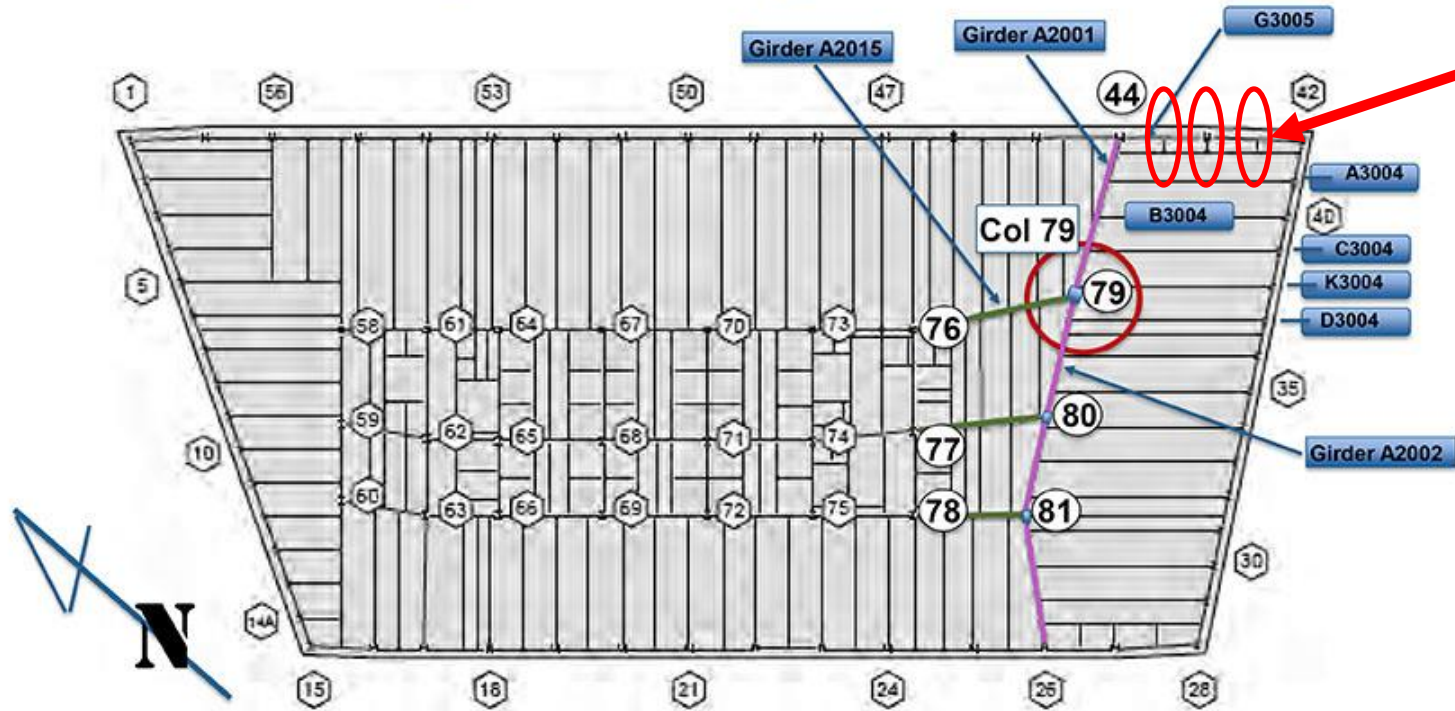
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# UAF: Slide 09



