Heiwa Co – European Agency for Safety at Sea

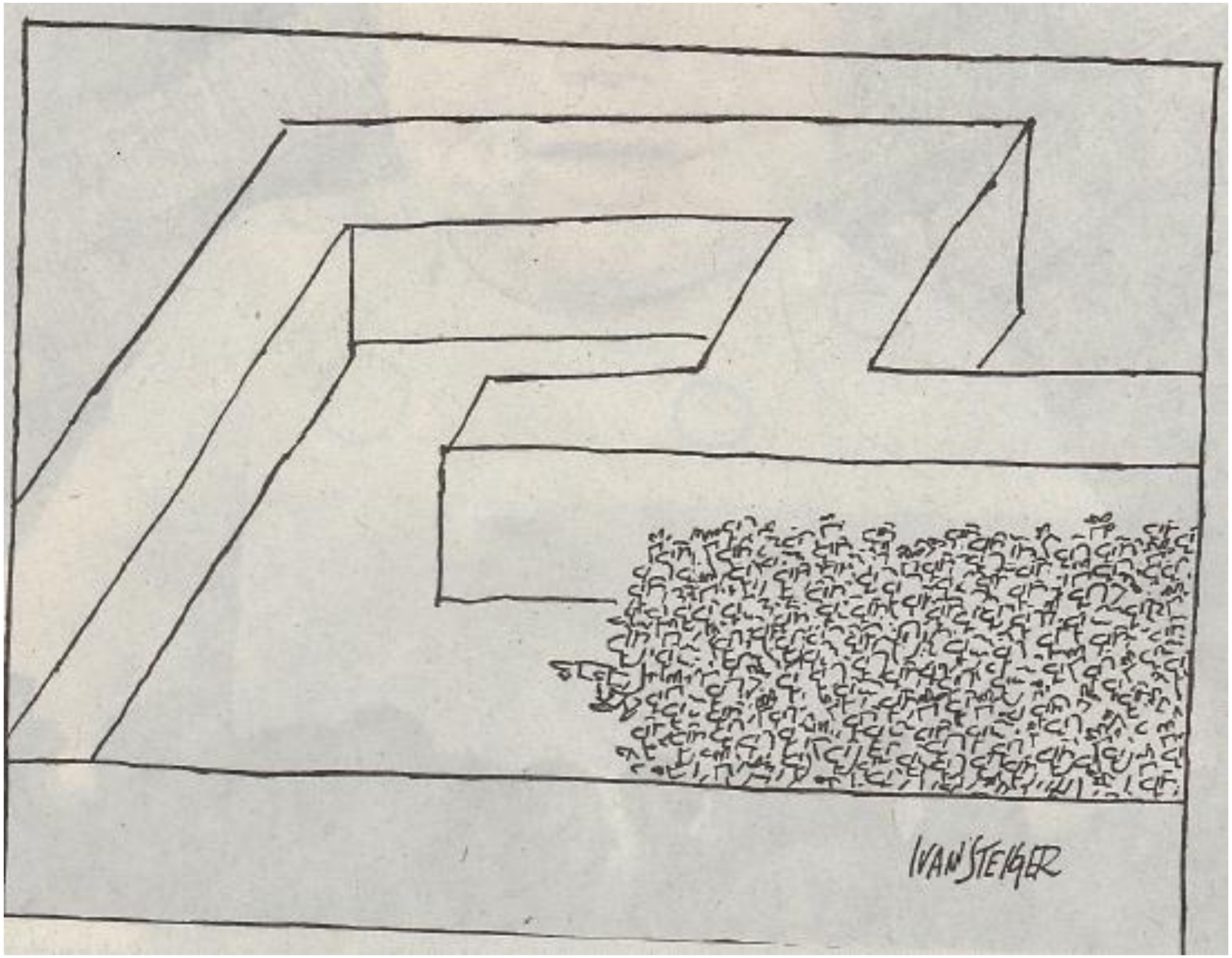
The Heiwa Challenge

explained to New Mexicans for Science and Reason, Albuquerque, November 10, 2010, by Anders Björkman, M.Sc.

Thanks!

- Thanks to **David E. Thomas** and the **NMSR** inviting me tonight and allowing me to **challenge** you and your clever members.
- Euro 10 000:- is up for grabs to the first winner of the **Challenge**.
- Working in the shipping and off-shore industry for 40 years, I rarely visit inland cities. I am glad to be here to see how landlubbers promote ***science and reason***.
- Hopefully a friendly, lively, critical, scientific and reason based discussion will follow this presentation.
- Please note the yellow and red cards!

Here we go!!



FAZ 30 Oct. 2010

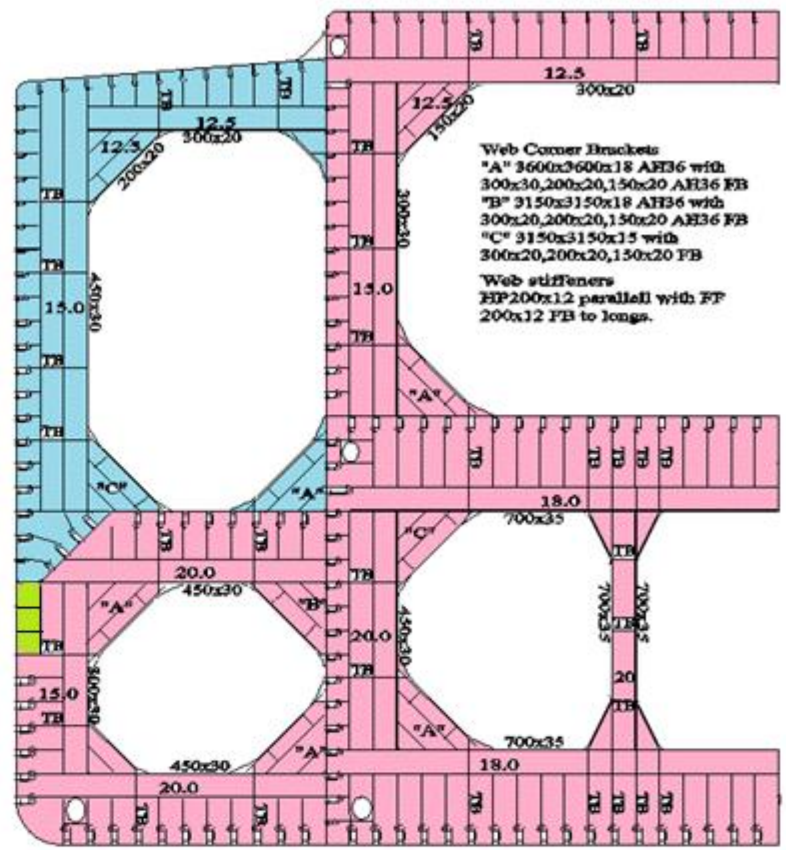
Heiwa Co – European Agency for Safety at Sea

- **Heiwa Co** assists ship owners, charterers, underwriters and administrations with ship safety projects and ship management audits.
- **Heiwa Co** tries to find the simplest and most economical solution, based on first principles, innovative thinking and actual conditions and what the client wants to achieve, which is then checked against rules and requirements. Using this method the result is that safety exceeds the minimum rule requirements and there are cost savings.
- **Heiwa Co** has developed the **Coulombi Egg Oil Tanker** 1990-1997-2010.
- **Heiwa Co** has investigated **the M/S Estonia incident** 1994-2010.
- **Heiwa Co** campaigns against **Fast Rescue Boats** on ferries since 1999.
- **Heiwa Co** has also issued a **Challenge** – **The Heiwa Challenge**!
- **http://heiwaco.tripod.com**

The Coulombi Egg Oil Tanker

- The **COULOMBI EGG oil** tanker design is the only alternative to Double Hull tankers approved by the United Nation's IMO in accordance with Marpol I/13F(5) since 1997.
- The **COULOMBI EGG** tanker is more robust than single or double hull due to its two tiers mid-height deck structure and is much more easy to inspect and maintain. **Safety is increased at reduced cost**.
- The United Nation's IMO approval was given by the MEPC 40th Session 18-25 September 1997 and is described in MEPC circular letter no. 336.
- USA does not allow the **COULOMBI EGG** tanker in US waters.
- The **steel structure has been analyzed using FEM** for all possible loadings.

TRANSVERSE WEBSPACING 5250 mm.



280,000 dwt COULOMBI EGG TANKER
TRANSVERSE WEB FRAME

The M/S Estonia Incident 1994

- **Heiwa Co** has investigated the M/S Estonia ferry incident 1994, when >850 persons drowned.
- One conclusion is that the official cause of accident - *bow visor lost, water loaded in superstructure above waterline, vessel capsizing,* ***vessel floating upside down, vessel sinking*** – is not possible.
- A vessel *floating* upside down after capsize cannot sink! The air inside the hull cannot escape.
- I am the writer of several popular books about the incident all available free of charge on the Internet.

Ferry floating after capsize - it cannot sink! Suggesting anything else, e.g. air leaking out, is fraud!

Fast Rescue Boats 1995 - 2010

- The IMO decided 1995 after the 'Estonia' accident 1994 that all roro-passenger ferries (but no other ships) should have a **Fast Rescue Boat** from 1 July 2000.
- 2001 the IMO stopped the *use* of **Fast Rescue Boats** aboard roro-passenger ships.
- **Many seamen were killed or injured trying to use them!**
- IMO then suggested *that **'fast rescue boats should not be used as a means of rescue'***.
- But IMO still suggests they MUST be carried!
- **Heiwa Co** suggests since many years that the rules shall be changed.

