A History of Structural Frame Buildings
First Attempt!
We believe that buildings (depending upon your definition of a building) fall into one of three categories:

1. Traditionally built
2. Structural frame
3. Modular construction

Interestingly, most buildings are trying to look as if they are traditionally built!
Draw three quick sketches of:

1. The house where you live
2. A crux frame building
3. A McDonalds
You have three examples of different type of structure, which is which?
Definition

- Traditionally built is regionally using local materials, where the walls are self-supporting and support the roof structure.

- Structural frame is where a structural frame is used to support the walls and the roof.

- Modular construction is where work is pre-fabricated in a factory. See manufacturer of Britspace of McDonalds and see the 24 hour McDonalds YouTube video.

**Question:** Is this not just a brick of a different size?
So, does a crux frame property fit the definition of a structural frame?
Traditionally we think of a structural frame not as being of wood but as being of coursed concrete or metal. Originally it could be argued it was timber frame, i.e. crux frame building.

See the Wymondham and Downham Museum and the “new” timber frame structure

www.wymondhamheritagemuseum.co.uk
The history of structural frame properties – attempt one

We will use the history of Crendon’s concrete to tell the story

- Crendon Concrete were a company based in Buckinghamshire. They originally started as farmers and discovered they couldn’t grow any crops due to the amount of gravel they were sitting on, so they started selling gravel.
- In the 1940’s/1950’s they started producing concrete frame buildings.
- It is here that we start to look at their history in more detail.
Wider View

At this time the majority of properties were traditionally built. This includes all the sectors:

Residential:
- housing
- High and low density flats

Industrial:
- warehouses; effectively big brick boxes

Offices:
- Effectively big houses

Leisure:
- i.e. pubs

Retail:
- Effectively adapted houses

Institutional/care sector:
- Large houses
Way to remember:
L, O, Two R’s and Two I’s

L = Leisure
O = Office
R = Residential
R = Retail
I = Institutional
I = Industrial
After the war we had quite a few problems:

1. lack of resources, such as food and housing

2. Lack of people, mainly men, through lack of skilled labour

3. This led to them looking to do things with less people, with less skill, on a bigger scale, using natural “home grown” resources.
Crendon Cement therefore saw the opportunity to use the gravel they had to make concrete framed buildings for farms.

Farms at the time were being given grants to help them develop and produce the much needed food required.

Crendon Concrete increased production from the 1940’s of concrete framed buildings, which were beautifully clad in asbestos. Originally they used a metal frame roof, but as metals got precious and needed to be used for the war effort the reinforced concrete portal frame was developed, which was about 90% of all the buildings they produced in the 1950’s.
So, life would have continued but for a very important element

NBF = National Building Framework
- A consortium of building manufacturers. This set up a standard of 4.5 x 6 metre grids, which originally were 200mm sq columns. Then they increased to 300mm sq to allow a 9 metre span

CLASP = A Consortium of Local Authorities and Special Project – or some say School Project, as they were used predominantly with schools

Cement and Concrete Association in Slough

Hillsborough Football Stadium Disaster

The last thing that changed everything was Ronan Point

These all combined to see production change from 100% concrete frame to, by the 1970’s, 50% concrete frame and 50% metal frame.
???????? minutes to think how these events would have affected this particular company
Crendon Concrete Timeline

- 1933 – a farm that starts to sell gravel
- 1940’s concrete frame buildings for farms
- 1950’s farm buildings and industrial buildings
- 1960’s/1970’s introduction of steel frame modular construction
- 1980’s work on sports grounds
- 1989 – 1991 recession – the company closes