## WTC 7 (Framing for floor 13)

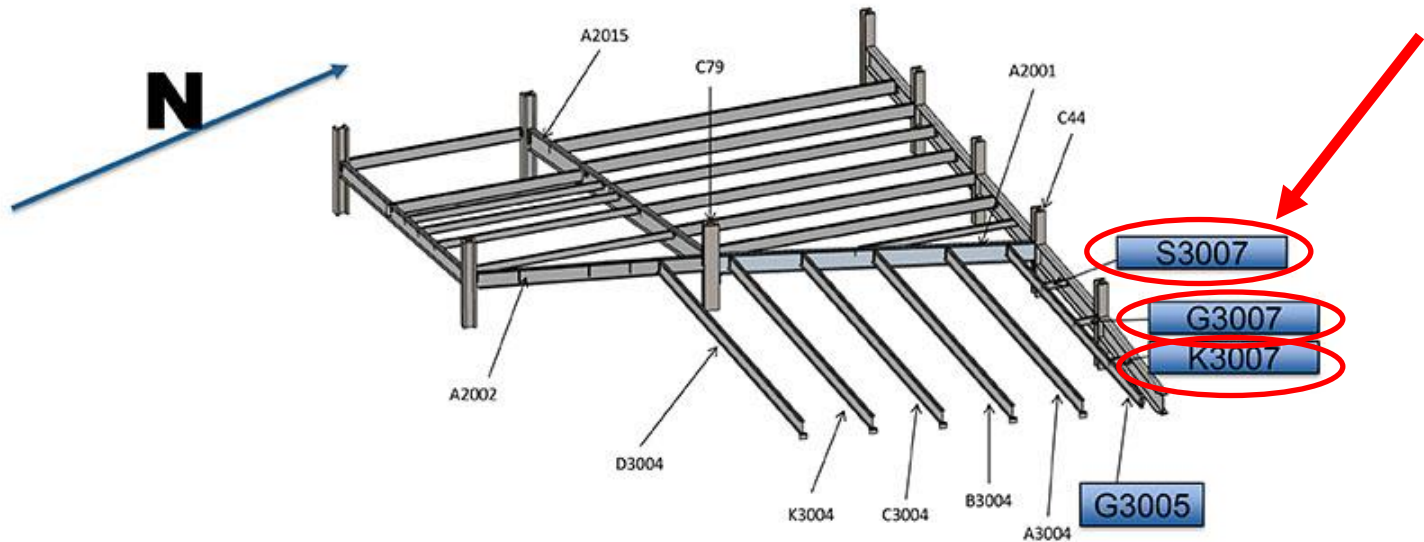


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# UAF: Slide 36



**Lateral support beams S3007, G3007 & K3007 were left off G3005 in the NIST analysis.**



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# Partial Height Web Stiffeners

- NIST neglected the partial height web stiffeners, shown in the erection drawings
  - Omission of these web stiffeners was required for the NIST collapse initiation
- Hulsey:

*“[Our UAF analysis] shows that the girder will not fail with the partial height web stiffeners installed.”*



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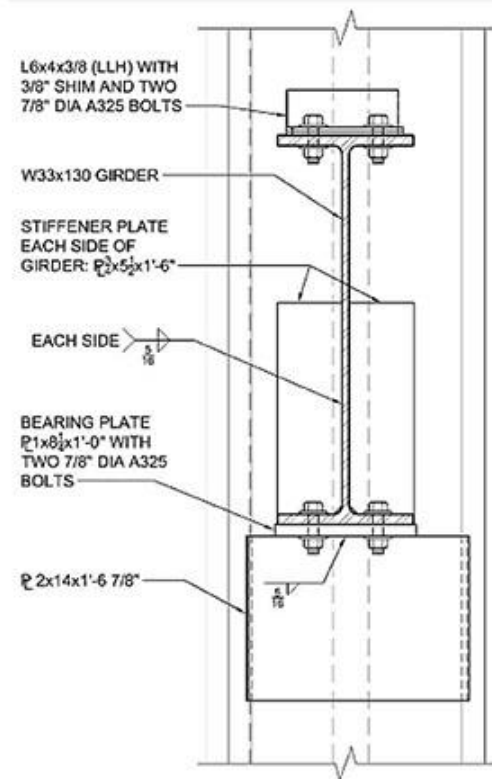
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# UAF: Slide 39



Section view of actual configuration of girder A2001 at its column 79 end from Frankel 1985 drawing 9114, showing its partial height web stiffeners.