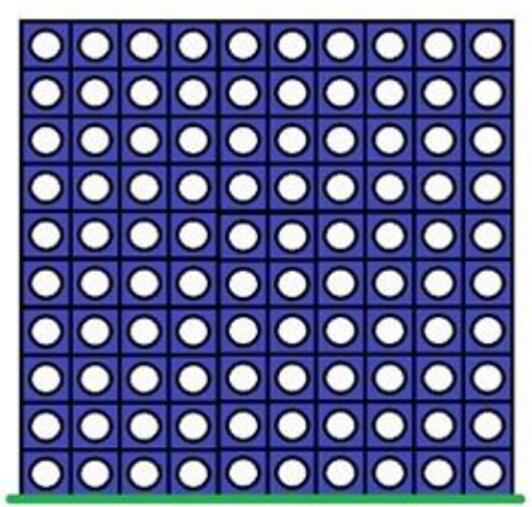
Fast Rescue Boats on ships cannot safely be launched and retrieved in severe weather … and are not safe.

The Heiwa Challenge 2010

- The Heiwa Challenge is very simple!

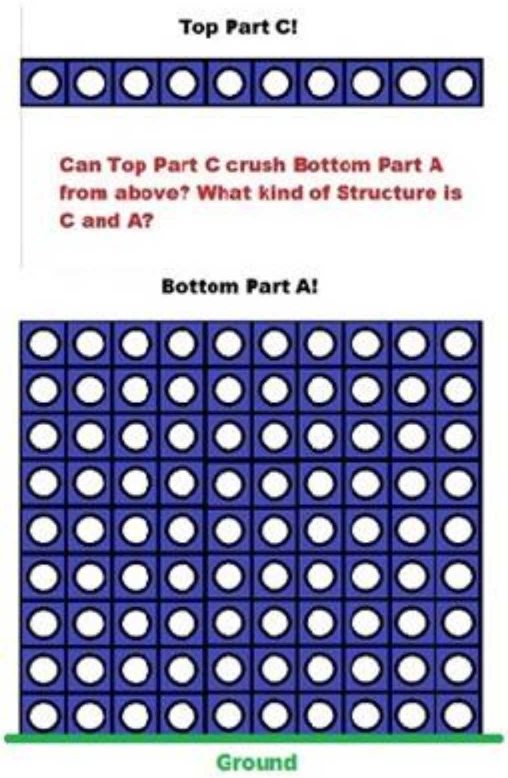
- You are requested to *describe* and *test* a real *structure*, where a small **top part C** can crush the much bigger **bottom part A** from above, when **top part C** is dropped by gravity on **bottom part A.**

- The real *structure* can look like the *structure* right, e.g. a square block (3-D of course) of any material/elements (e.g. floors and pillars) connected together plus plenty of air between the elements! It is stable and rests on ground.



The Heiwa Challenge 2010

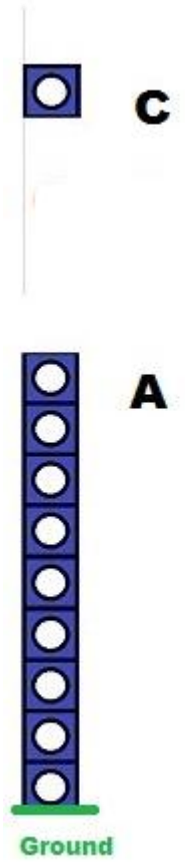
- The **top part C** is the 1/10th top of the total *structure*! It has mass M kilograms!
- The drop height is max 3.7 meters!
- The **bottom part A** is the 9/10th bottom of the total *structure,* has mass 9M kilograms and rests on **ground**.
- When **top part C** impacts **bottom part A** from above after free fall drop of 3.7 meter by gravity (g = 9.82 m/s²), it applies 36.3M Joule energy to the (total) *structure* with mass 10M and to the **ground**.
- ***Can bottom part A be crushed into rubble by top part C?***
- **That's the Challenge!** The Heiwa Challenge!
- According US authorities and universities this type of crushes happens all the time*! **Top C** crushes **bottom A**, i.e. the <u>one</u> layer C part crushes, **POUFF, POUFF**, the <u>nine</u> layers of A, one after the other, into rubble!*



Terrorists use the effect to destroy skyscrapers, we are told!

The Heiwa Challenge 2010

- **Or, to keep it very simple!**
- **Can <u>one</u> *structural unit* C, dropped 3.7 meter from above and only by gravity, crush A below that consists of <u>nine</u> Cs resting on ground?**
- **What *structure* C can crush nine times itself by gravity?**
- **A filing cabinet? A piano?**



The Heiwa Challenge contender #1 – Z. Bažant

- Professor **Z. Bažant** of Northwestern University, Chicago, says that a small **top part C** of a **solid structure or building A** can easily *“crush down”* the bigger **A** into soft **rubble B** by gravity as per figures right (from his papers 2002 and 2008). **Top part C** remains intact during **Crush-Down**.
- A 350 meters tall, solid, ***undamaged*** **structure A** is crushed into **rubble B** in abt. 15 seconds by its 53 meters **top part C**.
- Soft **rubble B** then **crushes up** solid **top C** into more **rubble B**! Only **rubble** remains!
- Bažant has written 400+ scientific papers about all sorts of rubble.
- **Bažant has so far refused to face The Heiwa Challenge!**

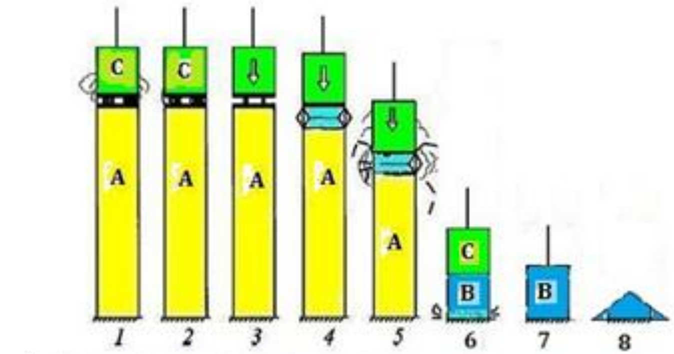
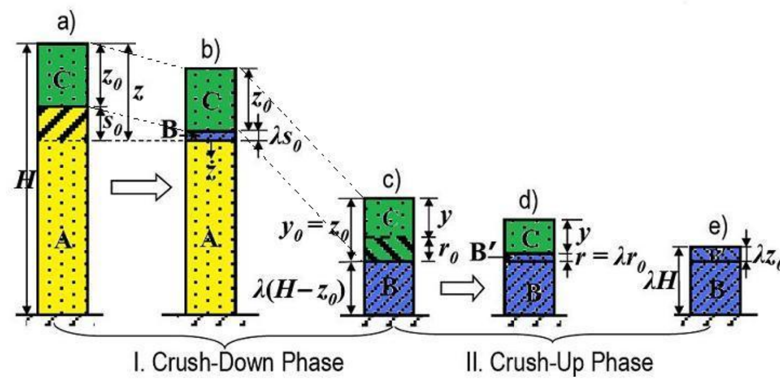


Fig. 1. Stages of collapse of the building (floor height exaggerated)



What holds solid structure A together? The paint on the walls?

The Heiwa Challenge contender #1 – Z. Bažant

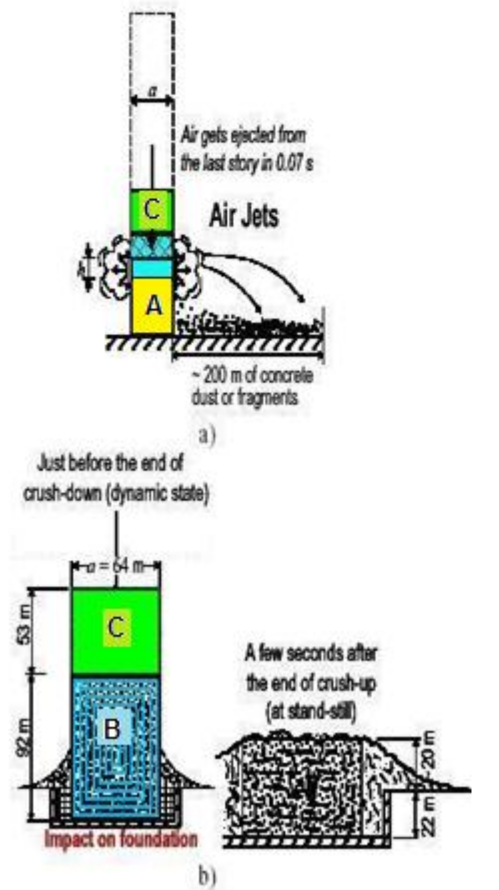
- From **Why Did the World Trade Center Collapse?—Simple Analysis** JOURNAL OF ENGINEERING MECHANICS / JANUARY 2002 (submitted 13 September 2001) by Zdeněk P. Bažant, F.ASCE, and Yong Zhou - **Abstract:** This paper presents a **simplified approximate** analysis of the overall collapse of the towers of World Trade Center in New York on September 11, 2001:

  "The analysis shows that if prolonged heating caused the majority of columns of a single floor** (up top) **to lose their load carrying capacity, the whole tower was doomed".

- ***"The collapse of the World Trade Center (WTC) towers has been explained as a gravity-driven process triggered by the collapse of a critical story** (up top) **heated by fire".*** (2010). (From **Why the Observed Motion History of WTC Towers Is Smooth** , by Jia-Liang Le and Zdeněk P. Bažant) in Journal of Engineering Mechanics. Submitted May 8, 2010; accepted June 18, 2010; posted ahead of print June 21, 2010)

- Bažant suggests (2010) that ***"the collapse of the first critical story is so smooth that no impact with the next stories can ever be seen"!***

- **Just heat the top and POUFF; the whole tower below goes POUFF, POUFF in less than 20 seconds! Only rubble and dust remains!**



Figures by Bažant.

