

Summerland leisure centre, Isle of Man, August 1973

- At 20.00 on 2nd August 1973 fire started outside this leisure centre building and spread into the interior, especially the amusements area.
- Of the estimated 3000 people present at the time, some 50 men, women and children died.
- This was the worst peacetime fire disaster in the British Isles since 1929.





- Summerland fire in progress. Note steep rising land on one side making access difficult for the fire brigade

Summerland – building data

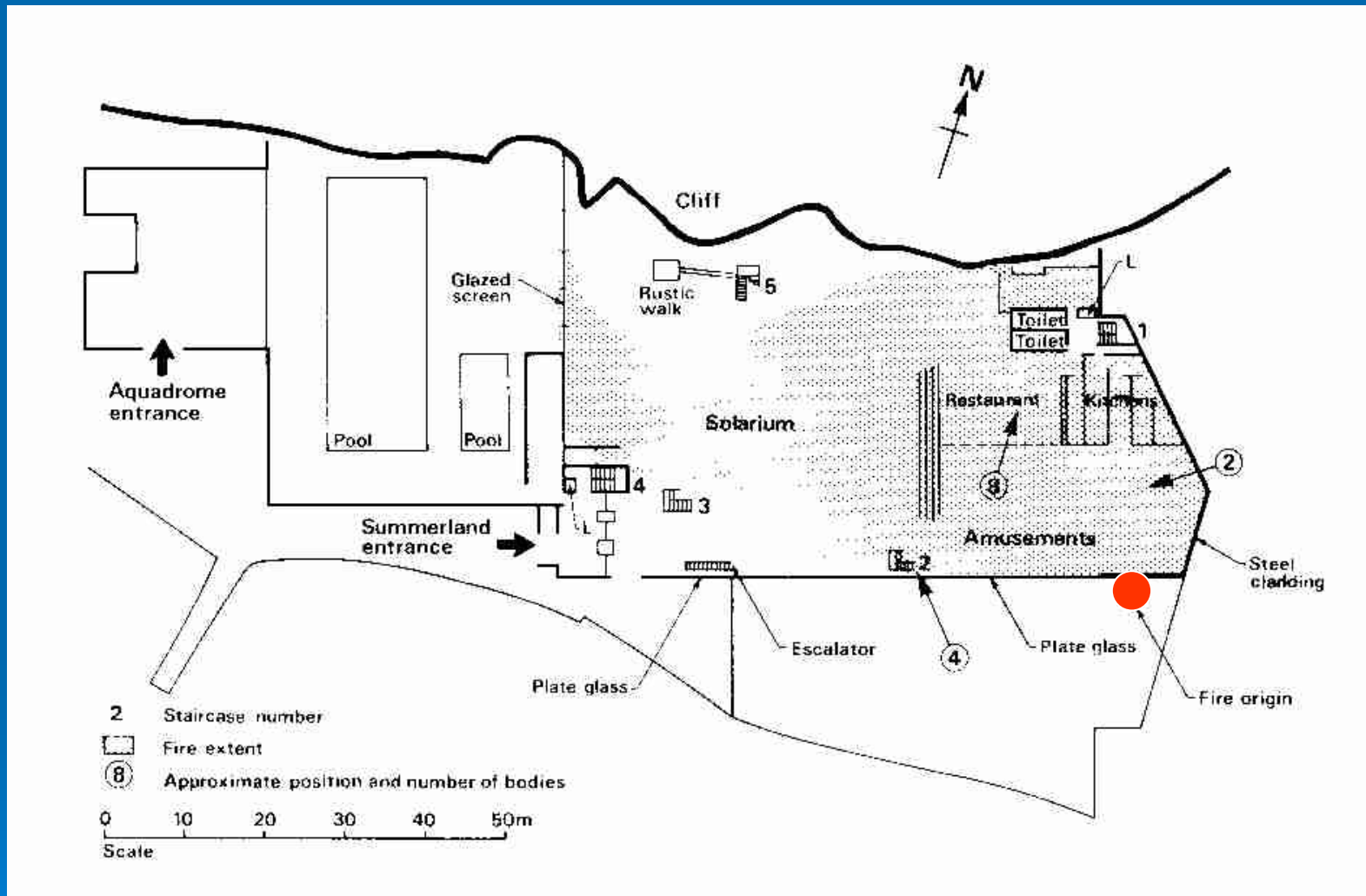
- Summerland was part of a 7-storey covered leisure complex in Douglas, Isle of Man, having a lot of open space and several upper floors arranged as open-fronted terraces. Opened in 1971 it had a capacity of 5000 people.
- It was steel framed and the roof and parts of the external wall were clad in transparent Oroglas polymethylmethacrylate (PMMA) acrylic plastic sheeting. Some parts of the roof consisted of woodwool slabs with felt and chippings on top.
- Parts of the external wall were clad with Galbestos (steel sheet having a combustible coating on both faces) and a Decalin combustible fibreboard internal lining on timber studs, the Decalin was unfortunately substituted for plasterboard.