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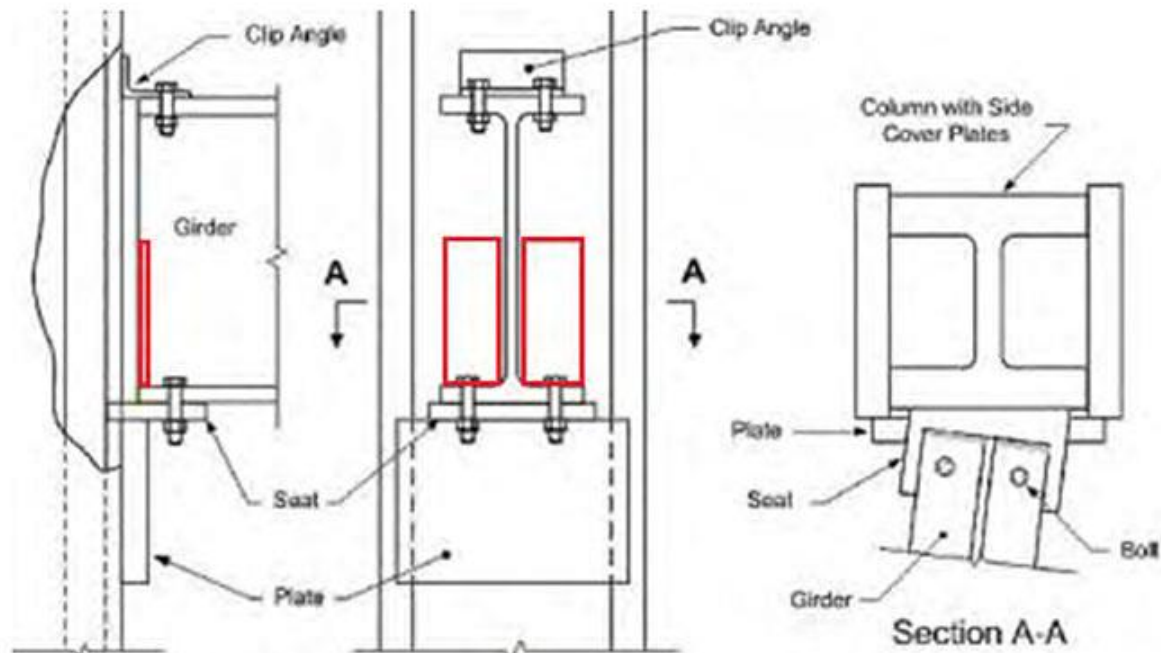
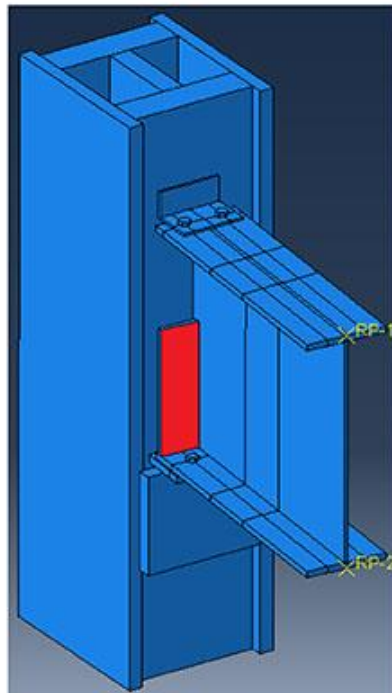
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# UAF: Slide 55



## UAF: Beam Seat Connection for Col 79



Based on fabrication shop drawings (Frankel 1985)



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# The UAF “Bombshell” Analysis

- UAF shows that the NIST assumption:
  - Exterior columns in the northeast corner were
    - Fixed and immovable
      - Forced all thermal expansion to push west into the A-2001 girder
      - Necessary to create the results of the thermal expansion central to NIST's progressive collapse hypothesis
    - Was inappropriate
- UAF created a more complete model
- Used NIST’s “fire model” for consistency



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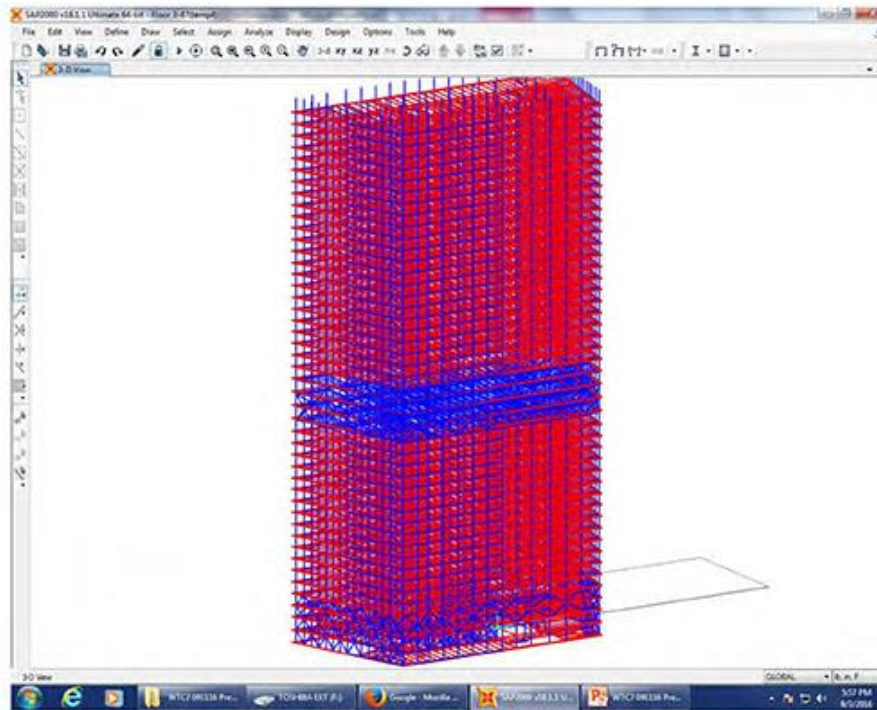
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# UAF: Slide 67