The Heiwa Challenge - News

- **Ross Corotis**, editor of the ASCE **Journal of Engineering Mechanics,** has recently resigned after having been forced to publish the rubbles of Z. Bažant & Co!
- **Z. Bažant** uses a **simplified and approximate 1-D model** (a line of rods!) of an idealized structure (???) to explain his idea: one rod breaks suddenly at overload (or fire), top C (a rod?) drops, impacts and break the next rod below, etc, etc, and "collapse" of part A (rods!) follows from top down – in 1-D!!
- In a real 3-D structure no rod breaks suddenly but elements deform plastically and no collapse will ever take place from top down due to lack of energy.
- **Fraudulent research (sic) by Z. Bažant ! Incorrect peer review by ASCE! Easy to reveal!**

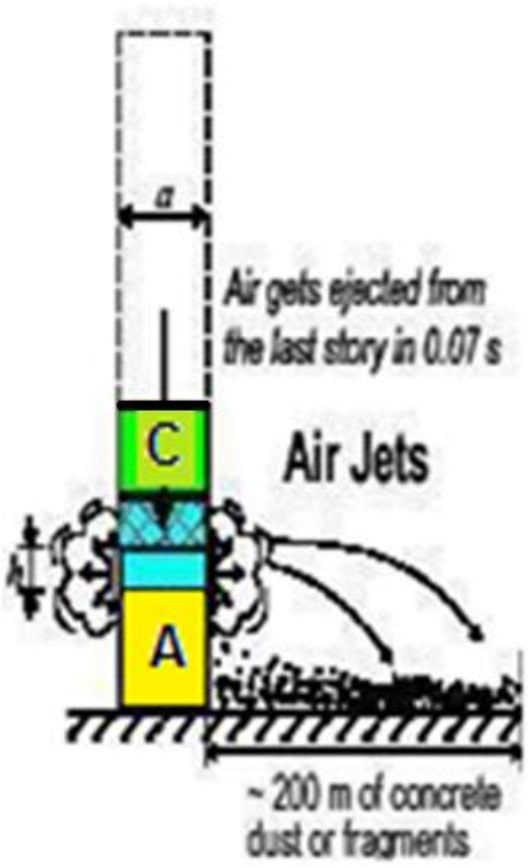
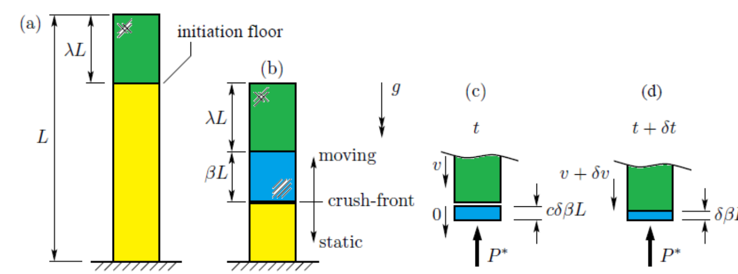
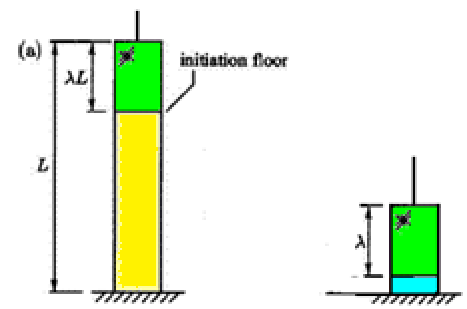


Figure by Bažant.

The Heiwa Challenge contender #2 – K.A. Seffen

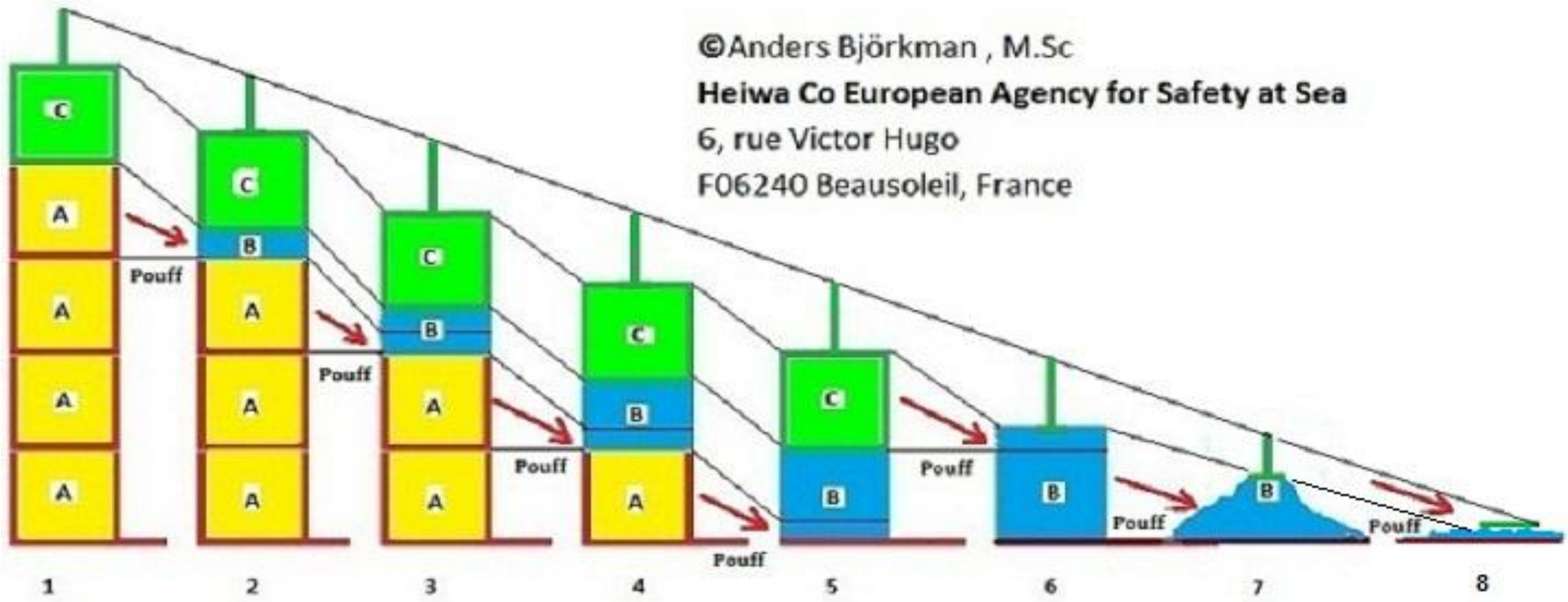
- Lecturer **K.A. Seffen**, Ph.D, of Cambridge University, England, also says that a small **top part C** of a structure or **building A** can crush solid **A** into **rubble B** from above by gravity as per figures right (from his peer reviewed paper about the matter).
- It also goes very quick!
- But his model is also just 1-D and does not represent a real 3-D structure or reality.
- Dr. Seffen has not written 400+ scientific papers about all sorts of rubble.
- He is another fraud anyway!
- **Dr. Seffen has therefore also refused to face The Heiwa Challenge!**





Dr. Seffen suggests that a solid building A is destroyed like a rubber balloon losing its air! Why not like a punctured tire?

POUFF, POUFF!!



It is not possible that a small top part C of a <u>real</u> structure/building can crush, POUFF, POUFF, from above the several times bigger and stronger, solid structure/building A below into soft rubble B.

If you believe otherwise, enter THE HEIWA CHALLENGE with a suitable structure and demonstrate the destruction! But, please, do not enter a <u>simplified and approximate balloon</u> as your structure! And no fires up top! Just drop the top C on the bottom A!

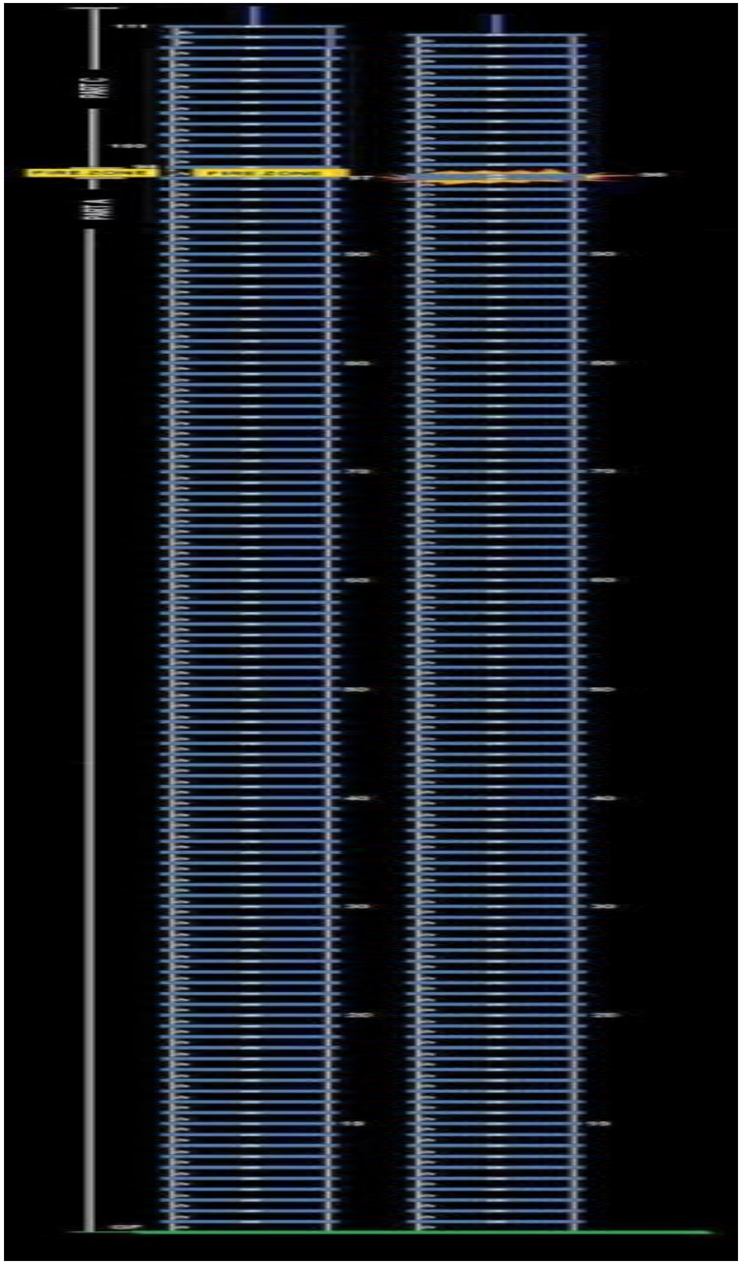
Conditions

- **(1)** The *structure* volume is supposed to have a certain uniform cross area (meter^2) and height h (meter) and is fixed on the ground.