Summerland – building data

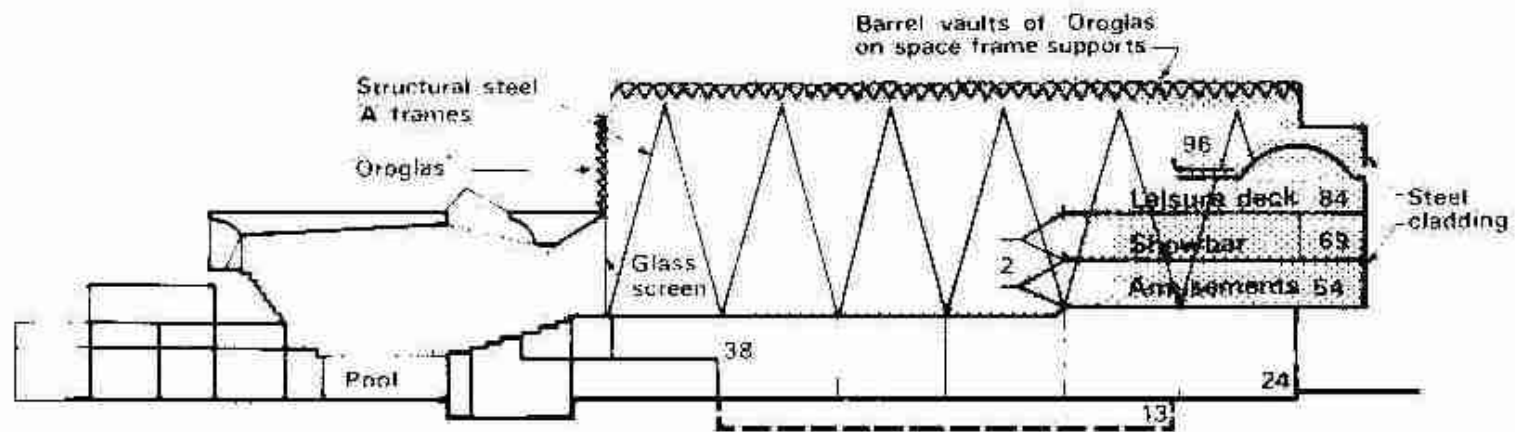
- The building had a two-stage manual fire alarm system which required the use of call points.
- There were 14 hose reels installed in the building There was a diesel engine emergency power generator.
- There were three access points for fire appliances to get within 60 ft of the building.
- A main stair poorly placed in the north-east corner of the building, which also served as a service stair and was not protected by fire lobbies, contained a 3" wet falling main with an outlet at each occupied level.
- There were six street hydrants within 150 ft of the building but water pressure was poor



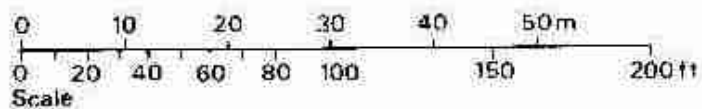


- Summerland fire in progress. Note steep rising land on one side
- Position and number of bodies shown ringed.





 Fire extent



- Vertical section showing fire affected area (shaded) at RHS



Summerland – the fire

- Fire started in the remains of a fibreglass kiosk left outside but next to the Galbestos steel sheeted portion of the external wall of the complex.
- The plastic coating on the Galbestos ignited and fire was transmitted into and up the void in the external wall formed between the Decalin and the Galbestos (the latter has a zinc coated steel sheet core covered with asbestos felt saturated with bitumen, faced with a polyester resin coating).
- Fire spread into the amusement arcade and conflagration occurred in the whole of the east end of the building, and the fire then spread westwards.
- It appeared that the fire alarm signal was not passed to the fire brigade until roughly 20 minutes after discovery of the fire.



Summerland – the fire

- Even then it did not simultaneously result in raising an alarm in the complex, though the fire alarm system was said to be elaborate
- In fact the fire was notified to the fire brigade by a ship at sea before the alarm was received from the complex.
- Another unaccountable feature was that the emergency lighting failed after the main electrical supply had mistakenly been turned off by the House Manager and the emergency power generator failed to start.
- Fire spread rapidly because the voids had combustibile surfaces, there was no fire stopping in the external cavities and there were poor arrangements for evacuation of people and fire fighting.
- It was claimed that the detailed means of escape could not be considered at the early design stage because the tenant was not yet nominated, but this reason was not accepted by the investigating Commission



Summerland – observations

Several strategic elements were unsatisfactory:

- Uncertain responsibilities of principal and job architects who had little experience of projects of this size and kind
- Poor communication between fire officer and designers
- The inaccessible position of the main entrance on its high terrace as reached from the road
- The lack of good and quick access for fire fighting
- Absence of any compartmentation in the volume above the entrance floor
- Lack of adequate number and width of protected escape stairs
- The use of greater expanses of acrylic on walls and roof than was needed for transparency
- The presence of vertical voids in the external wall with combustible surfaces, (very hazardous as fire can travel unseen and is difficult to extinguish).



Summerland – observations

Several strategic elements were unsatisfactory:

- Use of combustible softwood structural floors for the upper terraces
- Haphazard arrangement and use of stairs and exits
- Some fire doors not self closing and not exit signed
- No evacuation procedure and fire emergency training established
- Lack of simple scientific knowledge (about materials and about standard performance requirements for buildings) demonstrated by the designers eg BRE was not consulted on the use of Oroglas or Galbestos
- BS 476 fire tests were potentially misleading as the small-scale tests did not indicate fire behaviour in full scale conditions (though the Commission accepted that small scale tests were compromises)



Summerland – Commission findings

The design team appeared not to appreciate that:

- there could be high densities of people congregated in particular areas
- the building would be unfamiliar to casual (once only) visitors
- the combination of the above could lead to panic
- there could be relatively immobile people, very young and very old people and the disabled
- children might be unaccompanied and in different parts of the building away from their guardians
- there would be a lot of combustible material present and the potential for outbreaks of fire
- vandalism was possible



Summerland – Commission findings

- The lessees displayed little understanding of the fire risk - they had decided against installing sprinklers even though the insurer had offered a substantial premium reduction.
- The Commission made 34 recommendations. Many have been addressed in subsequent national regulations and official guidance.
- Some of the recommendations are especially relevant to present fire engineered buildings which depend critically on good fire safety management.