## UAF SAP Model: Floors 3-47 (Bracing & Framing)



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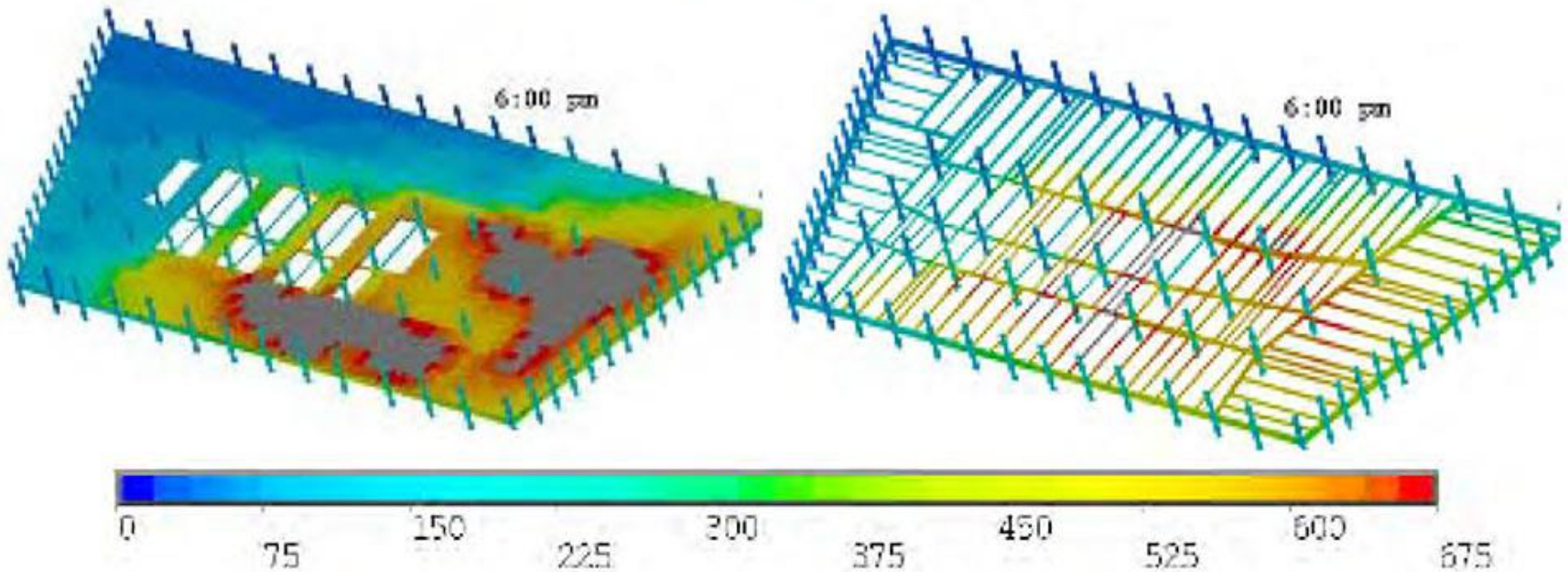
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# UAF: Slide 73

UAF  
INE

## Temperature distribution (°C) on floor 13 (After, NIST)



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# UAF Exterior Wall: Not Fixed and Immoveable

- UAF analysis shows that assuming the east wall was not fixed and immoveable
  - The floor assembly thermally expanded in a direction opposite from what NIST forced their model to show
  - The result of allowing the structure to expand freely, resulted in minimal stress throughout the floor assembly



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# UAF: Effect of Thermal Expansion

- Hulsey states:

*“So notice that our results in the SAP2000 model, [it shows] column 79 [moving] **1.92 inches to the right** and;*