  The *structure* consists of an assembly of various elements inside the volume, e.g. columns (wall elements), beams (floor elements), brackets (to connect columns and beams), plates, etc, of any type or material joined together. It can be any size!

  The *structure* volume contains mostly air, of course. It can but need not look like the *structure* right (**developed by NASA engineer Ryan Mackey**)!

  It is VERY simple; 111 **units** of a horizontal beam/platform with mass **m** supported by/connected to two (or four ?) pillars (total 3 or 5 elements per unit) stacked/joined on top of each other (+ a mast on top). It looks like WTC1!! It also looks like a house of cards but note that the horizontal and vertical elements are connected with solid joints, so **use weak supporting, vertical elements of fragile, easy to break material** (and more solid, heavy horizontal ones).



Conditions

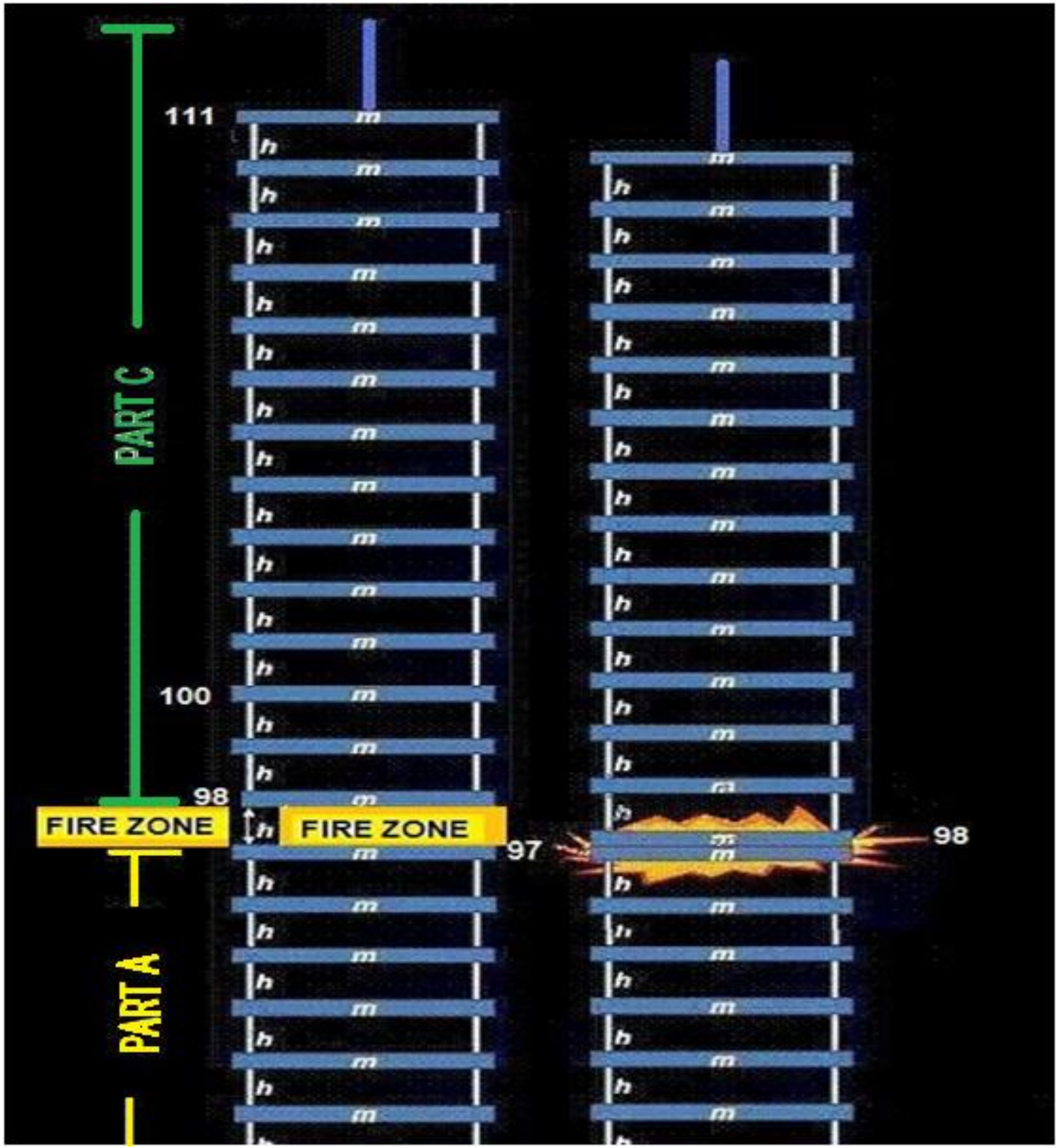
Top of the *structure* may look as per figure right:

Top part C consists of 14 units each with mass **m**.

Bottom part A resting on ground consists of 97 units each with mass **m**.

According various **'experts'** (already mentioned) **top part C** (14 units, 14m) can easily crush down **bottom part A** (97 units, 97 m) **into rubble** after a 3.7 meters drop.

The Heiwa Challenge is to describe the *structure* and crush it!



Conditions

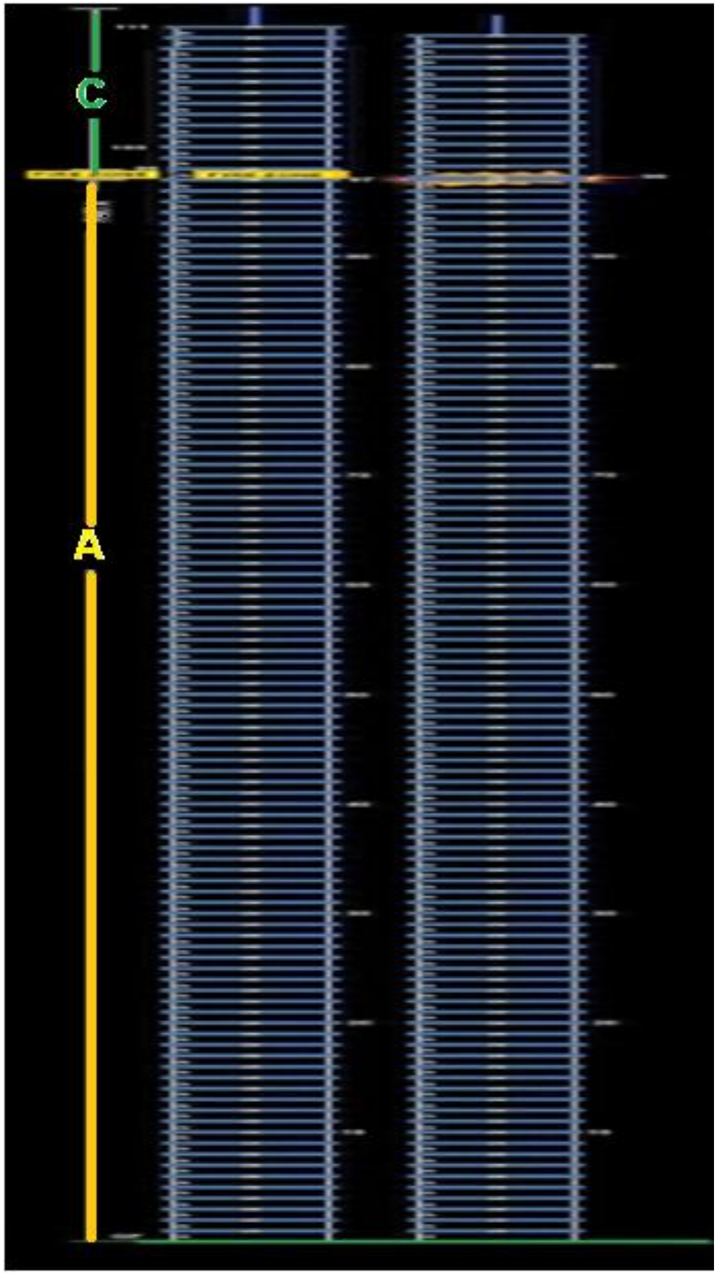
- **(2)** The *structure* should be more or less identical from height = 0 to height = H, e.g. uniform density, layout of internal elements, weights and joints, etc.

  Horizontal elements in *structure* should be identical. **Vertical, load carrying elements should be similar and be uniformly stressed due to gravity, i.e. bottom vertical elements may be reinforced or made stronger, if required.**

  Connections between similar elements should be similar throughout. In example right H = 111 h, where h is height of one unit.