***1.85 inches to the right** in the ABAQUS model.*

*We did [the analysis in] two different ways and got very close answers.*

*NIST said the movement **was 5.5 inches to the left**; which they revised to **6.2 inches to the left.**”*



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# UAF Modeling Results for Thermal Expansion

- Movement of floors 12 and 13, with respect to the thermal centroids shown in the next slides



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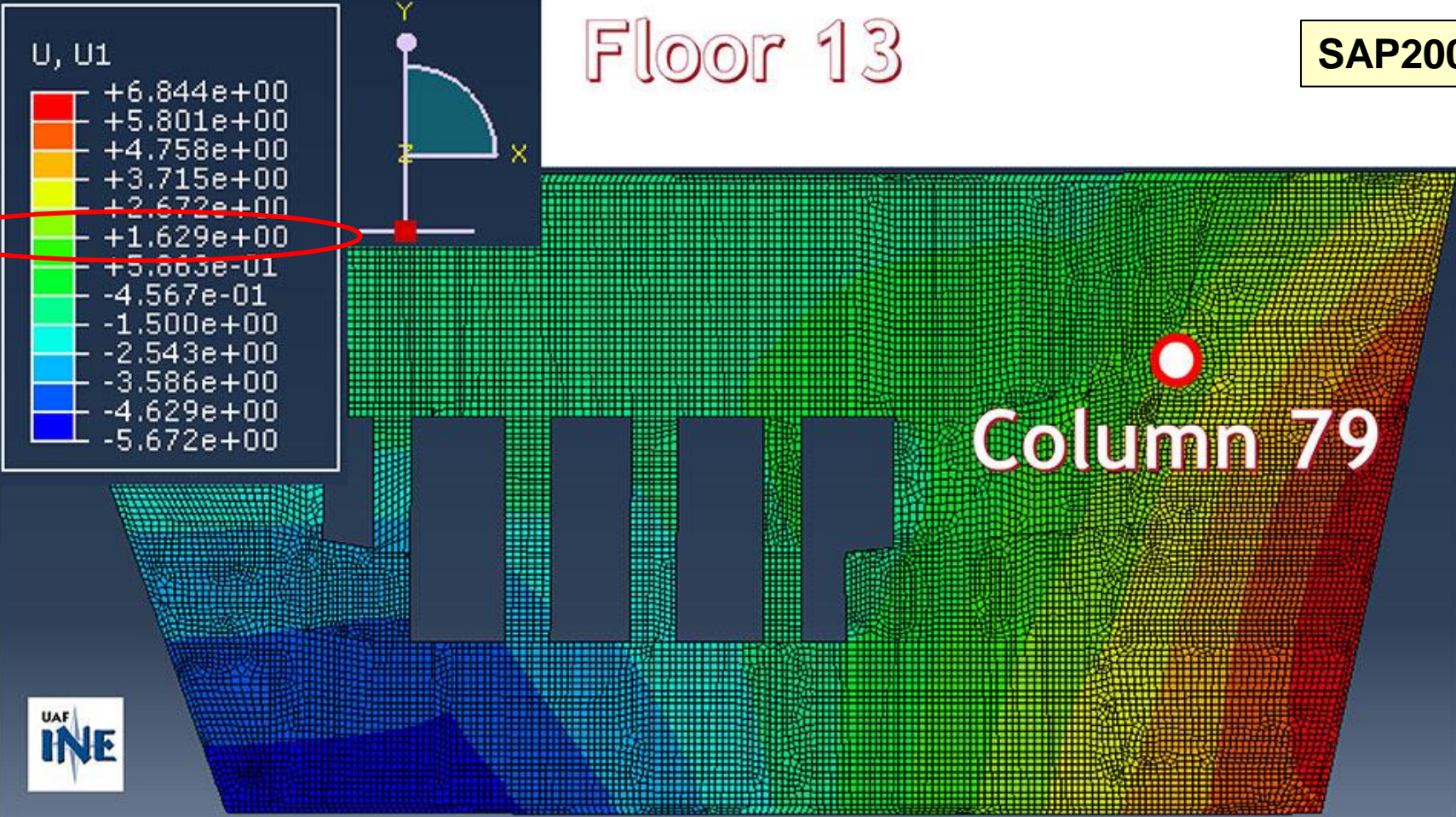
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# UAF: Slide 77