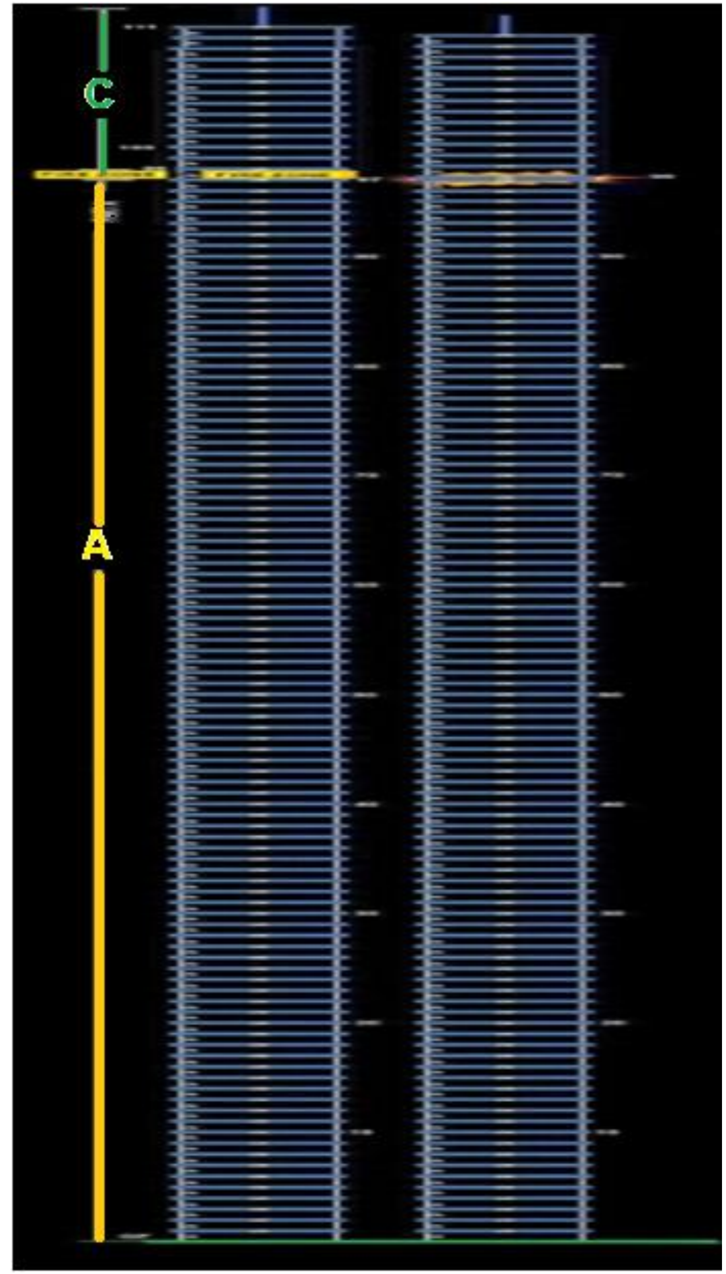
- **(3)** It is recognized that the *structure* may be a little higher stressed at height=0 than height = H due to uniform density, elements, etc.

- **(4)** **Before drop test (see (8)) the *structure* shall be stable, i.e. carry itself and withstand a small lateral impact at top without falling apart and to deflect elastically sideways less than H/100 at the top.** Connections or joints between elements cannot rely solely on friction.



Conditions

- **(5)** Before drop test top 1/10th of the *structure* is disconnected at the top at height = 0.9 H without damaging the structure/elements/joints more than required for disconnection.
- **(6)** The lower *structure*, 0.9 H high is then called **part A**. The top part, 0.1 H high, is called **part C**.
- **(7)** Mass of **part C** should be <1/9th of mass of **part A**.
- **(8)** Now drop **part C** on **part A** and crush bottom **part A** of *structure* into smaller pieces by top **part C** of the *structure* (if you can! That's the test). Film the test on video!
- **(9)** Drop height of **part C** above part A is max 3.7 meters. Less drop height is permitted. Thus the **maximum energy** (Joule) applied at collision C/A to initiate the crush-down is mass of **part C** times gravity acceleration 9.82 m/sec^2 (i.e. the force acting on C) times height 3.7 meters (i.e. distance the force/weight is displaced).



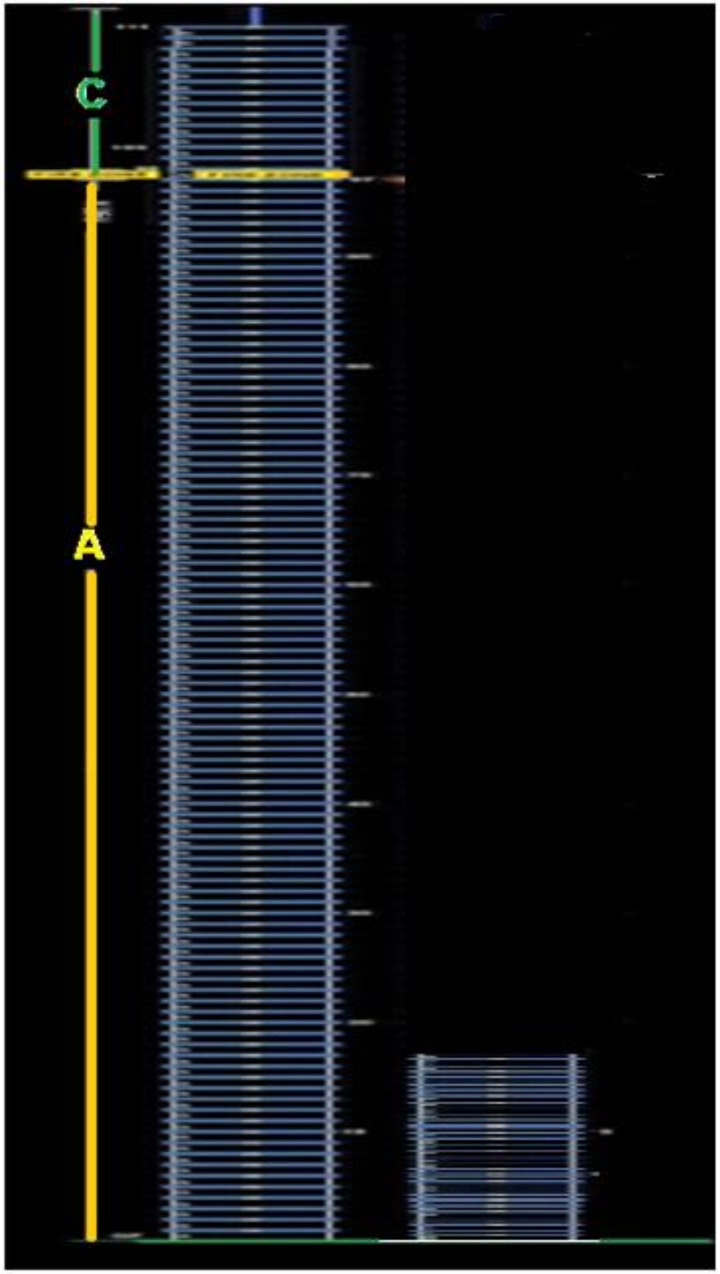
Conditions

- **(10)** Structure is only considered crushed, when >70% of the elements in **part A** are disconnected from each other at the joints or broken between joints after test, i.e. drop by **part C** on A from 3.7 meters.

  Try to use elements not producing smoke/dust when failing due to energy applied, so we can see the crush down action and the breaking of elements/joints on video.

  *If all supporting, vertical elements are broken in **part A** of structure right, then 66.66-80.00% of all elements are broken, etc, etc.*

- Challenge conditions can be found at **http://heiwaco.tripod.com/chall.htm**



Win Euro 10 000:-

- Have a try! I look forward to your *structures* and videos!
- The first person describing any *structure* fulfilling conditions 1-10 above and doing a successful drop test wins **Euro 10 000:- .**
- **Terrorists (and demolition companies) are also welcome to participate in order to confirm their actions/services!**
- Send your entry (description of structure + verified result of test/video) to **Anders Björkman, 6 rue Victor Hugo, F 06 240 Beausoleil, France**.
- **anders.bjorkman@wanadoo.fr**

Tips

- ***Designing a structure*** **is generally a** ***<u>static</u>*** **problem, where immobile, non-displacing** ***loads/weights/forces*** **(unit <u>Newton</u>) are transmitted to ground via** ***intact*** **elements.**
- ***Describing the crushing of a structure*** **by gravity is a** ***<u>dynamic</u>*** **problem, where** **displacing** **loads/weights/forces, i.e.** ***energy*** **(unit <u>Joule</u>) is applied (1)** ***elastically*** **and (2)** ***plastically*** **on** ***intact*** **elements and as (3)** ***ruptures*** **and (4)** ***friction*** **on** ***failed*** **elements.**
- **You cannot describe** ***the crushing of a 3-D structure*** **in 1-D!**

Tips

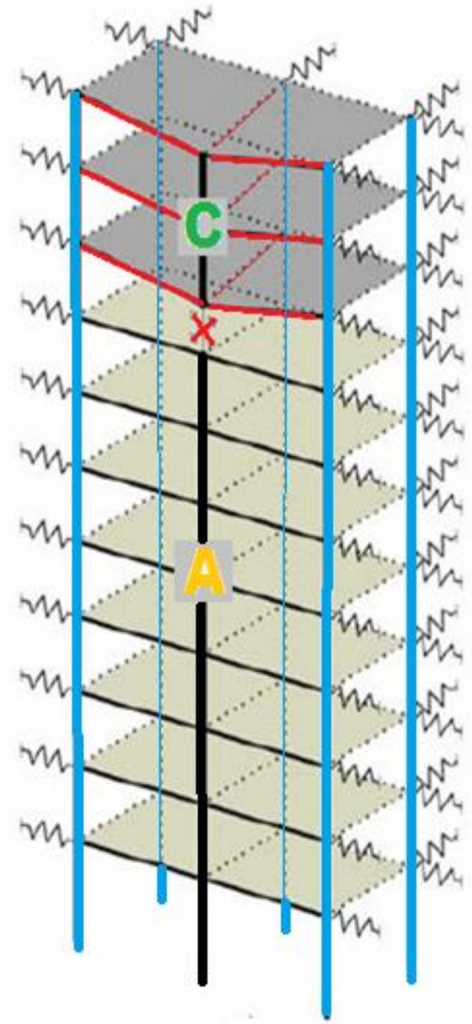
- **Crushing real structures have been studied by engineers since 1990’s in Japan and Europe.**
- **Examples are, e.g., colliding ships and cars.**
- **Objective is to design an impact resilient structure to protect human beings and the environment in collisions.**
- **There is no known example of an initially stable, solid structure that can crush itself by gravity from top down.** **(If there is, enter it in the Heiwa Challenge and win Euro 10 000:-)**

Tips

- The US **N**ational **I**nstitute of **S**tandards and **T**echnology, **NIST**, has no *standards* describing the crushing of a *structure* and no *technology*, e.g. software, to describe the *crushing* of a *structure* (or building).
- **NIST** has therefore no staff capable of doing a proper analysis of the standard *crushing* of a *structure*.
- **NIST** has issued a report about a crushed *structure* where **NIST** suggests that, if the **energy** applied by a ***dropped top part on the bottom part*** by gravity **exceeds** what the *structure* can **absorb**, ***global collapse of the structure ensues***.
- However, the **NIST** suggestion has neither been proven theoretically with, e.g. an ***energy balance***, nor practically in a laboratory for any *real, initially stable structure* (and **NIST** refuses the **Heiwa Challenge**).
- The **A**merican **S**ociety of **C**ivil **E**ngineers, **ASCE**, has also no idea how to describe the crushing of a real *structure* (or building).
- By participating in **The Heiwa Challenge** you may assist the **NIST** and the **ASCE** to find out what happens in the real world.

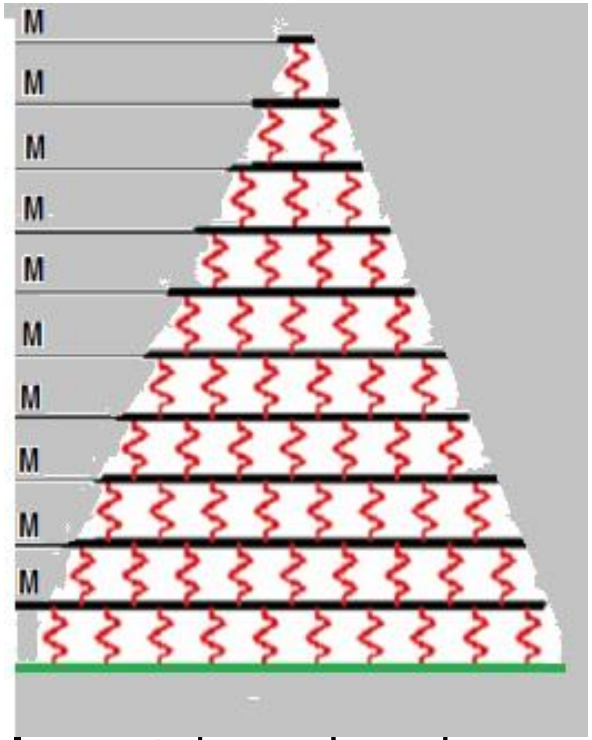
Tips

- No big structure/building is designed to withstand small air planes smashing into their tops **X**! The small plane will be destroyed and **local** failures to **elements** at the **top** and **above** of the big structure will take place.
- The **top C elements** above **X** are always affected first locally!
- The load previously carried by **X** is now transmitted to ground by ***intact* members above and below**.
- Any believer that buildings **"collapse"** from *top … down* due local failures up **top** caused, e.g. by heat, should study real structural *damage* analysis!
- ***Structural* "collapse" is always from *bottom up*** starting with the element just *above* the first failed element **X** *developing upwards*. **Only elements *<u>above</u>* the failure displace *downwards***!



More Tips

- Right is ***structure*** with **10 horizontal elements**, each with **mass M** (in spite of different length).
- The horizontal elements are supported by identical, vertical **springs** that carry **M** with a **Factor of Safety = 3**.
- The top **element** (one **M**) is supported by 1 **spring** and the bottom **element** is supported by 10 **springs** (that carry 10 **M**) and intermediate **elements** are supported by 2, 3, 4, 5, 6, 7, 8 and 9 **springs** – total 55 **springs**!
- Each **spring** thus carries **M** (and has to be arranged like a pyramid to do it). **Note that all springs are equally loaded.**
- **Note that the bottom is 10 times "stronger" than the top! Skyscrapers are built like that. Bottom is always much stronger than the top!**



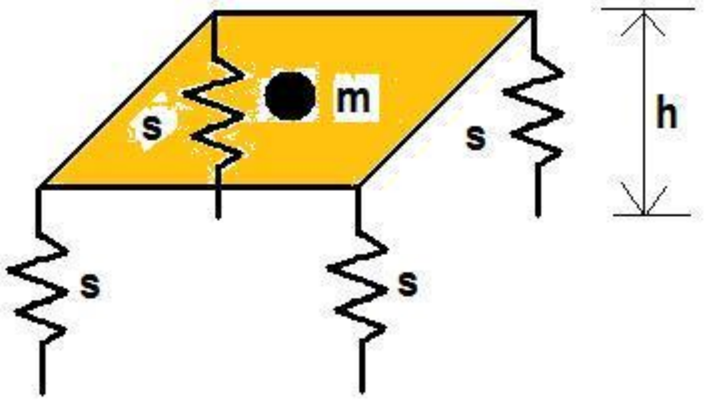
What happens, if the **top spring** is removed and **the top element** drops down by gravity and hits the next **element** below that is supported by **two springs**? Will the **two springs** break, so that two **elements** can drop and hit the next **element** below supported by **three springs**, etc, etc, until all **54 springs** are broken and 10 **elements** are stacked on top of each other? Or, will **54** intact **springs** dampen the **first impact** from **the top element,** so it bounces?

More Tips

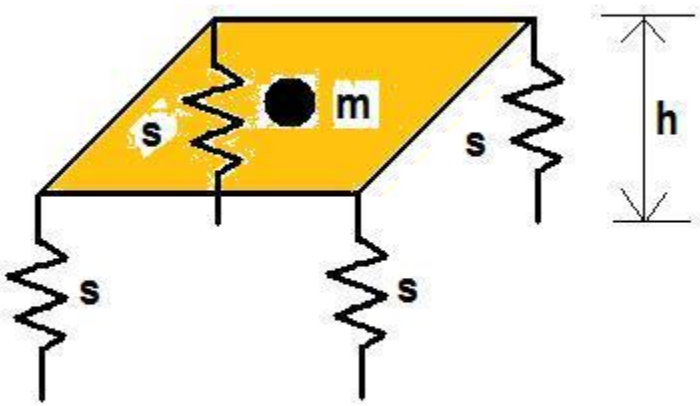
- Imagine a Tower that consists of 100 masses **M** (kg), labeled from top (i = 1) to bottom (i = 100).
- Adjacent masses are separated by elastic springs.
- Mass # i is supported by i springs below it
- A spring carries **M** with a factor of safety of 3. Each spring has height **L** (meter). Thus the tower is 100**L** tall.
- **Top mass #1 is supported by 1 spring that carries 1 M.**
- **Bottom mass #100 is supported by 100 springs that each also carries 1 M.**
- A 100 **M** tower thus consists of 100 masses **M** supported by **5 050** springs.
- The 10 springs below mass # i = 10 (connected to mass #11) are removed and the top part (**10 M and 45 springs**) free falls distance L and impacts the bottom part (**90 M and 4 995 springs**).
- Do you really think that bottom **4 995** springs fail before the 45 top springs?
- Only fools … like terrorists … believe that! Solution? See the end!
- **The taller a skyscraper, the stronger is the bottom relative the top! It is a matter of scale! Bigger, taller structures/ships are stronger and more difficult to destroy than smaller structures/ships!**

Tips – the Funny m structural Unit

- Since the WTC towers at NY were destroyed on 9/11 2001, there is an ongoing discussion whether *steel structures* can one-way crush down *<u>from top to bottom</u>* by gravity due to some local failures up top initiating "collapse" with the result that the complete *structure* becomes rubble.
- According some experts and laymen, incl. religious, fanatic fundamentalists, *<u>top down</u>* "collapse" is a natural phenomenon that, however, cannot be modeled or explained *by structural damage analysis*, like, e.g. ship collisions.
- In order to clarify matters I have designed the **Funny m** structural unit/assembly that you can use to build a tower that you then can try to crush or "collapse" ... just for fun.
- Purpose is to establish what *spring*, if any, breaks first, when a **Funny m** assembly, unrealistically, is dropped, free falls and then contacts/collides with another **Funny m** assembly in a tower like *structure* or ground itself:



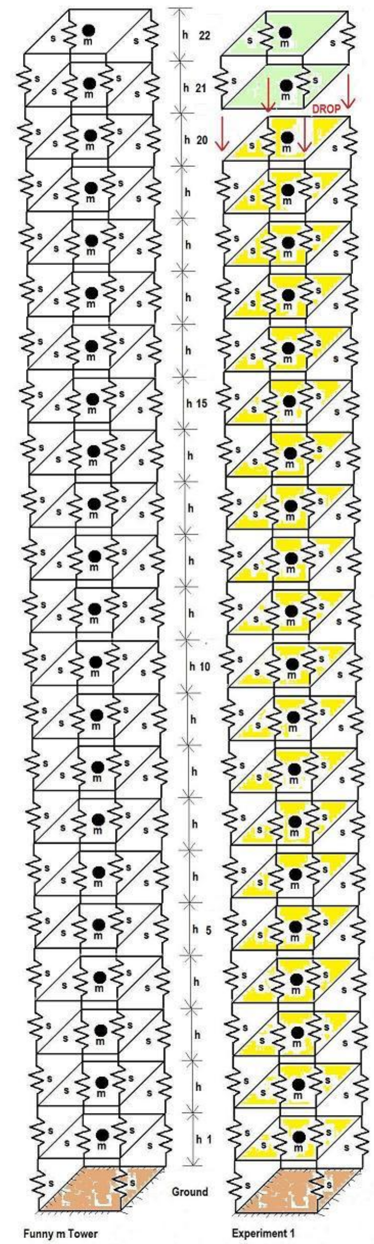
Tips – the Funny m structural Unit



- **Funny m** is a very simple structural 3-D assembly that consists of one, square horizontal element with a mass **m** (e.g. a floor) supported at corners via solid connections by four vertical elements **s** (e.g. columns) that can compress like *springs* before breaking. Each **s** carries **m**/4.
- The height of this structural assembly is **h**.
- Due to mass **m** the *springs* **s** deform compress elastically d = 0.03**h.**
- The structural **Funny m** assembly is really funny or at least the spring elements. They can deform and compress 0.09**h** elastically and 0.1**h** plastically before they break. It means you must put on 3 **m** for the *springs* to start deforming plastically!
- You can put **Funny m** assemblies on top of each other to get a bigger structure, e.g. a tower like structure with **n Funny m**s as shown on next slide**. The springs then adjust themselves to the number of m carried! If you put a Funny m assembly on another Funny m assembly, the bottom springs become twice as strong, etc. Then you have to put on 6 m uniformly (3 m on each element) to start plastic deformation!**
- A **Funny m** unit is quite easy to model mathematically**.**