## Floor 13

SAP2000



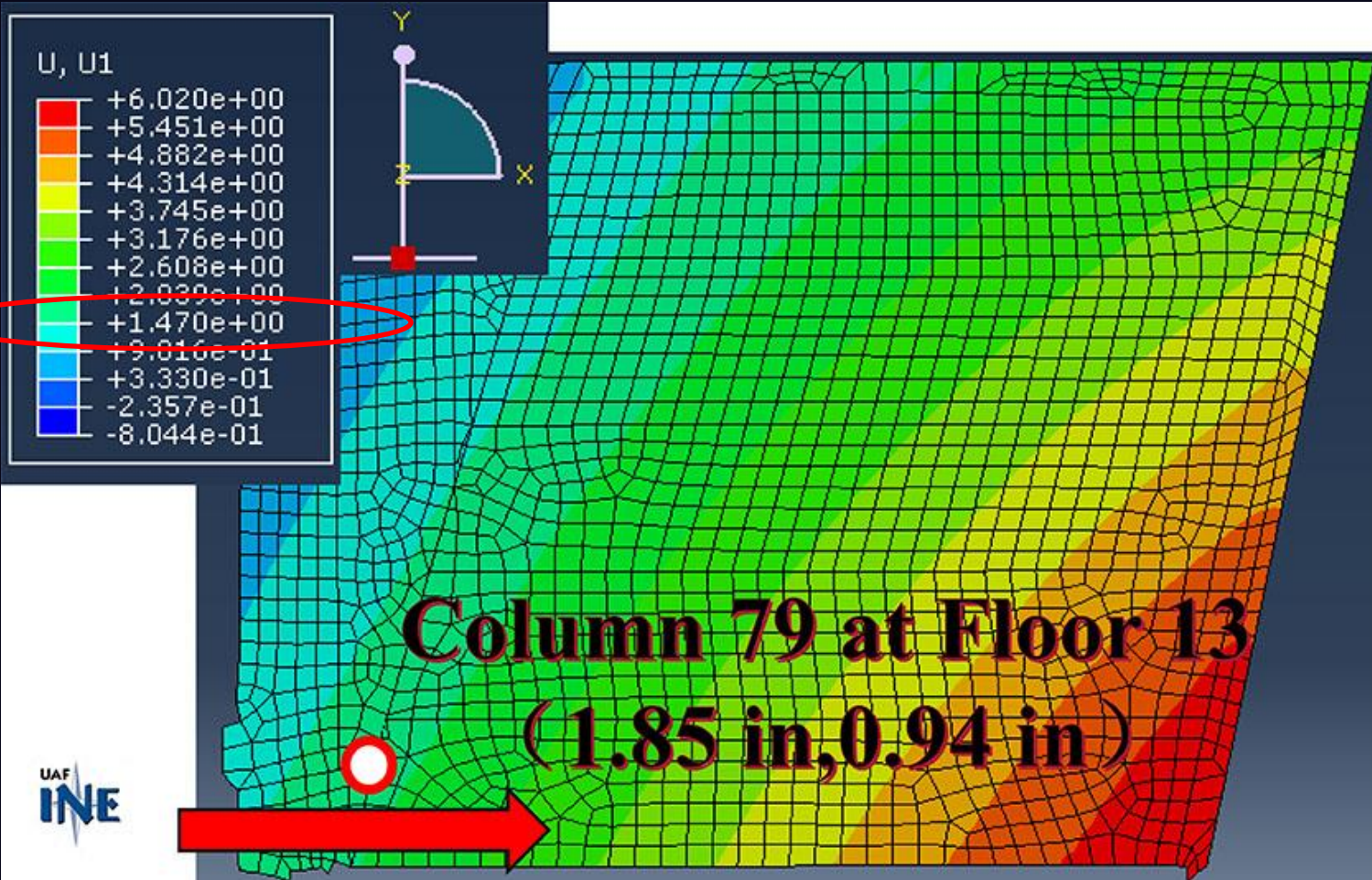
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# UAF: Slide 78

ABAQUS



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# Next Steps

- A draft report of the two-year study will be issued later this fall
  - Followed by a six-week public comment period
  - Final report scheduled for release in early 2018



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# Questions



A 501c(3) Non-Profit Educational Organization



Because there is important news the "free press" isn't telling you

**911TruthOutreach.org**  
**9/11 Truth and Other Deep State Crimes Teleconference**<sup>50</sup>  
**September 27, 2017**