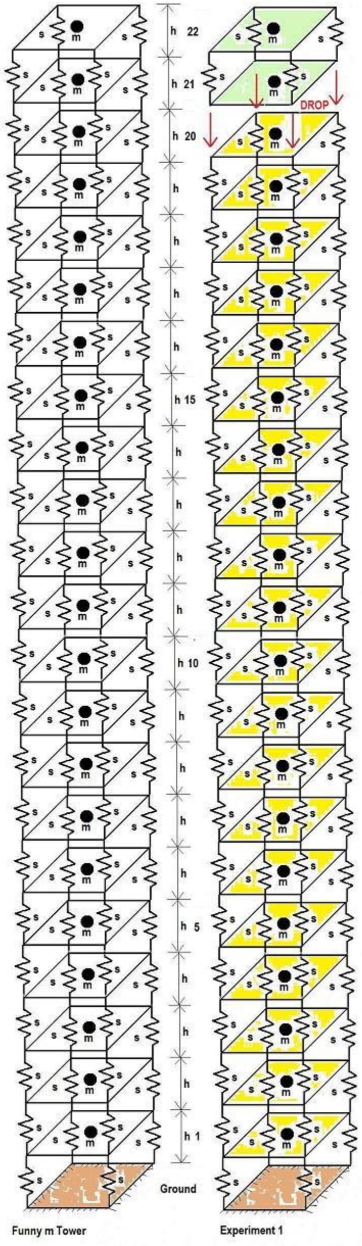
Tips - The Funny m Tower!

Right we see a **Funny m structure/tower** on ground with **n** = 22 **Funny m** units**/**assemblies.
The total mass of this structure is **n m** (or 22 **m**).
The potential energy of each **m** is its distance above ground times g, where g is gravity acceleration.
The total Potential Energy, PE, stored in the structure, relative ground, is the sum of the PE of each **m** or **n** * **m** * **n** * **h** * g /2 or PE = (**n²mh**g)/2
The spring elements adjust themselves to the number of **m** carried as explained above.
Thus the spring elements below the top **m** can just carry one **m**. The bottom spring elements can carry **n m**, i.e. they are **n** times "stronger" than the top springs.
The bottom springs can absorb n times more strain energy than the top ones! WTC 1&2 were built like that! Bottom 1/10th structure was 10 times stronger than the top 1/10th structure.
This means that all springs compress equal distance d in the funny tower under static load. **Compressive stress in *springs* is same throughout.**
*It also means that, if you add extra **m** (or potential energy) on top without adjusting the springs, **a spring above will always break before a spring below.***



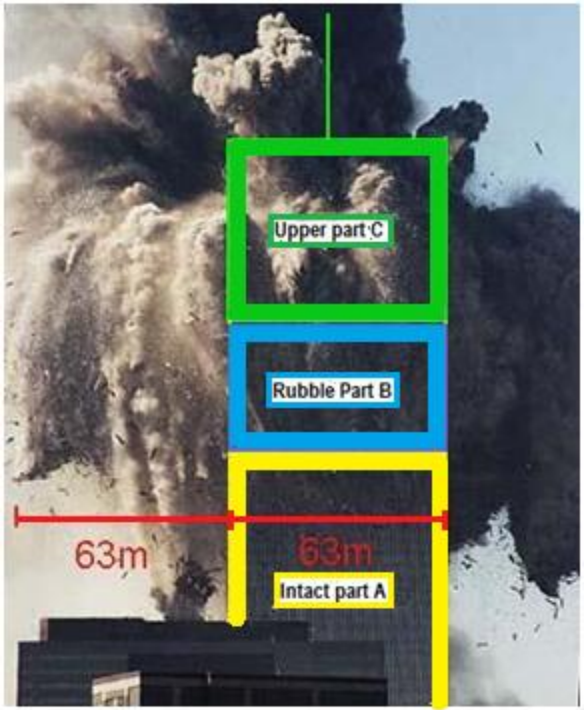
The Funny m Tower

- Now – disconnect the top two **Funny m** units **(top part C**) and drop them on the bottom 20 **Funny m** units (**bottom part A**).
- If **top part C** crushes all springs in **bottom part A** below, you are a **WINNER** of the **Heiwa Challenge**!
- If **top part C** bounces on **bottom part A** you have probably done a correct job!
- In above structure a mass of 2 connected masses **m** (**top C**) drops 3.7 meters and applies 72.7**m** Joule energy to structural **parts C and A** at the impact. A and C evidently deform elastically at impact and, if A and C can absorb 72.7**m** Joule energy, nothing more happens - only elastic deformation (a bounce) takes place.
- **As the 72.7m Joule energy is split and absorbed 50/50 between C and A at contact and, because C is much smaller and weaker than A and therefore can elastically absorb much less energy than A, the result is always that C cannot apply any energy on A without destroying itself first. Normally just a bounce takes place.**
- The initial impact cannot *release* more energy to maintain the crush-down process, i.e. **one-way crush-down is not possible!**



Tips – do an Energy Balance!

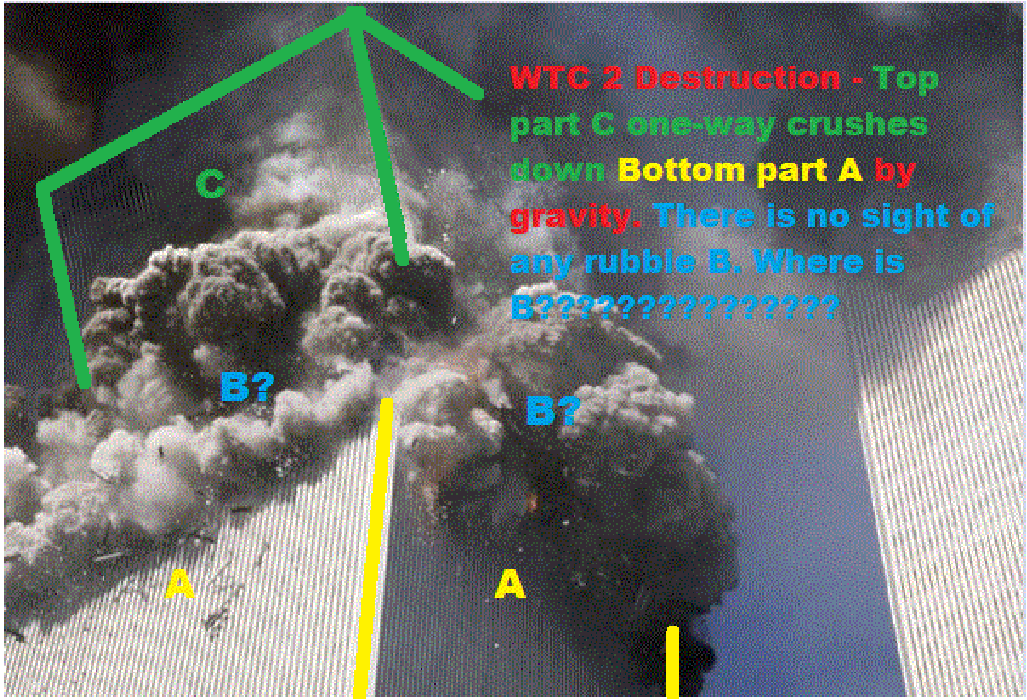
- Do an **energy balance**, e.g. what *happened* during the first 3.00 seconds of the alleged part A gravity "collapse" of WTC 1 as per Bažant:
- **Upper part C,** undamaged and not deformed according Bažant (mass **53 000 000 kg**) moves down **31.38 meters "**crushing" part A below and accelerates to and gets final velocity **20.74 m/s**.
- Uppermost **41.84 meters** of part A (mass **41 840 000 kg**) becomes **10.46** meters of compressed **rubble B** that moves down **15.69** meters and also accelerates to and gets velocity **20.74** m/s.
- **What are the energies involved?**
- After 3.00 seconds of part A **"**collapsing" due to gravity **top C** and **rubble B** with combined mass **94 840 000 kg** have velocity **20.74** m/s that corresponds to **<u>20.4 GJ of kinetic energy</u>.**
- The **<u>potential energy applied</u>** to the process is (1) **top C** moving down **31.38** meters and (2) 41.84 meters of part A crushed down **15.69** meters into **rubble B** (53 000 000 x 31.38 + 41 840 000 x 15.69) x 9.82 = **<u>22.8 GJ</u>**, which means that only 22.8 - 20.4 = **<u>2.4 GJ of energy is used to compress</u>** 41 840 000 kg of part A into **rubble B** or 2 400 000 000/41 840 000 = **57.4 J/kg** or 57 kJ/ton or 0.016 kWh/ton WTC 1 structure.
- In fact **- applying 0.016 kWh of energy on one ton of any steel/concrete structure during say 3 seconds would not produce much effect.**
- You need say 32 kWh to scrap a one ton modern car in one hour, i.e. 2 000 times more!



A strange picture of the WTC 1 destruction by gravity. Have you ever dropped anything, e.g. upper part C by gravity on something else, i.e. Intact part A of same structure and THIS happens?

Final Tip – do not rely on TV!

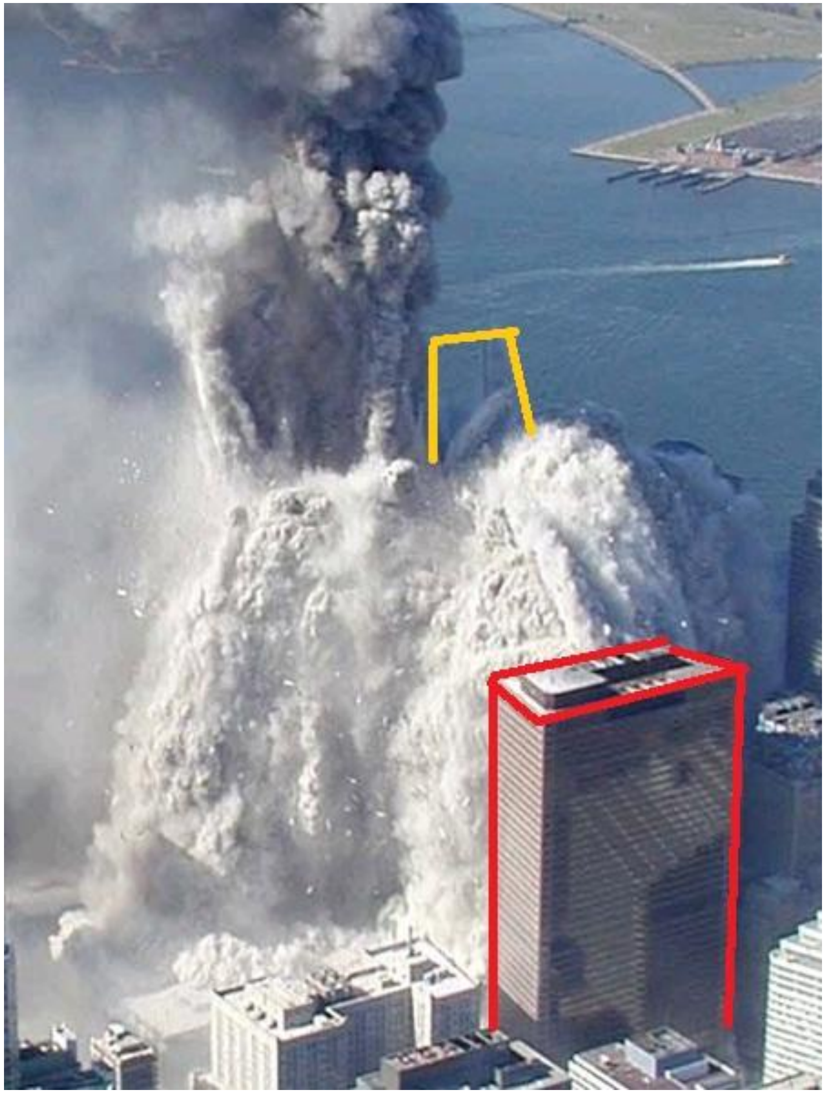
This is not a real "*one-way gravity crush down*" of a skyscraper!
It is just a photo from a video of the destruction of WTC2 on 9-11 with plenty of smoke and dust added.
It cannot happen in the real world! No structure collapses by itself from top down producing smoke and dust as just explained.
A child can see that the destruction or "*crush down*" (??) is not real.
There is no rubble!
Just smoke and dust added to the video to hide what really happened.



Above was shown on "live TV" in USA on 9-11-2001 but what is shown is not real!

Conclusions

- ***A one-way crush-down of a real structure A by its top C and gravity is not possible under any circumstances!***
- ***Gravity provides too little energy!***
- ***Top C always bounces … and then nothing more happens.***
- **Nobody will therefore ever win the Heiwa Challenge.**



Top part C of WTC 1 one-way crushes-down bottom A from above into rubble on 9-11? Sorry, it cannot really happen!

Des questions ?

WARNUNG VOR SELBSTMORD

Diesen Rat will ich dir geben:
Wenn du zur Pistole greifst
und den Kopf hinhältst und kneifst,
kannst du was von mir erleben.

Weißt wohl wieder mal geläufig,
was die Professoren lehren?
Daß die Guten selten wären
und die Schweinehunde häufig?

Ist die Walze wieder dran,
daß es Arme gibt und Reiche?
Mensch, ich böte deiner Leiche
noch im Sarge Prügel an!

Laß doch deine Neuigkeiten!
Laß doch diesen alten Mist!
Daß die Welt zum Schießen ist,
wird kein Konfirmand bestreiten.

War dein Plan nicht: irgendwie
alle Menschen gut zu machen?
Morgen wirst du drüber lachen.
Aber besser kann man sie.

Ja, die Bösen und Beschränkten
sind die Meisten und die Stärkern.
Aber spiel nicht den Gekränkten.
Bleib am Leben, sie zu ärgern!

Erich Kästner

Jedes Wort im Gesicht
weiß etwas vom Teufelskreis
und sagt es nicht

Herta Müller 7. Dezember 2009

How to analyze a 100 floors structure when top 10 floors impact bottom 90 floors.

- Each floor in the structure has a mass *m*! The floors are labeled from top, *i* = 1 to *i* =100 at ground.
- The floors are supported by weightless springs with rest length L. Floor # *i* is supported by *i* springs.
- Each spring carries a mass *m* in the gravity field with a factor of safety 3. A spring has cross area A.
- The bottom 100 springs are connected to ground (with infinite mass).
- Thus all 5 050 springs (1 at top, 100 at bottom, etc) are equally compressed a little and a known amount of **elastic strain energy E_e** is statically stored in each spring. A spring can absorb another 2E_e energy before plastic deformation starts.
- The height of the tower is slightly less than 100 L (all springs are compressed 1/3 of its capacity before plastic deformation starts).

The initiating drop (to try to crush the bottom)!

- The 10 springs below floor #10 suddenly fail (are removed) and 10 top floors interconnected by 45 springs drop down distance *h* due gravity acceleration *g* and impacts the 90 floors below interconnected by 4 995 springs.
- **What happens to the 5 040 springs?**

- Energy released $\mathbf{E_r}$ and applied to the 5 040 springs of the structure in impact is 10 *m* times height *h* times *g* (gravity acceleration = 9.82 m/s^2) and is thus known. $\mathbf{E_r} = 10mhg$.

- We also know how much energy $\mathbf{E_a}$ the 5 040 springs can absorb elastically before plastic deformation starts. It is $\mathbf{E_a}$ = **10 080** $\mathbf{E_e}$!

- If $\mathbf{E_r} < \mathbf{E_a}$ only a bounce will take place!

A numerical example:

- m = 3 600 000 kg (like one floor of WTC 1), A = 0.45 m²
- Compressive stress in spring is 800 kg/cm² (8 000 000 kg/m²)
- Yield stress is 2 400 kg/cm²
- The spring is assumed to compress* x = 0.33% of its length L, when loaded with m (or 1% L when loaded with 3*m, when plastic deformation starts*. *Spring is not a solid rod and compression is both vertical and sideways).
- L = 3.6 meter, x = 0.012 meter
- The spring constant k is m/x = 300 000 000 kg/meter and the strain energy absorbed $\mathbf{E_e}$ = $kx^2/2$ = 21 600 kg meter for one spring.
- $\mathbf{E_a}$ = 217 728 000 kg meter for 10 080 springs.
- $\mathbf{E_r}$ = 129 600 000 kg meter (when 10m = 36 000 000 kg displaces h = 3.6 meter)

  (To get energy in Joule you have to multiply with g = 9.82 m/s²! Here *'energy'* is in unit kg meter).
- **So in this case $\mathbf{E_a}$ is 1.68 times greater than $\mathbf{E_r}$ = a bounce will take place** (and stress in springs soon become 800 kg/cm² again after impact).
- *This is what always happens when 'locally strong' structures collide!*

Argument against above:

- You may suggest that the E_r is not applied to all 5 040 springs at once but only to the 11 springs below and 9 springs above masses # 10 and 11 in contact and it may be true! Thus 20 springs will be subject to plastic deformation (absorbing energy) while remaining energy is absorbed elastically by the other 5 020 springs.
- **The conclusion remains that a top part of 36 000 000 kg dropping 3.6 meter on a bottom part of 324 000 000 kg, total mass 360 000 000 kg held together by 5 050 springs (of which 10 are removed), cannot destroy all 5 040 springs.**
- On the other hand, if a spring only compresses elastically 0.2% of its length, as a rod, we get: L = 3.6 meter, x = 0.0024 meter
- k = 1 500 000 000 kg/meter (i.e. 5 times greater)
- E_e = 4 320 kg meter (i.e. 5 times smaller)
- E_a = 43 545 600 kg meter, i.e. only 33.6 % of E_r!!
- **It simply means that only 33.6% of the released energy is absorbed elastically and that the remainder will be absorbed plastically by the springs (or will simply disappear as a seismic (energy!) wave in the ground).**
- *This is what always happens when 'locally weak' structures collide!*

The hard reality!!

No structure of any kind can destroy itself from top down!

- **In reality top elements above/below collision interface will be plastically deformed at collision, deceleration takes place and the top mass will be tipped or bounced off sideways and bottom elements will never be impacted at all, etc, etc. That is what happens when you drop a top of any structure on its own bottom part in a laboratory (or kitchen).**
- **To suggest that top part – mass = 10*m* – held together by 45 elements after drop *h* = 3.6 meter breaks through and overload groups of 11, 12, 13, 14 … 98, 99, 100, total 4 995 elements and 90 m in 90 levels one after the other after further 90 drops of 3.6 meter has nothing to do with reality.**


YOU HAVE BEEN
WARNED!
SEND 'EM
OFF